TRIPURA DEVELOPMENT REPORT

DRAFT REPORT

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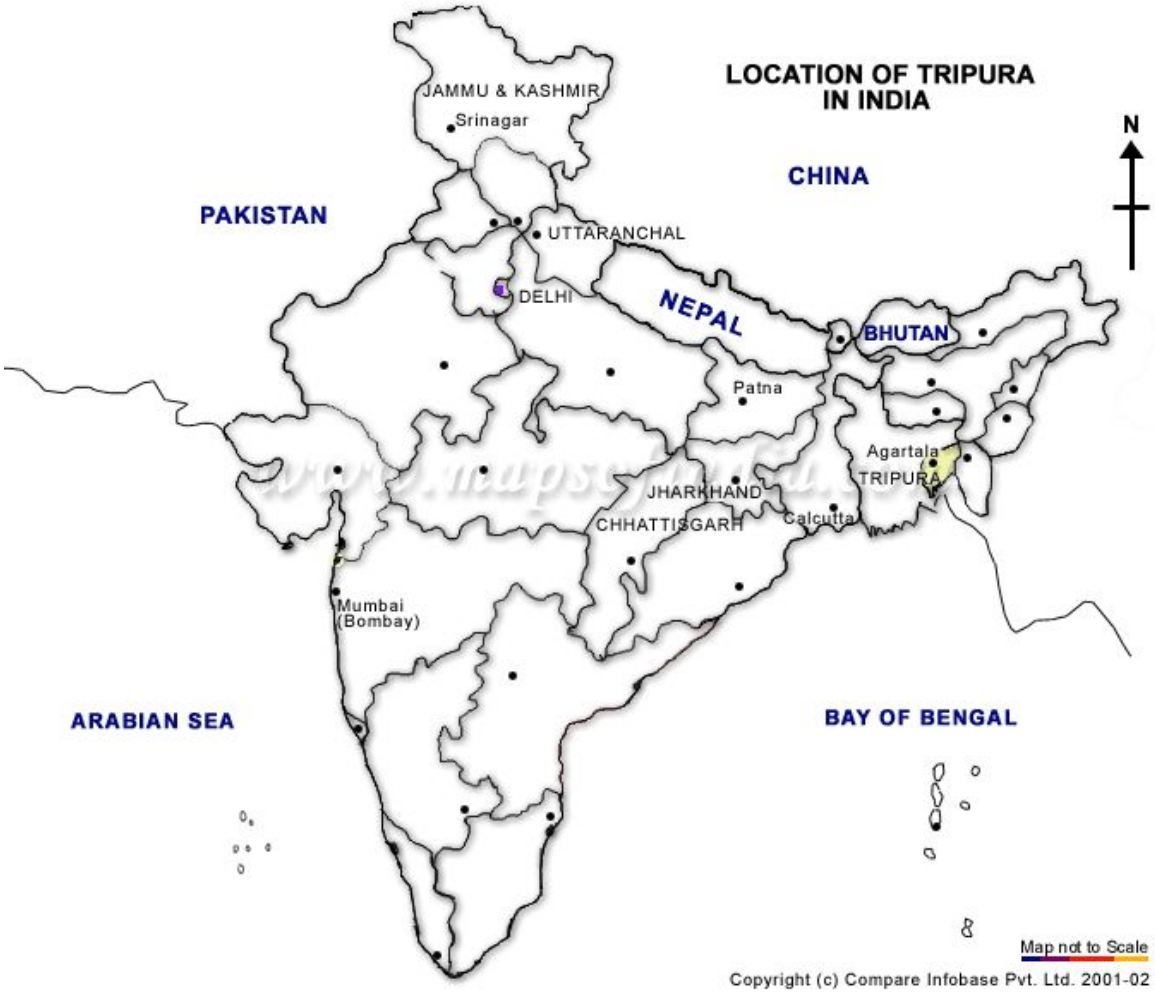
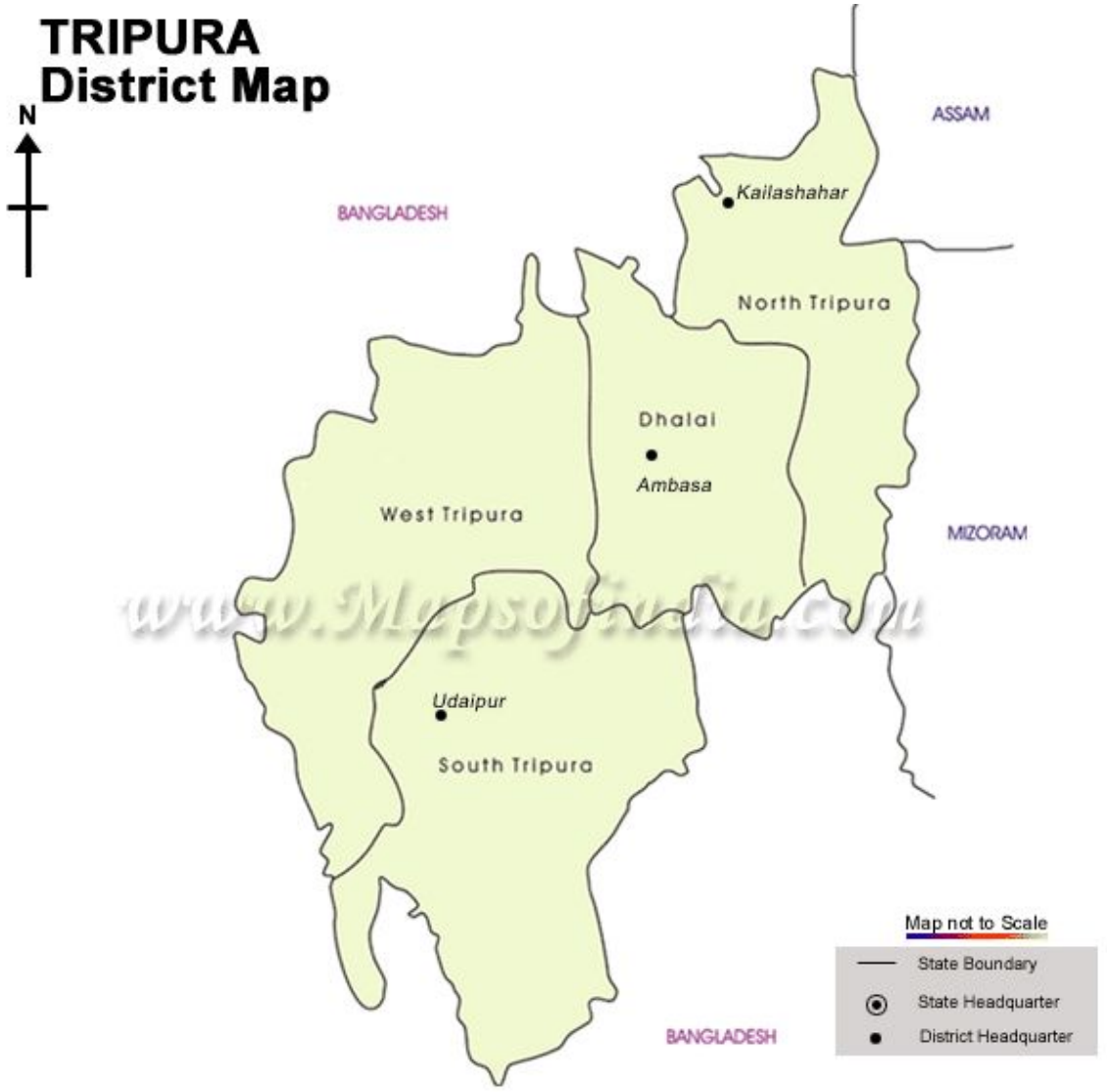
CONTENT



TRIPURA
District Map



EXECUTIVE SUMMARY

ECONOMIC GROWTH, STRUCTURAL CHANGE AND WORK-FORCE PARTICIPATION

The chapter considered the following aspect of Tripura's economy:

A. Trend in the growth rate of Net State Domestic Product (NSDP) as well as of Per Capita Net State Domestic Product (PCNSDP) and investment pattern of public and private sector.

B. Movement of absolute poverty viz. a viz. per capita net state domestic product.

C. Size and structure of work force and its relationship with the net state domestic product and per capita net state domestic product.

D. Sectoral competition of net state domestic product and its behavior overtime.

E. Sectoral pattern of employment.

It has been observed during the course of analysis that the trend growth rates of Net State Domestic Product (NSDP) and Per Capita Net State Domestic Product (PCNSDP) have followed a U-path .the growth rate decline until 1987-88 and increase significantly thereafter. Low private end and public investment are primarily responsible for declining in growth rates but a substantial increase in public investment for 6th plan (1980-85) on words has raised the growth rates of NSDP and PCNSDP to over 7% per annum and 4% per annum respectively. In order to sustain these growth rates there is a need to encourage private investment as well as to significantly alter the highly distribution of public investment from social and general services towards economic activities. It is indeed noticeable that though PCNSDP increased by over 4% per annum since 1987-88 but absolute poverty stagnated around 35 per cent with intermittent rise and fall in it. This behavior is just a replica of the pattern of absolute poverty that has been observed in the rural areas of Tripura. To a great extent this behavior of absolute poverty is attributable to the movement in labour productivity. It declined during 1987-88 to 1993-94 and increased thereafter. Therefore, for gradual reduction absolute

poverty there is a need to improve the supply of critical inputs like irrigation, electricity, fertilizers, and quality seeds etc which facilitate to increase the labour productivity.

Total workforce in Tripura is 11.5 lakhs as per 2001 census which is highest among north-eastern states except Assam, but is not actively engaged in the work s the PCNSDP is fairly low in Tripura as compared to other north-eastern states. Moreover, female participation in workforce is just 28 percent which is much lower than other north-eastern states. Not only this, the female is much higher than the male unemployment rate. This generates substantial gender disparities and depending burden on the earning member of the family. There is an urgent need to actively absorb the existing labour force and lower gender disparities as it will mitigate dependency burden and facilitate to raise the standard of living of the people.

It is normally observed that during structural transformation of an economy there is a gradual shift from agriculture to non-agriculture activities and more recently among from industry to services sector of the economy. However, in Tripura agricultural sector contributed the most almost till the end of 1980s, thereafter Net Domestic Product of Tripura was dominated by the share of the services sector. Industrial sector continued to lag behind whatever little industrial development that has taken place in Tripura, it is mostly in the unorganized sector where OAME dominate over other forms of enterprises. Most of these enterprises relate to wood, food and non-metallic mineral products. In order to develop industrial sector there is a need to expand manufacturing activities so as to cover certain potential areas like wool, silk, man-made fiber, textile and textile products, paper and paper products, leather and chemical.

The overall sectoral pattern of employment in Tripura is not different from the sectoral pattern of growth with agricultural sector dominating the economy almost until the beginning of 1990s. Thereafter, expansion of services sector has been quite impressive with employment elasticity increasing significantly in this sector. Despite this, the urban unemployment in Tripura is high and that employment elasticity in agricultural sector is declining. There is a need for additional investment in agriculture and allied activities. For lowering the incidence

of unemployment among females there is a need for expanding intensive vocational training for females so that they can start there own manufacturing enterprises.

HUMAN RESOURCE DEVELOPMENT

Major Findings :

Conceptually human development represents people's entitlements and actual attainments in the crucial aspects of their lives: education, health and livelihoods. In other words, it is the resultant of the sum of outcomes relating to schooling, health services, and quality of care, life expectancy, nutrition level and income. Ideologically, human development implies the "process of enlarging people's choices" the important choices are those that enable one to lead a long and healthy life and to enjoy the decent standard of living. Human development essentially includes the expansion of enabling opportunities such as education and improving the capabilities of the people. While defining human capabilities we must emphasize upon the process of learning that is expected to take place in primary and secondary school. In terms of analyzing whether human capabilities are increasing or not, it is essential that we must understand what children are able to learn at each level in the education system. The major components of human development are always expressed in terms of composite indices viz, the Human Development Index (HDI), Gender Development Index (GDI), Gender Empowerment Measure (GEM) and Human Poverty Index (HPI).

In the field of education Tripura presents a mixed picture of plenty and poverty, of wide spread development accompanied by pockets of deprivation. There is no denial about the fact that there has been impressive expansion of schooling opportunities of people but quality of education has been always looked down upon. Moreover, ehile excess to schooling is high in the state, dropout levels also high. Moderatlyh rising higher secondary and college enrolment is accompanied by poor rates of success in both primary and secondary school examinations. Significantly, limited information is publicly available about how many children is school have learned as compared to what they are expected to learn. Undoubtedly, the state Government is making every possible effort to upgrade learning levels of students at least for elementary education through intensive in service teacher training, modern textbooks and innovative curriculum. A similar action plan needs to be design and executed for secondary education as well with high commitment of resources than is visible right now. The strategy for sustainable and strong

foundation of human development of Tripura is possible when all adults are literate and all children are in school.

It has been observed that the level of overall literacy (2001) is higher in the state of Tripura (74 per cent) as compared to India as a whole (65 per cent) other north eastern states except Mizoram. The female literacy has also been noticed to be higher in Tripura (65 per cent) than India and most of the other north–eastern states. As the present level of literacy in the state of Tripura is 74 per cent, there is a gap of 26 per cent for achieving 100% literacy. Among female population aged 6–17 years, the percentage of those attending school in the state of Tripura is 83 percent as against 66 per cent in India. There is large number of habituating in the state without any primary school in the habitation itself. The percentage of population educated upto high school and above has been higher in India than Tripura. The number of students in the University and other colleges of Tripura state is low if the size of total population is considered. The youth population who need university and college education is increasing in the state as a result of growth of total population for higher education. Presently, all colleges under the department of higher education are running with shortage of infrastructural facilities.

For improving the quality of education in Tripura, the following points deserve special considerations:

Methods of teachers training, school construction etc. need to be formulated in the light of new technologies.

The Government must actively support the mission–mode programme of “Sarva–Shiksha Abhiyan” for the universalization of elementary education.

Distance education accompanied by innovative schemes like hot lunch programmes and through state–of–the–art connectivity would be cost effective and can really contribute to the enhancement of the literacy rate.

Higher education, general and technical must be connected with the industrial and corporate houses of the state and good amount of centres of excellence must be established in the University of Tripura so as to meet the increasing demand for quality manpower arising out of globalization of the economy, technological changes and fastly changing societal needs.

An interactive academy–R&D–industry/agriculture interface is essential for imparting practical knowledge at all levels. This interface would lead to commercialization of knowledge and commoditization of education–finally creating entrepreneurial craftsmanship.

Demand driver non–formal institution must be promoted and encouraged and the programmes of these institutions must be connected with those of the formal educational system through credit transfers, vertical mobility bridge courses and other mechanism.

Educational institutions in Tripura should be encouraged to set up formal institutional network with other premier institutions for resource sharing and mutually beneficial synergic development of the entire system of higher education.

With a view to resolve the problem of resource crunch in higher education, different technical–cum–management programmes having societal utility and job potential should be started on self finance basis and possibility of establishing deemed to be university can be explore with private initiative and state control.

The concept of human resources means the size of population of a country along with its efficiency, health status, educational levels, skills, productivity, organizational abilities and forsightedness. Tripura, the smallest state in the north–east in terms of geographical area, has a total population of 31, 91,168 as per census of India, 2001. In the state of Tripura, percentage decadal growth rate (15.7%) and annual growth rate of population (1.5%) during 1991–2001 are lower as compared to India as a whole and the lowest among all other north–eastern states. In recent decades, Tripura has experienced considerable decline in the level of fertility. The crude birth rate declined from 26.4 in 1981 to 24.4 in 1991 and again to 16.5 in 2000. Among the north–eastern states, the state of Tripura has the lowest level of fertility. Death rate has also been found to be lowest (5.4) in Tripura state (2000), as compared to other states of north–eastern region excepting Mizoram (5.2). The current use of family planning methods is quite high in the state.

Despite the decline in the rate of population growth, the density of population is still high in the state of Tripura. It increased from 263 per sq. km. in 1991 to 304 in 2001. As the population base of the state is already large, the total population is still expected to increase in larger size despite the decline in the growth rate. If the present low growth rate of population (15.7%) continues in the coming decades, the population of the state will increase over 2001 by 9.8 per cent in 2007, 18.9 per cent in 2012 and 35.9 per cent in 2020. This indicates that the state needs further reduction in population growth rate with a view to avoiding congestion and overcrowding.

The health status of the people of Tripura can be sufficiently improved if immediate steps are taken with respect to: removal of infrastructural bottlenecks, providing required number of health personnel in different hospitals/ centres and skill upgradation of the health functionaries. Strict measures should be taken to tackle the problem of absenteeism among health staff and prevent private practice by the medical officers. The gap in the average population coverage per health institution (compared to national level) should be bridged by setting up more health care institutions in the rural areas. Hundred percent coverage of primary health care is to be ensured. Effective implementation of the reproductive and child health programme is needed. Medical college needs to be set–up in the state. Considering geographical location of the state and scattered population in the tribal remote and inaccessible areas, sub–centres should be established in each panchayat. The motivation and IEC activities for popularizing small family norm and family planning should be intensified. The NGOs and voluntary organization are to be encouraged to take–up activities relating to communication, motivation and education. Gram Panchayats, Panchayat Samiti and Zilla Parishads may be involved in planning, implementing and monitoring activities relating to population control programme. The Community Needs Assessment Approach should be properly followed with community participation while planning and implementing family welfare and RCH activities.

With a view to achieve 100 percent literacy in the state, more investment is needed in primary education. Infrastructural bottlenecks are to be removed. Higher education needs better infrastructure, more funds, improvement in teachers' training and curriculum development etc. Intensive efforts are needed to reduce high drop–out rates. The higher education needs a profound transformation to

become an effective promoter of sustainable human development. The policy of the generation of human resources which could be helpful in higher productivity in different sectors should be the central objective of the educational system of the state.

In view of miserably poor health status and meager flow of public health investment, the following steps are suggested for considerations:

Sustaining and improving the coverage in reproductive health services so as to reduce the levels of fertility of including among teenaged mothers.

Special emphasis be placed on controlling the increasing incidence of HIV/AIDS particularly with regard to diagnosing the causes of this disease. In this regard the issues relating to social security measures, rights based access to basic services, improving reporting and monitoring of the health care system etc. need to be specially addressed by the Government by decentralization of the decision making process and effective community participation.

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A. Empowerment of Woman by:

- Strict enforcement of legally marriageable age.
- Punishing female feticide.
- Improving the health condition of women for reducing anemia and enhancing reproductive child bearing capacity.
- Providing compulsory education up to secondary level.
- Avoiding the system of male proxies for elected women and empowering them socially, politically and economically.

B. Improving the Efficiency of the Health Care System by:

- Emphasizing upon immunization and health related programmes.
- Improving the nutrition level of the children and ensuring proper attendance for conductive learning.
- Bringing more and more eligible women and children under Integrated Child Development Scheme (ICDS).
- Enhancing literacy levels by preventing lapsing of neo–literate communities.

C. Better Management of Water Resources and Sanitation Facilities by:

- Conservation of water for drinking and irrigation purposes.
- Inclusion of modern technologies of water harvesting and water conservation and sanitation related issues in the academic curricula of the students at different levels.
- By ensuring community participation in the monitoring of sanitation facility programmes.

FISCAL PLANNING AND DEVELOPMENT

We all know that levels of income and its growth depend on a number of factors, viz.; the states own efforts in terms of prudent fiscal and monetary policies, the inter–state distribution of private capital–domestic and foreign, and the inter–state pattern of the benefits resulting from central investment and current expenditure. The ongoing process of liberalization, privatization, marketization and globalization would certainly result in increasing the relative flow of funds towards those states which have sound infrastructure base and networking. In this context, the state of Tripura despite its developmental potential and commitment for sustained economic prosperity is constrained because of its in–built infrastructural bottlenecks. Thus, Tripura like its other counterparts in the north–east region has relatively lower rank in the Infrastructure Development Index (IDI) not withstanding the fact that its rank in the HDI is fairly high.

The fiscal health of Tripura represented in terms of primary revenue balance which indicates the ability of the state to match its RR and expenditures, has been consistently positive between 1980–81 and 1998–99. The performance of the state in the execution of plan projects, other developmental projects and prudent fiscal management have been applauded by the Ministry of Finance, the Planning Commission and the DONER. However, it was only in 1999–2000 and 2000–2001, the state witnessed a revenue deficit for the first time. We have also seen that over a period of last twenty years i.e. 1985–86 to 2003–04, Tripura has almost doubled its own tax revenue as a ratio to total tax revenue but on the front of own non–tax revenue the state's performance has continuously deteriorated from 1981–82 to 2003–04. However, Tripura's own tax revenue receipts has been found to be of a much lower order as compared to all India average between the period 1996–97 to 2002–03. Among the north–eastern states, the proportion of the state's own tax revenue to its total revenue receipts was the third highest after Assam and Meghalaya during 2002–03. Again, the share of central tax to total tax revenue of Tripura started faltering from 2000–01 and for all practical purposes the total fiscal position of the state started worsening only after 2000 on account of insignificant fiscal transfers in terms of tax devolution and grants–in–aid from the Finance Commission.

The special category states have experience worst possible Non–Plan Revenue Deficit (NPRD) as a percentage of GSDP mainly on account of the burgeoning growth of non–plan revenue expenditure, particularly, interest payment, wages and salaries and pension liabilities. On the other hand, the comfortable plan revenue surplus enjoyed by the special category states is attributable to huge plan resource transfers from the centre as grant. Thus, Tripura like other special category states is characterized by a high negative NPRD as a proportion to GSDP, whereas, on the plan side it enjoys the revenue surplus. Again, the growing debt burden has been a major cause of concern for the state government and in view of the unsurmountable growth of the debt liabilities of the state in future; a suitable debt management policy is of paramount significance. The state's borrowing is meant for bridging the non–plan revenue gap (negative BCR). As the negative BCR has assumed alarming proportion over the years, the state government has been found to helplessly bank upon public borrowings. The standard criterion for determining the sustainability of debt of any state has been to arrive at the accepted level of debt, GSDP ratios and the ratio of interest payment to total revenue receipts. In the context of Tripura, both these ratios have been found to be alarming. The increasing debt scenario reflects the deteriorating fiscal performance of the state and long–term mismatch between the growth of revenue and expenditure. Operationally increasing NPRE such as interest payments, subsidies, salaries and pensions, inadequate returns from public investment and inelastic growth in central transfers contributes to the perpetuation of a fiscal drag. In other words, large revenue deficits have led to large fiscal deficits which have led to a vicious cycle of debt, debt servicing and deficit again.

The special category states like Tripura has been facing acute fiscal crisis in terms of bridging the non–plan revenue deficit despite, increasing tax devolutions from the centre and grants from the Finance Commission. This problem has been compounded on account of full transfer of committed liabilities on the non–plan side at the end of each five–year plan. More importantly, there has been significant discrepancy between devolution recommended by the EFC and the actual devolution leading to actual devolution falling short of projections. Given other things, the larger the interest and committed liabilities, the larger would be the entitlement of the state for the non–Plan statutory grants. Larger plan outlays financed by larger borrowings create larger state specific liabilities, which generate larger claims for additional fiscal transfers through the Finance Commission. Thus,

the methods of working out transfer by the Finance Commission and the Planning Commission generate adverse incentives because both the commissions take a fragmented view rather than adopting a holistic approach. For instance, while the Finance Commission looks at non–Plan Revenue Expenditure without paying much attention to the linkage of interest payment with past fiscal deficits and accumulated debt stock, the Planning Commission looks only at new schemes without considering their implications beyond the plan period.

It has been also frequently found that the Central Government has been responsible for mixing grants with loans and thereby unnecessarily burdening the state with debt which they cannot service and which also they cannot afford to forego because while foregoing the loan, component of grant will also have to be foregone. The artificial dichotomy between plan and non–plan expenditure also resulted in creating series of distortions in the mechanism of non–plan statutory central transfers.

The MTFRP which was agreed between the Government of Tripura and Government of India carries quantified targets for five indicators covering the period 2000–05, may be theoretically justified but it is highly illogical for special category states like Tripura which heavily depend upon the Centre for revenue receipts. In fact, for these states fiscal imbalance indicators should be correctly assessed with respect to revenue receipts rather than with respect to GSDP. A holistic approach and a multi–pronged strategy emphasizing not only the tax effort of the state but also highlighting the non–resource issues like accountability, maintenance of quality of public expenditure through performance audit, proper governance etc., needs to be adopted by the state. It may be mentioned here that while the resources are better managed by centralized agencies, the non–revenue issues are well taken care off through greater decentralization. Thus, the real challenge before the state is not only to contain the revenue gap but is to explore the possibilities of bridging the gap by enhancing the capacity of non–borrowed resources of the state, i.e. the state's own tax revenue and non–tax revenue.

On the side of taxation, it is being recommended that the widening of the tax base of the state and local bodies be attained through effective exploitation of land based taxes and better administration of properly taxes and other taxes. The state should seriously start thinking of levying profession tax either to improve the

resource base of local bodies or empower the local bodies to levy such taxes with the provision of periodic revision of the rates. Again, in view of less than full exploitation of the potential of property tax/house tax in the state, the relevant tax legislation must be suitably modified to de–link the tax from rent control laws. All socially undesirable tax exemption and tax incentives should be abolished and the system of tax administration be revamped through further simplification of forms and procedures as well as comprehensive computerization of tax administration.

For the purpose of raising non–tax revenue and reducing the real growth of budgetary support to non–departmental institutions, user charges levied on public services in relation to current cost must be raised significantly from the historical levels. In this context, utmost care should be taken for the removal of inefficiency that tends to raise costs, and for that improvement in the quality of services rendered. It is with better quality of services that the government can easily convince the users to pay higher user charges. Most user charges require legislative/departmental clearance for their upward revisions. Adequate provision be made for automatic upward revision of user charges linked to an index of costs which would require to be prepared separately for different services. State government should set up a high level committee to determine principles and norms for linking user charges to costs, encompassing general, social and economic services.

Again, the state government should take adequate care in analyzing the profile of user charges in the critical areas of agriculture, irrigation, power, transport and health. The government should set up separate autonomous commissions for each area which would be responsible for determining the principles according to which user charges should be linked to cost and protecting the interest of consumers by monitoring quality of services and suggesting remedial actions for reducing inefficiencies in the governmental provisions of private goods/services. In the first instance, the individual commission would be required to tabulate the existing rates of user charges for variety of services in different sectors like roads, bridges, health, education etc. Subsequently, the existing recovery rates should also be estimated and corresponding cost indices should be developed. User charges for general services should be linked up with cost needs so as to improve recovery. The state musts make every possible effort to improve the

recovery of user charges in social services like education, health and water supply at least by 30% of current cost.

The composition of government expenditure should be restructured in favour of the priority areas like water supply and sanitation, primary health care, education and infrastructure. With a view to forestalling the burgeoning growth of wage–bill, the existing vacant posts of non–specialized nature be abolished and contract appointment for filling the technical positions be initiated. The department of redeployment should be set up for identifying the surplus staff in consultation with the concerned Ministry/department and such staff be attached with the department of redeployment which would be maintaining elaborate record of the staff. All fresh appointments be made with reference to the department of redeployment and all the posts in the 10^{th} plan should be filled up with such redeployable staff. Moreover, vacancies arising out of retirement of staff from non–plan or continuing plan scheme should be filled from this pool. Adequate retraining facilities be also provided to this staff for increasing their redeployability.

It has been already observed that the expenditure on pension payments has increased by more than 25 per cent per annum during the first three years of Eleventh Finance Commission award period. While Eleventh Finance Commission assumed that pension liabilities would grow only at 10 per cent per annum, the projected pension liabilities from the period 2004–05 to 2009–10 is expected to be in order of Rs. 2622.24 crore which really would be an exploding fiscal liability for the state government calling for immediate pension reforms initiative for maintaining the state's budgetary costs under control. The State Government should manage the pension funds through the contribution of the employees themselves so that the resource–starved state government is not required to bear the burden on this council.

None of the Finance Commissions made a sincere effort to assess the overall resource position of the Centre and objectively recast the fiscal needs of the states, although, the terms of reference (TOR) explicitly required them to do so. The schemes of transfers of the Finance Commissions lacked purposiveness in their design. In other words, in the absence of a clear focus on the explicit objective, the pursuance of multiple objectives simultaneously cancelled out their effects in the ultimate analysis. For instance, these transfers have not been designed to meet the

major objectives of unconditional transfers i.e., off–setting the fiscal disadvantages of the states.

Ever since the commencement of planned economic development in India, thoughtful observers, who although always constituted a minority, have increasingly been skeptical of the system of parallel assessment of the fiscal needs of the States by the Planning and Finance Commissions. Among the many evils, the practice that has bred, has been lack of the States, of the continuous interaction between the Plan and the non–Plan sectors of the outlays of the State Governments. Much of non–Plan is nothing but the substance of the preceding all the previous Five Year Plans and likewise the plan of any projected size can only be outcome of the success obtained in diverting resources from the non–Plan and is also fed by it should normally have worked toward an integration of the States' need assessment, with the Planning Commission, for example, concerned largely with investment outlays and the Finance Commission confining its attention primarily to the revenue needs of the States. What emerged, however, is the fragmentation of the States' budgets, vertically and horizontally, and thus undermining that economic significance of a Government budget's totality which the Founding Fathers themselves in their wisdom and foresight had termed *Consolidated Fund*. Moreover, the fiscal dentistry practiced by Finance Commissions has adversely affected the revenue raising capacity and fiscal management of the state. While the general purpose transfers routed through the Planning Commission is totally independent of the states' normative approach is essential for the distribution of unconditional transfer to the states by the Finance Commissions.

The absence of a truly normative approach and inability to get rid of the 'Tyranny of Base Year' is the real shortcoming of the Finance Commission approach in the assessment of the fiscal component of need. It may be recommended that normative revenues, normative expenditure and normative deficit should be determined simultaneously so as to help the Finance Commission in designing the scheme of resource transfer. This approach would certainly do away with the current trend of revenue deficit. Normative tax revenue may be determined by probable estimate of the potential revenue base of each source of tax revenue and for this purpose, the Finance Commission can determine the probable standard rate at which the potential revenue base can be taxed in all the states. Thus, the actual

revenue raised from each of the State's own source as compared with the resulting revenue by applying standard rate could give us tax efforts.

The Finance Commissions have been found to apply multiple criteria which are overlapping in nature. The Twelfth Finance Commission should treat the index of backwardness as a function of various socio–economic characteristics of a State. We have selected ten important characteristics for purposes of constructing a comprehensive index of relative development of different states viz., Literacy Rate, Female Life Expectancy at Birth, No. of Hospitals Beds per lakh Population, Percentage of Scheduled Castes and Scheduled Tribes. Per capita electricity consumed value of agricultural produce per hectare, employment in organized industries per lakh population, credit deposit ratios of commercial banks. These characteristics being heterogeneous cannot be added as such. With a view to making them homogeneous, we have used a 100 point scale and estimated the score of each state for each characteristic assuming the score of 100 for the best performing state with regard to the same. With a view to equalizing the level of social development, the Twelfth Finance Commission may use this index. The share of each state should be calculated by multiplying the net divisible pool with the inverse of the composite index of backwardness and total population of the State in 2001. The measuremental problems relating to the calculation of composite index of backwardness can be overcome with the help of information base provided by functional and economic classification of Government expenditure. Alternatively, a composite index of deprivation comprising like expectancy, literacy, per capita SDP, availability of *pucca* road, village electrification, education and health care institutions may be tested by the Twelfth Finance Commission. In this connection, we recommend that a dominant weightage should be assigned to HDI so as to cater to the fiscal needs of Tripura, as HDI is highly correlated with many development indicators like per capita SDP, degree of literacy, expectation of life, backwardness etc.

The fiscal reform facility scheme consisting of part–A of the incentive fund which was linked with the performance of the state viz–a–viz five indicators and part–B which was closely linked up with specific fiscal reforms action, attracted sharpest possible criticism on the ground that the scheme goes against the spirit of the Article 275 of the Constitution, as it also provides the facility to the non–deficit states. Again, it was believed that the operation of such reform facility scheme is

characterized by discretionary value judgement and conditionalities and hence there is every possibility of value loaded bias creeping into the system. For a special category state like Tripura a composite index of infrastructure may be a more relevant and useful indicator for deciding the non–statutory grant component. In other words, this would also enable the physically handicapped and landlocked state of Tripura to optimally exploit its true potential.

FORESTRY

Tripura is endowed with vast natural resources and the recorded forest area is 60% of the geographical area of which reserved forest constitutes 57%. The forests are mainly tropical evergreen, semi-evergreen and moist deciduous. Bamboos are also common. There has to be an emphasis on increasing the productivity in natural forests, biodiversity conservation, ecological restoration of degraded forests, economic upliftment of tribals and rural poor by enhancing employment generation opportunity.

Integrated project for rehabilitation of jhumias has to be prepared involving all development departments. The activities under the project will include: raising of plantations of forest species; raising of orchards; animal husbandry; fishery; primary education; adult literacy medical facilities; etc.

Participatory Forest Management is a rather new concept. It tries to resolve the conflict between the users and managers. Traditionally both these groups have been suspicious of each other with users trying to take away as much as possible and the managers trying to part with only as little as permissible under management principle of sustainable yield and considerations of conservation. The aims of both these groups have been diametrically opposite. Concept of Joint participatory forest management should be used for management of degraded forests and micro-plans prepared for these areas should be incorporated in working plans. Suitable prescriptions for tribal development should be included.

Out of the non-timber forest produce, bamboo warrants specific attention. There is a need to cultivate maximum area of bamboo under plantation programme, preferably with superior species having wider uses. Suitable bamboo species must be identified for each agroclimatic region of the state to take up large-scale plantation under farm forestry, agro forestry, social forestry and JFM models. It will provide additional income monthly, annually and in the long run improve the economic level of Tripura from agroforestry based bamboo ecosystem. A fillip to bamboo based industry through value addition by way of improved processing technology, improved design and product diversification in the aspects/areas like, food items, building and construction material, tiny and cottage industries, handicrafts & furniure etc.

Tripura is the one of the states of Northeast region that has considerable large area under wasteland category. Climatic condition of the region is very much suitable for cultivation of Jatropha plantation. Tripura is covered under the Phase-I (demonstration project) of the National Mission on Bio-Diesel initiated in 2003 and to be completed by 2007 that seeks to demonstrate the viability of all activities including plantation, seed collection, oil extraction, transesterification, blending, marketing, and its acceptance as an automotive fuel. Owing to its multiple uses and its role in uplifting of economic condition of rural folks and self-reliance of our country in the oil sector, it is essential that proper scientific tools should be employed to increase its present production of oil. Biotechnology tools can be applied for producing high quality elite planting material. Tissue culture technologies help in mass-producing the elite clones. The rural folk must be educated regarding the judicial use of bio-fuel, nursery and plantation techniques of Jatropha plantation and how it can change the life of the villages.

Again, Tripura has one of the oldest, richest and most diverse cultural traditions with use of medicinal plants. There are a large number of village based carriers of herbal medicines and also specialized practitioners who have traditional knowledge of herbal home remedies of ailments and nutrition. Through adequate scientific input in cultivation, harvesting, post harvest processing and value addition this valuable resource base can be increased. This will not only boost the production but also generate huge employment opportunity for the rural as well as educated-unemployed youths of the state.

The State Government should undertake the exercise of preparing an annual “Green Book” representing availability, utilization, and future requirements of forest resources. In the course of time this exercise may be integrated with the State Income Accounting System.

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

Agriculture

It has been believed both in academic and policy making circles that the development of agriculture is sine–que–non to the overall accelerated material progress of a state/region as the development of agriculture generates growth impulses for the industrial and services sector of the state economy. Logically, therefore, an integrated comprehensive agriculture policy emphasizing optimum land utilization, adequate soil conservation, raising irrigation potential, price stabilization, proper agriculture marketing, introduction of technological innovations, plant breeding, tissue culture propagation, adequate cold storage etc should be formulated by the State Government.

The produce in the state is not very less but due to lack of proper storage, processing and marketing facility the products do not fetch the price they ought to get should be on minor irrigation and water shed development owing to its tangible impact on improving productivity. For conservation of water and saving energy, there should be a stress on drip irrigation for horticulture crops and also widespread use of sprinkle irrigation and surface irrigation technology – since the scarcity of water has always bothered the agriculturists and the development planners. More innovations should be made on water conservation techniques, marketing network for activating the sales promotion activities of the various products of agriculture, horticulture, animal husbandry and fishery should be established and the required financial support may be acquired from the state government.

The government must make every possible effort for the introduction of hybrid rice technology and the production of aromatic rice under organic agriculture and augmentation in productivity of direct seeded rice under rain–fed conditions. Consolidation of land holdings being the major factor responsible for improved land management and enhance productivity, the department of agriculture should expand the scope of the process of consolidation of land holdings in the state with all resulting expenses to be born by the central government in the form of incentive bonus.

The state government in its agricultural policy (in consonance with national agricultural policy) must emphasize legalizing the land leasing in/ leasing out systems and promotion of contract farming through standardized and simplified contract format enforceable on both parties. This would certainly help in increasing the size of holdings, improving the viability of agricultural units and permitting intensive mechanization and leasing of forest land for agricultural purpose without damaging forest property.

With the view to promote the diversification of agriculture in the state, the existing PDS should be revamped and the minimum support price for foodgrains and other produce needs to be adjusted accordingly. In order to encourage the process of diversification through minimization of wastages, proper emphasis should be laid on post–harvest technologies and improved marketing infrastructure. The state government should ensure the compliance of "Agricultural Produce Marketing Act" and "a Credit Linked Subsidy System" should be developed by the state government for the construction of cold storage and rural godowns. The ICAR (Indian Council of Agricultural Research) must work out the possibilities of getting the benefits from the development of the project 'True Potato Seed, a superior and cost saving technology. However, ICAR has to exploit its marketing network in the whole of north east region by strengthening the down stream linkages and reaping the benefits of the potential of lab to land transfer mechanism. In view of the ample scope of tribal rehabilitation in rubber plantation in terms of income and employment generation and minimization of external threat of the insurgence, the Ministry of Environment and Forest (MOEF) must be persuaded vigorously to revise their forest reservation policy so that the project of jhumia rehabilitation through rubber plantations on de–reserved, unclashed and open government forest land are made available for the purpose. For ensuring the quality of agricultural produce, at least one soil testing lab be established in each district and in this regard funding must be requested from the North–East Council.

A synergy must be developed between food parks and agricultural export zones so as to ensure a mutually beneficially existence. Value added centres must be set up in all food parks as well as in areas of concentration of horticultural/ agricultural produce with road connections that are proposed; exist under Prime Ministers Gram Sadak Yojana (PMGSY).

The agricultural mundies need to be strengthened to enhance

- Transparency
- Trading in varieties more appropriate for processing
- Trading in graded varieties of raw materials
- Incentives for production of raw materials suitable for processing

The Government of Tripura should examine the possibilities of generating additional employment opportunities from the following programmes and schemes as suggested by the Ministry of Agriculture :

- Additional areas under cultivation to be brought under oil seeds and pulses;
- On –farm management,
- agri–clinic and seed production,
- horticulture
- Water shed development projects for rain–fed areas
- Forestry and agro–forestry
- Medicinal plants
- Bamboo development
- Energy plantation.

The Central Government should be approached with the projects for encouraging household rearing with a view to achieve self sufficiency beyond 2012. The said project proposal should explicitly delineate the district wise target of families and project the estimated cost of the proposal so that necessary financial assistance can be obtained from the department of animal husbandry. A comprehensive action plan for fodder development programme should be drawn out and every effort should be made to expedite the process of mobilizing, required financial assistance from North–East Council/ Government of India. It should also be taken up under the 'Hariyali' programme of rural development. However, the industrialists of the north–east region may be approached/ motivated for investing in the animal husbandry sector particularly in broiler chick production and broiler meat processing. Keeping in mind the prospects of additional employment generation, particularly self employment and self sufficiency in fish production in the animal resource section, the Government of India should be convinced to immediately sanction the project requested by the Government of India under the

Integrated Dairly Development Programme (IDDP) – Phase III in South Tripura district.

A synergy must be developed between food parks and agricultural export zones so as to ensure a virtually beneficial existence. Value added centres must be set up in all food parks as well as in areas of concentration of horticultural/ agricultural produce with road connections that are proposed/ exist under PMGY scheme.

Adequate funding of R & D activities in the sectors of horticulture, animal husbandry, flouriculture, sericulture and tissue culture must be ensured by the Central Government and the North–East Council. Technical know–how should be easily available to the agriculturists so that the productivity improvements are made as and when required. For example, a mobile soil testing laboratory may be of immense use and importance to the farmers. The ICAR must work out the possibilities of getting the benefits from the development of projects like the “True potato seed” a superior and cost saving technology to bring about a good like in the productivity of the crop. Moreover, ICAR has to exploit its marketing network in the whole of the NE region by strengthening the down stream linkages and reaping the benefits of the potential of lab to land transfer mechanism.

The state forest department in active collaboration with the horticulture department of the state must launch an aggressive product development and marketing expansion drive for the development of various plantations and spice crops like ginger, tea, turmeric, cashewnut, jackfruit, aricanut, lemon grass etc. a host of valuable herbs and medicinal plants and flowers like marigold, gladiolus, chrysanthemums, tubroes, rose and a few varieties of orchids. Moreover, effective agronomic market processing chain with necessary forward linkages must be evolved to encourage and involve the local farmers and the community leaders in the effective land use and crop intensive cropping pattern.

INDUSTRY, TRADE AND COMMERCE

It is pertinent to note that despite the industrial backwardness of the state, plan outlay for the industrial sector has remained low hovering between 5 to 7% of the total plan outlay. Moreover, its share has been further reduced in the Ninth and Tenth Plan period (2 and 3% respectively). Public expenditure of on power/energy too has been declining from 11.90% in the Eighth Plan to 5.27% in the Ninth Plan and further to 5% in the Tenth Plan period (projected value*). This is a major anomaly on the part of the policy makers and clearly reflects the apathetic attitude towards industrialization in the state. Another disturbing trend that can be observed and is hampering the industrial progress of the state is the declining labour productivity among industrial workers. While labour productivity of industrial workers for all states grew at an annual compound growth rate of 10% per annum between 1997–98 to 2002–03 that for Tripura, Nagaland and Manipur fell to –1.3%, –3.8% and –3.7% respectively registering a decline of 37.7%, 36.4% and 2.4% respectively over the previous year**. In order to make the North–Eastern State and more particularly Tripura economically sound and industrially vibrant, labour productivity in the State should be stepped up.

The effort of the Government in Tripura is to create an integrated and comprehensive base for industrialization through proper linkages between small–scale, medium and large–scale units. Its main objectives include

- Generating private sector employment and self-employment in the state
- Efficient Utilization of physical and human resources of the state, and
- Creation of infrastructure for setting–up of in the state by utilizing these natural resources.

With a view to achieving these objectives, the state and the Central Government have started various sector specific and area development scheme.

(A). Centrally Sponsored Schemes

(a). Prime Minister Rozgar Yojana (PMRY)

(b). Growth Centre :

A Growth Centre is set up as Bodhjungnagar, Tripura (west) under centrally sponsored schemes covering an area of about 240 acres. The centre will offer industrial plots to large, medium and small scale industries.

(c). Export–Promotion Industrial Park (EPIP)

(d). Integrated Infrastructure Development Centres (IIDCs)

(e). Food–Processing Park

(f). Critical Infrastructure Balance Scheme

(g). Central Transport Subsidy

(B). State Sponsored and Other Schemes :

The Department is implementing the TSP and SCP schemes. The schemes are mainly beneficiary–oriented schemes. The main among them are :

(a). Development of Entrepreneurs for setting up of Small scale Industries
(b). State Package of Incentives
(c). Craftsmen Training Programme
(d). Small Growers Scheme

Agri–Export Zone: The state Government with the assistance from the Central Government have decided to set–up an agri–export zone for the purpose of providing access to international market to agricultural produce/products of the state. The objective is to provide remunerative returns to the farming community in a sustained manner and to increase its competitiveness. Having identified the potential for export of pineapple in geographical contagious areas in and around Kamarghat, Manu, Melaghar, Matabari and Kakrahan blocks in Tripura, the Government has decided to set up a AEZ at Bodhjungnagar Tripura–west. In this regard, an MoU has already been signed between State Government and APEDA.

Rubber Park: The Government of Tripura is planning to develop a rubber park for the growth of rubber–based industries in the state. With this end in view, the rubber board has prepared a detailed feasibility report on Rubber Park in the state. The proposed location was Bodhjungnagar, Tripura–west and the area is 50 acres. Total project cost is estimated to be about Rs. 6.60 crores. Project report has been sent to the Government of India for according to sanction.

With a view to providing a fillip to industrialization, the types of industries, characterized by the presence of internal and external economies, that should be promoted in the state are

- **Major raw material based industries** which would be mainly paper, cement and petrochemicals industry
- **Industries to supply local goods** where the scale of local requirement is large enough to sustain an economically viable unit
- **Other small industries including Agro- processing like fruit canning, meat processing and timber processing etc**.

Productivity and employment in the organized manufacturing sector should be increased through improved technologies, labour reforms and self employment schemes. Registration of industrial small scale units should be vigorously promoted in the state by offering various incentives to bring a larger ambit of manufacturing sector in the state under the organized sector.

Technology/ Consultancy and Entrepreneurship Development Programmes should be organized in the state. Specific skill development and technology for decentralized production and centralized marketing, centralized designing and centralized quality control should be followed. Training in product design and diversification, packaging etc should also be provided with suitable tie-ups with nodal agencies like IITs, NID, NIFT etc. A project for linking up design studios to the clusters of weavers and artisans should also be started in the state under NIFT to reduce their fragmentation and increase their bargaining power.

Special emphasis must be made on the development of Khadi and Village industries in the hilly and backward areas under Border Area Development Programmes in terms of provision of soft credit facilities, capacity building of the manpower engaged in these industries with proper training and access to domestic and international markets etc. A Market Development Assistance (MDA) Scheme should be introduced for the small–scale sector to provide financial assistance to SSI Associations for their participation in International Fairs.

Bi-voltine Culture in sericulture must be immediately introduced. As opposed to multi-voltine silk which has a yellowish tinge, bi-voltine silk is white, fetches a good price and is in great international demand. Besides sericulture, the state

should also focus on ericulture (producing eri silk). Ericulture is a household activity and can generate additional employment opportunities for the tribal population of the state. In order to enlarge the market for sericulture, online cocoon trading should be started linking Tripura to cocoon mandis like the one at Ramnagar in Karnataka (the biggest cocoon mandi).

Export–oriented approach should be adopted especially for the promotion of rubber and jute based products through quality certification and design engineering with suitable tie-ups. Quality Testing / Certification Laboratories such as Hazard Analysis and Critical Control Point (HACCP) and ISO -9000 must be set up for quality assurance via State participation.

In order to promote the production and export of premium quality tea in the state, a Tea park should be set up with Central Government assistance offering latest cleaning, sorting, blending and packaging technologies. Emphasis must be on growing high quality teas such as Orthodox tea which has great international demand from Russian and Iran.

In order to attract private and foreign investment, suitable physical and financial incentives should be provided to offset its peculiar locational disadvantage. In addition, a display centre should be established in the state on the lines of Chinese industrial towns which could act as a single halt for private investors to see all that the town manufactures.

In view of bio-diversities and unique heritage sites present in north east in general and Tripura in particular, the development of eco–tourism with its emphasis on beautification and commercialization of tourist sites should be taken up. North east India is also famous for its exotic flora and fauna. Out of the 925 verities of orchids available in India, over 600 can be grown in the region due to the favourable climatic conditions. In fact, approximately 200 varieties are unique to this region and 60 % of these are ornamental in nature with a high demand in the international markets. It is also ideally situated to produce herbs, spices and medicinal plants. Moreover, the forest of North-East offers a vast array of aromatic plants which can be used for setting up aromatic industry for the manufacture of perfumes, incenses, room fresheners etc.

Bangladesh surrounds Tripura on three sides and has 84 % of its border common with Bangladesh. The official trade with Bangladesh started in early1995. During 2002-03, total volume of official trade was Rs 7.04 crores only but the same is expected to be much higher during the current financial year. The major exports to Bangladesh include fruits, fish and certain vegetables. However versus recently some other select items like cane/ bamboo handicrafts, true potato seeds have also been exported.

- **Major Commodities :**
  - **EXPORTS** : Fresh fruits (orange, Jackfruit), Fish (Rui, Katla), Onion, Ginger
  - **IMPORTS** : Fruit Juices, Zamdani saree, Fish (hilsa), Processed food and Dry fish.

It is evident that the trade balance of Tripura with Bangladesh has always been negative i.e. its imports have been higher than exports. Its exports basically include horticultural products and fruits. On account of low industrial activity in the region, there is little potential for export of manufactured goods. The state has been undertaking huge imports of dry fish, since there is a great demand of fish in the state as 90 % of its population are fish eaters. Imports in the state especially of fish can be drastically reduced if proper emphasis is given to the development of pisciculture so that the state can become self–sufficient in the years to come. Exports of rice, tea and other horticultural products should also be encouraged as the state seems to have competitive advantage in these areas.

Over the years, a number of initiatives have been taken to promote economic relations with Bangladesh. Some significant efforts made during last few years are as follows :

Serious efforts have been made to improve relation between Tripura and Bangladesh, both at the level of the business communities as well as the Governments. A number of seminars on the promotion of trade and investment have been held in Tripura as well as in Bangladesh in recent years

Various issues of concern to Tripura with respect to Bangladesh have been taken up and pursued through Government of India. These include

- Transport: Agartala–Akhaura Rail Link
- Transit / Transshipment
- Access to Chittangong Port
- Transit / Trans-shipment through Bangladesh

With a view to discourage the functioning of the unofficial channels of the exchange characterized by the existence of dual exchange rate, the border trade policy of the Government of Tripura should also focus on the transformation of the low economic activity region into a vibrant and dynamic trade region with a span of 5 yrs. This transformation is possible only with the effective collaboration of the Central Ministry of External Affairs, Home and Commerce and strong political will and commitments of the NE States. The creation of such FTZ would help the NE States in establishing powerful linkages with well diversified markets of China, Bangladesh, Laos, Thailand, Vietnam, Cambodia, Malaysia and Indonesia.

With a view to converting the unauthorized trade into legal/ authorized trade and helping the genuine traders operating in the different parts of the NE region, the recommendation of the IIFT for declaring the whole NER as the Export Processing Zone should be immediately implemented by the GOI. In this regard, it will be worthwhile to recommend for the creation of Growth quadrangle involving North–Eastern India, Northern Myanmar, South West China, Northern Thailand and Bangladesh. The creation of EPZs and triangle of Growth quadrangles would be made possible through regional co-operation based on the 5 principles of Peaceful coexistence, emphasizing equality and mutual benefit, sustainable development, comparative advantages, adoption of international standards and infrastructural development in order to enhance connectivity and facilitate the widest possible 'economic co-operation'.

In view of the continuous pursuance of the process of trade liberalization by the countries of Bangladesh, Myanmar and Bhutan, there exists tremendous scope of integrated economic co-operation in the strategic areas of Energy, Cement, Food Processing. Moreover with Myanmar becoming a member of ASEAN, a common market of more than 500 million consumers is available in the NE and hence establishment of forward linkages with Myanmar would be a vital move towards successful integration of the North Eastern economies with the South Eastern economies.

A WTO compliant delivery mechanism and a transparent, efficient and responsive administration system should be adopted right up to the grassroots level to take advantage of the window of opportunities that would be opening up with the phasing out of the Multi-Fiber Agreement (MFA) in January, 2005 and the agreement signed between India and ASEAN Nations in 2003 to boost border trade.

However, without proper development of transportation network we cannot expect anything. Rail/ Road and Waterway links in the state should, therefore, be strengthened for a more effective integration of Tripura with the rest of India and other countries in the region.

RURAL DEVELOPMENT

Rural development assumed a much greater significance with reference to Tripura because 73% of its population lives in the villages. Therefore, rural development constitutes the most important component of any development plan to be specially formulated for Tripura. It has been observed that rural development is not well balanced. Mass awareness campaign be carried out on an extensive scale so as to reap the benefits of the existing programmes.

The department is implementing SGSY Scheme in the rural areas. it is self-employment scheme to bring rural BPL families above BPL, within a span of 2-3 years. The SGSY scheme intends to cover all BPL families within a certain period to bring these families above the BPL. However, employment generation work has to be continued for such time the BPL families covered under SGSY scheme are not brought above the BPL.

Total Sanitation Scheme (TSS) is being implemented in all districts of the State to cover 337550 nos. of individual household, 1815 school sanitation, 21 alternative delivery mechanism, 195 Sanitary unit in Health Sub-Centre. The time limit for total achievement of the above project is 2004-2005. Adequate funds are available with all districts and it is a demand driven programme. The programme has been well accepted in South Tripura District and Dhalai District. But the progress of North Tripura District and West Tripura District is slow. Government along with local self help groups should adopt rigorous awareness programmes regarding TSS in the North and West districts of Tripura.

For reaping the benefits of the expanding service sector, there is a dire need for promoting technical skills among the masses through various technical and professional training programmes. The total number of BPL families in the State is 3.98 lakhs. Fund provided under SGRY – I and SGRY – II by Govt. of India is not sufficient to provide 100 mandays work to each rural BPL families. During the year 2002-03 only 24 mandays of work was given to each BPL family. Due to in-sufficient allocation of fund from Government of India the above target could not be achieved. The Central Government should increase the allocation to the State Government under SGRY to reduce the gap between the stipulated target mentioned and the actual achievement under the SGRY for employment generation.

The state has always been facing a problem with the funds and programmes cannot be properly executed because of the ever existing scarcity of funds. The Central Government should therefore increase the allocation to the state government under the SGRY scheme to reduce the gap between the stipulated target mentioned and the actual achievement under the SGRY for employment generation.

Availability of water has always been a problem in the state due to its topography. Therefore, innovative technological options should be introduced to extend drinking water facilities to undulated, remote and hilly areas. Schemes like rain water harvesting and watershed management should also be integrated with the overall irrigation policies.

With the 73rd amendment of the constitution, Tripura has made a strong stride towards achieving decentralization of powers of having 3–tier panchayat system since 1994. The first generation elections following the 73rd Amendment was held in 1994 by providing reservation of seats and offices for the SC, ST on the basis of composition of population at 3 levels including reserving one third seats for the women. This was followed by the second generation election in 1999 with the experience of first level, people of the state in the rural areas could find that the panchayats are the people's organization and for their effective functioning in the pursuit of ensuring social justice and economic development of the rural people, the role played by the PRIs are pro–people. People's participation in the affairs of rural development was further strengthened by making necessary provisions in the rules in 2002 for constitution of Gram Sansad for participation of concerned electors in the policy making. The electors can themselves participate in at least 2 meetings in a year to select beneficiaries under various government schemes including selection of site. This itself ensures the proper transparency in the functioning also. The Government of India has already acknowledged the role of state government for effective implementation of provisions of 73rd Amendment. Under the 73rd Constitutional Amendment Act, the Panchayats are required to be endowed with adequate responsibilities, powers and finances to enable them to function as the 'Institution of Self–Government' under Article 243G. In consonance with the provisions under 73rd Amendment of the Constitution, the elected PRIs have been empowered with the different functional, financial and administrative powers.

Further, first State Finance Commission was set up in the year 1994 and on consideration of its report, actions were taken from the State Government for developing large amount of fund to these bodies for undertaking different developmental works. Later, in the year 1999, second State Finance Commission had been constituted which has submitted its report during 2003–04. To ensure public participation at grassroots–level planning and for conducting social audit.

PRIs / ADC bodies have been involved effectively for accelerating rural development through out the state. Salient features of the strategy adopted for the purpose are as follows :

- Further Functional, Administrative and Financial powers have been delegated to different ladders of PRIs and Bodies under ADC so that these institutions can enjoy enhanced freedom and powers in the process of grass root level planning, in formulating schemes and sanctioning and executing the works.
- All the PRIs and the ADC bodies have been provided adequate powers and authorities for undertaking grass root level planning and execution of different development works. The bodies have been maintaining strict restrain to keep the establishment expenses bare minimum as per guidelines issued from the Department.
- Optimum emphasis has been given for utilization of development fund on land-based scheme of Agriculture and allied sectors including irrigation with a view to boost production in a big way within shortest possible time.
- Involvement of all electors of the Gram Panchayats through Gram Sabha/ Gram Sansad in the process of selection of beneficiaries, identification of the projects, submission of full accounts of expenses including achievement etc. convening of meetings more than one meeting of Gram Sansad/ Gram Sabha for the above purpose have been made mandatory. In the process, a new enthusiasm for people's involvement has been generated throughout the state. Submission of full accounts of income and expenditure of the Gram Panchayats before the electors ensures the purpose of social audit.
- Proper maintenance of accounts of the entire devolved fund and other resources, incurring of expenditure only against specific resolutions taken in the meeting of the PRIs has been made mandatory.
- Generation of employment through labour intensive schemes.

- Development of infrastructure and maintenance of existing assets.
- Encouraging beneficiaries' contribution for procurement of agriculture implements, creation of water area for irrigation and fisheries and other schemes, irrigation, plantation and self employment etc.
- Encouraging mobilization of internal resources, as a long-term strategy to reduce over-dependence on government assistance for development and maintenance of assets.
- Imparting training to elected representative of Panchayat bodies to enable them to perform their functions efficiently and to keep them posted about the latest happenings in the field of development.
- Imparting training to the newly elected members of the Panchayat Raj Institutions, Chairman of Block Advisory Committee of ADC area and officials have been emphasized During the year 2001-02, 163 of Male Pradhans, 15 of Chairman of BCAs under different blocks and 104 of Panchayat Secretaries under different blocks have been imparted training in the Panchayat Raj Training Institute, Arundhutinagar. Efforts are made to improve the quality of training.

It has been often observed that Finance Commission grants sometime take a long time to reach the local bodies even after the release of the grants by the Central Government. On the other hand many state Governments were found to so no sense of urgency in releasing these grants to the actual beneficiaries/rightful recipients. This subsequently leads to with holding of further releases of grants by the centre and the PRI's unnecessarily suffer the consequences by virtue of no fault of theirs. It is therefore suggested that the central Government must take a serious note of any kind of delay beyond one month in transmitting these grants by the State Government from the actual date of release by the Central Government.

In view of the absence of a proper accounting system at the grassroots level, it becomes very difficult to make a scientific and realistic assessment of the fiscal needs of the panchayats. Obviously the estimation of resource gap for core services becomes difficult in the absence of objective data required for the actual determination of the gap between the capacity of PRIs to raise resources and the cost of service delivery. Logically therefore, creation of database and maintenance of accounts should be given top priority. This can be facilitated by complete

computerization of the accounting and management systems of Panchayati Raj Institutions.

While recommending the transfer of resources to the local bodies the State Finance Commission should adopt the same methodology as adopted the Central Finance Commission for scientific and realistic estimation of fiscal components of needs of the PRIs. In other words, State Finance Commission must adopt a normative approach rather than a gap filling approach for the expenditure and revenue variables.

The PRIs should integrate the development plans and district budgets and these budgets be presented separately before the state legislature so as to ensure functional and financial autonomy.

URBAN DEVELOPMENT

For a period of more than hundred years Tripura had been shaped on the line of similar institutions in British Indian Towns and the genesis of its real existence could be traced from a peculiar process of transformation from a Maharaja Ruled organisation to one ruled by Law and Act. We have already observed that socio-economic-cultural fabric of the state of Tripura has witnessed several shocks and changes over the last few decades. More importantly, the community character of the state and the man-land ratio have undergone a profound change due to the sudden influx of Bengali refugees from the then East Pakistan, now Bangladesh. This has immensely impacted the economy of the state and contributed to manifold economic social and political problems of the state because of which the state is still under the grip of some kind of vicious circle of poverty despite its tremendous potential.

Among the North–East states, the proportion of urban population to total population in Tripura is second from the bottom. However, the proportion of urban literates to total urban population in Tripura is the second highest after Mizoram and for all practical purposes; this commandable growth of urban literacy growth of Tripura provides the very basis of accelerated urban development. The state Government of Tripura had played an important role in the process of urban development and management. The Department of Urban Development has been specifically entrusted with the responsibility of formulating, coordinating and evaluating the Urban Development projects/schemes sponsored by Central Government, State Government and HUDCO. The Agartala Municipal Council and Twelve Nagar Panchayats have been implementing the urban development projects and the urban local bodies have also been carrying out various development activities in their respective jurisdictions. The Government of Tripura under the Centrally sponsored schemes successfully implemented the Swarnjayanti Sahari Rojgar Yojna (SJSRY), Integrated Development of Small and Medium Towns (IDSMT) and Valmiki Ambedkar Awas Yojna (VAAY) for weaker section of the Urban society. The state government under the Tenth Five Year Plan adopted resource based of participatory planning system for the upliftment and development of the urban areas under the nomenclature of ‘Nagrodaya’ with the unique objective of ensuring direct and effective participation of the people in the process of planning, programming and implementation of developmental projects which aimed at

providing qualitative civic amenities and facilities, improving the quality of life and enrichment and upgradation of economic and environmental surroundings. The Urban Development Department of Tripura under the Tenth Five Year Plan was assigned with the responsibility of carrying out Urban Development works, Development of Urban slums, solid-waste management, drainage and urban housing, A HUDCO chair was also created in SIPARD and it was decided to establish a prestigious habitat centre at Agartala, similar to India Habitat Centre ,New Delhi in collaboration with HUDCO.

We have seen earlier that the Department of Urban Development of Tripura has been making conscious and deliberate efforts to strengthen the process of urbanisation through various projects and schemes under the state plan, central plan and external assistance. However, because of lack of infrastructure facilities particularly transport, the maintenance cost for the provision of the basic amenities in the urban areas has compelled the government to large-scale borrowing the servicing of which has been a matter of serious concern for the fiscal managers and the policy makers of the state. The state government submitted a comprehensive estimate of gap in resources and own by making scientific assessment of the desired level of development and existing level of development of urban areas.

With a view to bringing about a qualitative development of the urban population of the state, the status of the existing growth centres be upgraded for smooth delivery of infrastructural services and couple of other nagar panchayats having potential be identified for purposes of establishment of new growth centres. A long term perspective plan with adequate integration between the functional areas of planning and budgeting be formulated so as to reflect the actual social, cultural, economic and political implications of such a comprehensive plan for the urban local bodies. In this context, the policy makers must emphasize the Nagarodaya Model of resource based participatory planning. This comprehensive planning process must aim at the development of growth centres which would take care of the problems of underdevelopment, unemployment, environmental degradation and regional disparities. The primary responsibility of the planning and coordination department would be to make a scientific assessment of the existing status of economic infrastructure and make an accurate forecast of the existing status of urban development of the urban local bodies and finally to estimate the gap between required financial resources and actual amount of financial resources

available. This exercise would really help the government to convince the central government /private agencies/ international agencies for providing adequate funding to make–up the gap and thereby achieve the desired targets.

The system of resource mobilization of urban local bodies should be revamped by rationalizing and simplifying the property tax structure, enhancing tax collection, increased flow of central assistance both from the Planning Commission and Twelfth Finance Commission, attracting larger private investment and adequate institutional financing from Scheduled Commercial Banks, LIC, HUDCO and other private banks. The urban local bodies may generate additional income from certain tangible income–generating assets like community halls, community farms etc, which may be operated on a viable commercial scale. One of the most important funding requirement of urban local bodies is capital expenditure which is required for creation of social infrastructure/social overhead capital. This huge amount of capital expenditure may be obtained only from the Central Government and to this end, the Central Government in general, and urban local bodies in particular, need to convince the Central Government regarding the imperative needs and paramount significance of such types of capital assets through the agencies like NIC and DONER.

The modern method like Geographic Information System (GIS) for mapping of urban proportion and total computerization of the system of financial planning, management and control be immediately introduced in the urban development department with the active financial support from the central government.

TOURISM

The beginning of the present century has witnessed tremendous change in the social, economic and political fabric of the country. The changes in the social and economic spheres have been so dramatic that the policymakers and the environmental analysts are in a fix to delineate the factors which contribute to the changes in the social and economic aspects of the country. However, one can easily and safely speculate that the unprecedented growth of the tourism sector is going to render tourism as the undoubted leader of all the industries countrywide. Following Industrial Revolution–transport revolution– and then communication revolution the boundaries and compartments among the states and regions are getting narrowed. Moreover, the entire globe is getting transformed into a 'small village' where factors like mobile technologies are transferable between countries' and ideas are flexible. All these factors have contributed to all–round expansion of the tourism sector of the country.

Surrounded by China, Myanmar, Bangladesh and Bhutan, the north–east region of the country exhibits a hidden treasure and latent potential of development. The region has abundant resources of rich mineral petroleum, natural gas, coal, limestone, agriculture, horticultural, forest products, water bodies, vast production of orange, pineapple, tea, rubber and the second largest biodiversity area of the world. We have already observed that Tripura is well–endowed with vast forest cover clean environment lust green vegetation diverse flora and fauna rich natural beauty and cultural heritage. In addition, the state has rich treasure of diverse traditional culture multi–ethnic society and wide spread tourist spots–all these made Tripura a tailor–made tourist destination for attracting both domestic and international tourists. Thus, number of river and streams draining into Bangladesh abundant reserve of sub–soil water, moderate climate, pollution free and eco–friendly environment etc, make Tripura a wonderful tourist place in India in general, and in north–east region in particular. The state endowed with national treasure and natural beauty, offer the scope for utilizing the rich potential for the development of tourism spots, destinations etc. Thus, Tripura truly represents a land of mysterious past and exciting present. Probably, this is the reason why it is commonly called a laboratory of exotic cultural synthesis wherein one can find mountains lakes, culture, festivals, forests, sanctuaries and all other natural ingredients which render the state well suited for the development of a tourism

destination. Tripura's physical attributes differ from north to south and it is a land of high hills, hillocks and interspersed, with river valleys. On the northern side, it has four valleys which have been separated by hills with height of above 1000 mt and on the southern front, it has open forested land spread over a wide range of area. Significantly, two–third of its total land area is covered with forest giving a wide coverage to sanctuaries which is at Sepahi Tala. The panoramic state of Tripura has a touch and mixture of bundle of features which are really essential for the expansion of the tourism sector. For example, fairs and festivals are celebrated throughout the year, it has attracted temples, Buddhist monsters, palaces, edifices and a unique tribal community which symbolizes peace, harmony, tranquility and fraternity irrespective of differences in caste, creed and religion.

In view of the universal potential of tourism, the pertinent issue is to contrive a mechanism for delineating the various alternative ways and means to effectively exploit the potential of tourism sector and transmit the benefits of this sector to the rest of the economy. The environment impacts associated with tourism can be considered in terms of their direct, indirect and induced effects and these impacts can be positive or negative. The direct environmental impact of tourism represents the preservation/restoration of historical monuments and sites, the creation of national parks and wild life parks, the protection of reefs and beaches, the conservation of forest and other natural surrounding. The negative environmental effects of tourism include the annihilation and extinction of natural beauties, addition to wild life environment and immoral traffice spreading diseases. Thus, growth of tourism may disturb the ecology that is the nexus between plants and animals. In other words, the promotion of tourism can be ensured only at a price.

Without a good transport system, without the availability of power including electricity, without an easy access to flora and fauna of the state, the infrastructure cannot provide the necessary support to the growth of tourism. However, it may be mentioned here that infrastructural support is necessary but not sufficient for facilitating the easy and comfortable movement of the tourists. Thus, there should be simultaneous development of infrastructure and super structure. In fact, the creation of proper super structure such as availability of travel related services of the agents, guides, information centres, restaurants, hotels, shopping complexes etc., is essential for horizontal expansion of the tourism sector. Simultaneous

development of infrastructure and proper super structure is possible through the development of various kinds of linkages–forward, backward and sideward.

Since tourism industry is a transformation unit facilitating the production function and enabling transformation of tourist input–requirement into output of tourist services, production technology indicating how best the inputs like the transportation, accommodation, infrastructural resources etc is of immense significance for Tripura preparing a sound perspective plan for tourism. In this context, Ministry of Tourism in consultation with the Ministry of External Affairs, Government of India should seriously take up the issue of transit facility through Bangladesh so that the tourists may reach Kolkata through Bangladesh by surface transport with minimum time and expenditure. This would also serve to attract the foreign tourists visiting Bangladesh to Tripura.

The State Government should insist upon the Central Government for increasing the frequency of flights between Agartala to Kolkata and Agartala – Guwahati during peak tourist seasons. Moreover, at least two flights in a month from Agartala – Dhaka and two direct flights between Agartala – Delhi once in a week should be allowed.

The perspective plan of the tourism sector of the state should really address to the real problems of the tourism sector from a view–point of industry and, for all practical purposes, an industry is subjected to the free play of the market mechanism. In this context, the supply side is more important because with ever increasing demand for the tourism products both by the domestic and international visitors. The supply of the minimum essential services in terms of safe and clean drinking water, country–specific and region–specific food products, basic medicinal health and tourism facilities, communication facilities like STD booths, call centres etc. and updated banking facilities be provided. The ICAT Department of Tripura Government is required to monitor and review the provision of these facilities particularly during the peak tourism season.

The Government of Tripura in consultation with the Ministry of External Affairs, Government of India should expedite the process of negotiation and continuous dialogue with the government of South–East Asian countries like Nepal,

Bhutan, Bangladesh and Myanmar so that restrictions imposed on the mobility of the international tourists are removed. This would also encourage the free flow of manpower and technology.

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A suitable regulatory framework must be devised by the state government in consultation with the Central Government for cushioning against the ill–effects on environment particularly at the time of granting registration/ recognition to various service–providers in the tourism industry. This regulatory framework must consist of the following :

- Code of conduct to be adopted for the transporters for ensuring standard fare and safety.
- Yardsticks/ norms be evolved for registering hotels, guest houses, motels, road–side restaurants etc. and these norms should relates to cleanliness, hygiene and non–encroachment.
- Transparency should be maintained for all the stakeholders and media should be taken into confidence.

- The state machinery has to continuously monitor the observance and the compliance of environmental rules and regulations including laws relating to conservation of forest.
- The pending projects with the state government for circuit development, destination development and rural tourism development schemes be immediately implemented.

For integrated development of the tourism sector and further expansion of the tourism industry of the state must be decided by a built–in mechanism evolved by the state which is required to continuously monitor the environmental implications in terms of the effects on the eco–system, the level of water and fuel resources, the ecological balance and the land–use pattern.

DEVELOPMENT OF STs, SCs AND WOMEN

State of Tripura presents a unique pattern of cultural and ethnic diversity. The state people differ in their socio–cultural levels as well as in their behavioural patterns. No state can develop unless the status of the people on the streets are empowered and developed. In Tripura, people belonging to Scheduled caste, Scheduled Tribes, OBCs and women are treated as vulnerable groups and have been reported highly stratified with many glaring inequalities. While Scheduled tribes population constitutes 31.1% of the total population, scheduled caste population constitutes roughly 17.4% of the total population. It is expected that over the period of time, the ratio of tribal population would decline, while the proportion of non–tribal population to the total population of the state will increase. The socio–economic status of SCs, STs, OBCs and women has been reported to be miserably poor in terms of established socio–economic development indicators. There have been marked variations among the social groups in terms of enrollment, educational achievements, school drop outs, employment, housing conditions and participation in socio–economic development schemes. It has been also observed that a significant number of ST populations are also engaged in shifting cultivation which is detrimental for ecology and environment and is likely to negate the pace of sustainable development. Though, various development programmes, legal enactments and positive discrimination policies have been promulgated and implemented for the empowerment of the vulnerable group, however, the socio–economic status of such groups shows continuous deterioration and segregation from the rest of the society.

The estimated revenue expenditure on welfare of STs, SCs and OBCs in Tripura would be Rs. 11512 lacs in 2006–07 and Rs. 17917 lacs in 2010 and 2011 and Rs. 31183 lacs in 2019–2020. The state has potential to implement the projects and programmes for development and empowerment of STs, SCs, OBCs and women in the socio–economic sectors like agriculture, forestry, self–employment through income generating activities. However, the state requires substantial additional funds and resources for meeting out the financial demands and requirements. More emphasis is needed to be placed for the improvement of the network of social infrastructure and also its qualitative enrichment.

Self Help Groups based on micro financing and promotion of income generating activities in the scheduled areas should be the topmost priority of development planning. It requires additional budgetary allocation and empowerment of poor as well as capacity building of community based organizations viz NGOs, SHGs, Panchayats, Youth Clubs etc. The members of SHGs need training, entrepreneurship, skills and managerial efficiency to handle credit and income generating activities. The SHGs and their members also need support in terms of forward and backward linkages, markets and institutional linkages.

Participatory development and decentralized governance should form the basic parameter of development planning. This may be ensured through empowering Panchayats and also through implementation of PESA Act, 1995 in scheduled areas. The process of accelerating functional and financial devolution should be ensured. The rationale of Gender Budgeting is already well accepted, however, initiative for it should be taken by the government. The budgetary allocation under SCP and TSP should be according to the proportion of scheduled caste and scheduled tribes in the state. The jurisdiction and coverage of Tribal Autonomous Development Council (TADC) has been a debatable issue, therefore, the representation and coverage area may be re-considered to ensure its proper functioning and to avoid tribals and non-tribals conflict as well as ensuring vibrancy of democratic governance units. Again, Effective and efficient functioning of Tribal Autonomous Development Council should be ensured through regular monitoring, performance appraisal and making concrete efforts towards sensitization of elected representatives. More institutional programmes may be designed for providing training to tribal and scheduled castes women by using multi–disciplinary approach. Sericulture, horticulture, mushroom cultivation, commercial cropping such as menthe, medicinal plants, floriculture etc. required extensive training support and extension services. Again, in order to enhance women's access to credit for consumption and production, the micro–credit institutions should be further strengthened and the actual flow of funds should be substantially enhanced so that self–employed groups of women have access to adequate credit for the income–generating activities. Interventions for women's health and nutrition are extremely crucial for the health and well–being of the women. Women should have access to comprehensive health care. The vocationalization of education and vocational training for women would require a network of regional vocational training centres, residential facilities, and trained profession personnel.

Restructuring of development programmes is called for gender sensitization in governance, empowerment of women, ensuring gender–just society, social equity and capacity building of the women so that they may actively participate in the process democrative decentralization and governance.

There is an urgent need for documenting the fast vanishing bio–pharmacological traditional knowledge of tribal communities. Introduction of economically important plants for large–scale cultivation and nursery–raising activities in the area of medicinal herbs be promoted. These schemes deserving special attention of the policy makers should be financially supported by the Central Government of North East Council.

SCIENCE & TECHNOLOGY

Being a landlocked state with a distant geographical location has posed its own unique set of problems for Tripura, necessitating out of box thinking solutions. At the national level, the Department of science & technology (DST) within the Ministry of science & technology oversees scientific research in the fields of chemical sciences, physical sciences, life sciences, engineering sciences, earth sciences, atmospheric sciences, and mathematical sciences. In addition, DST administers technology development and societal programmes that aim at application of science & technology for rural development, young scientists, entrepreneurship development, and uplift of weaker sections like, women, tribals, scheduled castes. Department of Bio-technology, within the Ministry of science & technology governs research and application of bio-technology.

In addition to science popularization & awareness, co-ordinating activities of research and technology, the department of science & technology in Tripura also implements the Non Conventional Energy programme as well as acts as the state nodal agency for renewable energy programme in Tripura. At the national level this is the domain of Ministry of Environment & Forests. While Information Technology is being woven into the warp and weft of all fields of socio-economic development, in view of its strong nexus with science, technology, and bio-technology it is recommended that IT too should form a part of department of science & technology.

There is a need to harness the latent potential by according an intensive and extensive thrust to Information Technology and Bio-technology. Information Technology is the more recognized face of knowledge society, which has two components viz., society transformation and wealth generation. Societal transformation through the medium of education, health care, agriculture, and governance would lead to employment generation, high productivity, and rural prosperity. The core sectors, identified by the Task Force constituted by the Planning Commission, for society transformation and wealth generation are information technology, tele-medicine, tele-education, biotechnology, weather forecasting and disaster management. There is a need to create infrastructure and develop competent manpower in these fields by way of maintaining linkage with national institutions and industry for gainful employment.

INFRASTRUCTURAL DEVELOPMENT IN TRIPURA

We all know that the long–term sustainable development of a state/region primarily depends upon the creation of both physical capital formation and human capital formation. The availability of adequate infrastructure facilities is vital for the accelerated economic prosperity of the region. The state Government were traditionally aware of this and have accorded high priority to investment in roads, railways, power, telecommunication, ports, power, airports, water supply, sanitation and sewage. Infrastructure is usually defined as the physical framework of the facilities through which goods and services provided to the public and under normal circumstance its linkages are multiple and complex because of the reason that it generates spillover effects and influences the level and pattern of both production and consumption. The India Infrastructure Report rightly observes that " infrastructure covers a wide spectrum of services, transportation (roadways, railways, airways and water transportation), power generation, transmission and distribution, telecommunications, port handling facilities, water supply and sewage disposal, urban mass transport systems and other urban infrastructure, irrigation, medical, educational and other primary services. Some of these services have a direct impact on the working of a business enterprise, while others are more important from a societal point of view. The availability of adequate infrastructure facilities is imperative for the overall economic development of a country. Infrastructure adequacy helps determine success in diversifying production, expanding trade, coping with population growth, reducing poverty and improving environmental conditions.

In the context of Tripura, it is pertinent to observe that the public expenditure on the provision of social services like education, public health, water supply and sanitation, housing and nutrition has been continuously increasing from 31.11% in the 6th Plan period to 38.34% in the 8th Plan period to 48.86% in the 9th Plan period while public expenditure on economic infrastructure like power, irrigation and food control and central economic services has been declining consistently from 25.02% in the 6th Plan period to 17.54% in the 8th Plan period and further to 11.78% in the 9th Plan. Transport and Communication sector of the state which is already in dire straits has been receiving a minimal of 10–12% of the total plan outlay.

Although it is important for the Government to provide social security to its people, it is equally important to ensure the development of economic infrastructure as it supports the basic economic activities of the region and without which the state has little chance of attaining economic prosperity. It is evident that the power shortage in the state is expected to worsen in the coming years (Actual power shortage was 22.7% in 1997–98 while projected figures for 2006–07 is 25.3%). Presently the per unit cost of electricity in the state is high at Rs. 2.82 (2003–04). This is mainly on account of high cost of fuel, higher O&M and administrative cost and higher transmission and distribution losses. The O&M and administrative cost per unit of sale in the state is estimated to 26 paisa and 150 paisa (2003–04) which is high when compared to all India level of 10 paisa and 43 paisa respectively. The average tariff on the other hand was Rs. 1.46 per unit during 2002–03. Because of the large gap between the average tariff and cost of supply per unit, the net operating deficit of the state Government runs high and was to the tune of Rs. 81.60 crore in 2002–03.

We have already observed that Tripura is the It is the second populous state of North–east after Assam requiring large scale infrastructural development. The absence of a satisfactory level of transport and communication infrastructure development coupled with insurgency may negate the growth impulses and prospects. The state would have to ensure that while the power sector reforms are underway and market driven measures are being introduced, the cost of the power to the common man does not increase beyond a limit.

Obviously, the developmental issues calling for immediate attention are:

- Strengthening of Road and Railway links
- Establishing air links between Agartala –Delhi and other State capitals of North–east.
- Extension of power lines to remote villages and emphasis on non conventional energy sources especially solar energy.
- Computerization of meter reading and billing.
- Corporatization of power department with the help of the consultants.
- Improvement in power distribution and transmission systems and exploring the possibility of larger external assistance.
- Efficient natural gas management preferably through the installation of SCADA system.

- Infrastructure development for expansion of higher education especially Research Institutes in the state.
- Attracting private investment including foreign direct investment for infrastructural development.

N.E council should be persuaded to convince the Central Government for linking Tripura with the proposed East-West corridor with a four lane highway and Trans-Asian Highway. The council should be further apprised of the paucity of funds relating to the completion of work on Agartala- Sabroom stretch of National Highway-44.

N.E council must also be approached with the concrete proposal for the development of airlinks between Agartala and Kamalpur, Kailashahar and Silchar-Imphal-Aizwal to minimise inter-state disparities in the North-East region. With a view to further integrate Tripura with the rest of the country, airlinks between Tripura and Delhi and other N.E State capitals should also be established. Helipad services should also be promoted in the state especially to tourist spots like Jhumpui Hills as it would provide a fillip to the tourism activities in the state.

In order to minimise the need for frequent repairs and maintenance of roads, roads should be built with crumb rubber modified bitumen. Crumb rubber modified bitumen roads can be built by using waste rubber products including used tyres and at the same time are strong and can withstand the challenges of heavy rainfall and rising vehicular traffic including heavy / laden buses and trucks.

A standard comprehensive transport document consisting of the legal rules and regulations should be developed by the Planning Commission, GOI for exercising effective control over inter-modal traffic within the country and across the international boundary.

The GOI should take effective steps in initiating dialogues and round table discussions with Bangladesh for linking up the IDR and BDR Railway systems particularly in the Karimganj and Agartala districts. Moreover GOI should also show its pro-active attitude and mental preparedness for making additional investment on such upgradation as the BDR system might require in order to carry the additional Indian traffic up to Chittagong.

The Department of Telecommunication must provide all administrative offces up to the Block Level with a fax and internet connection through the Multiple Access Radio Relay System (MARR). The same facilities must be provided to the officers of the Defence Department, Border security and Para military forces, Police, AIR, Doordarshan and others who provide essential services.

In order to ensure greater connectivity and enhanced communication, along with BSNL, the private players like Reliance, Tata Telecom, Hutch and Airtel should also be encouraged to launch mobile phone and WLL services without compromising on the national security.

A comprehensive reform plan for electricity supply industry in Tripura should be adopted. The reform policy should focus on

- Introducing competition in the electricity sector and improving its efficiency and overall performance by taking into account the issues of electricity access, energy security, environmental protection and economic growth.
- Making the State Electricity authority accountable for the performance of its public electricity system by providing additional incentives / assistance to better performing units on the basis of a transparent set of criteria.
- Adopting an implementable time-table for establishing a regulatory framework, removing subsidies, curbing power theft and developing innovative solutions for private sector distribution.
- Maximising the use of existing auto production capacity to meet the demands of the growing electricity market.
- Undertaking market-based reforms in terms of improving business practices, mobilising investment and consequently giving more freedom to market players to exchange and trade power across state borders.

In view of the unbalanced regional development in the state, more bank branches should be opened in remote and in-accessible areas especially the Dhalai region which at present is the most backward region of the state..Emphasis must also be made on improving banking services and facilitating ease of transaction for customers by reducing red tapism and paper work through E-banking and Tele-banking services.

The interdisciplinary group of experts from the University of Tripura should undertake long term project in consultation with the RBI for examining how the banking and financial institutions norms and procedures may be suitably amended, improved and adapted to respond to the fastly changing financial requirements of the business environment of the industry in Tripura. The expert group would also organize effective interactions, brainstorming sessions and regular day to day interactions between the bank, industrialists, SLVC, SLMC, State Level Task Force and Corporate Bodies.

The banking system should be completely overhauled and geared up for making concerted efforts to improve the CD ratio and in this direction the RBI may be requested to direct the public and private banks to invest at least 60 percent of the deposit in Tripura. Every department in the bank should be asked to draw a credit plan under the concerned scheme. Scheme-wise –Department wise credit target should be fixed. The concerned Department should also arrange for the issue of bank loans linked work order.

The banks should provide facilities for soft loans and micro-credit to priority sectors and initiate more lucrative schemes to attract deposits. In this regard the North Eastern Development Financial Corporation (NDFC) should be convinced and persuaded for providing greater priority sector lending in Tripura so as to encourage large scale investment in the infrastructural projects particularly Gas and Bio-fuel.

To tap the irrigation potential of the state, the Water Resource Department should identify viable Deep Tube Well schemes for irrigation purposes and formulate projects accordingly keeping in mind that the said projects do not deplete the ground water level of the area.

The proposal of the State Government relating to Flood control measures in the form of construction of embankments, anti-erosion works and the improvement of the existing irrigation infrastructure must be properly funded and expedited by the NDFC and the NABARD. Moreover the execution of the proposed irrigation projects must be matched with adequate flow of power supply.

With a view to providing a fillip to higher education in the state, requisite infrastructure for setting up a geo-technical centre at Agartala should be established. A State Central Library, a State archive and modern State museum should also be set up with financial assistance from the Central Government.

There is a need to set up a Medical Institute in the state and the DONER should immediately give its approval to the Ministry of Health and Family Welfare for funding the establishment of the Medical Institute.

In view of the erratic water supply and high iron content found in water, a comprehensive and explicit report must be prepared for mini-surface water treatment and improving water supply system in all identified rural and urban areas.

Tripura government needs to focus on creating an “investor friendly” environment for attracting investment from both domestic and foreign resources for an optimum use for infrastructural development in the state. For all practical purposes, a true vision of the State can be made more operational, in an investor–friendly market oriented environment, if and only if we are able to fully mobilize and exploit all the available human, institutional, technological and physical in the best possible manner for an optimum use of infrastructure development.

Chapter–I

Development Profile of the State

1.1. Introduction

The erstwhile seven sisters of the North East, now eight ever since Sikkim joined the family, comprise that part of India lying east of the Siliguri neck. The north-east is yet a fairly unexplored as well as undeveloped part of India maintaining its pristine, sylvan surroundings.

While the nectar of development has still not been savored by the denizens of the north-east, the evils of skewed and unplanned development are festering into the entrails of an unblemished society. Each state of the north-east has its own set of forte's as well as foibles. However, a few disadvantages run on a common thread. Tucked away as it is in one corner of the country, it has never been in the mainstream of Indian political, social, economic and cultural life. Its problems have largely remained untended not because of lack of sympathy but because of lack of knowledge.

Another problem is that of defence and related communication. A combined move from the north and the south can easily squeeze the Siliguri neck thereby cutting off the lines of communication with the rest of the country.

Further, a great dichotomy is obtained among the people of the plains and the hills in the North-East. The cultural identity of the two has remained largely intact. There have never been effective measures to bridge the identity gap. The contact between the hills ad the plains has remained at best peripheral. The isolation of the tribes was intensified through the “Inner Line” regulation that prevented the entry into the tribal areas without permission.

The North-East is equally seized of the linguistic, religious, and ethnic diversity that pervades remaining part of India. But the NE is also overwhelmed by the strong urge of the units to retain their identity. The units are so small that they cannot support any kind of complex institution. Neither are the resources available so as to sustain the self serving identities.

The partition of India aggravated the geo-political isolation of the North-East, even as rising ethno-cultural consciousness among its extraordinarily diverse population as well as migrant pressures gave rise to tensions and violence. Juxtaposed with / Contiguous as it is to a troubled and roiled neighbourhood, which is perennially embroiled in inter-necine strife, and infamous for its warlords, insidious drug mafia and the arms bazaar, the North-East could hardly remain immune to such baleful influences. Rampant smuggling of narcotic drugs from the notorious Golden Triangle into the North-Eastern states has brought in its wake the pestilence / scourge of drug addiction and AIDS. The influx of political as well as Malthusian refugees from across the porous borders poses its own set of challenges.

Of the eight North–Eastern states, Tripura is an exotic geographical entity at the north-eastern tip of India straddling the two neighbouring countries viz., Bangladesh on its eastern flank and Myanmar on its western flank. Largely inhabited by various tribes, it has had an uninterrupted but chequered history and culture, distinctly identifiable and peculiarly its own. History traces the suzerainty over the region, now familiar to us as Tripura, with the Guptas of circa 5 B.C. While thereafter Naths, Ratas, Khargas, Chandras, Varmans, Devas ruled this region, it was during the decline of the Deva dynasty of Bengal that Chengthung Fa, the earliest chief of Tipra tribe in Tripura, collided with Muslims who were firmly established in Bengal.

The outcome of the clash was the establishment of the Tripura kingdom and dropping the original title Fa, the title of Manikya was adopted. According to *Rajmala, a chronicle of the Tripura royal family,* this family belonged to the lunar dynasty of the Kshatriya caste. Most modern scholars believe that Tripuris, like other tribes of the North East, were Mongolian in origin.

Thence followed a succession of Manikya rulers till the death of Maharaja Bir Bikram on 17.05.1947 at the age of 39. Since Bir Bikram's son was a minor, the late Maharaja's widow, Kanchan Pava Devi formed a Regency Council to run the administration. The threat of conspiracy hatched by a few Muslims of Tripura and Comilla headed by Abdul Barik Khan to annex Tripura to East Pakistan goaded the Maharani to dissolve the Regency Council and assume the mantle of the Regent. Thereafter, on behalf of her minor son and as a Regent of the State, she entered into an agreement with the Government of India on 09.09.1949.

Tripura merged with the Union of India on 15th October, 1949 and became a part C State of India administered by a Chief Commissioner. With the reorganization of the States in 1956, Tripura became a centrally administered territory. Later, under the provisions of the India Government Union Terrritories Act, 1963, a representative government with a council of ministers was formed on 1st July, 1963. And, on 21st January, 1972 Tripura attained full fledged statehood under the NorthEastern Re-organisation Act, 1971. Today, it has a unicameral house with _____members, a council of Ministers, a separate High Court, and a common Governor with the other States of the North-East.

1.2. The Political Setting :

The rulers of Tripura had adopted 'Bengali' as the language of administration and imported administrators, teachers and a range of professionals from Bengal to run the administration. The Maharaja of Tripura in 1931, and again in 1943 reserved certain areas for Settled Agriculture by five designated tribes namely, *Tripuri*, *Reangs*, *Jamatias, Noatias* and *Halams*. It was the economic and administrative compulsion on the part of the Maharaja to provide hospitality to Bengalis that exerted a cultural pull. Bengali language became the vehicle of administration and education. There are 19 hill tribes—mostly Hindus, two Buddhist tribes–*Chakma* and *Magh*, and a smattering of six tea garden tribes.

The state is also having a Tripura Tribal Area Autonomous District Council under Sixth Schedule of Indian Constitution. While there are 72 districts, 412 blocks, 245 towns and 39946 villages in the north–east region, Tripura has 4 districts, 31 development blocks, 856 villages and 968 panchayats. Table 1.1 depicts the inter–state profile of administrative units of the north–eastern region.

Table – 1.1 : Administrative Units/ Division

State	District As on 2001	Panchayats As on 1995	Blocks As on 1995	Villages As on 1995	Towns 2001
Arunachal Pradesh	13	2012	59	3649	17
Assam	23	2490	219	25590	125
Manipur	9	160	34	2391	33
Meghalaya	7	–	39	5629	16
Mizoram	8	–	22	785	22
Nagaland	8	–	28	1225	9
Tripura	4	968	38	856	23
Total	72	4664	412	39946	245
All India	593	226108	5428	634321	4689

Source : Census of India, 2001 and Ministry of Rural Development

1.3. Topography :

Tripura is a small, land–locked hilly state situated in the north–eastern part of India. The state has a total geographical area of 10,492 sq. km. accounting for barely 0.342 per cent of the total area of the country. In terms of area, it is the third smallest state in the country, after Goa and Sikkim. The state lies between latitudes $22^0$56' N and $24^0$32' N are longitudes $91^0$09' E and $92^0$20' E. The total length of its international borders is 1018 km but it is bound by Bangladesh on three sides covering 856 km. of its total border. It is connected with the remaining part of India through Assam, via a small strip of border of 53 km – the Siliguri neck. The state is predominantly hilly and is dissected by six low ranges of hills running north–west to south–east. The prominent hill ranges are Jampui, Sakhantang, Longtharai, Atharamura, Baramura, Destamura, Belkum and Kalajhari. These ranges rise in elevation from 100 feet to 3000 feet, the heights increasing as one goes south–west to north–east, with a strip of plain running down the western fringe gradually widening into a fan further south. The state is located in bio-geographic zone of 9B- North-East hills with a rich diversity of resources. There are six important rivers but none is perennial. Gumti, Howrah, Dhalai, Muhuri, Feri, Juri

are the major rivers, which assume alarming proportion in monsoons but otherwise continue to remain shallow and tranquil for the rest of the year.

1.4. Ethnographic Profile :

In 1901, Tripura's population was 1.73 lakh, with tribals making up nearly 52.89 per cent of the whole. By 1941, the total population rose to 5.13 lakh, with a barely 50.09 per cent tribal majority. But by 1981, the tribal population was to the tune of 28.44 per cent of a total population of 2.05 million. Evidently, the tribal people were reduced from over a half to barely more than a quarter of the state's population in a century. The demographic changes, the economic pressures created by the sudden influx of population, and the spread of education through missionary influence among the *Mizos*, *Kukis* and other tribes have generated new impulses and a mix of expectations and discounts. The first manifestation of the resistance to the Bengali refugee influx was the formation, in 1947, of *Seng Krak*, a militant organization of tribals. More important was the electoral setback suffered by the Communists in 1967 polls that engendered disillusionment in the youth leading to the birth of *Tripura Upajati Juba Samiti* (TUJS). The TUJS's objectives were to secure the creation of an Autonomous Tribal District Council under the Sixth Schedule, reconstitution of the tribal resource initially created during the Maharaja's regime, restoration of tribal lands alienated from non–tribals, and recognition of *Kok–Borok* in the Roman script as an official language and its introduction as a medium of instruction. The State Government constituted an Autonomous District Council (ADC) in March 1979 and immediately encountered opposition from non–tribal interests. The Act was challenged in the Guwahati High Court. Its basic premise was upheld though some subsidiary features relating to the power of the Council to regulate trading and money lending by non–tribals were struck down. The Bengali critics complained that ADC was to cover 7131 sq. km. comprising three–fourth of the territory of the state, to serve the interests of no more than one–fourth of its population. Yet, 70 per cent of the ADC's population would be tribal and necessarily scattered over wide areas of forests and hill regions. Of the 28 seats in the Council, 21 were sought to be reserved for tribal representatives. The TUJS planned demonstrations and *hartals* that led to clashes with police and loss of property and human lives during 1980s. Thus, the Tripura Tribal Areas Autonomous District Council (TTAADC), which was aborted in 1980, finally came into being in January 1982.

Despite the large number of surrenders, new armed groups surfaced and nearly 11 militant organizations are believed to be operating in the state. Political patronage has encouraged lawlessness. While CPI (M) is said to have spawned the ATTF, the *Tripura Rajya Raksha Bahni* and Tripura State Volunteers are reported to have been fostered by the rival TUJS with connivance of the Congress party. Notably, tribals are being assailed by modernization and change as well as influx of non–tribals in their areas.

Agriculture in Tripura is still heavily oriented towards *jhum* farming. There were, in 1987, as many as 21,677 tribal families fully dependent and 33,372 families partly dependent on *jhum*. Shifting cultivation in north–eastern region is shown in table –1.2. There are about 4.43 lakh families engaged in shifting cultivation in north–east region while in Tripura there are about 43 thousand families engaged in shifting cultivation.

Table – 1.2 : Shifting Cultivation in North–east Region

State	Annual Area Under Shifting Cultivation (sq.km.)	Fallow Period (years)	Minimum Area Under Shifting Cultivation (sq.km.)	No. of families practicing shifting cultivation
Arunachal Pradesh	700	3–10	2100	54,000
Assam	696	2–10	1392	58,000
Manipur	900	4–7	3600	70,000
Meghalaya	530	5–7	2650	52,290
Mizoram	630	3–4	1890	50,000
Nagaland	190	5–8	1913	1,16,046
Tripura	223	5–9	115	43,000
Total	3869 (1.5 per cent)	–	14,660 (5.7per cent)	443336

Source : Task force on Shifting Cultivation, Ministry of Agriculture (1983)

The subsequent *jhum* resettlement schemes had resulted in a steady process of resettlement of 64000 *Jhumia* families partly or fully by 1992. The remaining *Jhumia* families may be rehabilitated by 2008 at a cost of about Rs. 250 crores. Horticulture has a large potential and one lakh hectare expansion of acreage is planned especially under citrus and cashew. The total area under rubber in the north–east is now over 30,000 of which 18,500 hectares is in Tripura. Tripura today ranks second in rubber production after Kerala (5000 tonnes per year). Tripura has been a tea growing area though not in the big league. It has today some 53 gardens, many of them are sick, with an average area of about 6000 hectares

which produce an average of 5.5 million kg. per annum. The state has poor infrastructure in terms of rail and road network. Agartala to Kolkata across Bangladesh by rail and road was 350 km and today the distant is 1645 km. The North–east Frontier Railway has been extended south from Badarpur to Kumarghat within Tripura. It is still 135 km from Agartala which was just 4 km from Bangladesh rail head at Akhaura. There is also need for a road link from Tripura to Mizoram. The air links are better but could be further strengthened and diversified. With the SAARC Preferential Trade Agreement (SAPTA) coming into operation, Tripura could be a major and early beneficiary from trade with Bangladesh. Similarly, Tripura may be developed with massive dose of investment in terms of infrastructure development, heavy industries development, agricultural development and management of natural resources, keeping in mind the cultural and ethnic diversity and identity of people.

1.5. Demographic Features :

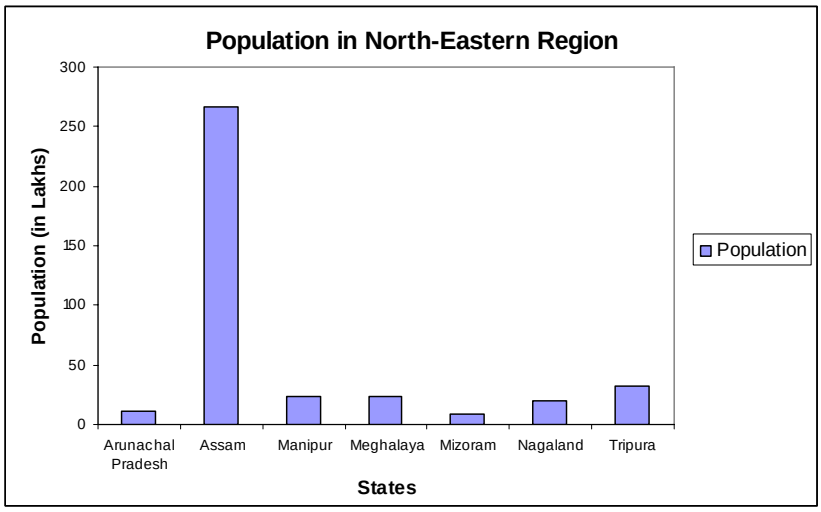
According to provisional estimates of 2001 census, the state's population stood at 31.91 lakh, with a population density of 304 persons per sq. km. The birth rate in the state is 16.5 per thousand which is lowest in north–east region much lower than the national average of 25.8. Again its death rate is 5.4 per thousand which is much below than the all India level of 8.5. The significantly, the death rate of Tripura is second lowest after Mizoram. Of the states in the North East, Tripura is the second most populated state after Assam, though in terms of area it is also the second smallest state. There are 19 sub–tribes among the scheduled tribes in the state with their own cultural diversity, namely (i) *Tripuri*, (ii) *Reang*, (iii) *Jamatia*, (iv) *Chakma*, (v) *Lusai*, (vi) *Mog*, (vii) *Garo*, (viii) *Kuki*, (ix) *Chaimal*, (x) *Uchai*, (xi) *Halam*, (xii) *Khasia*, (xiii) *Bhutia*, (xiv) *Kunda*, (xv) *Orang*, (xvi) *Lepcha*, (xvii) *Santhal*, (xviii) *Bhil*, (xix) *Noatia*. The scheduled tribes population of the state was reported to be 8.53 lakh in 1991 that constituted 30.95 per cent of the total population of the state. There has been a sharp decline in the ratio of tribal population during one century (53 per cent in 1901 to 28 per cent in 1981). The population of scheduled castes in the state has been reported to be 4.51 lakh which constitute 16.36 per cent of the total population. Significantly, the population of north–east region constitutes 7.5 per cent of the population of the nation as a whole. The demographic features of the North-Eastern region are outlined in table – 1.3.

Table – 1.3 : Demographic Features of North–east Region

State	Area (Sq.km.)	Population (2001) (lakh)	Density (Persons/ sq.km.)	Decennial Growth Rate			Sex Ratio Female/
				71–81	81–91	91–01	000 male
Arunachal Pradesh	83743	10.91	13	35.15	36.83	26.21	901
Assam	78438	266.38	340	23.36	24.24	18.85	932
Manipur	22327	23.89	107	32.46	29.29	30.02	978
Meghalaya	22429	23.06	103	32.04	32.86	29.94	975
Mizoram	22081	8.91	40	48.55	39.70	29.18	938
Nagaland	16579	19.89	120	50.05	56.08	64.41	909
Tripura	10486	31.91	304	31.92	34.30	15.74	950
Total	255083	384.95	151	35.87	–	22.02	937
All India	3287263	10270.15	312	24.66	23.85	21.34	933

Source : Census of India, 2001

Figure–1.1



1.6. Economic Structure :

One of the most important indicators of measuring the overall economic progress achieved by a state, is the growth of income. State income as well as per capita income plays a vital role in formulating developmental policies. The performance of the state's economy has been relatively impressive despite its geographical isolation, poor infrastructural facilities, low capital formation, stagnant agricultural activities, almost non–existence of industries, poverty and unemployment. The liberalization policy and economic reforms have boosted neither the economy nor the industrial growth in the state. The state is almost entirely dependent on the Central Government for drawing its resources. Own tax and non–tax revenues of the state constitute only 15 per cent of the total revenue receipts of the state, with the balance devolving as share of central taxes, central grants–in–aid and other grants, Central plan assistance, borrowings from the Centre, open market borrowings and borrowings from the public account. Tripura is a special category state having weak resource base. The state's own resources contribute hardly 10.14 per cent of the total receipts. As a result, the state has to depend fully on the central assistance. Budgetary outlay for 2001–02 stands at Rs. 2667.59 crores which are 22.46 per cent more. Revenue outlay stands at Rs. 2863.20 crore and capital outlay stands at 729.87 crore in 2001–02. Table 1.4 shows that while percentage change in Net State Domestic Product (NSDP) during 1987–88 to 1999–2000, has been reported to be significant in the secondary sector, the share of primary sector has declined. Significantly, in all the north–east States, the share of primary sector has declined while the share of tertiary sector in NSDP has increased. The highest increase in the share of tertiary sector has been reported in Arunachal Pradesh. (Table 1.4)

Table – 1.4 : Percentage Change in Net State Domestic Products (1987–88 to 1999–2000)

States	Primary	Secondary	Tertiary
Arunachal Pradesh	–29.07	–52.96	41.87
Assam	–11.25	9.40	12.03
Manipur	–28.13	56.89	20.98
Meghalaya	–15.24	–33.22	10.19
Tripura	–23.94	175.97	10.37

Source: Tenth Five Year Plan (2002–07), Vol. I, Planning Commission, Government of India

There have also been structural changes in employment in all the North–East States. As evident from table 1.5, the share of tertiary sector in employment generation has been reported to be negative in Arunachal Pradesh and Manipur. In the other states, labour force has shifted from primary and secondary sector to the tertiary sector. Importantly, share of secondary sector in employment generation has declined in Tripura, Meghalaya and Manipur (Table–1.5)

Table – 1.5 : Percentage Change in Employment (1987–88 to 1999–2000)

States	Primary	Secondary	Tertiary
Arunachal Pradesh	19.01	146.93	–28.61
Assam	-16.44	26.90	38.23
Manipur	5.12	–1.24	–9.08
Meghalaya	–9.39	–22.57	37.11
Tripura	–4.74	–37.65	7.89

Source: Tenth Five Year Plan (2002–07), Vol. I, Planning Commission, Government of India

The total Gross State Domestic Product at current Prices stood at Rs. 4930.12 crore in 2000–01 and the Net State Domestic Product at current prices stood at Rs. 4579.88 crore in 2000–01. Primary sector contributes 34.42 per cent, secondary sector 12.36 per cent and tertiary sector 53.22 per cent to NSDP at current prices. Significantly, there is a predominance of primary sector, owing to subsistence cultivation. Since, there is a near total absence of industrial activity in the state, there is hardly any manufacturing activity. Secondary sector, excluding construction, contributes barely a little over 2 per cent of the State Domestic Product. There is a high concentration of public administration, community, social and personal services in the tertiary sector. Per capita income has increased from Rs. 5534 in 1993–94 to Rs. 14348 in 2000–01, with an annual average growth of 6 per cent.

The contribution of agriculture and allied activities has declined gradually from 37.40 per cent in 1993–94 to 33.28 per cent in 2000–01. While the share of services sector in NSDP has been stagnant over the period from 1993–94 to 2000–01, the share of industries in NSDP has shown 4.6 percentage point increase. The state has been making all-out efforts for achieving higher economic growth. During the Ninth Plan, GSDP growth rate was reported to be 7.25 per cent as compared to the national growth rate of 6.8 per cent. It is also to be noted that per capita

income of the state has significantly increased. The productivity of main agricultural crops and plantation crops like rubber has been found higher than the national average. The state is predominantly rural, accounting for 82.91 per cent of population in rural areas. About 58 per cent of the area of the state is under different categories of forests, and land suitable to normal agricultural operation is relatively scarce. In fact, the net sown area is only 26.5 per cent of Tripura's land mass and average size of operational holdings is 0.97 hectare, which is below the national average. Only about 20 per cent of gross cropped area is irrigated and agriculture is mainly rain–fed. The crop intensity is 176 per cent, which is higher in the land situated in the valley. The major part of the land of the state is dry, consisting of laterite soils suitable for some selected crops only. Important crops in the state are rice, wheat, potato, pulses and vegetables. Cash crops like jute, mista, cotton, tea, rubber and plantation crops are also produced in the state. Tripura, with about 6500 hectares of tea plantation, 28000 hectares of rubber plantation (assessed potential for rubber plantation of 1,00,000 hectares), is rich in plantation crops like rubber, tea, pineapple, orange, litchi, banana and lemon.

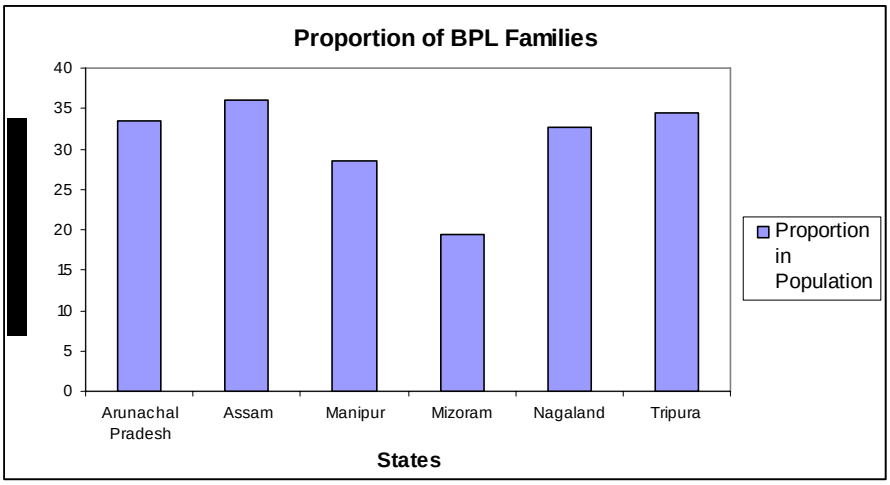
Table 1.6 below shows that the percentage of population below the poverty line has significantly declined during the period 1973–74 to 1999–2000. However, a higher rate of decline has been reported for Mizoram, followed by Nagaland. During 1999–2000, highest proportion of population living below poverty line was reported in Sikkim (36.55 per cent), followed by Assam (36.09 per cent) and Tripura (34.44 per cent), while lowest population living below the poverty line has been reported in the state of Mizoram (19.47 per cent).

Table 1.6 : Percentage of Population Below Poverty Line

States	1973–74	1977–78	1983	1987–88	1993–94	1999–2000
Arunachal Pradesh	51.93	58.32	40.88	36.22	39.35	33.47
Mizoram	50.32	54.38	36.00	27.52	25.66	19.47
Manipur	49.96	53.72	37.02	31.55	33.78	28.54
Nagaland	50.81	56.04	39.25	34.93	37.92	32.67
Tripura	51.0	56.88	40.03	35.23	39.07	34.44
Assam	51.21	57.15	40.47	36.21	40.86	36.09
Sikkim	50.86	55.89	39.71	36.08	41.43	36.55

Source: Tenth Five Year Plan (2002–07), Vol. I, Planning Commission, Government of India

Figure–1.2



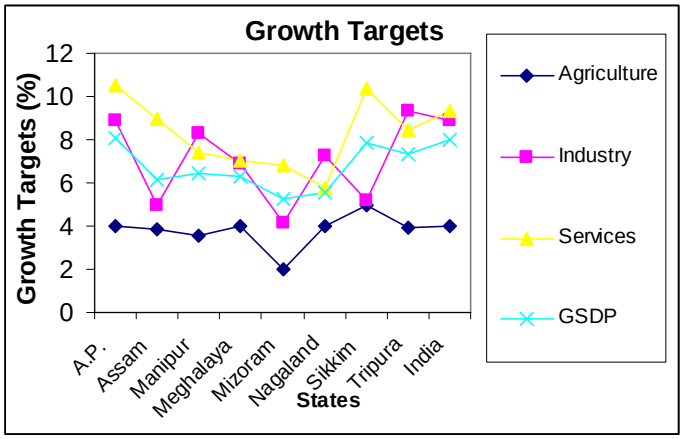
Growth targets for the Tenth Five Year Plan are shown in Table–1.7 and depicted in figure 1.2, while the GSDP growth at the national level is estimated to be 8 per cent, it is expected to grow at 7.31 per cent in the state of Tripura. Further, as shown in the table, growth targets for the economy of Tripura are comparatively lower among the north–eastern States. However, the target growth for industry is higher thatn the other states of the North East.

Table 1.7 : Growth Targets For 2002–07

States	Agriculture	Industry	Services	GSDP
Arunachal Pradesh	4.00	8.90	10.50	8.05
Assam	3.82	5.00	9.0	6.17
Manipur	3.59	8.33	7.39	6.46
Meghalaya	4.00	6.87	7.05	6.30
Mizoram	2.00	4.16	6.84	5.29
Nagaland	4.00	7.27	5.78	5.56
Sikkim	5.00	5.21	10.36	7.87
Tripura	3.90	9.37	8.43	7.31
All India	4.00	8.86	9.35	8.00

Source: Tenth Five Year Plan (2002–07), Vol. I, Planning Commission, Government of India

Figure–1.3



1.7. Economic Infrastructure :

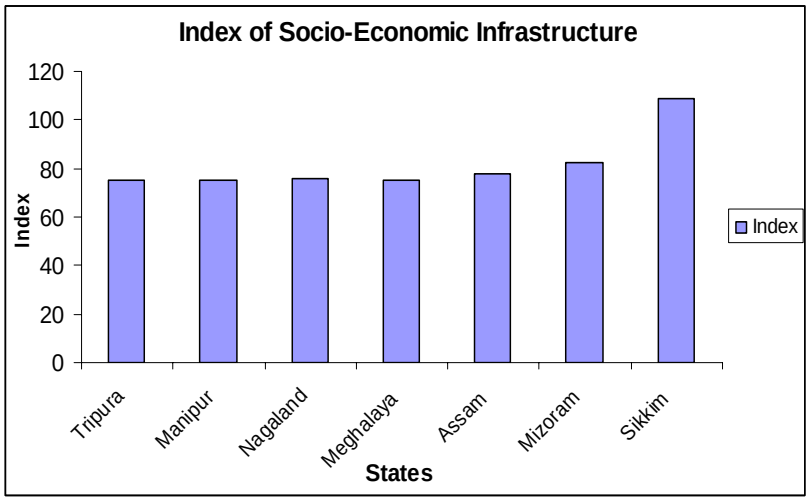
The economic infrastructure services such as power, energy, telecommunications, roads, railways, airlines, banking institutions etc., are the pre–conditions for development and growth of an economy. However, the infrastructure facility in the state of Tripura is not favourable both in terms of quantity and quality compared to other parts of India. The Composite Infrastructure Index evolved by Centre for Monitoring Indian Economy (CMIE), based on availability of power, irrigation, roads, railways, post office, education, health and banking reveal an overall backwardness of the state in terms of infrastructural development. The assessment of CMIE for 1991–92 rated Tripura as the most backward state in the entire nation, after Arunachal Pradesh. It is also to be noted that during 1989–90 to 1991–92 infrastructure index for Arunachal Pradesh improved from 31 to 43 whereas the same index for Tripura, declined from 66 to 63, indicating a further worsening of the availability of infrastructure. Even though the socio–economic infrastructure is poor in north–eastern States, however, Sikkim has been placed better in terms of socio–economic infrastructure index. Significantly, lowest index has been reported for the state of Tripura which demonstrates the poor socio–economic infrastructure status of the state as represented by table 1.8 and figure 1.4.

Table – 1.8 : Index of Socio–Economic Infrastructure (1999)

States	Index
Tripura	74.87
Manipur	75.39
Nagaland	76.14
Meghalaya	75.49
Assam	77.72
Mizoram	82.13
Sikkim	108.94

Source: Tenth Five Year Plan (2002–07), Vol. I, Planning Commission, Government of India

Figure–1.4



Undeniably, road transport is the lifeline of a state. However, in Tripura the only highway winds itself through an extremely hostile hilly terrain traversing the neighbouring states of Assam and Meghalaya. The Agartala–Dhaka Bus service, recently introduced by the state government is expected to take road transport facility to Kolkata via Dhaka Bus service that will save money as well as time in near future. Due to its poor infrastructure conditions, the railways is not a dependable mode of transport and it has token presence. Table – 1.9 demonstrates the installed capacity of power in the north–east region. Tripura ranks third after Assam and Meghalaya in the installed capacity of power in the north–east region.

Table – 1.9 : Installed Capacity of Power

State	Hydro	Thermal	GT	Diesel	Total
Arunachal Pradesh	23.60	0.00	0.00	15.80	39.40
Assam	2.00	300.00	300.0	20.70	622.70
Manipur	2.80	0.00	0.00	9.30	12.10
Meghalaya	185.20	0.00	0.00	0.00	185.20
Mizoram	5.40	0.00	0.00	19.10	24.50
Nagaland	19.30	0.00	0.00	3.26	22.56
Tripura	**16.00**	**0.00**	**106.50**	6.10	128.60

Source : NEC Secretariat, Shilong

Power plays a key role in industrial development, agricultural and commercial activities. Of the three sources of power viz., hydro, thermal and nuclear the state relies mainly on hydro and thermal resources. However, the state is endowed with natural gas in tune of 400 bn. cm. while present production capacity is 1.86 mcv per day. The state is rich in minerals such as natural gas (Dome, Baramura and Rokhia) in the tune of 400 billion cv. m. per day. Tripura gas is methane rich which makes it good for methanol and nitrogenous fertilizers. Out of two major sources of power generation, thermal power accounts for more that 77 per cent while remaining 22 per cent is generated from hydel power. Out of total units of power sold to ultimate customers in 2001–2002 (350.69 MV), maximum power was sold for irrigation, public water & sewage and domestic consumption. During 2001–2002, the total installed capacity was 85.35 MW and total power generated 283.73 MV.

The communication facilities in the state have been growing steadily in recent years. The postal and telecommunication facilities in the state have expanded in the remote areas. The state had 63 telephone exchanges with 59017 telephone connections in 2000–01. Besides, there are 953 public telephone offices. Mobile telephone services are not available except in a limited area of the state capital where BSNL services has been extended from Kolkata and but that too is neither functional nor cost–effective. It is hoped that in near future, mobile communication will be facilitated.

There are 222 bank branches and out of these 138 branches are located in rural areas. The banking network includes commercial banks and cooperative sector banks. The credit–deposit ratio has been reported to be 21.16 per cent which is far below the national average of 56.7 per cent as of March 2001.

The state has many infrastructural bottlenecks. It is characterized by poor infrastructure, lack of private investment and a high percentage of population below the poverty line. This has impacted adversely the ability of the state to mobilize resources. Location–wise disadvantage of north–eastern states handicaps their economic development.

The problem of Tripura is compounded owing to the fact that it is land locked and bound by Bangladesh on three sides. Its narrow border with Assam and Mizoram is characterized by a hostile terrain. Thus, the state's access to rest of India is highly limited. The only lifeline is NH44, which is often disrupted because of landslides and agitation blockades, cutting– off the state often for a number of weeks. Besides, the carrying capacity of NH44 is limited because of a large number of weak bridges.

1.8. Agriculture Development :

The net area under agriculture constitutes 26.68 per cent of the total geographic area. The state is hilly and more than 60 per cent of the area is under forest. The proportion of area under agriculture, therefore, is low in the state compared to the corresponding proportion at the national level (43.4 per cent). The economy of the state is basically agrarian and more than half of the population is dependent on agriculture and allied activities for their sustenance. The soil of the state is fertile and the state receives abundant normal rainfall which is conducive for agriculture and plantation crops. The contribution of agriculture and allied sector to NSDP at current prices has shown a declining trend, from 37.4 per cent in 1993–94 to 26.63 per cent in 2001–02. Importantly, a total of 60 micro watershed projects are being implemented all over the state in order to minimize the hazards of soil erosion and maintain soil health for increased production of different crops. Significantly, improved methods for *Jhoom* cultivation as well as rehabilitation of *Jhumias* have been implemented in the state. The horticultural activities of the state date back to the early 1960s. The tribal people have traditionally grown fruits like jackfruit, orange, pineapple since time immemorial. The annual demand of 1.9 lakh metric tonnes of fruits in the state has increased the importance of horticultural crops. The state has also lain due emphasis on tea and rubber crops.

In general, the north–east region has significant share in area, production and yields of rubber and tea plantation as evident from table 1.10.

Table – 1.10 : Area Under Tea and Rubber in North–east

State	Area Under Tea Hect. (2000)	No.of Tea Estates (1999)	Production of Tea (000 Kg)	Area Under Rubber Hect. (2001–02)	Production Tonnes
Arunachal Pradesh	2176	42	993	323	42
Assam	267392	30940	451236	12806	1755
Manipur	907	27	96	1698	198
Meghalaya	351	13	140	4354	2378
Mizoram	391	271	39	27947	10304
Nagaland	1214	9	43	619	63
Tripura	6623	72	6431	2024	393
All India	NA	–	NA	566558	631400

Source : Rubber Board and Tea Board

Table 1.11 show that the livestock resources of the state also reveal the agrarian economy of the state. The state ranks second, after Assam, in terms of livestock resources of the north–east region. Adequate health facility is a pre–requisite for increasing the productivity of livestock resources. The state has built up 15 veterinary hospitals, 56 veterinary dispensaries, 226 veterinary first aid centres, 138 stock man sub–centres and 11 animal insemination centres.

Table –1.11 : Livestock and Poultry in North–east (2002) (000)

State	Cattle	Buffalo	Sheep	Goat	Horses	Pigs	Total
Arunachal Pradesh	453	11	28	183	6	275	1267
Assam	8000	728	84	2677	12	1082	18210
Manipur	508	95	8	33	2	388	3055
Meghalaya	738	18	17	280	2	351	2152
Mizoram	33	5	1	16	2	163	1307
Nagaland	383	36	2	161	1	571	2444
Tripura	1228	18	6	639	2	237	3595
All India	197708	88832	56766	120774	827	13581	346693

Source : Livestock Census, 2002

1.9. Forest Resources :

Forest is one of the most important natural resources in the state as it provides fuel, fodder, small timber, food and income to the tribals and rural people. Forest coverage in the north–east region is shown in table – 1.12.

Table – 1.12 : Forest Area in North–east Region
(As on March 1999)

State	Forest Cover		Total Loss of Forest Resource	
	Area Sq.Km.	Percent	Shifting Cultivation	Total
Arunachal Pradesh	68847	82.21	75	75
Assam	23688	30.21	257	416
Manipur	17384	77.87	603	603
Meghalaya	15633	69.70	75	77
Mizoram	18338	86.99	292	292
Nagaland	14164	85.43	573	573
Tripura	5745	54.79	–	3
All India	637293	19.39	1875	2039

Source : Forest Survey of India, Dehradun

The State is endowed with rich and diverse forest resources. About 59.98 per cent of the geographical area of the state is under forest. The forests of Tripura are divided into two major types viz. evergreen forests and moist deciduous forests. Evergreen forests occupy the more humid areas of the state including Dharmnagar, Kailashahr, Kanchanpur and Kamalpur sub divisions as well as parts of Belonia, Subroom, and Sadar sub division. Moist deciduous forest is further divided into two distinct categories – namely, (i) moist deciduous *shal* forests, and (ii) moist deciduous mixed forest. Moist deciduous shal forest covers parts of Belonia, Udaipur, Sonamura and Sadar sub–divisions. On the other hand, moist deciduous mixed forest cover large areas of Sadar, Amarpur and Sonamura sub–divisions. As per estimates, the area under forest is 6292.681 sq. km. Out of this, 2195.473 sq. km. is under unclassified government forest and 3588,183 sq. km. is under reserved forest. Unfortunately the, existing forest resources are highly degraded. One of the reasons for such degradation has been severe land scarcity in the state due to influx of migrants from Bangladesh. Indigenous tribals, earlier practicing shifting cultivation in relatively fertile forest areas, have been marginalized and have been coerced to practice shifting cultivation in more fragile areas. Poor farmers and the landless have encroached on forest areas, thereby creating sites of perpetual degradation. Other factors responsible for degradation of forests are over–exploitation, illegal felling and smuggling and damage from fires and grazing.

In view of present situation, the state government has laid emphasis on sustainable development of forest resources and management of forests. The government has implemented State Afforestation Policy which envisages effective rehabilitation of degraded forest and extending tree covers beyond traditional forest areas through suitable multi–product afforestation models to conserve bio–diversity and to satisfy local people's need and use. Joint forestry planning and management arrangements involving local communities would be an integral part of all afforestation efforts to ensure replication of low–cost afforestation models over vast areas to ensure enhanced productivity of multiuse products from existing forests.

1.10. Industrial Development :

The state government is trying its best to create an integrated and comprehensive base for industrialization through proper linkages among small-scale, medium-scale, and large scale units. Department of Industries and Commerce was established to promote village and small scale industries as well as medium scale industries in the state. The entire north–east region is backward in terms of industrial development. There are hardly 1 per cent industries located in north–east region as against the total strength of the industries in India. Table 1.13 brings out the fact that there are only 2 large and medium size industries reported in Tripura revealing the state's backwardness in terms of industrial development.

Table – 1.13: Industrial Development in North–east Region (2000–01)

State	Large & Medium Industries	Small Scale Industries	Closed Industries (March 98)
Arunachal Pradesh	17	4520	36
Assam	129	23637	1732
Manipur	12	6000	169
Meghalaya	10	2621	136
Mizoram	1	4333	306
Nagaland	7	982	83
Tripura	2	2114	606
Total	178	44207	3065

Source: Basic Statistics of NER, NEC Secretariat, Shilong, 2002

There are 5 industrial states, 1 industrial area and 1 growth centre in the state. During 1998–99 to 2001–02, there were 1456 SIDO and 132 non–SIDO registration in the state. The scheme of PMRY and Marginal Money also promote industrialization in the state. The industries in the state are predominantly small

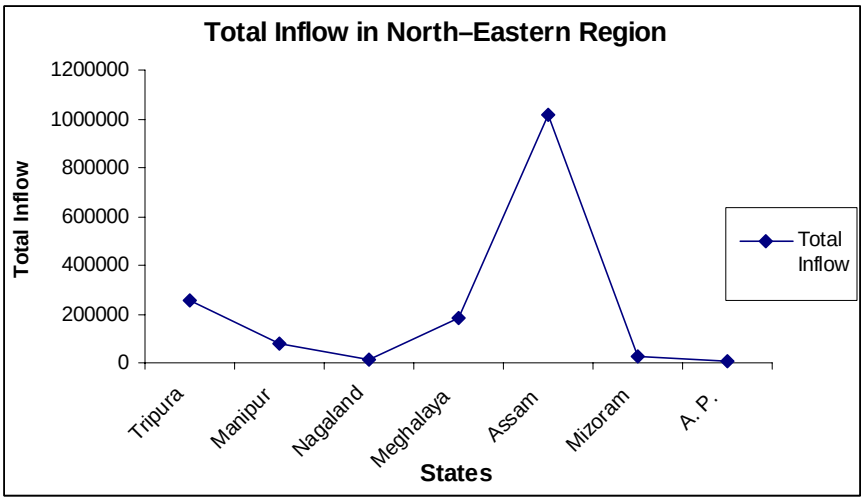
and cottage industrial units. Handloom, handicrafts and sericulture industries are most important cottage industries of Tripura. A new Directorate of Handloom, Handicraft and Sericulture has been set up in 1999 to ensure growth of the sector. There are 24 handloom clusters and 24 Primary Cooperative Weavers Society Ltd., while there were 1.35 lakh weavers and 30,000 commercial artisans in the state. Besides, there are 9 handicraft clusters, and 9 primary handicraft workers cooperative societies. The handicraft is mainly bamboo and wood–based in the state. There are 10 Mulberry Rearers Cooperative Societies for the development of mulberry sericulture in the state. Tourism is also one of the major industrial activities, but is hamstrung by the geographical location of the state. Tourism is based mainly on cultural destinations, eco–tourism sites and religious places of attraction. There is wide potential for tourism development particularly for attracting domestic tourists in eco–tourism and cultural tradition sector. Table 1.14 reveals that Tripura attracts highest number of tourists in the north–east region and this too has shown increasing trend of tourist inflow in the recent past.

Table – 1.14: Tourist Inflow in North–east Region

State	1996			2001		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Arunachal Pradesh	2283	9	2392	6349	323	6672
Assam	14730	1000	15730	1010651	6171	1016822
Manipur	86749	241	86990	76527	183	76710
Meghalaya	136183	1573	137756	178697	2390	181087
Mizoram	23434	93	23527	28771	152	28923
Nagaland	13139	65	13193	9948	920	10868
Tripura	206229	156	206385	254912	NA	254912

Source: Basic Statistics of NER, NEC Secretariat, Shilong, 2002

Figure–1.5



1.11. Social Infrastructure :

Education has a seminal role to play in the process of economic growth and development. It has a direct multiplier effect on other social sectors like health, child and women development, employment, labour force etc. The state is characterized with high proportion of population living below poverty line, rural backwardness, poor infrastructure and low human development index. National Human Development Report (2001) of the Planning Commission, Government of India shows that Tripura ranks 22 among 32 states and UTs in respect of human development index, which is based on a composite of variables capturing achievements in the fields of income, education and health. Therefore, the state has given highest priority for universalization of elementary education in the field of education. Tripura has made progress in the field of education since launching of first five year plan. The literacy rate in the state, as per 2001 census, is 73.66 per cent against the all India literacy rate of 65.38 per cent. Out of total literacy rate of 73.66 per cent in 2001, the male literacy rate is 65.41 per cent. The number of educational institutions in the north–east region is shown in table – 1.15. The state is backward in terms of educational institutions and its coverage even among the north–eastern states.

Table – 1.15 : Number of Educational Institutions

Institution	Arunachal Pradesh	Assam	Manipur	Megalaya	Mizoram	Nagaland	Tripura
University	1	5	2	1	–	1	1
Board of Secondary Edu.	–	2	2	1	1	1	1
Art/	7	280	50	33	27	32	14

Science/ Commerce Col.							
Engineering College	1	3	–	–	–	–	1
Medical College	–	7	1	–	–	–	–
Agricultural Colleges	–	2	1	–	–	–	–
Veterinary Colleges	–	1	–	–	–	–	–
Teacher Training Colleges	–	24	3	1	2	1	1
Jr. Colleges	–	80	–	–	–	3	–
Higher Secondary Schools	68	604	77	40	20	16	215
High Schools	108	3967	528	532	352	309	392
Middle Schools	328	8019	639	1041	748	473	421
Primary Schools	1289	33236	2572	4685	1226	1469	2968
Pre–Primary Schools	46	199	1	–	–	–	3406
Teacher Training Schools	–	1	1	10	2	2	2
Polytechnics	1	8	1	1	2	2	1
Technical & Industrial Sch.	2	32	6	3	1	3	4

Source : Selected Education Statistics, 1999–2000, Ministry of Human Resources, Govt. of India

There were 3148 schools in 2001–02, while there were 14 general degree colleges and 1 university, 1 engineering college, 1 polytechnic and 1 law college besides 823 social education and 3537 *aganwadi* centres in 2001–02. The Total Literacy Campaign has also been launched in the state in February 1994. Since then 3.84 lakh people have been made literate. The Department of Higher Education is entrusted with the task of providing opportunities to the students of the state for pursuing higher studies ranging from general education, technical/ professional education, sports and youth services and also for the promotion of art and culture in the state. However, the only university has been recently established and is in its developing state. Moreover, the state is lacking in academic institutions

for imparting professional and technical education and catering to the emerging needs of training and entrepreneurship development.

The health infrastructure of north–east region is shown in table – 1.16. The network of health institutions in Tripura is found to be low. There are 66 health services centres with bed capacity of 2385 in government hospitals. There are 789 graduate doctors, 888 trained nurses while 1.56 lakh patients were treated in 2001–02. There were 83 family welfare clinics/ centres in 2001–02. During 2001–02. There were 17 hospitals, 71 PHCs including rural hospitals and 538 dispensaries through which state government has been providing basic health facilities. The state has performed comparatively better in the field of health and medical facilities. The infant mortality rate in the state was reported 41 against the same for national average. **The state general medical services are free and for all including indoor patients admitted in the hospitals**.

Table – 1.16 : Number of Health Centres in North–east

State	Sub–Centre	PHCs	CHCs	Allopathic Hospitals	Population Served/ bed
Arunachal Pradesh	273	65	20	262	367
Assam	5109	610	100	268	1782
Manipur	420	69	16	18	1450
Meghalaya	413	85	13	9	1247
Mizoram	346	58	9	12	872
Nagaland	302	46	9	17	1690
Tripura	539	58	11	29	1898
All India	137311	22842	3043	15501	1440

Source : Bulletin of Health Statistics, 2002.

The backwardness of the state can be further gauged from the fact that the percentage of non–workers in the state is highest among the north–eastern states. The main workers predominantly belong to primary sector of economy. Only 4.94 per cent of main workers belong to manufacturing sector. Importantly, the employment in the organized sector is very low in the state due to absence of any large and medium industries and lack of private investment. Out of the employment of 279 lakh persons in the organized sector, as on March 31, 1999, in the country, only 1.1 lakh persons belong to Tripura. The employment in organized sector in the north–east region is shown in table – 1.17 and figure 1.6.

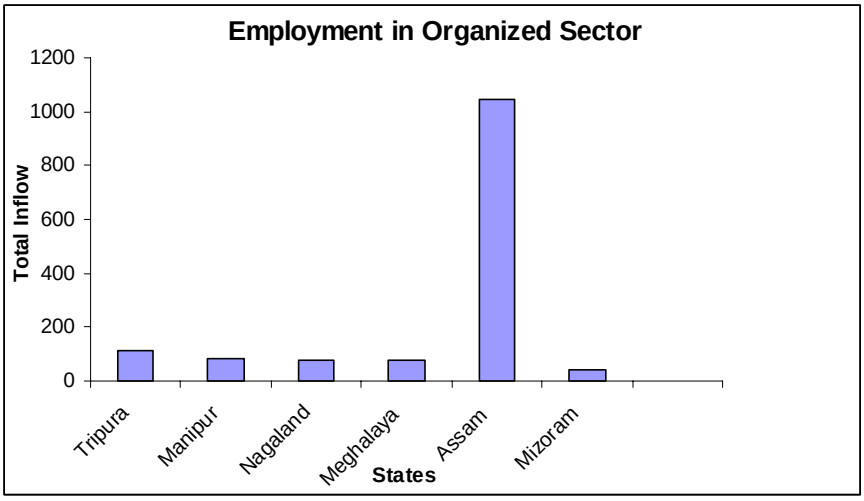
Table – 1.17 : Employment in Organized Sector

(As on March 1999)

State	No. of Establishments			Employment		
	Pub. Sec.	Private Sector	Total	Pub. Sec.	Private Sector	Total
Assam	5488	1716	7204	532.2	515.5	1047.7
Manipur	879	61	940	79.7	2.3	82.0
Meghalaya	921	222	1143	70.8	9.3	80.1
Mizoram	493	5	498	40.1	1.4	41.5
Nagaland	849	163	192	73.8	2.9	76.7
Tripura	176	97	273	99.6	10.5	110.1

Source : Directorate General of Employment & Training, New Delhi

Figure–1.6



Tripura is lacking an adequate number of establishments. Morever, having generated employment opportunities, it is positioned second, after Assam, among the north–eastern states. Table 1.18 shows that the state is ranked 3rd, after Assam and Manipur, in terms of job seekers.

Table – 1.18 : Job Seekers on Live Register of Employment Exchange (December 2000)

Particulars	Arunachal Pradesh	Assam	Manipur	Megalaya	Mizoram	Nagaland	Tripura
Professional, Technical and Related Workers	1.2	16.3	4.1	1.3	0.7	0.7	3.5
Administrative, Executive and Managerial Workers	–	1.6	–	–	–	–	–
Clerical &	0.8	12.0	0.2	0.8	0.1	0.5	0.9

related Workers							
Sales Workers	–	–	–	–	–	–	–
Service Workers	–	5.4	–	0.1	–	–	0.1
Farmers, Fishermen, Hunter Loggers and Related Workers	–	3.9	0.1	–	–	–	8.7
Production and Related Workers Transport Equipment Labourers	0.2	29.7	2.1	6.6	2.5	0.5	3.3
Workers not classified by any occupation	18.8	1373.4	385.4	26.5	85.4	35.4	287.4
Total Live Register	21.0	1442.3	391.9	35.4	88.7	37.2	303.9

Source : Basic Statistics of NER, 2002

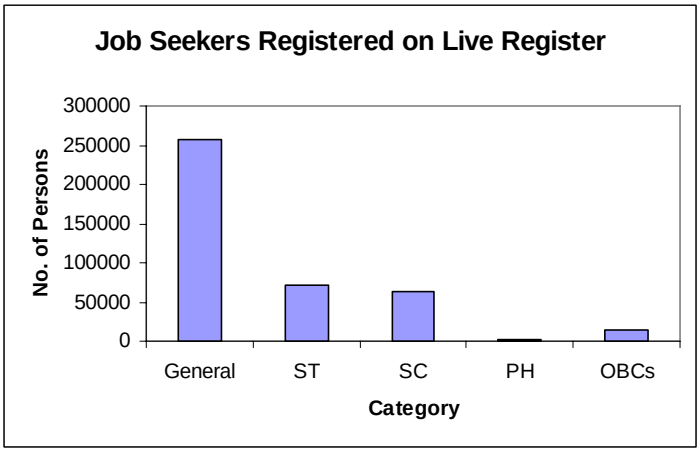
As evident from table–1.19 and figure 1.7 in March 2004, more than 4 lakh persons were registered on Live Register of Employment Exchanges of the state. Most of the job seekers were belonging to unreserved categories, while proportion of SCs and STs job seekers has been found to be high.

Table – 1.19: Job Seekers Registered on Live Register in Tripura (As on March 2004)

Category	No. of Persons		
	Male	Female	Total
Unreserved	159429	97745	257174
Scheduled Tribes	46448	24062	70510
Scheduled Castes	39412	22022	62434
Physically Handicapped	1568	726	2294
OBCs	9484	4273	14057
TOTAL	257177	149828	407005

Source: SIPARD, Government of Tripura, 2004

Figure–1.7



1.12. Urban Development :

As per 2001 census, the total urban population of the state is 5.43 lakh against the total population of 31.91 lakh. At present, urban population in the state constitutes 17 per cent of the state population. The population of urban local bodies i.e. Agartala Municipal Council and 12 Nagar Panchayats is 3.69 lakh. During 1991-2001, as compared to the All-India growth rate of urban population @27.78 per cent, the corresponding figure for Tripura was 28.78 per cent. Such rapid growth of urban population poses many challenges to the government. The state government has implemented a new programme of resource–based participatory planning, titled *Nagarodaya,* to provide better basic services in Agartala Municipal Council and 12 Nagar Panchayats for the next 15 years. Importantly, National Slum Development Programme was launched in August 1996 for all–round development in slum areas with additional central assistance. In the state, there are 94 slum pockets having a population of 0.8 lakh. *Swarna Jayanti Shahri Rojgar Yojana* for promoting self–employment among urban poor has been implemented in the state. Another centrally–assisted programme is IDSMT to develop small and medium towns by implementing different infrastructure development skill. The state government has also decided to extend the areas of Nagar Panchayats and Agartala Municipal Council and it requires an action plan to meet provisional requirements.

1.13. Rural Development :

The majority (83 per cent) of the population in the state lives in villages. The economy of the state is also backward with a rural base. The state's 66.81 per cent families are living below the poverty line and these families remain in an acute shortage of basic facilities such as housing, drinking water and roads and other

social facilities like health care, education etc. The state has implemented 73rd Constitutional Amendment Act, ensuring democratic decentralization by way of establishing three–tier system of panchayats. The Pachayati Raj Institutions (PRIs) serve as a focal point for development programmes at the grassroot level. There are 513 Gram Panchayts and 526 Autonomous Development Council villages, 23 Panchayat Samitis and 4 Zilla Parishads in the state. The rural development department is concerned with providing the basic requirements of the people living in the rural areas in the state. These are mainly : rural housing, drinking water and sanitation facilities, employment and rural connectivity. These facilities are provided from the funds available under plan schemes as well as from the centrally–sponsored schemes. Major funding is from the centrally–sponsored schemes. As per 1999 census, there were 7412 habitations lacking drinking water facility. However, as per March 2003, 6715 habitations have been provided drinking water sources and remaining 697 habitations have been partially covered. In certain areas, innovative schemes like roof–top rain water harvesting have been encouraged. The tribals who live in remote areas are accustomed to using water from the streams and other unsafe drinking water sources, causing water–borne diseases. Even more importantly, a number of Special Swarna Jayanti Gramin Rojgar Yojana Projects like irrigation, bamboo, animal–based projects, sericulture and fisheries etc. taken up for the poor families for sustainable income. The main funding is from the Central Government.

1.14. Concluding Observations :

The north–eastern region as a whole has poor connectivity with the outside world despite the potential of emerging as a gateway to the south–eastern nations. Tripura may be developed as a gateway of Trans–Asian Railways and Road Network through Bangladesh. However, the state has not received foreign investment projects for socio–economic development. Even the international donor agencies such as World Bank, UNICEF, CARE India, USAID, Action Aid, OXFAM India Trust etc. have not responded meaningfully to support the social development endeavours. Significantly, a huge amount of budgetary resources is being spent on defence, which may be diverted for social development. The rehabilitation programme for extremists or terrorists who have surrendered has been fairly successful in addressing the canker of insurgency and facilitating them in joining the national mainstream. The private sector participation in development particularly in projects of socio–economic development has been reported to be

low. However, community participation in the development process has gradually increased over–time. The state is in dire need of infrastructural support in terms of access to rail network, transport, communication etc. for the development of industries, commerce and trade. Similarly, technical education, entrepreneurship development and managerial efficiency is imperative for enhancing the productivity and ensuring sustainable growth and development. The existing resources such as forest, bamboo, water, natural gas, horticultural crops, may be extensively harnessed and products can be exported through proper planning, sustainable development and judicious use. The state has vast potential for border trade with Bangladesh and other South East Asian countries through the neighbouring states. But, the potential can be exploited only through strengthening the network of communication, roads, railways etc. Export promotion zones may be developed to boost border trade in the north–east region. Significantly, local institutions, community based organizations and NGOs may be strengthened through support and financial assistance with a view to reinforcing people–centered development as well as decentralized governance. The tourism sector has shown tremendous potential to grow since the state is endowed with natural, cultural, ethnic, historical and social tourism destinations with a large number of tourist flows. Since maintenance of such resources is not sustainable in meeting the standards as per tourist demand and expectations, user charges could be imposed so as to ensure proper management of tourism resources.

The state also faces the pernicious problems of unemployment and poverty. This has spawned the pestilence of insurgency among the educated youth. It demands transparency and efficiency in governance, and an increasing role of the youth and the community at large, in the development process. Thus, the state has vast potential to emerge as one of the performing states, provided that a massive dose of investment is injected into the system for gradual development of the state as well as to accelerate the development process.

Chapter–II

Economic Growth, Structural Change And Work Force Participation

2.1. Introduction :

The concept of growth and development implies change and transformation of the society so that it could be better–off than before. This requires not merely increase in per capita domestic product but also reduction in absolute poverty, raising the living standards of the people in terms of health and literacy, and mitigating the social and environmental degradation by promoting sustainable development, crime reduction and drug control. This is the essence of the concept of development and growth in the twenty–first century. According to Prof., Joseph Stiglitz, 'the new development strategy will not only raise GDP per capita but also living standards. As evidenced by standards of health and literacy and a reduction of such bads as crime and drugs. It will reduce poverty – our goal should be its elimination, a goal that the more successful economies have actually attained (at least by the absolute poverty standard). It will be sustainable, strengthening the environment and the real societal transformations will enhance the likelihood that the underlying policies will be durable, withstanding the vicissitudes sometimes accompanying democratic processes.'

The emphasis on social and structural transformation is not new, it has also been referred by Prof. Kuznets, though not so explicitly when he defined the concept of development. In his words, economic growth implies, 'a long run rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional ideological adjustments that it demands'.

If we consider both the view–points together, then main factors that signify growth and development of the economy are as follows :

- Sustained increase in real output and per capita real output.
- Gradual increase in Total Factor Productivity (TFP) as well as labour productivity.
- There should be structural transformation of the economy which implies a gradual shift from agriculture to non–agricultural activities and more recently away from industry to services, a noticeable change in the scale of production (i.e. a shift from Own Account Manufacturing Enterprises (OAME) to Non–

directory Manufacturing Enterprises (NDME) and Directory Manufacturing Enterprises (DME) and even to large national and multinational corporations).

Lastly, a shift in occupational status of labour force away from rural and agricultural activities to non–agricultural and urban–oriented–business activities.

Social transformation too occur side by side – it requires improvement in

- Literacy rates
- Higher female participation in work
- Reduction in crimes
- Reduction in birth and death rates.
- Poverty reduction (both absolute and relative).

Lastly, continuous economic growth requires larger investment in capital formation over time and that sustainable development requires use of natural resources without causing potential threat to environment.

2.2. A. Trends in Net State Domestic Product (NSDP) and Per Capita Net State Domestic Product (NSDP) and Absolute Poverty Ratio :

One of the important parameters of economic growth and development is a gradual and consistent increase in real Net State Domestic Product (NSDP) as well as in per capita real net state domestic product. In the case of Tripura economy, both these variables have increased over time at varying rates. This fact is evident from Table–2.1. The estimated growth rate of real NSDP for different quin–quennial periods follow a U–path (refer fig.–2.1). Tripura economy showed a decelerating growth path during 1970s and for a substantial period during 1980s, but it accelerated thereafter to a fairly high level of over 7 % during 1990s. This pattern of Tripura growth path is almost similar to that observed at the all–India level (Economic Survey 2003–04) except for the fact that Indian economy showed acceleration with the beginning of 1980s, while Tripura economy picked up during late 1980s. It is indeed noticeable that from Sixth Plan onwards, the state of Tripura was able to raise its total plan outlay substantially. This is evident from the fact that 90 per cent of the plan outlay comes in the form of Central assistance and its share during the Sixth Plan increased four–fold as compared to the fifth plan period (refer Table–2.2). A significant improvement in the Sixth Plan outlay and

thereafter has resulted in raising Tripura real net state domestic product growth to over 7% per annum from 1987–88 onwards.

Table – 2.1 : Growth Rate of Net State Domestic Product (NSDP) in Tripura During Different Quinquennial Periods

(in Percentage terms)

Periods	1977–78 to 1983	1983 to 1987–88	1987–88 to 1993–94	1993–94 to 1999–2000
Growth Rate	4.85	3.88	7.28	7.74

Source : Derived from 'Domestic Product of States of India', EPW Research Foundation, Mumbai.

Figure–2.1

Growth Rate of NSDP

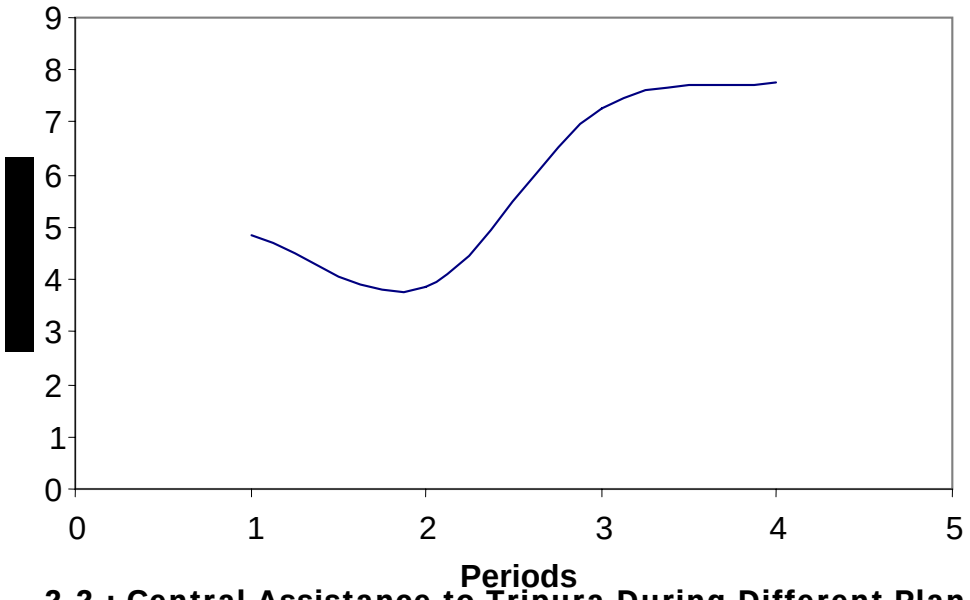


Table – 2.2 : Central Assistance to Tripura During Different Plan Period
(in Rupees Crore)

Plan Period	IVth Plan 1969–74	Vth Plan 1974–79	VIth Plan 1980–85	VIIth Plan 1985–90	VIIIth Plan 1992–97	IXth Plan 1997–02	Xth Plan 2002–07
Central Assistance	29.83	50.66	204.13	619.98	1130	3477	4500

Source : Basic Statistics of NER, 2002, North–eastern Council Secretariat, Shilong.

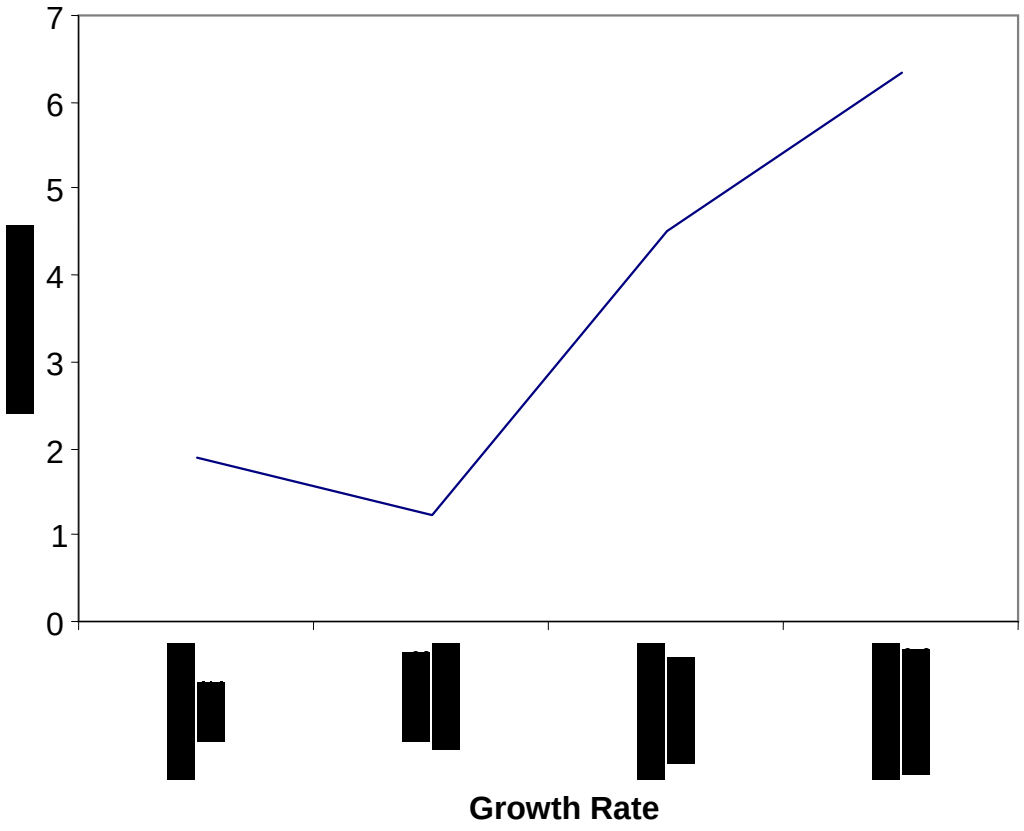
The pattern of change in per capita income is similar to that of net state domestic product (NSDP). Obviously, the rate of change in the per capita income too follows a U–pattern (refer fig. – 2.2 and Table – 2.3)

Table – 2.3 : Growth Rate of Per Capita Net State Domestic Product (NSDP) in Tripura During Different Quinquennial Periods
(in Percentage terms)

Periods	1977–78 to 1983	1983 to 1987–88	1987–88 to 1993–94	1993–94 to 1999–2000
Growth Rate	1.89	1.23	4.51	6.35

Source : Basic Statistics of NER, 2002, North–eastern Council Secretariat, Shilong.

Figure – 2.2
Growth Rate of Per Capita NSDP



Between 1977–78 to 1983 and 1983 to 1987–88, the rate of increase in the per capita income has been less than 2% per annum. The per capita income during 1987–88 to 1993–94 increased at more than double the rate at which it increased during the preceding periods but the absolute poverty did not decline. Rather the overall poverty ratio in Tripura increased during the period 1987–88 to 1993–94. The increase in absolute poverty is especially due to rising incidence of poverty in the rural areas rather than in urban areas where it has declined by about 2 percentage points. The contradictory pattern of change in the rural and urban poverty ratio at least point to the fact that the initial thrust of development was directed mainly towards the urban areas. The lack of priority in the development of rural areas is also evident from the fact that during the period 1987–88 to 1993–94, the productivity per worker increased at slower rate as compared to the preceding quinquennial period of 1983 to 1987–88 (refer table–2.4)

Table – 2.4 : Per Worker Productivity of Foodgrain and Its Growth Rate in Tripura

Years	Total Foodgrains (in 000 tons)	Total work Force in Agricultural Sector (In lacs)	Productivity Per Worker (In Kgs.)	Growth Rate (% Terms)
1983	379	2.85	1329	
1987–88	422	2.97	1421	1.12
1993–94	455	3.10	1469	1.00
1999–00	523	3.22	1624	1.68

Source : i. Basic Statistics of NER, 2002, North–eastern Council Secretariat, Shilong.

ii. Sarvekshan, April 1988, NSSO, Department of Statistics, Government of India, New Delhi

iii. Employment and Unemployment Situation of India, Report No. 409 and 458, NSSO, Department of Statistics, Government of India, New Delhi

It is a well–established fact in economic theory that the earnings of the workers depend on their productivity and as long as productivity does not show significant growth, the earnings of workers and their standard of living will not reflect any marked improvement. Due to this, though per capita income in Tripura increased sharply during 1987–88 to 1993–94, yet absolute poverty did not decline in the rural areas where bulk of Tripura population reside.

Further from 1993–94 to 1999–2000, productivity per worker of foodgrains increased much faster along with per capita income also (refer Table – 2.3 & 2.4). This has facilitated to improve the standard of living of the people in Tripura.it is because of this that absolute poverty especially in rural areas declined sharply from 45% to 40% (refer Table–2.5). It is also evident from the table that in Tripura, the real problem of poverty is mainly in rural areas since absolute poverty in urban areas is fairly low.

Table – 2.5 : Absolute Poverty in Tripura During Different Quinquennial Rounds of NSS Survey (In % Terms)

Years	Rural	Urban	Combined
1973–74	52.67	36.92	51.00
1978	59.82	32.71	56.88
1983	42.60	21.73	40.03
1987–88	39.35	9.94	35.23
1993–94	45.01	7.73	39.01

1999–00	40.04	7.47	34.44

Source: Planning Commission, Government of India

The efforts of the Government should be to lower the poverty ratio in rural areas by motivating and providing incentives to farmers for significantly raising the productivity of agricultural crops especially that of the paddy crop. In this regard, tribal community must be motivated and made to realize that the period of Jhum Cycle has already shortened. Therefore, they must go for settled cultivation and apply modern agricultural practices. Even where, settled cultivation is done, a switch over to modern agricultural practices is not easy to come on account of several bottlenecks as mentioned by Sanjoy Ray (2001). According to Ray (2001), 84% of rice cultivated area is without irrigation, lack of timely availability of fertilizers because of malfunctioning in the present system has restricted its consumption to about 32 kg per hectare as against all India average of 76 kgs. Poor financial health of over 80% of cooperative societies in the state has restricted sufficient flow of credit to the farmers. Insufficient number of rice mills and absence of modern technology has caused adverse impact on quality of rice and its price competitiveness in the market. Lastly, in the state, there are increasing numbers of land holdings lying fallow on account of rising insurgency, ruthless killings and kidnapping of people especially from the interior areas of the state. If all these problems are not immediately addressed by the government, productivity per worker will not show any significant increase which might again decelerate the rise in the per capita income and may trigger increase in poverty ratio and may even perpetuate large–scale migration of the people from the state.

Under such circumstances, Government's objective of bringing down rural poverty ratio to 37.89 per cent and overall poverty ratio to 31.88 per cent by the end of Tenth Five Year Plan (2007) will be difficult to achieve. The targets are not at all unrealistic. But the overall magnitude and dimension of the problems in Tripura are so colossal that they may render even small targets unmanageable and difficult to achieve. The need of the hour, therefore, is to address the aforementioned problems at the earliest along with motivating females to join the work force so as to lower the dependency burden on males and mitigate gender disparities. This will facilitate in raising the earnings of the family in order to bring down poverty ratio too.

B. Relationship between Net State Domestic Product (NSDP), Per Capita Net State Domestic Product (NSDP), And Work Force Structure :

The size of Net State Domestic Product (NSDP) is an indicator of the quantum of labour and work force involved in the production process of the economy. The simple rationale behind it is the theory of production where size of output depends on capital and labour. The empirical evidences (Dholakia, 2001) have confirmed the common belief that over time capital is substituted for labour and as a consequence, employment elasticity of output declines. Larger the decline in the employment elasticity, greater is the change in the scale of production and less will be the amount of labour absorbed in the production process.

The NSDP of Tripura is highest among the north–eastern states, obviously therefore, the size of workforce in Tripura too is maximum except Assam. This is evident from Table–2.6, which provides a comparative picture of workforce and NSDP for north–eastern states.

Table – 2.6 : Total Workforce and Net State Domestic Product (NSDP) at Constant (1993–94 Prices) for North–Eastern states

(in Rupees Crore)

States	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura
Total workers (in Lacs)	4.82	95.6	10.7	9.6	4.7	8.5	11.5
NSDP (in Rs. cr.)	917	15078	1830	2002	n.a.	1614	2532

Note : (1). Total workers are given for the year 2001 and include both main and marginal workers.
(2). NSDP for the fiscal year 1999–2000.

Sources: (i) Census of India, 2001
(ii) Domestic Products of States of India, EPW, Mumbai

The value of rank correlation coefficient between work force and NSDP is 0.9428, which is extremely significant. It clearly substantiates our presumption, based on production theory, that larger net state domestic product (NSDP) is associated with larger level of work–force. What is more significant and meaningful is whether differences in the work force across states generate sufficient variations in their level of production, so that the states with higher work force have also higher per capita state domestic product. If this is not so, then it implies lack of availability of resources or its improper utilization. Tripura whose net state domestic

product (NSDP) is third highest among all the seven north–eastern states, has the lowest per capita state domestic product barring Assam. This clearly points towards the prevailing bottlenecks in the resource use as well as its improper availability to effectively raise the SDP. The constraints imposed due to sub–optimal resource–use and its insufficient availability is well–reflected in the lowest work force participation rate (WFPR) in Tripura among all the north–eastern states (refer Table 2.7).

Table – 2.7 : Population, Workforce and Its Participation rate in Tripura

State	In Lacs						In Percentage Terms			
	Total Popu.	Male Popu.	Female Popu.	Total Work–force	Male Work–force	Female Work–force	Rate of F–M Popu.	Rate of F–M Work.	FPIWF	
Arunachal Pradesh	10.97	5.79	5.18	4.82	2.93	1.89	89.5	64.5	39.21	
Assam	266.38	137.88	128.51	95.57	68.84	26.73	93.20	38.83	27.97	
Manipur	23.88	12.16	11.72	10.70	5.95	4.75	96.40	79.83	44.39	
Meghalaya	23.06	11.68	11.38	9.56	5.58	3.99	97.43	71.50	41.74	
Mizoram	8.91	4.60	4.31	4.70	2.64	2.05	93.69	77.65	43.62	
Nagaland	19.89	10.42	9.47	8.50	4.88	3.62	90.88	74.18	42.59	
Tripura	31.91	16.36	15.55	11.51	8.31	3.27	95.05	39.3	28.41	
All India	10252.51	5304.22	4948.29	4025.12	2754.64	1270.48	93.29	46.12	31.56	

Note : FPIWF – Female Participation in Work force
MPIWF – Male Participation in Work force
F–M–Female–Male
Source: Census of India, 2001

The worst effect of the resource constraint (whether its use or availability or both) is on the females. The ratio of female to male population is as high as 90 per cent in Tripura but in work force, it is just 39.3 per cent. Table 2.7 vividly substantiates our viewpoint and reveals the extent of female participation in work force. There is no such social custom in Tripura which prevents females from joining the work force but lack of opportunities of work for them, has caused unemployment rate to be highest for females in Tripura among the north–eastern states, after Assam (refer Table A–I).

At the same time, unemployment rates of males is quite low (refer Table A–I). This generates substantial gender disparities as well as dependency burden on the earning member of the family. The gender disparities are so ominous that despite the lowest participation rate of females in the labour force (refer Table VII), the unemployment rate is highest for them, in any north–eastern states after Assam. There is an urgent need to rectify the imbalance in the gender disparities as

it will mitigate dependency burden and facilitate to raise the standard of living of the people.

2.3. Pattern of Sectoral Growth in Tripura :

There is no denying the fact that the pattern of overall growth rate of Tripura economy is somewhat similar to the All–India level, however, the sectoral de–composition of the net state domestic product (NSDP) presents a somewhat different picture. At all–India level, the share of industrial sector has increased gradually from 1972–73 upto 1987–88, however, in Tripura, not only the share of industrial sector was low but it also declined during this period (refer Table 2.8).

Table – 2.8 : Percentage Share of Each Sector in Tripura and India

Years	Tripura (as % of NSDP)			All India (as % of NDP)		
	Agriculture	Industry	Services	Agriculture	Industry	Services
1972–73	60.0	11.5	28.4	45.1	21.7	33.2
1977–78	61.6	10.8	27.6	44.4	22.0	33.6
1983	53.3	11.3	35.5	40.4	22.7	36.9
1987–88	50.3	9.7	39.9	34.8	24.1	41.1
1993–94	37.4	8.8	53.8	32.9	23.8	43.3
1999–00	29.4	15.74	54.9	27.0	23.4	49.6

Sources: (i) Domestic Products of States, EPWRF, Mumbai
(ii) National Accounts Statistics of India, 1950–51 to 2000–01, EPWRF, Mumbai

It clearly reveals the industrial backwardness in the state of Tripura which is on account of lack of sufficient infrastructural facilities, shortage of power, social backwardness and unwillingness of people to leave traditional cultural practices. Besides these constraints, the geographical location of the state also is not conducive for accelerating the pace of industrialization. As a consequence, dependence on agricultural sector continued to dominate and, therefore, its share in NSDP remained more than half of the net state domestic product during 1970s and 1980s. There is a need to change the outlook of the people by investing in human resource development through the spread of technical educational facilities in the state. The beginning of 1990s saw a dramatic change in the share of the services sector in the state of Tripura. It is pertinent to note that share of services sector, which was 39.9 per cent in NSDP, a little less than the all–India average of

41.1 in 1987–88 (refer Table 2.8), went up to 53.8 per cent in Tripura in 1993–94 and was much higher than the all–India average of 43.3 per cent. The sudden spurt in the growth of the services sector in Tripura was mainly due to steep increase in outlay for the services sector after the Seventh Five Year Plan (refer Table 2.9). Even in the services sector, much of the outlay has been allocated towards social and community services especially on education.

Table – 2.9 : Percentage Distribution of Plan Outlays Among Different Sectors in Tripura

Plans	Agricultural and other activities*	Industry	Services
5th Plan (74–79)	52	07	41
6th Plan (80–85)	49	04	47
7th Plan (85–90)	44	04	52
8th Plan (92–97)	37	06	57
9th Plan (97–02)	14	02	84
10th Plan (02–07)	23	03	74

Note : * Other activities include Irrigation, Flood Control, and Power.
Source: Derived from Basic Statistics of North–eastern States, 2002, North–eastern Secretariat Council, Shillong

The pattern of sectoral development is different from the standard pattern of development normally observed in other states and countries of the world, where the initial shift in the sectoral development is from agriculture to industry. In this regard, Prof. Kuznets too has rightly mentioned that during structural transformation of an economy, there is a gradual shift from agricultural to non–agricultural activities and more recently away from industry to services sector of the economy.

The anomaly in Tripura sectoral pattern of development can be attributed to the demographic structure, lack of infrastructural facilities especially power, and geographical location of the State. More significantly, the strong social belief and self contentment of the people of Tripura especially the tribals, are the other factors that compelled government to substantially raise outlays on social and community services especially education rather than on the industrial development from Seventh Plan onwards.

Industrial backwardness in Tripura is not a new problem but its persistence overtime is really a cause of concern. There is a need for a definite shift in government policy towards north–eastern states to provide backward and forward linkage facilities for industrial development. Whatever little industrial development that has taken place in Tripura, it is mostly in the unorganized sector; of which own account manufacturing enterprises (OAME) dominate over other forms like Non–directory manufacturing enterprises (NDME) and Directory manufacturing enterprises (DME). In the rural areas where bulk of the population of the state lives, maximum enterprises relate to wood and wood products followed by food products and non–metallic mineral products (refer Table 2.10).

Table – 2.10 : Number and Distribution of Manufacturing Enterprises in Unorganized Sector of Rural Tripura

Year	No. of Enterprises				% Distribution of Manufacturing Enterprises				
	OAME	NDME	DME	All	Wood And Wood Products	Manuf. of food product.	Non–Metallic Mineral Prod.	Other	Proportion of Rural to Total Man Enterprises
51st NSS Round (94–95)	46200	4177	22	50399	53.6	18.7	8.3	19.4	75 %

Source: 51st NSS Round (1994–95), Ministry of Statistics and Programme Implementation, Government of India, New Delhi

All the three types of enterprises are mainly in the rural unorganized sector. There is a need for further diversification of industrial process by extending it to cover certain potential areas like wool, silk, man–made fibre, textile and textile products, paper and paper products, leather and chemicals. There is a great potential of developing these industries in Tripura and until such diversification process takes place, there is little hope of any industrial expansion. Considering the fact that industrial development as at present in the state of Tripura is too low, there is hardly any change in the scale of production. The organized industrial sector in Tripura is yet to pick up and the fact that till 1994–95 about 90 per cent of industrial units and enterprises are in the unorganized industrial sector, is a

sufficient evidence of the absence of any major change in the scale of production over a period of time.

2.4. Sectoral Pattern of Employment :

The overall sectoral pattern of employment in Tripura is not different from the sectoral pattern of growth. For instance, the share of agricultural sector in the net state domestic product (NSDP) was maximum prior to 1993–94, so also the percentage distribution of workers was highest in the sector. Thereafter, the growth of services sector has picked up and it became the leading sector of the economy. As a consequence, its share in net state domestic product (NSDP) became much more than that of the agricultural sector. This tendency is expected to persist further. Almost an identical trend is observed in the percentage distribution of workers among the three main sectors of the economy (refer Table 2.11).

Table – 2.11 : Sectoral Pattern of Employment in Tripura

NSS Round	Total Workers (in Lacs)			Work force Participation in Different Sectors		
	Agriculture	Industry	Services	Agriculture	Industry	Services
38th (1983)	2.85	0.78	2.80	44.34	12.12	43.54
43rd (87–88)*	2.97	0.85	3.14	42.67	12.21	45.11
50th (93–94)	3.10	0.93	3.46	41.44	12.41	46.15
55th (99–00)	3.22	0.95	4.30	38.05	11.52	50.43

Note : * Estimated average figures on the basis of 38th and 50th Rounds.
Source: Different Issues of 'Employment and Unemployment Situation of India', Department of Statistics, Government of India, New Delhi.

The employment elasticities estimated for the three sectors further substantiate our viewpoint (refer Table 2.12).

Table – 2.12 : Sector Specific Employment Elasticities in Tripura

NSS Round	Employment Elasticity			
	Agriculture	Industry	Services	Combined
1983–84 to 93–94	0.30	0.47	0.195	0.24
1993–94 to 99–00	0.18	0.02	0.460	0.27

Source : Derived from Domestic Products of States of India, EPWRF, Mumbai and 'Employment and Unemployment Situation of India', Different Issues, Department of Statistics, Government of India, New Delhi.

The employment elasticity for agricultural sector was as high as 0.30, while that for the services sector was just 0.195 during 1983 to 1993–94. However, for the subsequent period (1993–94 to 1999–2000), the employment elasticity for agricultural sector declined to 0.18, while that for the services sector increased to 0.46. It is indeed noteworthy that though the industrial growth picked up quite well during 1993–94 to 1999–2000, but the employment expansion hardly showed any increase. Thus, industrial sector of Tripura almost exhibited a jobless growth during the second half of 1990s. Considering the fact that employment elasticity in agricultural sector has gone down sharply while if we look at table A–II, then maximum employment in the rural areas is still in the agricultural sector. Therefore, growing labour force in rural areas could only be absorbed if additional investment takes place in agricultural and allied activities along with the expansion of intensive vocational training for females especially, so that they can start their own manufacturing enterprises, otherwise employment scenario will remain grim in Tripura.

2.5. Resource Assessment :

Labour force and capital formation are the two basic macro–economic variables on which the growth potential of the economy depends. It is a general observation for Tripura that labour force is not a constraint for the overall growth of the economy. However, as regards capital formation, it is difficult to make any direct comment on account of non–availability of investment data for public or for private sector either at current or at constant prices. The other option, therefore, is to look at the behaviour of Credit–Deposit Ratio over time at the state level. This will give some insight about the savings and investment pattern of the private sector in Tripura. For capital formation in the public sector, the pattern of revenue receipts and expenditure of the state government will throw light on the extenct of resources available for investment purposes.

The trend in C–D ratio in Tripura as well as in the entire North–Eastern region along with the all–India figure are given in table–2.13.

Table–2.13 : Trend in Credit–Deposit Ratio in Tripura Since 1990–91 (as on Last Friday of March)

Years	NER	Tripura	All India
1993–	55.2	39.3	56.6

94			
1994–95	45.7	34.6	59.2
1995–96	42.1	34.5	61.9
1996–97	37.8	31.2	57.3
1997–98	34.0	29.9	55.5
1998–99	30.3	28.9	51.6
1999–00	25.8	27.7	53.6
2000–01	23.0	28.1	57.2
2001–02	22.3	26.9	56.9

Source : Derived from 'Handbook of Statistics on Indian Economy', 2002, RBI, Mumbai.

It is obvious from the table that the C–D ratio though at the All India level has remained above 55% upto 2002 starting from March 1994 but it has declined steadily in Tripura as well as in the entire NER. It is indeed noteworthy that the CD ratio remained above the average C–D ratio in the NER upto 1999 but the decline in it since 1994 has been so sharp that it fell below the average C–D ratio of the NER since March 1999. The fall in the C–D ratio in Tripura is mainly on account of extremely low recovery rate of loans which is possibly due to the fact that private investment in Tripura is not too profitable for the entrepreneurs. A decline of about 60% in the C–D ratio within a span of 8 years as well as its persistence leaves little room for doubt about any sustained increase in private investment in future. It can, therefore, be stressed that in Tripura though substantial private savings exist but because of lack of enough profitable avenues available financial resources could hardly be utilized for investment purposes. Financial resources are, therefore, not a constraint for private investment.

As regards resource assessment of the public sector, the fiscal situation of the Government of Tripura is given in table 2.14:

Table–2.14 : Market Borrowings (In Rs. Crore) And Various Fiscal Ratios (In Percentage Terms) Of the State Government of Tripura

Years	Own tax/	Own NT/	CT/RR	Grants/ RR	Own Revenue/	Total Tax & Non–	Tax +Non–	Tax +Non–	Market Borrowings

	RR	RR			RE	Tax Revenue/ RE	Tax Revenue/ RE	Tax+ Grants/ RE	(Rs. Crore)
1998–99	6.63	3.5	36.0	53.8	10.96	47.8	49.8	108	118.37
1999–00	7.07	5.3	36.8	50.8	12.18	48.42	48.4	98	290.58
2000–01	7.70	5.77	14.4	72.14	12.69	26.31	26.3	94	445.15
2001–02	8.5	5.23	12.4	73.8	14.13	26.96	26.9	103	464.22
2002–03	9.7	5.25	13.3	71.7	14.38	27.11	27.1	96	537.00
2003–04	10.3	5.59	15.5	68.5	14.48	28.67	28.7	91	694.32

Note: LE: Latest Estimates
Source : Information as per Statement of twelfth Finance Commission, Finance Department, Government of Tripura, 2004.

Government's own resources to aggregate revenue expenditure is less than 15%, therefore, for meeting substantial requirement of current account expenditure, Government of Tripura, has to depend upon the Union Government for financial resources. Even the transfer of resources through the divisible pool of taxes was not sufficient enough to meet even 50% of the current account expenditure (refer table 2.14). The Eleventh Finance Commission in a noticeable departure from the immediate preceding Finance Commission has significantly lowered the share of the special category states in the divisible pool of taxes. This has significantly raised the dependence of Tripura on the Grants–in–aid. However, at the same time, Eleventh Finance Commission has also imposed a 8% notional limit on all types of grants to be distributed amongst states. As a consequence, special category states in future will be facing uneasy financial situation. It signs are fairly visible as the revenue deficit has increased sharply from Rs. 23 crores in 1999–2000 to Rs. 192 crores in 2003–04. Prior to 1999–2000, there had been some surplus on revenue account of the Government of Tripura which was utilized to finance capital outlay but this is now an old story. Rather part of capital receipt is utilized to finance revenue deficit. Thus, the recommendation of Eleventh Finance Commission has generated an uneasy financial situation for the Government of Tripura. This has forced the Government of Tripura to resort to larger market borrowings but such a trend is non–viable for a state like Tripura and cannot persist for long. The state government will have to generate its own resources failing which growth process may decelerate. As at present, fiscal stress on the state

government is obvious, and may deepen further if the government failed to raise the required amount of financial resources. Thus, the financial constraint for the Government of Tripura to raise public investment along with declining private investment are enough evidences for a slow down in capital formation. This not only reflects the paucity of financial resources but also dearth of physical capital which is so important for the development process to accelerate.

Moreover, financial weaknesses of the state government, to a great extent, speaks about the quality and quantity of the natural resources. Tripura largest natural resource is forest, since over 50% of the total geographical area is under the forest cover, but this vast natural resources severely lack quality of good wood in the forest and neither these forests are too dense. Further, about 80% of Tripura population lives in rural areas whose principal occupation is agriculture but only one fourth of the total geographical area is net cultivable. There are two main rivers Khowai and Gumti, but only in one of them there is some water which flows throughout the year. Among the minerals, there is abundance supply of gas but till date, its proper utilization has not taken place. Barring it, there is no other mineral potential in Tripura. Thus, resource constraints whether physical or financial comes in the way of the development process of Tripura.

2.6. State Perspective for 2007–08, 2011–12 & 2020–21 :

A. Output Projections for the year 2007–08 :

i. Value of output in agricultural sector at constant 1993–94 prices i.e. (contribution of agricultural and allied activities in the NSDP).

$Y^{(ag.)}_{2007–08}$ = Rs. 938 Crores.

ii. Value of output in the industrial sector at 1993–94 prices i.e. (contribution of industrial sector in the NSDP).

$Y^{(ind)}_{2007–08}$ = Rs. 825 crores.

iii. Value of output in the Services sector at 1993–94 prices i.e. (contribution of the services sector in the NSDP)

$Y^{(ser.)}_{2007–08}$ = Rs. 2105 Crores.

iv. Value of NSDP at 1993–94 constant prices :

$Y^{(NSDP)}_{2007–08}$ = Rs. 3868 Crores.

It is noteworthy that the projection for each individual sector and its sum gives the estimated value of NSDP i.e.

NSDP = Contribution of Agricultural sector + Contribution of Industrial sector + Contribution of Services Sector

NSDP = (Rs. 938 + Rs. 825 + Rs. 2105) Crores

NSDP = Rs. 3868 crores which is the amount we have estimated for NSDP too

Based on these projections, the relative shares of each sector in NSDP works out to be

a. Agricultural Sector = 24.25%
b. Industrial Sector = 21.33%
c. Services Sector = 54.42%

100.00

B. Output Projections for the year 2011–12 :

i. Value of output in agricultural sector at constant 1993–94 prices i.e. (contribution of agricultural and allied activities in the NSDP).

$Y^{(ag.)}_{2011–12}$ = Rs. 1056 Crores.

ii. Value of output in the industrial sector at 1993–94 prices i.e. (contribution of industrial sector in the NSDP).

$Y^{(ind)}_{2011–12}$ = Rs. 1143 crores.

iii. Value of output in the Services sector at 1993–94 prices i.e. (contribution of the services sector in the NSDP)

$Y^{(ser.)}_{2011–12}$ = Rs. 2657 Crores.

iv. Value of NSDP at 1993–94 constant prices :

$Y^{(NSDP)}_{2007–08}$ = Rs. 4856 Crores.

It is noteworthy that the projection for each individual sector and its sum gives the estimated value of NSDP i.e.

NSDP = Contribution of Agricultural sector + Contribution of Industrial sector + Contribution of Services Sector

NSDP = (Rs. 1056 + Rs. 1143 + Rs. 2657) Crores

NSDP = Rs. 4856 crores

Based on these projections, the relative shares of each sector in NSDP works out to be

a. Agricultural Sector = 21.7%
b. Industrial Sector = 23.5%
c. Services Sector = 54.8%

100.00

C. Output Projections for the year 2020–21 :

i. Value of output in agricultural sector at constant 1993–94 prices i.e. (contribution of agricultural and allied activities in the NSDP).
$Y^{(ag.)}_{2020-21}$ = Rs. 1439 Crores.

ii. Value of output in the industrial sector at 1993–94 prices i.e. (contribution of industrial sector in the NSDP).
$Y^{(ind)}_{2020-21}$ = Rs. 2382 crores.

iii. Value of output in the Services sector at 1993–94 prices i.e. (contribution of the services sector in the NSDP)
$Y^{(ser.)}_{2020-21}$ = Rs. 4490 Crores.

iv. Value of NSDP at 1993–94 constant prices :
$Y^{(NSDP)}_{2020-21}$ = Rs. 8311 Crores.

It is noteworthy that the projection for each individual sector and its sum gives the estimated value of NSDP i.e.

NSDP = Contribution of Agricultural sector + Contribution of Industrial sector + Contribution of Services Sector

NSDP = (Rs. 1439 + Rs. 2382+ Rs. 4490) Crores

NSDP = Rs. 8311 crores

Based on these projections, the relative shares of each sector in NSDP works out to be

a. Agricultural Sector = 17.3%
b. Industrial Sector = 28.7%

c. Services Sector = 54.0%

100.00

2.7. Sector-Specific analysis of Strengths, Weakness, Opportunities and Threats:

A. Agricultural Sector :

Our estimate that by the end of fiscal year 2007–08, agricultural sector will contribute about 24% in the net state domestic product of Tripura, while industrial and services sectors will contribute about 21 and 54 per cent respectively. The estimates seem to be consistent with the shares of each of three sectors in NSDP that prevailed during the recent past. The share of industrial sector increased from about 12.5% to 16.5% between 1997–98 and 2000–01 while the share of services sector stagnated at about 55 per cent and that of agricultural sector declined from about 31 per cent to about 28 per cent between 1997–98 and 2000–01.

Our estimate that the value of agricultural output during 2007–08 will be about Rs. 938 crores, this implies that the output growth rate in the agricultural sector during 2001–02 to 2007–08 will be about 2.95 per cent per annum. This is slightly higher than the long–term growth rate of agricultural output which is about 2.90% per annum and could easily be achieved through the larger use of bio–chemical technology. The state could accelerate the agricultural growth rate to 3.00% and 3.5% respectively in the medium and long term, if it formulates the policies on the basis of the following SWOT analysis pertaining to agriculture :

a. Strengths :

- One of the major Rice and Pineapple producing state in north–eastern region of the country.
- Readily available labour force in rural areas and at fairly economical rates.
- No demand constraint since rice is staple food not only in Tripura but in the entire neighbouring states and even across borders.
- A significant proportion of total area is under forest cover.
- Natural factors especially abundance of rainfall is useful for paddy cultivation.

b. Weaknesses :

- Natural topography of the state with hilly slopes and valleys are not too conducive for agricultural development.
- Because of hilly slopes, soil erosion is common and soil nutrients including humus get eroded.
- Lack of proper irrigation facilities.
- Due to poor industrial base, there are no backward and forward linkages.
- Poor quality of forest and tea plantation.

c. Opportunities :

- Maximum area is under forest therefore it must be made dense by planting variety of quality trees so that it could be an asset to the state government.
- Need to change outlook of tribal people so that they could reap benefits of settled cultivation.
- Proper irrigation facilities and fertilizer availability needed to boost paddy production.
- Proper backward and forward linkages should be developed whereby industry should not suffer because of raw material shortages and firm should have proper infrastructure to market goods.
- Infrastructural bottlenecks must be removed.
- Land must not be allowed to become fallow for lack of security of people against insurgency.
- Comilla cotton has tremendous export potential, therefore, its production must be raised.
- Cotton ginning and cotton oil extraction plant must be developed for revenue generation and employment.
- Rubber, coffee and fish production must be encouraged.
- Low productivity of tea necessitates introducing HYV type of tea plantation.

d. Threats :

- No substantial improvement in irrigation facility.
- Declining credit–deposit ratio.
- Declining profitability in paddy cultivation.
- Insurgency and its impact on fallow lands is a serious threat to agricultural production.
- Increasing deficit, larger market borrowings and higher interest payments is a big constraint regarding resource availability in public investment in agriculture.

B. Growth of Industrial Sector :

The long–run industrial growth is estimated at 8.79% per annum while in the very short period it is about 9.43% per annum. However, considering the various bottlenecks and limited scope of industrial development, the industrial growth rate in the medium and long–term will not be more than 8.5 to 9% per annum. Thus, the revised estimate for medium and long term growth projection regarding industrial development will not be more than 8.5% per annum. In order to achieve modest growth target of 8.5 per cent per annum for the industrial sector the following SWOT analysis is of crucial significance :

a. Strengths :

- Most of the industries are in the unorganized sector with almost 90% of it belongs to rural areas.
- A little over 50% industries pertain to wood and wood products.
- Another important industry relates to food–manufacturing products.
- Products are price competitive with no duty or other taxes on it.
- No dearth of manpower in such industries.

b. Weaknesses :

- Absence of medium and large industries for rapid industrialization.
- Share of industrial sector lowest in NSDP.
- Low credit–deposit ratio is an indicator of poor private investment in Tripura.
- State's own resources are insufficient for undertaking major industrialization.
- Poor infrastructure, especially rail and road networking, are major bottleneck for industrialization.
- Weak marketing network is another bottleneck in the development of the industrial sector in Tripura.
- Local demand insufficient for large–scale production.

c. Opportunities :

- A huge resource of gas must be tapped by ONGC or other agency specially at a time when ONGC is spending 9,00,000 Rs. per day in search of oil and gas resources.

- As dietary habits of people are changing, there is a need to raise production of juices, jams and jellies. Furthermore, food manufacturing units being the second largest unit in Tripura, even export potential of it must be tapped.

- Paddy being the principal crop of the state, its production must be supported by establishment of more rice mills.

- Comilla cotton has huge export potential, cotton growing units too should be established.

- On account of rich forest wealth, large–scale wood and paper products industries must be set up.

d. Threats :

- Poor recovery rate and declining credit–deposit ratio.
- Rising insurgency and declining raw material for industrial use.
- Increasing fiscal deficit and less resources with state government for industrial expansion.
- A national limit suggested by the Eleventh Finance Commission on all type of grants could adversely affect the industrial development.
- Reduction in the state's share from divisible pool of taxes and duties is non–justified on grounds of industrial and overall backwardness of the state.
- Industrial production may suffer because of infrastructural bottlenecks.

C. Growth of Services Sector :

The services sector has experienced a very fast growth over a period of time. Its long–term growth rate has been 10.5% per annum (1983 to 1999–00) while in the short period its growth rate is 6.8% per annum which is much below the long–run growth rate. The value output projected for the year 2007–08 is Rs. 2105 crores which gives estimated rate of growth of 5.28% per annum.

This rate of growth seems to be too low as compared to the long–run growth of the services sector. The drop down in the short–run rate of growth of the services sector in Tripura is largely because of the expansion of the social and community services rather than that of other types of the services. It is in place to mention that the development of social and community services require huge

expenditure and is of a recurring nature without any significant return on it. The expansion of these services in the past has put a constraint on the financial resources of the state, because larger expansion on these services are not easy to come, hence a decline in the short–term expansion of the services sector is not unusual. Even in future one can expect services sector to expand by about 6% per annum. Though strength and opportunities are there but financial weakness may come in a way for fast expansion of the services sector. A brief look at the SWOT analysis will reveal it :

a. Strengths :

- More than half of the share in NSDP is of the services sector.
- A little over 50% of the employment is provided by the services sector of which social and community services provides the maximum employment.
- Improvement in health services has facilitated to significantly lower CBR from 36% to 17% and CDR from 15% to 5%. This has helped to lower natural growth of population from a little over 2% to about 1.1% per annum.
- A substantial expenditure on educational services has improved the literacy rate of Tripura especially of females where its rank has improved to 12^{th} in 1991 from 15^{th} in 1981, while in terms of male literacy, the rank has improved to 14^{th} as against 15^{th} in1981.
- Banking services well developed in rural as well as in urban areas.

b. Weaknesses :

- Basic infrastructural facilities like rail and road network not well developed.
- Expenditure on tourism is low. Neither enough efforts are made to develop Tripura as a tourist place.
- No effective efforts have been made to develop some technical educational institutions like IITs, IIMs etc.
- Expenditure pattern on revenue account is highly skewed among different services. The expenditure on general services (police, pension and interest payment) and social services (like especially educational services) accounts for 80% of the revenue expenditure. Thus, expenditure on economic services is merely 20% of the total revenue expenditure. Moreover, these services are the backbone of the economic development, since it generate assets and provides substantial non–tax revenue to the Government for reinvestment purposes.

- Despite huge investment in educational services, it has failed to make any significant dent in female awareness, their attitudinal change and perception about their participation in the labour force.

c. Opportunities :

- Transfer of resources from general services and social services towards economic services for generating larger non–tax revenue for investment in the development of the state economy.
- Considering the fact that about 50% of area under forest, natural water streams, hills and valleys, there is a tremendous scope of developing tourism both nationally and internationally.
- Closeness to international boundaries and too much out–migration of students for higher academic learning to other states, there is a need to develop technical educational institutions like IITs, IIMs etc.
- Investment in services sector must focus on lowering gender disparities.

d. Threats :

- Rising insurgency.
- Rising fiscal deficit and interest burden.
- Lower receipts from divisible pool of union taxes and duties.
- A national limit imposed on transfer of grants both plan and non–plan at not more than 8% of total revenue collections of the centre to states.
- Prevalence of gender disparities is a direct threat on the efforts to lower poverty ratio.

Finally, considering the various strengths and weaknesses on one hand as well as opportunities and threats on the other hand for each of the three sectors, it is expected that net state domestic product may increase between 5.5 per cent per annum to about 6.0 per cent per annum up to 2021.

Table A–I : Unemployment Rates in North–eastern States

(In % Terms)

Rural Areas

States		72–73 27th	77–78 32nd	1983 38th	1987–88 43rd	93–94 50th	99–00 55th
Arunachal Pradesh	Rural Male	–	–	–	0.20	1.9	1.3
	Rural Female	–	–	–	–	0.4	0.1
Assam	Rural Male	1.46	0.76	1.88	4.2	7.0	6.4
	Rural Female	2.30	0.09	0.50	10.8	12.4	12.5
Manipur	Rural Male	1.25	1.82	0.48	1.2	2.2	2.4
	Rural Female	1.29	0.11	–	1.2	1.1	2.6
Meghalaya	Rural Male	0.50	0.18	1.38	0.2	0.60	0.6
	Rural Female	0.77	0.02	1.21	–	0.20	0.5
Mizoram	Rural Male	–	–	0.02	–	1.0	1.9
	Rural Female	–	–	0.09	–	0.5	0.5
Nagaland	Rural Male	–	–	–	No Survey	2.10	2.8
	Rural Female	–	–	–	No Survey	0.60	3.1
Tripura	Rural Male	3.44	2.61	1.24	2.8	3.40	1.7
	Rural Female	1.97	1.11	3.03	8.0	10.4	5.7
All India	Rural Male	6.8	7.1	7.5	4.6	5.6	7.2
	Rural Female	11.2	9.2	9.0	61.7	5.6	7.0

Urban Areas

States		72–73 27th	77–78 32nd	1983 38th	1987–88 43rd	93–94 50th	99–00 55th
Arunachal Pradesh	Urban Male	–	–	–	4.2	1.8	2.2
	Urban Female	–	–	–	0.9	7.3	6.5
Assam	Urban Male	1.45	1.90	5.34	5.7	6.5	9.9

	Urban Female	0.06	0.25	1.68	22.8	25.6	21.9
Manipur	Urban Male	2.25	0.63	0.23	4.4	5.0	6.6
	Urban Female	1.62	–	–	5.9	3.1	7.6
Meghalaya	Urban Male	1.29	0.14	2.62	2.1	1.6	3.5
	Urban Female	0.19	0.96	7.90	2.8	4.1	6.9
Mizoram	Urban Male	–	–	1.06	0.9	0.4	3.8
	Urban Female	–	–	0.38	0.4	0.5	3.1
Nagaland	Urban Male	0.22	0.35	–	3.5	6.9	9.8
	Urban Female	–	0.51	–	16.9	6.7	10.4
Tripura	Urban Male	4.73	10.26	4.40	10.8	8.2	5.7
	Urban Female	1.46	4.60	3.87	29.4	21.5	9.6
All India	Urban Male	8.0	9.4	9.2	8.8	6.7	7.3
	Urban Female	13.7	14.5	11.0	12.0	10.5	9.4

Source : Different Issues of 'Sarvekshan' and 'Employment and Unemployment Status of India, NSSO, Department of Statistics, Government of India, New Delhi.

Table A–II : Percentage Distribution of Workers by Industrial Division in Tripura

NSS Round/ Industry	Rural			Urban			Combined Total
	Males	Females	Total	Males	Females	Total	
Agriculture							
1983	49.00	49.96	49.09	6.07	–	–	44.34
1993–94	45.50	56.60	47.68	5.8	6.6	5.96	41.44
1999–2000	45.30	49.10	45.78	2.7	2.8	2.71	38.05
Mining & Quarrying							
1983	–	–	–	0.65	–	–	0.07
1993–94	–	–	–	0.60	0.90	0.66	0.10
1999–2000	0	0	0	0.00	0.00	0	0.00
Manufacturing							
1983	9.08	28.57	11.06	3.09	3.81	3.19	10.19
1993–94	4.50	9.0	5.39	8.90	8.10	8.73	5.89
1999–2000	3.70	6.4	4.04	3.70	4.00	3.74	3.99
Electricity, Gas & Water Supply							
1983	0.17	–	–	0.69	–	–	0.23
1993–94	0.20	–	–	0.40	–	–	0.23
1999–2000	0.00	0	0	0.20	0.1	0.19	0.03
Construction							
1983	1.55	1.31	1.52	2.45	2.86	2.51	1.63
1993–94	7.10	5.5	6.78	2.60	3.7	2.81	6.19
1999–2000	8.40	4.5	7.91	4.30	3.0	4.13	7.23
Trade							
1983	4.59	–	–	22.72	–	–	6.59
1993–94	12.70	2.2	10.63	21.10	2.10	17.31	11.63
1999–2000	13.00	2.5	11.67	26.3	12.30	24.45	13.96
Transport							
1983	2.61	–	–	7.97	–	–	3.20
1993–94	3.80	0.50	3.15	7.40	–	–	3.78
1999–2000	2.60	0.00	2.27	5.20	2.60	4.86	2.73
Services							
1983	32.99	20.16	31.66	56.34	93.33	62.05	35.01
1993–94	25.50	26.1	25.62	48.20	76.80	53.91	29.85
1999–2000	27.00	37.50	28.32	54.80	73.60	57.3	32.52
Other Services	–	–	–	–	–	–	0.00
1983	0.40	–	0.38	4.4	1.7	3.86	0.90
1993–94	0.10	0	0.09	2.9	1.6	2.73	0.56
1999–2000							

Note: (i) Services includes: Public administration + Education + Community Services

(ii) Other Services includes: Financial + Insurance etc.

Source : Employment and Unemployment Status of India, Different Issues, NSSO, Department of Statistics, Government of India, New Delhi.

CHAPTER–III
HUMAN RESOURCE DEVELOPMENT

During the period between 1950s and the 1970s there was a major shift in the strategies of development planning in different countries of the world. The approach generally adopted for development planning during the 1950s was purely growth–oriented and lack of capital and shortage of supporting physical infrastructure were seen as the key bottlenecks to growth. More emphasis was given on increasing the rate of savings and investment but the main objective was to increase national income and per capita income. Dissatisfaction with this approach was built up in the 1960s due to the neglect of social sectors and little importance given to investment in human capital. Subsequently an era began in development economics in which investment in human capital was considered as important as other forms of investment. The rise in per capita income was not considered to be an appropriate indicator of development but equal distribution of national income, removal of poverty and improvement in quality of life of the people became the major goals of development planning. Now, qualitative as well as quantitative development of human resources is considered to be important for proper utilization of natural resources of the country.

3.1. Significance of Human Resource Development :

The basic purpose of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or immediately, in income of growth figures : greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and a sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives.

Many human concerns extend far beyond economic well–being. Knowledge, health, a clean physical environment, political freedom and simple pleasures of life are not exclusively, or largely, dependent on income. National wealth can expand people's choice in these areas. But it might not. The use that people make of their wealth itself is decisive. And unless societies recognize that their real wealth is their

people, an excessive obsession with creating material wealth can obscure the goal of enriching human lives.

The human development paradigm performs an important service in questioning the presumed automatic link between expanding income and expanding human choices. Such a link depends on the quality and distribution of economic growth, not only on the quantity of such growth. A link between growth and human lives has to be created consciously through deliberate public policy – such as public spending on social services and fiscal policy to redistribute income and assets. This link may not exist in the automatic working of the market place, which can further marginalize the poor.

However, we must be careful. Rejecting an automatic link between income expansions and flourishing human lives is not rejecting growth itself. Economic growth is essential in poor societies for reducing or eliminating poverty. But the quality of this growth is just as important as its quantity. Conscious public policy is needed to translate this economic growth into people's lives.

How can that be done? It may require a major restructuring of economic and political power, and the human development paradigm is quite revolutionary in that aspect. It questions the existing structure of power. Greater links between economic growth and human choices may require far–reaching land reform, progressive tax systems, new credit–systems for the poor people, a major expansion of basic social services to reach all the deprived population, the removal of barriers to the entry of people in economic and political spheres and the equalization of their access to opportunities, and the establishment of temporary safety nets for those who may be by–passed by the markets or public–policy actions. Such policy packages are fairly fundamental and will vary from one country to another. But some features are common to all of them.

The touchstone of the success of development policies therefore becomes the betterment of people's lives, not just the expansion of production processes.

Second, human development is required to have two sides. One is the formation of human capabilities – such as improved health, knowledge and skills, the other is the use people make of their acquired capabilities – for employment,

productive activities, political affairs or leisure. A society needs to build up human capabilities as well as ensure equitable access to human opportunities.

Third, a careful distinction is maintained between ends and means. People are regarded as the end. But means are not forgotten. The expansion of GNP becomes an essential means for expanding human options. But the character and distribution of economic growth are measured against the yardstick of enriching the lives of people. Production processes are not treated in an abstract vacuum. They acquire a human context.

Fourth, the human development paradigm embraces all of the society – not just the economy. The political, cultural and social factors are given as much attention as the economic factors. In fact, study of the link between the economic and non–economic environment is one of the most fascinating and rewarding aspects of this new analysis.

The concept of human development has four important components: productivity, equity, sustainability and empowerment. It is concerned with the rate of economic growth as well as with equitable distribution of this growth. It deals not only with the choices of the current generation but also with the sustainability of these choices for the future generations. And it empowers people as both the means and the ends of development. In other words, human development is a holistic concept; economic growth is only one component in such a comprehensive development paradigm.

The concept of human resources means the size of population of a country along with its efficiency, health status, educational qualities, skills, productivity, organizational abilities and farsightedness. The key factor in the development process is the central role played by people and to develop human resources would imply improving their educational level, nutrition, health and skills. Slow growth in underdeveloped countries is largely due to lack of investment in human capital. These countries are suffering from lack of critical skills required for its industrial sector and also face the problem of surplus labour force in its farm sector.

Population control is highly significant for human resource development. Rapid population growth and its consequences on the population size, age–sex composition and geographic distribution of the population will impinge on the

availability of food, housing, health services, educational facilities etc. in the long run. The size of population in relation to available resources determine the degree to which a society can cope with the population's demand for basic needs which, in turn, determines the quality of life and efficiency of the people.

Improvements in the education and health levels of a population are mutually reinforcing. For example, children of educated mothers are much more likely to survive to maturity than those of the less educated and healthier children miss fewer days of school. Low mortality levels means less educational investment "wasted" on children who die. Improvement in educational and health levels of people makes them more skilled and efficient which raises their productivity. It is important to recognize that in their dual role as both the object and a key instrument in the production process, the people must be treated as the central point in development planning.

3.2. Human Development Index (HDI) :

The UNDP introduced the concept of human development in the first Human Development Report of 1990. Since then, the individual has been placed at the center of the process of development.

The *Human Development Index (HDI)* is a simple composite measure that measures the overall achievements of a region in terms of three basic dimensions of human development – a long and healthy life, knowledge, as well as decent standard of living; health status (measured by longevity), knowledge (measured by literacy and enrollments) and a decent standard of living (measured by per capita income). These three dimensions are measured by life expectancy at birth, educational attainment (adult literacy and the combined gross primary, secondary and tertiary enrollment ratio) and GDP per capita (PPP US$). Income enters the HDI as a proxy for a decent standard of living and as a surrogate for all human choices not reflected in the other two dimensions.

While the HDI measures overall progress in achieving human development, the Human Poverty Index (HPI) measures the distribution of progress through the backlog of deprivation. The broad measures in which deprivation is measured is the same as in the HDI–health status, knowledge and standard of living.

The *Gender–related development index (GDI)* is the third important index used by the UNDP. It measures the achievements in the same dimensions and uses the same variables as the HDI does, but takes into account inequality in achievement between women and men. The greater disparity in basic human development, the lower a country's GDI compared with its HDI.

The National Human Development Report (2001) (NHDR) prepared by the Planning Commission also provides another methodological benchmark. The NHDR uses the same dimensions as the UNDP Human Development Reports, but differs from the UNDP in the exact choice of indicators.

The variables given in Box – 3.1 summarize the indicators used by the NHDR and the UNDP.

Box – 1 : Variables Used in Constructing Human Development Indices

Dimensions	NHDR	UNDP HDR (2000)
1. Human Development Index (HDI)		
a. Income	Inflation and inequality adjusted per capita consumption expenditure	Per capita Income at purchasing power parity (in US$)
b. Education	1. Literacy 2. Intensity of formal education	1. Literacy age 15+ 2. Gross Enrollment Ratio–School Education
c. Health	3. Life expectancy at age 1 4. IMR	3. Life Expectancy at age 0
2. Human Poverty Index (HPI)		
1. Health	Percent persons not expected to survive beyond age 40	Percentage persons not expected to survive to age 40.
2. Education	1. Illiteracy (age 7+ yrs.) 2. Percentage of 6–18 years old children not in school	Percentage of illiterates (age 15 years and above).

3. Economic Deprivation and Basic Provisioning	1. Percentage below poverty line. 2. Percentage not receiving medical attention at birth/ children not fully vaccinated 3. Percent of population living in *Katcha* houses 4. Percent without access to basic amenities.	i. Percentage of people without safe drinking water. ii. Percentage of people without access to health services. iii. Percentage of moderately and severely underweight children under 5.
3. Gender Disparity Index/ Gender Equality Index (GDI/ GEI)		
1. Economic Opportunity	Workforce participation Rate	Male and female wages and workforce participation rates in conjunction with per capita income (female and male earned income share).
2. Education	As in HDI	As in HDI
3. Health	As in HDI	As in HDI

Source: Planning Commission, Government of India, 2002, National Human Development Report, 2001, New Delhi; UNDP, Human Development Report 2000 (Delhi: Oxford University Press).

Table – 3.1: Human Development Index in NE States and India (1981–91)

NE States/ India	Value of HDI	
	1981	1991
Tripura	0.287	0.389
Assam	0.272	0.348
Arunachal Pradesh	0.242	0.328
Manipur	0.461	0.536
Meghalaya	0.317	0.365
Mizoram	0.411	0.548
Nagaland	0.328	0.486
India	0.302	0.381

Source: Planning Commission, Human Development Report, 2001

The table–3.1 shows the values of Human Development Index (HDI) for the state of Tripura and other North–Eastern States and all India as estimated by National Human Development Report (NHDR) brought out by the Planning Commission, Government of India. It can be seen from the table that the HDI for the state of Tripura has improved from 0.287 in 1981 to 0.389 in 1991. Among the North–Eastern States, Tripura had the 5th Rank with respect to HDI in 1981 and

fourth rank in 1991. During 1981, Manipur had the highest HDI among the North–Eastern States and in 1991 the highest rank was noticed for Mizoram. Arunachal Pradesh has the lowest HDI in 1981 as well as in 1991. The NHDR shows that among the Indian states, the rank of HDI for Tripura state is 24th in 1981 and 22nd in 1991.

A. Demographic Features :

Tripura, the smallest state in the North–East in terms of geographical area (10,486 Km^2) has a total population of 31, 91,168 comprising of 16, 36,138 males and 15, 55,030 females as per Census of India, 2001 (provisional).

a. Population Growth

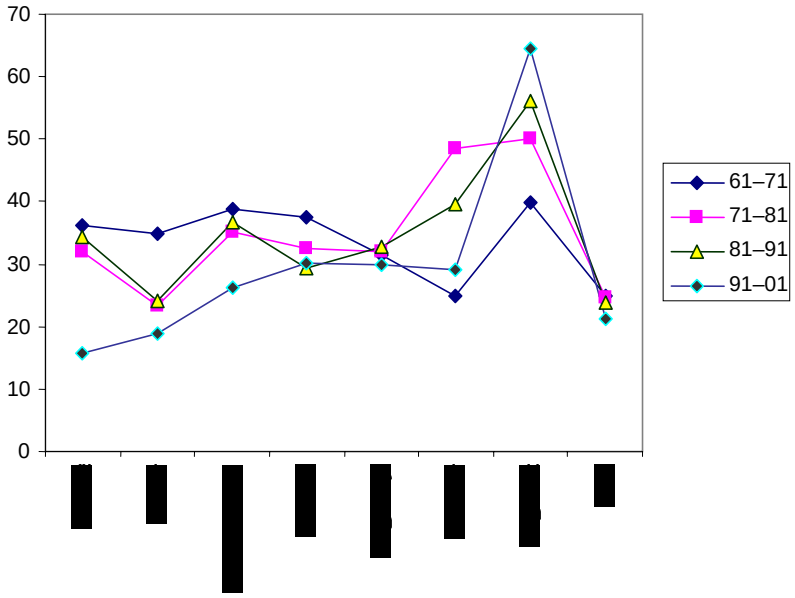
Table – 3.1 shows that in 2001, the size of population of Tripura is largest among the states of north–east excepting Assam. During 1991–2001, the decadal rate of population growth has significantly declined in the state of Tripura as compared to previous decades. It declined in the state from 34.3 per cent in 1981–91 to 15.7 per cent in 1991–2001. The average annual exponential growth rate for Tripura has fallen from 2.95% during the decade 1981–91 to 1.46% in 1991–2001. As shown in table – 3.2, the percentage decadal growth rate and annual growth rate of population in the state of Tripura during 1991–2001 are lower when compared to India as a whole and the lowest among all other north–eastern states.

Table – 3.2 : Population Growth in Tripura, Other North–Eastern States and India

North–East States	Population 2001			Percentage decadal Growth				Average Annual Exponential Growth Rate	
	Persons	Males	Females	61–71	71–81	81–91	91–01	1981–91	199 01
Tripura	3191168	1636138	1555030	36.28	31.92	34.30	15.74	2.95	1.46
Assam	26638407	13787799	12850608	34.95	23.36	24.24	18.85	2.17	1.73
Arunachal Pradesh	1091117	573951	517166	38.91	35.15	36.83	26.21	3.14	2.33
Manipur	2388634	1207338	1181296	37.53	32.46	29.29	30.02	2.57	2.63
Meghalaya	2306069	1167840	1138229	31.50	32.04	32.86	29.94	2.84	2.62
Mizoram	891058	459783	431275	24.93	48.55	39.70	29.18	3.34	2.56
Nagaland	1988636	1041686	946950	39.88	50.05	56.08	64.41	4.45	4.97
INDIA	1027015247	531277078	495738169	24.80	24.66	23.86	21.34	2.15	1.93

Source : Census of India 1991 and 2001.

Figure–3.1
Decadal Growth Rate (%) of Population (1961-2001)



The figures relating to population projections for Tripura Sate for the period 2001–2020 are given in table – 3.3. These projections have been done on the basis of the method followed by the Government of Tripura for the State Population Policy. For making projections for the period of 2001–2011, the average annual rate of population growth for the decade 1991–2001 has been taken into account while the projections for 2012–2020 are based on average annual growth rate for the period 2001–2011 (as obtained from projected figures). If the present growth rate of population continues in the coming decades, the total population of the state

is projected to increase from 31.91 lacs in 2001 to 35.05 lacs in 2007, 37.94 lacs in 2012 and 43.38 lacs in 2020. During the period of 2001–2020, the rural population of the state is expected to reach from 26.48 lacs in 2001 to 34.32 lacs in 2020. The projected figures further demonstrate that urban population of the state is expected to increase from 5.43 lacs in 2001 to 9.06 lacs in 2020. The analysis shows that if the present growth rate of population continues, the state will need additional resources, facilities and amenities in the same increasing proportions. Therefore, greater efforts are needed in the state on behalf of the Government to reduce the rate of population growth.

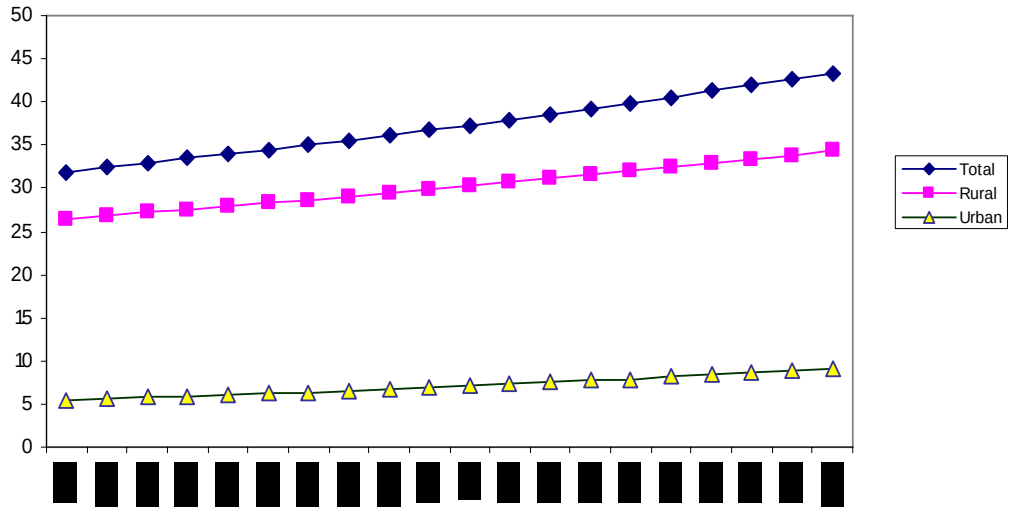
Table – 3.3 : Population Projections for Tripura (2002–2020) (in Lacs)

Year	Total	Rural	Urban
2001	31.91	26.48	5.43
2002	32.42	26.83	5.59
2003	32.93	27.19	5.75
2004	33.45	27.55	5.90
2005	33.98	27.92	6.06
2006	34.51	28.29	6.22
2007	35.05	28.67	6.38
2008	35.60	29.05	6.55
2009	36.16	29.44	6.72
2010	36.73	29.83	6.90
2011	37.31	30.23	7.08
2012	37.94	30.66	7.28
2013	38.58	31.10	7.48
2014	39.23	31.54	7.69
2015	39.89	31.99	7.90
2016	40.56	32.44	8.12
2017	41.25	32.90	8.35
2018	41.95	33.3	8.58
2019	42.66	33.84	8.82
2020	43.38	34.32	9.06

Projections have been done on the basis of average annual growth rate for 1991–2001 and 2001–2011 (projected figures) as followed for population projections (for 2001–11) in State Population Policy, Tripura (Government of Tripura).

Figure–3.2

Projected Population of Tripura (If Growth Rate for 1991-2001 continues)



b. Density of Population and Urbanization :

Despite the decline in the rate of population growth in the decade 1991–2001 as compared to previous decades, the density of population is still high in the state of Tripura. Table – 3.4 shows that the density of population in the state increased from 263 per sq. km. in 1991 to 304 per sq. km. in 2001. This indicates that the state needs further reduction in population growth with a view to avoiding congestion and overcrowding.

Table – 3.4 : Basic Demographic Indicators for Tripura and India

Demographic Indicators	Tripura	India
Density of Population (Per sq.km.)		
1991	263	267
2001	304	324
Percentage of Urban Population		
1991	15.3	26.1
2001	17.0	27.8
Sex Ratio (females/1000 males)		
1991	945	927
2001	950	933
Median age at marriage for females aged 25–49*	18.3	16.4
Percentage of child population aged 0– 6 1991	18.03	17.94
2001	13.38	15.42
Percentage of population aged	7.0	6.8

60+ (1991)		
Percentage of Scheduled Caste Population (1991)	16.4	16.7
Percentage of Scheduled Tribe Population (1991)	30.9	8.0

Source: Census of India, 1991 and 2001.

*: National Family Health Survey, North Eastern States, 1998–99 and India, 1998–99.

The percentage of urban population in Tripura increased from 15.3 per cent in 1991 to 17.0 per cent in 2001. The percentage of urban population is lower in the state as compared to the All–India level (27.8 per cent) (table – 3.4).

i. Population of Children and Aged Persons :

In the state of Tripura, the proportion of children in the age group of 0 – 6 declined from 18.03 percent in 1991 to 13.38 per cent in 2001. The proportion of children in the same age group to total population also declined on an All–India level from 17.94 per cent in 1991 to 15.42 per cent in 2001. The percentage of population aged 60+ was 7.0 per cent (1991) in the state of Tripura as against the All India level of 6.8 per cent (table – 3).

ii. Scheduled Caste and Scheduled Tribe Population :

In the state of Tripura, the percentage of Scheduled Caste Population is 16.4 per cent (1991) which is nearabout equal to the proportion in India as a whole (16.7 per cent). The proportion of Scheduled Tribe population is quite high in the state of Tripura (30.9 per cent) as compared to All–India level (8.0 per cent) (table – 3).

c. Fertility Levels and Trends :

In the recent decades, Tripura has experienced considerable decline in the level of fertility. During 1981, the crude birth rate was 26.4 per thousand of population which declined to 24.4 in 1991 and 16.5 in 2000. In India, the birth rate declined from 33.9 in 1981 to 25.8 in 2000 (Table–3.5). Thus, fertility is significantly lower in Tripura State as compared to All India level. One of the significant factor for lower level of fertility in Tripura as compared to India is that the median age at marriage in the state is higher (18.3%) than the country as a whole (16.4%) (table – 3.4). During 1998–99, the total fertility rate (TFR) was 1.87

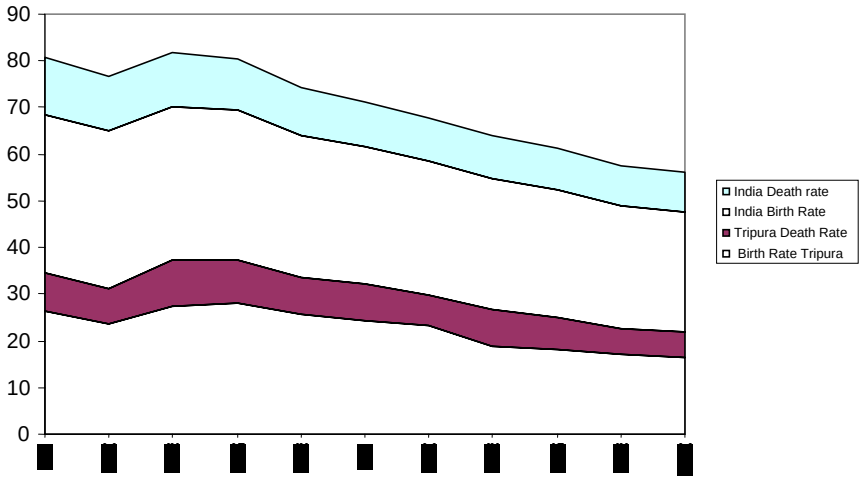
for Tripura (National Family Health Survey, North Eastern State, 1998–99) which is below the replacement level and no Indian state other than Goa has a lower TFR.

Table – 3.5 : Birth Rates and Death Rates in Tripura and India during 1981–2000

Year	Birth Rate		Death Rate	
	Tripura	India	Tripura	India
1981	26.4	33.9	8.0	12.5
1983	23.7	33.7	7.5	11.9
1985	27.3	32.9	9.9	11.8
1987	28.2	32.2	9.2	10.9
1989	25.7	30.6	7.7	10.3
1991	24.4	29.5	7.6	9.8
1993	23.3	28.7	6.4	9.3
1995	18.9	28.3	7.7	9.0
1997	18.3	27.2	6.8	8.9
1999	17.0	26.1	5.7	8.7
2000	16.5	25.8	5.4	8.5

Source : The Registrar General India, Sample Registration System.

Figure–3.3
Birth Rates & Death Rates in Tripura and India (1981-2001)



The level of fertility significantly differs among different states of the north–east region. It can be seen from Table – 5 that birth rate ranges between 16.5 in Tripura and 28.5 in Meghalaya. Among the north–eastern states, the state of Tripura has the lowest level of fertility.

i. Death Rate and Infant Mortality Rate :

Death rate has also been found to be the lowest (5.4) in the Tripura state (2000) as compared to other states of the north–eastern region excepting Mizoram (5.2). The death rate is significantly lower in the state of Tripura than the All India level (8.5). The Infant Mortality Rate (2000) is 41 in Tripura as compared to 75 in

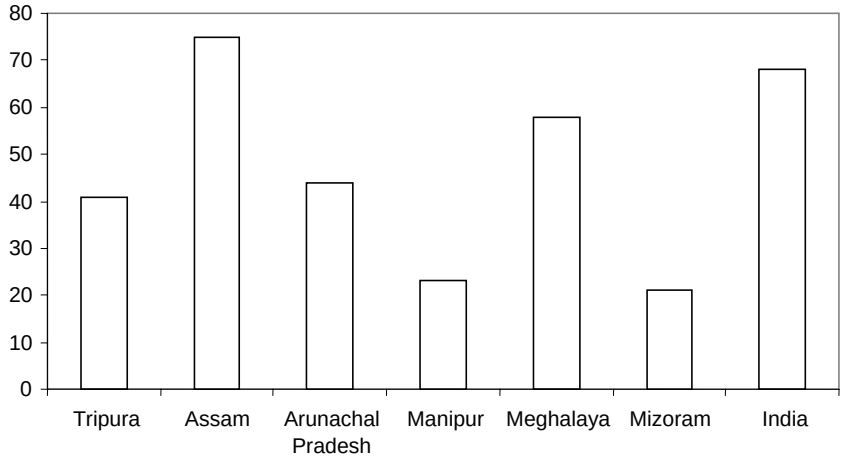
Assam, 58 in Meghalaya, 44 in Arunachal Pradesh and 68 in India as a whole (table – 3.6).

Table – 3.6 : Birth Rate, Death Rate and Infant Mortality Rate in Tripura and Other North Eastern States during the year 2000

NE States	Birth Rate	Death Rate	Infant Mortality Rate
Tripura	**16.5**	**5.4**	**41**
Assam	26.9	9.6	75
Arunachal Pradesh	22.3	6.0	44
Manipur	18.3	5.6	23
Meghalaya	28.5	9.2	58
Mizoram	16.9	5.2	21
Nagaland	NA	NA	NA
India	25.8	8.5	68

Source : Registrar General, India as published in Government of Tripura, Directorate of Economics and Statistics, Planning (Statistics) Department, Economic Review, 2001–02, and some Basic Statistics of Tripura, 2002.

Figure–3.4
Infant Mortality Rate (2000)



d. Current Use of Family Planning Methods :

The present use of family planning methods among currently married women aged 15 – 49 is quite high in the state of Tripura. The percentage of currently married women who reported using of any contraceptive method during 1999 has been 55.5 per cent in Tripura as compared to 35.4 per cent in Arunachal Pradesh, 38.7 per cent in Manipur, 20.2 per cent in Meghalaya, 30.3 per cent in Nagaland, 57.7 per cent in Mizoram and 48.2 per cent in India as a whole (National Family Health Survey, North Eastern States and India 1998–99). In Tripura state as well as in other states of North–Eastern region, modern methods are used by a larger percentage of women than traditional methods. The level of the current use of any method (including traditional method) of family planning was found to be constant during the period of 1993–99. During this period the percentage of current use of any modern method increased in Tripura from 28.6 per cent in 1993 to 43.5 per cent in 1999 while the proportion of current use of any traditional method declined from 27.5 per cent in 1993 to 11.8 per cent in 1999. It appears that the declining trend in fertility in the state of Tripura is largely due to significant increase in the use of modern methods of contraception (table – 3.7).

Table – 3.7 : Percentage Distribution of Currently Married Women by Contraceptive Method Currently Used in Tripura State

Method Currently Used	1993	1999
Any method	56.1	55.5
Any Modern Method	28.6	43.5
Pills	6.4	13.5
IUD	1.5	1.9
Injection	–	–
Condom	1.6	1.4
Female Sterlization	16.7	26.1
Male Sterlization	2.4	0.6
Any Traditional Method	27.5	11.8
Periodic abstinence/ rhythm, safe period	16.7	10.9
Withdrawal	10.5	0.9
Other Methods	0.4	0.2
Not using any method	43.9	44.5
Total	100.0	100.0

Source : National Family Health Survey I, North Eastern States, 1993 and National Family Health Survey (II), North Eastern States, 1998–99.

i. Unmet Need for Family Planning :

Currently married women who are not using any method of contraception but do not want any more children or want to wait two or more years before having another child, are defined as having an unmet need for family planning. Current contraceptive users are said to have a met need for family planning. The total demand for family planning is the sum of the met need and the unmet need. The percentage of women with unmet need for family planning is higher in the state of Tripura (18 per cent) as compared to All India (16 per cent). This implies that the proportion of women who are interested in stopping or delaying their births but are not using any contraceptive methods are high in the state of Tripura and such women can easily be motivated to accept family planning methods.

Table – 3.8: Percentage of Currently Married Women with Unmet and Met Need for Family Planning Methods in Tripura and India, 1998–1999

Need for planning	Tripura	India
Unmet need for F.P.		
For spacing	8.1	8.3
For limiting	9.6	7.5
Total	17.7	15.8
Met need (currently using a method)		
For spacing	7.0	3.5
For limiting	48.6	44.7
Total	55.5	48.2
Total demand (need) for F.P	15.0	11.8
For spacing	58.2	52.2
For limiting	73.2	64.0
Total		
Percentage of Demand Satisfied	75.8	75.3

Source : National Family Health Survey, North–Eastern States, 1998–99 and National family Health Survey, India, 1998–99.

e. State Population Policy :

Government of Tripura announced the State Population Policy – 2000 with the following objectives :

i. Immediate Objective :

To address the unmet needs for contraception, health care infrastructure and health personnel and to provide integrated service delivery for basic reproductive and child health care.

ii. Mid–Term Objective :

To bring total fertility rate (TFR) to replacement levels by 2010 through rigorous implementation of inter–sectoral operational strategies.

iii. The Long–Term Objective :

To achieve a stable population by 2045 at a level consistent with the requirement of sustainable economic growth, social development and environmental protection. Main endeavour will be on eliminating of poverty and illiteracy and socio–economic upliftment of the people.

The demographic targets to be achieved in the state by 2010 are given in the following table :

Table – 3.9

Parameters	Present Level*	Target to be achieved by 2010
Birth Rate	17.6	15
Death Rate	6.1	5
Growth Rate	11.5 (SRS – 1998)	10
TFR	2.3	2
IMR	49	20
MMR	4	1
Couple Protection Rate	46.1%	60%

* As mentioned in State Population Policy – 2000.

For successful implementation of the State Population Policy, a comprehensive Action Plan has been formulated which includes measures like constitution of the State Population Commission, integrated and coordinated service delivery at the village level, sub–centre level and panchayat level and various other measures to raise the status of women and promote reproductive and child health care.

B. Status of Education :

During the pre–Independence period, the rulers of Tripura established some schools in Agartala and certain other parts of the state. These monarchs took keen interest in education but large number of population living in the inaccessible hills and terrains of the state have not been able to avail the opportunities of educational facilities mainly due to their poverty. The National Government at the centre declared universalization of elementary education as its main aim and promised to bring all the children between the age group 6 –14 years under compulsory education within 10 years from the date of setting up of the constitution i.e. from 26th January 1950. The state Government too took up universal education for all children and providing of a minimum level of quality education as its aim. Meanwhile student population increased as a result of the growth of population which necessitated opening up larger number of schools and extending educational facilities to remote areas.

a. Level of Literacy :

During 1981, the level of literacy in Tripura state was 50 per cent which increased to 60 per cent in 1991 and 74 per cent in 2001. The female literacy

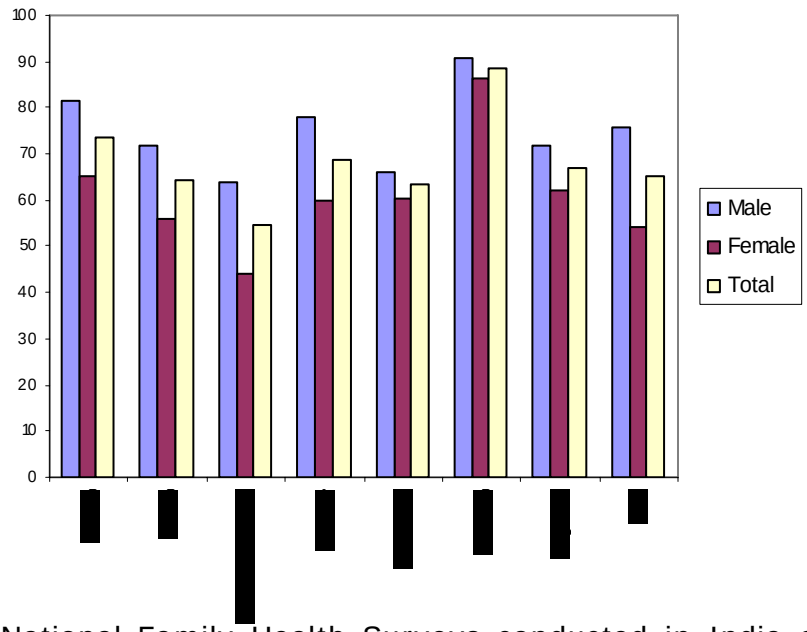
increased in the state from 38 per cent to 65 per cent during the period of 1981–2001. During the year 2001, the level of literacy was higher (74 per cent) in the state of Tripura as compared to India (65 per cent). Female literacy was also higher in Tripura than India as a whole. The level of overall literacy and female literacy in 2001 has also been noticed to be higher in Trip;ura than other North–Eastern States except Mizoram.

Table 3.10 : Literacy Rates in Tripura, other North–Eastern States and India During 1981–2001

Year	Persons/ Male/ Female	Tripura	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	India
1981	Persons	50.10	–	25.54	49.61	42.02	74.26	50.20	45.56
	Male	61.49	–	35.11	64.12	46.62	79.37	58.52	56.37
	Female	38.01	–	14.01	34.61	37.15	68.60	40.28	29.75
1991	Persons	60.44	52.89	41.59	59.89	49.10	82.27	61.65	52.21
	Male	70.58	61.87	51.45	71.63	53.12	85.61	67.62	64.13
	Female	49.65	43.03	29.69	47.60	44.85	78.60	54.75	39.29
2001	Persons	73.66	64.28	54.74	68.87	63.31	88.49	67.11	65.38
	Male	81.47	71.93	64.07	77.87	66.14	90.69	71.77	75.85
	Female	65.41	56.03	44.24	59.70	60.41	86.13	61.92	54.16

Note: Literacy Rates relates to the population aged 7 years and above
Source: Registrar General, India, Census of India

Figure–3.5
Literacy Rate (Total, Male, Female), 2001



The National Family Health Surveys conducted in India and North–Eastern states during 1993 and 1998–99 also demonstrate higher level of literacy and lower level of illiteracy in Tripura than India. Table – 3.11 shows that the percentage of illiterate population (aged 6 and above) in Tripura state was 27 per cent in 1993 and 21 per cent in 1998–99 as compared to 44 per cent and 37 per cent respectively in India. The percentage of illiterate females in 1998–99 was 27 per cent in the state of Tripura as against 49 per cent in India as a whole. The percentage of population educated upto high school and above has been higher in India than Tripura (table – 3.11).

Table – 3.11 : Percent Distribution of Population Aged 6 and above by literacy and level of education in Tripura and India

	Tripura						India					
	1993			1998–99			1993			1998–99		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Illiterate	18.7	35.6	27.2	14.7	26.8	20.8	31.2	56.7	43.7	25.5	48.6	36.9
Literate, < Primary	32.0	28.6	30.3	29.9	27.7	28.8	20.2	15.1	17.7	21.1	17.1	19.2
Literate Primary	18.1	16.4	17.3	19.8	20.6	20.2	16.8	12.1	14.5	18.4	14.5	16.5
Literate Middle	17.3	12.4	14.8	18.8	15.4	17.1	11.9	6.9	9.4	13.0	8.1	10.6

School												
High School Complete	8.7	4.4	6.5	7.1	4.5	5.8	13.6	6.6	10.1	10.7	6.0	8.4
> High School *	5.1	2.6	3.8	9.7	5.0	7.3	6.1	2.6	4.4	11.2	5.6	8.4
Total Percent	100	100	100	100	100	100	100	100	100	100	100	100.0
Median no of years of schooling	4.9	2.8	3.9	5.6	4.4	5.1	4.8	0**	2.5	5.5	1.6	4.0

Source : (i) National Family Health Surveys for North Eastern States, 1993 and 1998–99

(ii) National Family Health Surveys, India, 1992–93 and 1998–99.

* : For the year 1998–99 this indicates 'Higher Secondary Complete and Above'

** : Indicates that the majority of them have never been to school.

b. School Education :

If we look at the availability of social infrastructure in the NE region especially the educational facilities – only the state of Assam seems to have a fairly good number of educational schools, universities and colleges.

Table –3.12 : Statewise Number of Educational Schools/ Colleges and Institutes (2000)

Educational Schools/Institutes and colleges	A.P.	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura
University	1	5	2	1	*	1	1
Board of Second. Education	–	2	2	1	1	1	1
Art/ Science and Commerce College	7	280	50	33	27	32	14
Engineering College	1	3	–	–	–	–	1
Medical College	–	7^	1	–	–	–	–
Agricultural College	–	2	1	–	–	–	–
Veterinary College	–	1		–	–	–	–
Teacher Training College	–	24	3	1	2	1	1
Jr. College	–	80	–	–	–	3	–

(+2 stage)							
Higher Sec. Schools	68	604	77	40	20	16	215
High School	108	3967	528	532	352	309	392
Middle Schools	328	8019	639	10141	748	473	421
Primary Schools	1289	33236	2572	4685	1226	1469	2968
Pre–Primary Schools	46	199	1	–	–	–	3406
Teacher Training School	–	1	1	10	2	2	2
Polytechnics	1	8	1	1	2	2	1
Technical & Industrial Schools	2	32	6	3	1	3	4

Note : * – Campus of Hemu Mizoram
^ – Includes Ayurvedic Colleges
Source : Basic Statistics of NER, 2002.

Assam had 5 universities, 280 Art/ Science and Commerce Colleges, 8 Polytechnics, 32 technical and industrial schools, 3967 high schools, 8019 middle schools and 33236 primary schools in 2001. Tripura, on the other hand, had only 1 university, 14 art/ science and commerce colleges, 1 polytechnic and 4 technical and industrial school despite being the second most populous state of the region. There was no medical, agricultural or veterinary college in Tripura in 2000. Although, the literacy rates in Tripura are high, there is also a high drop out rates among students. There is also a need for higher educational institutes in the state especially those imparting technical and vocational guidance.

In spite of socio–economic backwardness of the people of Tripura, there has been a tremendous growth in School education facilities. According to the Sixth All India Education Survey conducted as on 30th September, 1993, out of total 855 inhabited Census villages, there were 814 villages having schools at primary stage i.e. 95.2 per cent census villages were having schools at primary stage.

The following table gives the district–wise distribution of schools and colleges in the state in 2002–03. As is evident from the Table, Tripura has a good network of primary schools and junior basic schools in the state, most of which are located in the West district of Tripura.

Table – 3.13 : District wise number of School, Colleges and Universities in the State of Tripura (2002–03)

Sl.	Type of Scholl	West	North	South	Dhalai	State
1	Schools	1485	812	1313	801	3148
	Primary/ Jr. Basic					
	a. Total	594	394	617	375	2080
	b. ADC	400	231	410	322	1363
	Middle/ Sr. Basic	182	77	119	50	428
	a. High	191	72	106	35	404
	b. Higher Secondary	118	38	61	19	236
2.	Colleges	11	4	4	1	20
	a. General Degree	6	3	4	1	14
	b. Engineering	1	–	–	–	1
	c. Law	1	–	–	–	1
	d. Music	1	–	–	–	1
	e. Art	1	–	–	–	1
	f. Regional College Physical Education	–	–	–	–	1
	g. College of Teacher Education	1	–	–	–	1
3.	Institutes	4	1	2	2	9
	a. Polytechnic	1	–	–	–	1
	b. Nursery Training	1	–	1	–	3
	c. Regional Pharm. Sci. and Technology	1	–	–	–	1
	d. District Institute Educational Training (DIET)	1	–	1	2	4
4.	University	1	–	–	–	1

Source : Economic Review, 2002–03

Total number of student enrollment in all categories i.e. from primary to H.S. (10+2) stage was 7,33,494 out of which girl students were 3,44,312 (46.94%), SC 1,44,227 (19.66%) and ST 2,44,860 (33.38%), as in 2002–03.

There were 32,912 teachers out of which 8,809 were under primary schools, 5,972 in Sr. Basic Schools, 8,674 in High Schools and remaining 9,457 in H.S. (10 + 2) schools.

The teacher pupil ratio was as follows :

a. Primary : 1 : 24
b. Middle : 1 : 19
c. High : 1 : 23
d. Higher Secondary : 1 : 23

Although the state scores in terms of high literacy rate (which is much above the national average), it loses on account of high drop out rates especially after the higher secondary stage. That is to say that very few students in the state pursue higher education. The overall drop out rates was 76.50% during 2002–03 as against all India overall drop out rates for secondary stage. However, continued government efforts have been successful in reducing the overall drop out rate from 77.60% in 1999–2000 to 76.95% in 2000–01. The overall drop–out rate in Tripura state was 76.95 per cent during 2000–01 as against latest all India over–all drop–out rate of 68.28 per cent for stage I to X (table–3.14).

Table – 3.14 : Overall Drop–out Rates in Tripura

Sl	Description	TRIPURA	
		1999–00	2000–01
1	Overall	77.60	76.95
2	Boys	76.79	76.34
3	Girls	78.55	77.66
4	SC	77.30	76.29
5	ST	86.99	86.72

Source : Economic Review of Tripura, 2001–02.

The percentage of population aged 6 – 10 years, 11–14 years and 15–17 years attending school have been found to be higher in the state of Tripura as compared to India. Among female population aged 6 – 17 years, the percentage of those attending school in the state of Tripura is 83 per cent as against 66 per cent in India and between 75 to 85 per cent in other north–eastern states (table – 3.14).

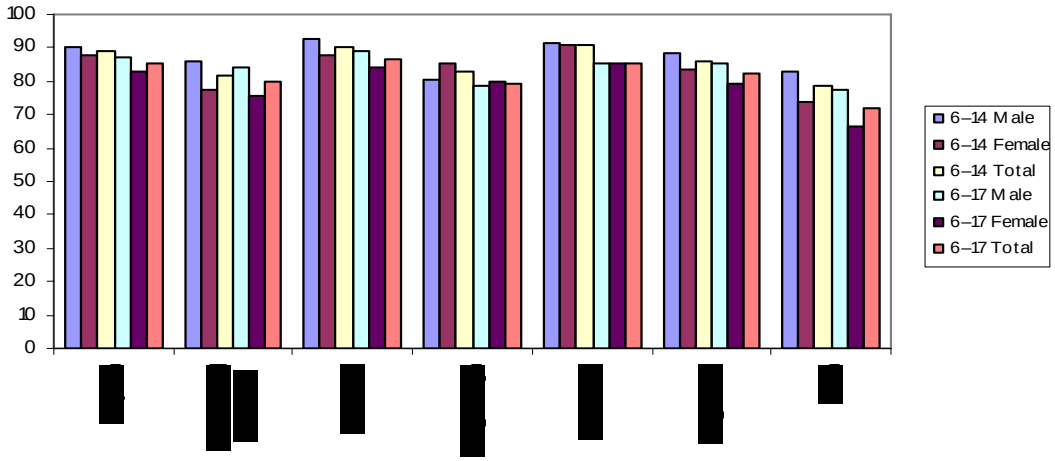
Table 3.15 : Percentage Distribution of Population Aged 6–17 Years Attending Schools By Age and Sex in Tripura, Other North–Eastern States and India

Age	Tripura	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	India
Male							
6–10	93.0	84.6	93.9	80.6	92.1	90.0	85.2
11–14	87.1	88.1	90.7	80.8	90.4	86.1	80.2
15–17	78.3	78.5	78.1	70.0	66.1	73.1	57.7
6–14	90.5	85.9	92.5	80.7	91.4	88.4	83.1
6–17	87.3	84.2	89.1	78.5	85.5	85.1	77.6
Female							
6–10	90.4	76.8	88.0	84.2	92.8	85.8	78.3
11–14	84.6	78.1	87.6	86.8	87.9	80.2	67.0
15–17	69.4	71.9	73.7	63.3	67.8	65.3	40.3
6–14	87.6	77.3	87.8	85.2	90.8	83.5	73.7
6–17	83.1	75.9	84.4	79.9	85.3	79.4	66.2
Total							
6–10	91.8	80.9	90.8	82.5	92.5	87.9	81.9
11–14	85.7	83.1	89.1	83.6	89.1	83.0	73.9
15–17	73.9	75.1	75.7	66.4	67.0	69.1	49.3
6–14	89.0	81.7	90.0	82.9	91.1	85.9	78.6
6–17	85.2	80.1	86.6	79.2	85.4	82.2	72.1

Source: (i) National Family Health Surveys for North Eastern States, 1998–99

(ii) National Family Health Survey, India, 1998–99

Figure–3.6
Percentage of Children Aged 6-14 and 6-17 Years Attending School



The total number of students who appeared in *Madhyamik* examination in 2001 were 32,025 out of which 14,298 passed the examination (i.e. 44.66%). The

total number of students appeared in H.S. (10 + 2) examination during 2001 was 13,984 out of which 6,611 passed successfully (i.e. 47.27%). The following table shows the position of *Madhyamik* and H.S (10 + 2) stage examination results during 2001.

Table – 3.16 : Position of Madhyamik and H.S. (10+2) Stage Examination Result During 2001

Sl	Branch	Number Appeared			Number passed		
		Boys	Girls	Total	Boys	Girls	Total
1	Madhyamik	17675	14350	32025	8864	5434	14298
2	Higher Secondary (10+2)	8530	5454	13984	4033	2578	6611

Source: Directorate of Economics and Statistics, Government of Tripura, Economic Review, 2001–02

The development of School Education and not higher education has been made possible in Tripura due to successful implementation of various incentive schemes provided by the Government of Tripura, which are given below :

- Exemption from paying tuition fees at school level for students.
- Nutritional support to Primary Education.
- Book grant, Dress grant, Attendance Scholarship, Pre–matric/ Post–matric scholarship, Boarding houses, stipend for ST/ SC students, Girls stipend etc.
- National scholarship at the secondary stage, Merit–cum–means scholarship, Hindi, Sanskrit scholarship at the Secondary and Higher Secondary stages.
- Grant to the children for Class I to X of those who are engaged in unclean occupation.
- Coaching facilities for ST/ SC students of Classes IX to XII.
- Reimbursement of Board Examination Fees for ST/ SC students.
- Setting up of residential school for ST Students.
- Provision of cost of Text Books.
- Stipend for students coming from BPL families of non–ST/SC/ OBC.
- Setting up of more schools in unreserved areas.

In spite of the above mentioned incentives, a large number of children have not attended any school in the state of Tripura. Table – 3.17 shows the main reasons for not attending school given by children aged 6 – 17 years who never attended any school. In the state of Tripura, 40 per cent of the boys and 38 per

cent of girls never attended school due to high cost of school education as compared to 26 per cent and 25 per cent respectively in India. About 18 per cent of the boys and 12 per cent of the girls of Tripura state never attended school as they were not interested in the studies as compared to 26 per cent and 16 per cent respectively in India. The percentage of those who could not go to school due to long distance has 8 per cent for boys and 5 per cent for the girls in the state of Tripura.

Table – 3.17 : Percent Distribution of Children Aged 6–17 years Who never attended school by the main reason for never attending school according to Sex in Tripura and India (1998–99)

Main reason for never attending school	Tripura		India	
	Male	Female	Male	Female
School too far away	8.1	5.1	3.5	4.3
Transport not available	0.0	3.8	0.6	0.7
Education not considered necessary	3.8	4.1	7.6	13.1
Required for household work	1.9	6.8	6.4	14.9
Required for work on farm/ family business	0.0	0.0	4.9	3.2
Required for outside work for payment in cash or kind	1.9	1.3	4.4	2.6
Costs too much	39.7	37.5	26.2	24.5
No proper school facilities for girls	0.0	2.5	0.0	2.5
Required for care of siblings	0.0	4.2	0.9	2.9
Not interested in studies	18.2	11.8	25.8	15.8
Others	24.4	15.0	17.6	13.4
Don't know	1.9	7.9	2.2	2.2
Total Percent	100.0	100.0	100.0	100.0

Source : National Family Health Survey, India and NE States, 1998–99.

c. Higher Education :

Higher education in Tripura has been given priority under the Five Year Plans. Till 1964, Maharaja Bir Bikram College at Agartala, *Ramkrishna Mahavidyalaya* at *Kailashahar*, Women's College at Agartala and Degree College at Belonia were giving higher education to the students. Later on, ten colleges for general education came into existence in different sub–divisions .At present there are 14 General degree Colleges, 1 Engineering College, 1 Law College, 1 Music College, 1 Art college, 1 Regional College,1 Teacher Education College, 9 Institutes and 1 University in Tripura (see Table-3.13). As is evident from the statistics, there is a dearth of higher educational institutes and colleges in the state. Tripura University

is the only university in the state, which offers post graduation courses in 12 subjects. At present there are no medical colleges or research institutes in the state.

The following table depicts number of students in University as well as in other colleges in Tripura during the year 2001–2002.

Table – 3.18 : Number of Students in University and Other Colleges in Tripura during the Year 2001–02

District	University			Arts, Science & Commerce College			Engineering College		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West Tripura	493	430	923	6390	5106	11496	473	100	573
North Tripura	–	–	–	1449	809	2258	–	–	–
South Tripura	–	–	–	2531	1227	3758	–	–	–
Dhalai	–	–	–	219	173	392	–	–	–
Tripura	493	430	923	10589	7315	17904	473	100	573

District	Polytechnic Institute			Law College			Arts & Music College		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West Tripura	232	56	288	92	79	171	253	281	534
North Tripura	–	–	–	–	–	–	–	–	–
South Tripura	–	–	–	–	–	–	–	–	–
Dhalai	–	–	–	–	–	–	–	–	–
Tripura	232	56	288	92	79	171	253	281	534

District	Nursing Training			Teacher Training College			College of Physical Education		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West Tripura	–	92	92	303	31	333	–	–	–
North Tripura	–	–	–	–	–	–	–	–	–
South Tripura	–	17	17	–	–	–	–	–	–
Dhalai	–	–	–	–	–	–	–	–	–
Tripura	–	109	109	303	31	333	–	–	–

District	Sanskrit College			Regional Pharmacy Institute			Industrial Training Institute		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West Tripura	57	35	92	130	63	193	216	52	268
North Tripura	–	–	–	–	–	–	70	7	77
South Tripura	–	–	–	–	–	–	39	6	45
Dhalai	–	–	–	–	–	–	–	–	–
Tripura	57	35	92	130	63	193	325	65	390

Source : Directorate of Economics and Statistics, Government of Tripura, Economic Review of Tripura, 2001–02.

The numbers of students enrolled in the universities and other colleges of Tripura as shown in Table 17 are low, if the size of total population of the state is considered. The youth population who need university and college education are increasing in the state as a result of the growth of total population. This indicates the need for more institutions and facilities for higher education. Presently, all colleges under the Department of Higher Education are running with shortage of infrastructural facilities in terms of inadequate accommodation in class rooms, laboratory, library, auditorium, common rooms, books and journals etc. There is shortage of regular teachers in almost all colleges. The main problem is being faced in introducing subjects having contemporary relevance are shortage of funds, and non–availability of qualified manpower within the state or from outside. The problem of getting qualified teachers in technical subjects is very much pronounced.

It may be suggested that Tripura Engineering College should be developed into a Centre of Excellence. There is need to modernize and develop Polytechnic Institute, Narsingarh and the Women's Polytechnic, Agartala. Tripura University should be developed as one of the best universities in the region as well as in the country. The Government Music College and Government Art College may be converted into the level of Regional Colleges with facility for studies at post–graduate level. The higher education needs profound transformation in the state in order to become an effective promoter of sustainable human development.

C. Status of Health :

a. Birth Rate, Death Rate, IMR and MMR :

The development of a state and well–being of its people largely depends on the sound health of men, women and children. Tripura state has suffered a lot due to inadequate infrastructure and other bottlenecks, which adversely affected the socio–economic development of the state. The high incidence of poverty and backwardness also resulted in poor health conditions of the people. The state has also suffered due to shortage of appropriate health manpower. Despite economic backwardness and shortage of modern health care facilities, the state of Tripura has performed comparatively better in the field of health and medical facilities. Table – 3.5 shows that birth rate and death rate in the state are well below the national level. During the year 2000, birth rate in the state was 16.5 and death rate 5.4 as against 25.8 and 8.5 respectively in India. The infant mortality rate in the state was 41 during the year 2000 as compared to 68 in India for the same year (Table–3.6). Table 3.19 shows that neo–natal mortality rates and post–neonatal mortality rates are significantly lower in Tripura (28.6 and 15.6 respectively) than India as a whole (43.4 and 24.2 respectively). The maternal mortality rate (SRS– 1999) has also been lower in the state of Tripura (4.0/ 1000) as compared to India (4.37/ 1000). As a result of lower infant mortality rate, death rate and maternal mortality rate, the life expectancy of the people of Tripura state is expected to have enhanced which was 57.10 years in the state as against 53.85 in the country during 1981 (SRS : 1994).

Table – 3.19 : Infant and Child Mortality Rate in Tripura and India during 1998–99*
(Deaths per 1000 live births)

State/ Country	Neo–natal Mortality[1]	Post–neo Natal mortality[2]	Infant Mortality[3]	Child Mortality[4]	Under Five Mortality[5]
Tripura	**28.6**	**15.6**	**44.2**	**7.4**	**51.3**
Arunachal Pradesh	41.8	21.3	63.1	37.4	98.1
Manipur	18.6	18.4	37.0	19.9	56.1
Meghalaya	50.7	38.3	89.0	36.2	122.0
Mizoram	18.8	18.2	37.0	18.4	54.7
Nagaland	20.1	22.0	42.1	22.7	63.8
India	43.4	24.2	67.6	29.3	94.9

* : 0 – 4 years preceding the survey
1. Neo–natal mortality : The probability of dying in the first month of life.

2. Post–neonatal mortality : The probability of dying after the first month of life but before the first birthday.
3. Infant mortality : the probability of dying before the first birthday.
4. Child mortality : The probability of dying between the first and fifth birthday.
5. Under–five mortality : The probability of dying before the fifth birthday.

Source : National Family Health Survey, North Eastern States and India, 1998–99.

b. Disease Profile :

The prevalence of different diseases in the state of Tripura is shown in table – 3.20 and table – 3.21. Table – 3.20 shows that among total the number of patients being treated in government institutions in Tripura state during 1999–2000 the highest were being treated for fever (66114) followed by Malaria (8891). The number of patients being treated for typhoid (3080), gastroenteritis (2013) and measles (1407) also high in the state.

Table – 3.20 : Number of Patients Treated by Diseases in Government Institutions in Tripura State (1999–2000)

Diseases	Indoor Patients	Outdoor Patients	Total
1. Tuberculosis	202	261	463
2. Syphilis	8	169	177
3. Fever	20235	45879	66114
4. Small Pox	–	–	–
5. Malaria	7864	1027	8891
6. Leprosy	–	3	3
7. Cholera	–	–	–
8. Gastroenteritis	972	1041	2013
9. Gonorrhoea	3	53	56
10. Diptheria	–	2	2
11. Poliomyelitis	–	–	–
12. Tetanus	4	–	4
13. Measles	112	1295	1407
14. Whooping Cough	97	352	449
15. Typhoid	426	2654	3080

Source : Statistical Abstract of Tripura, 2001.

It can be seen from table – 3.20 that in the Tripura state, the number of persons per 1,00,000 population suffering from Malaria during 3 months in 1998–99 was 7618 as compared to 16656 in Meghalaya and 16166 in Nagaland. For the same year, (for 3 months) the incidence of Jaundice has been found to be highest (8203 patients per 1,00,000 of population) in Tripura state among all the north–eastern states. The prevalence of tuberculosis and Asthma is also high in the state of Tripura. According to Health and Family Welfare Department, Government of

Tripura, major health problems in the state are diarrhea diseases, malaria, respiratory tract infections, cardiovascular diseases and diabetes etc. The incidence of cancer is also growing in the state.

Table – 3.21 : Number of Persons per 1,00,000 population* Suffering from Various Diseases in Tripura and Other North Eastern States (1998–99)

States	Number per 1,00,000 population suffering from			
	Asthma	Tuberculosis	Jaundice During last 12 months	Malaria during past 3 months
Arunachal Pradesh	3117	1270	1669	12619
Manipur	2040	1107	1728	1995
Meghalaya	5995	1459	2658	16656
Mizoram	2149	1063	3155	7359
Nagaland	5729	1654	5348	16166
Tripura	4981	1157	8203	7618

* Usual household residents

Source : National Family Health Survey–2, North Eastern States, 1998–99.

In Tripura, National T.B. Control Programme (NTCP) is being implemented since 1962. Under this programme, there is a District T.B. Centre in each district. In addition, other health institutions also provide service for diagnosis and treatment of T.B.

In India, National Malaria Control Programme (NMCP) was launched as early as 1953, which was later replaced by National Malaria Eradication Programme (NMEP). The implementation of the programme in Tripura state brought down the incidence of malaria significantly, but due to various factors, there has been resurgence of malaria. Since complete eradication of malaria as an immediate goal does not appear feasible, the Government of India had launched a National Anti–Malaria Programme in 1999, to control the incidence of those diseases.

The treatment for diseases like Cancer, heart diseases, rabies, Hepatitis B and C, diabetes, leprosy and AIDS etc. are also available in different government hospitals and health institutions of Tripura state (Government of Tripura, Dept. of Health and Family Welfare, 2003).

c. Nutritional Status :

Nutritious food containing adequate amount of protein, fat carbohydrates, vitamins and minerals etc. are required for a well balanced diet needed for good health of the people. Meat, fish, eggs, milk and pulses etc. are rich in protein. Green leaf of vegetables contain adequate amount of iron, folic acid, vitamin C and calcium etc. Many fruits are also rich in vitamin C. Table – 3.22 shows that in the state of Tripura most of the women (65 per cent to 92 per cent) consume vegetables, pulses, beans and chicken, meat or fish at least once in a weak. More than half of them (51 per cent) take milk or curd at least once in a week. The percentage of women who eat eggs, chicken, meat or fish are higher in the state of Tripura (56 to 65 per cent) as compared to all India (28 to 32 per cent) and most of the north–east states. The proportion of women who consume fruits at least once a weak is 40 per cent in the state of Tripura as compared to 33 per cent in India.

Table – 3.22 : Percentage of Ever Married Women Consuming Specific Foods or those who never consumed such foods in Tripura, North–Eastern States and India (1999)

State	Frequency of Consumption	Type of Food						
		Milk/ Curd	Pulses/ Beans	Green Leafy vegetables	Other Vegetables	Fruits	Eggs	Chicken/ Meat or fish
Tripura	At least once a week	51.1	86.1	91.2	91.5	39.9	56.3	65.2
	Never	14.9	1.3	0.1	0.6	3.4	8.3	2.6
Arunachal Pradesh	At least once a week	19.9	51.2	95.6	72.7	28.9	33.5	57.4
	Never	42.0	4.0	0.1	0.4	1.4	7.8	12
Manipur	At least once a week	15.3	37.3	96.9	93.2	34.3	14.8	47.4
	Never	27.8	1.8	0.0	0.0	3.2	14.0	1.7
Meghalaya	At least once a week	23.7	61.5	88.9	91.8	40.3	32.6	61.8
	Never	39.0	2.2	1.4	0.2	1.8	8.4	2.0
Mizoram	At least once a week	22.9	64.5	99.2	87.1	61.6	42.5	59.3
	Never	38.3	1.1	0.0	0.1	0.5	2.3	0.7
Nagaland	At least once a week	82.7	59.6	96.3	80.6	40.9	30.2	72.3
	Never	5.7	1.8	0.6	1.7	0.5	1.3	0.0
India	At least once a week	55.0	87.8	85.2	93.1	33.0	27.8	31.9
	Never	10.9	0.6	0.4	0.2	4.7	34.2	30.8

Source : (i) National Family Health Survey for North Eastern States, 1998–99
(ii) National Family Health Surveys, India, 1998–99.

A nutritional deficiency of iron, foliate, vitamin 12, or some other nutrients largely causes anemia. It seems that larger proportion of women in Tripura state

suffer from the deficiency of these nutrients as the incidence of anemia is high in the state as compared to All India and some of the other north–eastern states like Manipur, Mizoram and Nagaland. The percentage of women with anemia is 59 per cent in the state of Tripura as compared to 52 per cent in India and between 29 to 48 per cent in the states of Manipur, Nagaland and Mizoram (table – 3.23).

Table – 3.23 : Percentage of ever married women classified as having iron–deficiency anemia by degree of anemia in Tripura, North Eastern States and India (1999)

States	Percentage of women with any anaemia	Percentage of women with		
		Mild Anaemia	Moderate Anaemia	Severe Anaemia
Tripura	**59.0**	**43.5**	**14.0**	**1.4**
Arunachal Pradesh	62.5	50.6	11.3	0.6
Manipur	28.9	21.7	6.3	0.8
Meghalaya	63.3	33.4	27.5	2.4
Mizoram	48.0	35.2	12.1	0.7
Nagaland	38.4	27.8	9.6	1.0
India	51.8	35.0	14.8	1.9

Source : National Family Health Survey, India and for North Eastern States, 1998–99

The weight and height measurements are often used to indicate nutritional status of the adults. The height of an adult is an outcome of several factors including nutrition during childhood and adolescence (National Family Health Survey, North Eastern States, 1998–99). The cut–off point for height, below which a women can be identified as nutritionally at risk, varies among populations, but it is usually considered to be in the range of 140–150 centimeters (cm.) Table – 3.24 reveals that mean height for women is 149 cm. in Tripura as against 151 cm. in India. It is also lower in Tripura than other north–east states like Arunachal Pradesh, Manipur, Meghalaya, Mizoram and Nagaland (between 150.6 cm. to 151.6). The percentage of women who are less than 145 cm. in height has been found to be much higher in the state of Tripura (20 per cent) as compared to India (13 per cent) and other north–eastern states excluding Meghalaya (between 10 per cent to 12 per cent). These observations show that women in Tripura are shorter than women in India and other north–eastern states.

Table – 3.24 : Nutritional Status of Ever Married Women measured in terms of mean height, height below 145 cm. and body mass index (BMI)* in North Eastern States and India (1999)

States	Height		Weight for height	
	Mean height (cm.)	% below 145 cm.	Mean Body mass Index (BMI)	% with BMI below 18.5 kg/m^2
Tripura	**149.2**	**19.8**	**20.3**	**35.2**
Arunachal Pradesh	150.8	11.9	21.0	10.7
Manipur	151.5	10.3	21.1	18.8
Meghalaya	150.6	21.1	20.3	25.8
Mizoram	151.6	10.7	20.4	22.6
Nagaland	151.6	10.6	20.9	18.4
India	151.2	13.2	20.3	35.8

* : BMI is defiened as the weight in kg divided by the height in meters squared (kg/m^2).
Source : National Family Health Survey, India and for North Eastern States, 1998–99

The nutritional deficiency of an adult is also measured in terms of an index that relates weight to height. This index, termed as body mass index (BMI) is defined as the weight in Kilograms divided by the height in meters squared (Kg/m^2). The serious nutritional deficiency is usually indicated by a BMI of less than 18.5. Among all the north eastern states, the percentage of women with BMI as below 18.5 is highest in Tripura (35 per cent). Such percentage varies between 11 to 26 per cent in other north–eastern states. This indicates higher prevalence of nutritional deficiency measured in terms of BMI among women in Tripura State than other north–eastern states (table – 3.24).

Nutritional status of the children is a major determinant of their conditions of health. The nutritional status of the children is usually assessed through measurement of their weight and height/ length. Table – 3.25 shows that during the year 2000, the percentage of children below age 5 years who weighed less than 2500 grams at birth was 23 per cent in Tripura state as against 22 per cent in India and ranged between 7 to 21 per cent in other north–eastern states. In Tripura, the proportion of children who weighted less than 2500 grams at birth has been found to be higher for females than males. According to another measure, the percentage of children under–weight has also been noticed to be highest (43 per cent) in Tripura as compared to other north–eastern states (between 24 to 38 per cent). The percentage of children chronically undernourished is higher in the state of Tripura (40 per cent) as compared to India (46 per cent) and other north eastern

states such as Arunachal Pradesh (27 per cent), Manipur (31 per cent), Mizoram (35 per cent) and Nagaland (33 per cent). The percentage of children acutely undernourished has also been found to be higher in Tripura (13 per cent) in than these north–eastern states. The foregoing analysis indicates that larger proportion of the women and children are under–nourished in the state of Tripura and suitable measures should be adopted to enhance their nutritional status.

Table – 3.25 : Nutritional Status of Children Measured in Terms of Weight and Height in North Eastern States and India

States	% children below age 5 who weighted less than 2500 grams at birth[1] (2000)			% of children chronically undernourished (stunted)[2]	% of children acutely under nourished (wasted)[2]	% of children under weight[2]
1	Male 2	Female 3	Total 4	(1999) 5	(1999) 6	(1999) 7
Tripura	**22.8**	**23.5**	**23.1**	**40.4**	**13.1**	**42.6**
Arunachal Pradesh	14.4	13.9	14.2	26.5	7.9	24.3
Manipur	10.0	12.5	11.3	31.3	8.2	27.5
Meghalaya	12.9	13.3	13.1	44.9	13.3	37.9
Mizoram	7.7	5.8	6.8	34.6	10.2	27.7
Nagaland	6.2	8.4	7.4	33.0	10.4	24.1
Assam	24.9	16.7	21.4	–	–	–
India	20.5	23.4	21.8	45.5	15.5	47.0

1. Based on children whose birth weight information is available (both from card and recall)
2. Stunting assessed by height–for–age, waiting assessed by weight–for–height, underweight assessed by weight–for–age. More details may be seen in the Report of National Family Health Survey – North Eastern States, 1998–99.

Source : For col. 2–4, Multiple Indicator Survey, 2000 (dept. of Women and Child Development and United Nation's Children's Fund), December 2001.
For col. 5–7 : National Family Health Survey, India and North Eastern States, 1998–99.

d. Health Infrastructure and Health Care Services :

Major objectives of the health and medical services presently available in the state of Tripura are : to provide adequate and qualitative health care (preventive and curative), to improve maternal and child health and to ensure greater access to primary health care through institutions as close to the people as possible. With a view to achieving these objectives, the following infrastructural facilities are available in the state.

i. State Hospitals :

Presently, the state of Tripura has six state hospitals including allopathic, Ayurvedic and homeopathic hospitals as mentioned in table – 3.26. For diagnosis of disease and proper treatment, sophisticated equipments and machines have been provided at the secondary and tertiary levels. In the process of providing modern diagnosis and treatment facilities, sophisticated equipments and machines like CT scan, computerized haemodialyzer, 500 x–ray machines with image intensifier, Endoscope, ECG, TMT, IFT machines, laproscopic operation unit, C–Arm fluoroscope machine etc. have been installed in the GBP hospital. Operation Theatre in GBP hospital has been made sophisticated with AC facilities as per World Health Organization standard. Major services available in GBP hospital are related with medicine, surgery, orthopaedics, ENT, physical medicine, skin, STD including AIDS, TB and psychiatry etc. The total bed strength of the hospital is 666.

Table – 3.26 : Health Infrastructure in the State of Tripura in Urban Areas (2003)

Type of Health Institutions	Name of the Institution	No. of beds
State Hospitals	1. G.B. Pant Hospital 2. IGM Hospital 3. Dr. BRAM Hospital 4. Cancer Hospital 5. Ayurvedic Hospital 6. Homeopathic Hospital	666 310 100 50 10 20
TOTAL	6	1156
District Hospitals	1. Tripura Sundari South District Hospital, Udaipur 2. Rajib Gandhi Memorial North District Hospital, Kailashahar	135 125
TOTAL	2	260
Sub–divisional Hospitals	1. Khowari S.D. Hospital 2. Melaghar S.D. Hospital 3. Bishalgarh S.D. Hospital 4. Belonia S.D. Hospital 5. Amarpur S.D. Hospital 6. Sabroom S.D. Hospital 7. BSM Hospital, Kamalpur 8. Gandacherra S.D. Hospital 9. Chailengta S.D. Hospital 10. Dharmanagar S.D. Hospital 11. Kanchanpur S.D. Hospital	75 35 40 75 35 35 75 50 50 75 50
TOTAL	11	595
Grand Total	19	2011

Source : Government of Tripura, Health and Family Welfare Department, Proposal, 2003

The IGM hospital, the oldest state referral hospital provides not only curative but also preventive and promotive health care services, especially for mothers and children. The hospital has total 310 beds. Dr. BRAM Hospital located at Hapania, has an eye department, a dental department and a communicable disease centre (CDC). The Cancer Hospital offers a wide range of curative as well as palliative (pain control) treatment to cancer patients. The facilities through Ayurvedic and Homeopathic systems are also available in the state at the state level hospitals.

ii. District Hospitals and Sub–divisional Hospitals :

Presently, there are two district level hospitals with a total of 260 beds as shown in table – 3.26. The facilities available in the district hospitals include specialized services in medicine, surgery, obstetrics, gynecology, ENT, Ophthalmology, psychiatry, TB and maternal and child health (MCH) etc. In Tripura Sundari Hospital, an intensive coronary care unit has been set up with telemedicine link to Asia Heart Foundation. Similarly, at RGM Hospital, telemedicine facility with link to Care Foundation, Hyderabad has been set up. Both hospitals have well equipped operation theatres. Blood bank services are also available at district hospitals.

The state of Tripura has also 11 sub–divisional hospitals with a total of 595 beds (table – 3.26). The facilities available at the sub–divisional hospitals include pathological laboratory, ultrasonography machine, X–ray, ECG, maternal and child health, blood bank and some other specialized services.

The district hospitals and the SD hospitals are included in the secondary level health institutions.

iii. CHCs, PHCs and Sub–Centres :

If we compare the basic health infrastructural facilities more particularly, the number of PHCs, CHCs and Sub–centres present in Tripura vis–a–vis the north eastern states, we find that the entire north eastern region is facing a shortfall of health infrastructure. The deficit is more pronounced in the states of Assam, Manipur, Meghalaya, Nagaland and Tripura. Only Arunachal Pradesh seems to be having adequate medical facilities as can be seen from table.

Table –3.27 : Statewise Number of Sub–centres, PHCs and CHCs in the NER

States	No.of Sub-Centres			No. of PHCs			No. of CHCs		
	Required	Available	Short	Required	Available	Short	Required	Available	Short
A.P.	253	273	*	43	65	*	10	20	*
Assam	5082	5109	*	849	610	237	211	100	111
Manipur	470	420	50	78	69	9	19	16	3
Meghalaya	595	413	182	99	85	14	24	13	11
Mizoram	148	140	8	24	58	*	6	9	*
Nagaland	531	302	229	88	46	42	23	9	14
Tripura	656	539	117	109	58	51	27	11	16

* Surplus Infrastructure

Source : Basic Statistics of NER, 2002.

As on 31–3–2001, there were 610 PHCs in Assam as against the required number of 849, creating a shortfall of 237 PHCs in the state. There is a shortage of Community Health Centre in the state (111 in number). In Tripura too, the medical and health facilities are inadequate especially in keeping with the large size of population. As on 31–3–2001, there were 539 sub–centres, 58 PHCs and 11 CHCs in the state creating a shortfall of 117 sub centres, 51 PHCs and 16 CHCs respectively. The situation is further compounded by the difficult hilly terrain of the state and the lack of efficient transport and communication system.

The state of Tripura however has a good network of health institutions for primary health care in the rural areas. These institutions include 9 Community Health Centres (CHCs), 72 Primary Health Centres (PHCs), 539 health sub–centres, 75 homeopathic dispensaries, and 38 ayurvedic dispensaries. District–wise number of these institutions are given in table – 25. In these institutions, various preventive, promotive and curative health services are provided. Maternal and Child Health services (MCH) are available at all of these centres/ hospitals. In the CHCs, PHCs and the sub–centres, major emphasis is given to provide family planning services along with MCH and reproductive and child health services at the grassroot level. Services of the specialists are made available even to the people in very remote areas through the institutionalized mechanism of Health Camps.

Table – 3.28 : Health Infrastructure in Rural Areas for Primary Health Care and MCH Services (2003)

Type of Health Institutions (number)	West District	North District	Dhalai District	South District	Total Number
No. of community Health Centres (CHCs)	–	–	–	–	9*
Primary Health Centres (PHCs)	21	17	11	23	72
Sub–Centres	244	104	56	135	539
Homeopathic Dispensaries	38	8	6	23	75
Ayurvedic Dispensaries	20	5	3	10	38

* : These 9 CHCs are : 1 Jirania (30 beds), 2. Takarjala (30 beds), 3. Sonamura (30 beds)
4. Teliamura (30 beds), 5. Kalyanpur (30 beds), 6. Kumarghat (30 beds)
7, Manubazar (30 beds), 8. Nutan Bazar (20 beds), 9. Ompinagar (20 bed).

Source : Government of Tripura, Health and Family Welfare Department

iv. Manpower Resources (Health Staff) :

Adequacy of health staff is highly significant for effective and efficient delivery of the services. Table – 3.29 shows the number of different posts sanctioned by the Government and the number of persons in position. The table also shows the number of posts vacant and their percentage to the sanctioned posts. The number of sanctioned posts for allopathic specialists/ medical officers during 2003 were 931 in the state of Tripura but only 767 men were in position on the same posts. Therefore, 164 posts of specialists/ medical officers i.e. 18 per cent were lying vacant. Out of 50 sanctioned posts of dental surgeons, 13 (26 per cent) were vacant. More than one fourth (27.7 per cent) of the sanctioned posts (1009) of nursing personnel were noticed to be vacant in the state. The numbers of sanctioned posts for MPW (M) were 501 out of which 419 workers were in position and 82 posts (16 per cent) were vacant. All functionaries were in position on 603 sanctioned posts of MPW (female). Out of 327 sanctioned posts of pharmacists, one fifth have been found to remain vacant. These observations indicate that efforts should be made to fill–up the vacant posts with a view to avoiding shortage of the health staff.

Table – 3.29 : Manpower Resources (Key Staff for Health Institutions) in the State of Tripura (2003)

Category of Post	Sanctioned Post	Men in Position	Vacant	Out of sanctioned posts % vacant
Specialists/ Medical Officers (Alop.)	931	767	164	17.6
Dental Surgeon	50	37	13	26.0
Medical Officer (Ayur.)	47	45	2	4.3
Medical Officer (Homeo.)	73	64	9	12.3
Nursing Personnel	1009	730	279	27.7
Pharmacist	327	262	65	19.9
Technicians of Different Disciplines	228	179	49	21.5
MPW (M)	501	419	82	16.4
MPW (F)	603	603	–	–
MPS (M)	153	139	14	9.2
MPS (F)	69	69	–	–
Class IV	2119	2179	40	1.8

Source : Government of Tripura, Health and Family Welfare Department.

At the grassroots level, the state has 1297 Mahila Swasthya Sanghas, 1224 Village Health Guides and 1211 traditional birth attendants.

With the help of above infrastructure and manpower, a wide range of preventive, promotive and curative services are provided in the state. Reproductive and child health (RCH) services including services relating to MCH and family planning are also available in many of these institutions, particularly in PHCs and the sub–centres. Major components and interventions under the RCH programme are as follows :

- Fertility regulation and prevention and promotion of family planning acceptance.
- Maternal Health Care (including safe delivery).
- Child health care (including immunization).
- Care for reproductive health for men and women.
- Control of RTI and STI.

Various preventive, promotive and curative health services along with RCH and MCH services are being provided in the state through the implementation of all ongoing national health programmes as mentioned below :

- National Family Welfare Programme
- National Malaria Eradication Programme
- National Programme for Control of Blindness.
- National Tuberculosis Control Programme
- National Iodine Deficiency Control Programme
- National AIDS Control Programme
- National Cancer Control Programme
- Universal Immunization Programme
- Oral Rehydration Therapy Scheme
- National Leprosy Eradication Programme
- Special School Health Check–up Schemes for primary children
- Pulse Polio Immunization Programme
- Sexually Transmitted Diseases Control Programmes
- Village Health Guide Scheme.

v. Recent Efforts Made :

The Directorate of Planning and Coordination, Government of Tripura, has identified the following issues to promote the status of health and family welfare in the state.

i. Advanced Treatment Facilities are to be Provided in major hospitals to reduce dependence on outside hospital :

In this respect, a super specialty hospital society has been established to render specialized investigation/ treatment facilities on commercial basis. Action was taken to start out patient department services for neurology, gastroenterology and nephrology and to fully operationalize cardiothoracic surgery and other surgical services. A project for expansion and modernization of IGM hospital at a cost of Rs. 10.00 crores has been taken up. The GB Pant Hospital is being expanded at a cost of Rs. 9.00 crores. A project for Modern Diagnostic Centre has been taken up. A project for establishment of 40 bedded Eye hospital at Hapamia at a cost of Rs. 3.10 crores has been taken up.

ii. Manpower Strategy in Health Centres is to be Removed

Based on the staffing norm recommended by the Committee under the Chairmanship of the Chief Secretary, present gap in manpower availability can be identified and steps can be taken to create additional posts in phases.

iii. Medical College Needs to be Set up

Municipal Education and Medical Group (MEMG) prepared a project proposal for establishment of a medical college in the state. On examination of the proposal, it is primarily decided to request MEMG to setup the college under Municipal University as private sector venture.

iv. PHCs with Single MOs to be set up

Based on the recommendations of the Committee refered to at serial 2 above, it will be possible to bridge the existing gap of medical officers and thereafter, setting up of new PHCs with single doctors will be planned. Sub–optimal performance of health care institutions, especially in the rural areas is attributable to mainly two factors (a) absenteeism, and (b) private practice by almost all medical officers at the cost of duties assigned to them. In this regard, corrective measures may have to be resorted to for larger public interest.

v. Health Facility at Growth Centres and Accommodation for Staff :

While the health care infrastructure will continue to be expanded, it is simultaneously necessary to strengthen existing facilities. Special Area Project (SAP) are implemented by the Tribal Welfare Department. In consultation with implementing agencies and the Administrative Department, a phased programme will be finalized for extending health care facilities wherever needed at SAP locations.

It is decided in consultation with DM, Dhalai district, to set up a health sub–centre at Tuichakma SAP (about 16 kms. from Gandacherra) in Dhalai district. Accommodation will be constructed by SDM and staff/ medicines will be positioned by HFW department.

vi. Publicity to Create Health Awareness :

Major objectives of the campaign shall be : (i) to disseminate scientific knowledge about prevention of diseases and promotion of health; (ii) to motivate people to change way of living and habits aimed at achieving total sanitation in all habitations; (iii) to encourage individuals and families to adopt modern and scientific practices regarding reproductive and child health; (iv) to inform people about the available health care facilities in the locality.

The campaign shall deploy suitable and effective methods like group health education, group/ panel discussions, seminars, workshops, drug orientation training and interpersonal communication etc. The medium of campaign will be television, radio, press and exhibition etc.

vii. Health Care in Remote Areas :

Average population coverage under the existing network in rural areas of the state is 4,333 by health sub–centres (HSC), 32,437 by PHCs and 2,59,489 by CHCs as compared to 4589, 27,123 and 2,16,000 respectively at the national level. This indicates that there is gap in the average population coverage per health institution compared to the national scenario. There is already a plan to bridge the gap by setting up more health care institutions in the rural areas. There is also an important task to consolidate the existing institutions to ensure that people get the desired services and quality of services is of pre–determined standard.

vi. Future Requirements :

According to the State Development Report (SDR), Tripura, the following health care infrastructure will be required on the basis of projected population of the rural areas of the state for achieving 100 per cent coverage of primary health care at the end of 2010.

Table–3.30

	No. required	gap (as on 1–4–03)
1. Health Sub–centre	734	195
2. Primary health centre	117	45
3. Community Health Centre	29	20
4. Homeopathic Dispensary	98	23
5. Ayurvedic Dispensary	98	60

With a view to filling the gap of above mentioned infrastructure for 100 per cent coverage of primary health care, total non–recurring financial requirement has been estimated as Rs. 11,859.00 lakhs and total recurring requirements as Rs. 5194.20 lakh. The total for non–recurring and recurring requirement is Rs. 17053.20 lakh.

For secondary level health institutions (district hospitals and SD hospitals etc.) the financial requirement to achieve desired level by 2010 has been estimated at Rs. 4271.33 lakh. The financial requirement for tertiary level health institutions and others (modern psychiatric hospital, disposal of bio–medical waste and geriatric medicine etc.) has been estimated as Rs. 18469.61 lakhs to achieve the desired level by 2010. Thus, total financial implications for primary health care, secondary and tertiary level health institutions have been worked out as Rs. 39794.14 lakhs.

D. Status of Housing :

The housing conditions, safe drinking water and better civic amenities significantly affect the health of people and their general quality of life. Table –3.31 shows that the percentage of households (1998–99) living in poor houses i.e. *kuccha* houses made with mud, thatch or other low quality material is highest in the state of Tripura (85 per cent) as compared to other north–eastern states (between

32 to 79 per cent) and India as a whole (33 per cent). Only 8 per cent of the households belonging to Tripura state live in *pucca* houses as against 32 per cent in India.

Table – 3.30 : Percent Distribution of Households by Type of House in the State of Tripura and Other North-eastern States (1998–99)

States	Type of house				
	Kachcha	Semi pucca	Pucca	Missing	Total Percentage
Tripura	**85.4**	**6.2**	**8.4**	**0.0**	**100.0**
Arunachal Pradesh	69.5	15.4	14.2	0.9	100.0
Manipur	78.6	13.6	7.1	0.6	100.0
Meghalaya	55.0	30.2	14.5	0.4	100.0
Mizoram	32.8	50.7	16.2	0.3	100.0
Nagaland	58.0	22.0	18.1	1.9	100.0
India	32.5	35.3	32.0	0.2	100.0

Source : National Family Health Survey, North–Eastern States and India, 1998–99

The following table gives us a fair idea of the dwelling status of the households in Tripura (in %).

Table – 3.32 : Dwelling Status in Tripura (1991–2001)

State/India		Type of house		
		Pucca	Semi pucca	Kachcha
1991	Rural	1.91	17.35	80.74
	Urban	24.02	38.06	37.92
1993–94	Rural	1.80	16.30	81.90
	Urban	24.30	26.40	49.30
2001	Rural	4.00	36.1	51.5
	Urban	36.1	51.7	12.2
TOTAL		9.9	45.8	44.2

Source : Census of India, 2001
National Human Development Report, 2001 and
Economic Review, 2002–03.

According to table-3.32, it is clear that there has been an increase in the percentage of households with pucca and semi–pucca houses from 5.50% and 20.71% in 1991 to 9.9% and 45.8% in 2001 respectively and a reduction in percentage of households living in Katchha houses from 73.79% to 44.2% during the same period. The improvement in the dwelling status is purely on account of improvement in the economic condition of urban households. The percentage of urban household with pucca houses have significantly increased over the period 1991 to 1993–94 from 24.02% to 24.30% and further to 36.1% in 2001, while the percentage of rural households with pucca houses declined from 1.91% in 1991 to 1.80% in 1993–94 but increased to 4% in 2001. The percentage of people living in semi–pucca houses (both in urban and rural areas) has also increased significantly over the period. The increase is more pronounced in rural areas pointing towards the urgent need for improving living status of household in rural areas.

Table – 3.33 : Housing Shortage* in Urban and Rural Areas of Tripura, Other North Eastern States and India during 1991–2001

(in million)

States		1991	1997	1999	2001
Tripura	Urban	0.03	0.03	0.03	0.02
	Rural	0.19	0.18	0.17	0.16
Arunachal Pradesh	Urban	0.02	0.02	0.02	0.02
	Rural	0.09	0.08	0.08	0.08
Assam	Urban	0.16	0.15	0.14	0.13
	Rural	0.27	2.11	2.05	1.97
Manipur	Urban	0.03	0.03	0.03	0.02
	Rural	0.09	0.08	0.08	0.08
Meghalaya	Urban	0.01	0.01	0.01	0.01
	Rural	0.16	0.15	0.14	0.14

Mizoram	Urban	0.01	0.01	0.01	0.01
	Rural	0.04	0.04	0.04	0.03
Nagaland	Urban	0.01	0.01	0.01	0.01
	Rural	0.09	0.08	0.08	0.08
India	Urban	8.23	7.57	7.18	6.64
	Rural	14.69	13.66	13.23	12.76

* : Shortage is based on projections

Source : NBO/ Working group on urban housing for 9th Plan as published in Basic Statistics of NER.

E. Sources of Drinking Water :

In the north–eastern states, the proportion of households using piped water is lowest in Tripura (29 per cent) and highest in Arunachal Pradesh (67 per cent). Highest percentage of the households in Tripura state take water from hand pump (34 per cent) or well (30 per cent) as compared to other north eastern states. If the sources of drinking water in Tripura state are compared with India as whole, we find that the percentage of households using pipe, handpump or wells were 29 per cent, 34 per cent and 30 per cent compared to 39 per cent, 39 per cent and 19 per cent respectively in India (table – 3.34).

Table – 3.34 : Percentage distribution of Households by souorce of drinking water in Tripura and North Eastern States (1998–99)

States	Percentage of Households With source					
	Piped	Hand Pump	Well Water	Surface Water	Other	Total Percentage
Tripura	28.8	34.0	30.2	4.7	2.2	100.0
Arunachal Pradesh	66.8	13.9	8.3	10.5	0.6	100.0
Manipur	41.9	7.0	3.7	46.0	1.4	100.0
Meghalaya	38.3	3.8	29.4	28.3	0.2	100.0
Mizoram	61.0	2.2	16.4	16.0	4.5	100.0
Nagaland	39.3	1.2	26.0	32.2	1.3	100.0
India	38.7	39.2	18.7	2.6	0.8	100.0

Source : National Family Health Survey, India, 1998–99 and National Family Health Survey, North Eastern States, 1998–9

In terms of accessibility to safe drinking water, 37 per cent of the total households of Tripura state are recorded to have access to safe drinking water as against 62 per cent in India. Only 31 per cent of the rural households of Tripura state have been noticed with accessibility to safe drinking water as compared to 55 per cent in India (table – 3.35).

Table – 3.35 : Percentage of Households with Access to Safe Drinking Water, Drainage and Toilet Facilities in Tripura

Households Having Safe Drinking Water		Households Having Toilet Facilities		Households Having Drainage facility
1991	2001	1991	2001	2001
37.18	52.69	67.93	46.72	70.90

Source : National Human Development Report, 2001, Tripura at a Glance, 2002–03

From the following table, it is clear that only 52.69% of the total households in Tripura have access to clean drinking water and only 71% of the households have proper drainage facilities (2001). The situation is worse in rural areas where only 30.60% of households had access to safe drinking water in 1991 as compared to 71.12% in urban areas. In other words, the living conditions are much worse off in rural areas as compared to urban areas. With regards toilet facilities, only 67.93% of the total households had access to decent toilet facilities in 1991 which decreased to 46.72% in 1997 indicating the deterioration in the living conditions of the people of the state.

F. Civic Amenities :

The proportion of households with electricity has been noticed as 64 per cent in the state of Tripura as against 60 per cent in India as a whole. The north eastern states such as Mizoram, Manipur and Arunachal Pradesh have higher percentage of the households with electricity (69 to 84 per cent) than the state of Tripura (table – 3.36).

Table – 3.36 : Percentage of Households with Electricity in the House in the State of Tripura, other North Eastern States and Tripura

States/ Country	% of Households		
	With Electricity	Without Electricity	Total Percent
Tripura	**63.6**	**36.4**	**100.0**
Arunachal Pradesh	68.9	31.1	100.0
Manipur	75.3	24.7	100.0
Meghalaya	41.2	58.8	100.0
Mizoram	84.1	15.9	100.0
Nagaland	56.3	43.7	100.0
India	60.1	39.9	100.0

Source : National Family Health Survey, India, 1998–99 and National Family Health Survey for North Eastern States, 1998–99.

Sanitation facility is an important civic amenity which affects the living conditions of the people. In the state of Tripura, only 20 per cent of the households use flush toilet and 71 per cent has the facility of pit toilet/ latrine in 1998–99 as compared to 24 per cent and 12 per cent respectively in India. The proportion of households that have no sanitation facility (flush toilet, pit toilet/ latrine or other) is 9 per cent in the state of Tripura as compared to 26 per cent in Arunachal Pradesh and Nagaland, 48 per cent in Meghalaya and 64 per cent in India as a whole (table – 3.37).

Table – 3.37 : Percentage Distribution of Households According to Civic Amenities/ Sanitation Facilities in the State in Tripura, other North East States and India (1998–99)

States	% of household with Facility of				
	Flush Toilet	Pit Toilet/ Latrine	Other	No Facility	Total Percent
Tripura	**19.6**	**71.3**	**0.1**	**9.0**	**100.0**
Arunachal Pradesh	17.3	55.7	0.9	26.1	100.0
Manipur	25.0	67.0	0.0	8.0	100.0
Meghalaya	10.0	42.1	0.0	48.0	100.0
Mizoram	27.5	70.2	0.0	2.3	100.0
Nagaland	24.8	49.5	0.1	25.6	100.0
India	24.0	11.9	0.1	64.0	100.0

Source : National Family Health Survey, India, 1998–99 and National Family Health Survey for North Eastern States, 1998–99.

3.3. State Perspective For 2007, 2012 and 2020 :

The first ever National Human Development Report (NHDR), 2001 brought out by the Planning Commission estimated the value of Human Development Index (HDI) for the states and the union territories for 1981, 1991 and 2001. But no estimate has been made by NHDR for the state of Tripura for the year 2001. The estimates for 1981 and 1991 reveal that the value of HDI for the state of Tripura is 0.287 for 1981 which improved to 0.389 in 1991 (table–3.38). Within the North–Eastern states of the country, the rank order for the value of HDI for the state of Tripura was 5th in 1981 and 4th in 1991. Such shifting of the rank of Tripura can be explained in terms of higher increase in the level of literacy as compared to Meghalaya. Manipur with highest rank (1st) of HDI in 1981has also highest rank (1st) with respect to infant mortality rate (IMR). During 1991, Mizoram had the highest rank of HDI and at the same time it has ranked first in respect of literacy level and third rank for IMR. The analysis indicates that literacy level and IMR are

more important parameters to determine the value of HDI. Higher level of literacy means higher skill status of the labour force and lower IMR reflects better health conditions and services. Improvements in the education and health levels of a population are mutually reinforcing as literate and educated people are more likely to be healthy and children with better health have greater chance to be literate, educated and skilled. These two components are, therefore, significant factors to enhance productivity and total production in the region.

During the year 2001, Tripura state improved registered on over 1991 in respect to literacy rate from 3rd rank (in North Eastern States) to 2nd rank and also in terms of IMR from 5th rank to 4th rank. On the basis of such improvement, it may be expected that the HDI value for the state of Tripura has increased to some extent and most probably its rank has shifted forward from 4th order (for HDI value) in 1991 to 3rd order in 2001.

Human resource development has been intimately tied to population dynamics. In the state of Tripura, the rate of population growth sharply declined after 1991 (from 34.3 per cent in 1981–91 to 15.7 per cent in 1991–2001). At the same time birth rate has declined from 26.4 in 1981 to 16.5 in 2000. As the population base of the state is already large, the total population is still expected to increase in larger size despite the decline in the growth rate. If the present low growth rate of population (15.74 per cent during 1991–2001) continues in the coming decades, the population of the state is expected to increase over 2001 by 9.8 per cent in 2007, 18.9 per cent in 2012 and 35.9 per cent in 2020. The state will need larger educational and health facilities along with other amenities in the same increasing proportions. If these facilities are not increased sufficiently, further improvements in the value of HDI will be difficult to sustain. As the resource base of the state is weak and infrastructural problems are at large, intensive efforts are needed to reduce the rate of population growth and increase facilities with respect to education, health, housing and other amenities.

Table- 3.38 : Value of Human Development Index and Major Parameters of Human Development

States	1981				1991				2001				Rank (HDI*)		
	PCNSDP	IMR	LR	HDI	PCNSDP	IMR	LR	HDI	PCNSDP	IMR**	LR	HDI*	2007	2012	2021
Arunachal Pradesh	3971 (5)	126 (7)	25.54 (6)	0.242 (7)	6832 (3)	91 (6)	41.59 (7)	0.328 (7)	8405 (2)	44 (3)	54.74 (7)	5	6	6	6
Assam	4573 (3)	92 (6)	–	0.272 (6)	5487 (4)	92 (7)	52.89 (5)	0.348 (6)	5849 (6)	78 (6)	62.28 (6)	7	7	7	7
Manipur	4377 (4)	28 (1)	49.61 (4)	0.461 (1)	5346 (5)	28 (1)	59.89 (4)	0.536 (2)	7660 (5)	25 (2)	68.87 (3)	2	2	2	2
Meghalaya	5494 (2)	80 (4)	42.02 (5)	0.317 (4)	6986 (2)	53 (4)	49.10 (6)	0.365 (5)	8682 (1)	52 (5)	63.31 (5)	6	5	5	5
Mizoram	–	53 (3)	74.26 (1)	0.411 (2)	–	53 (3)	82.27 (1)	0.548 (1)	–	23 (1)	88.49 (1)	1	1	1	1
Nagaland	5884 (1)	51 (2)	50.20 (2)	0.328 (3)	8553 (1)	51 (2)	61.65 (2)	0.486 (3)	8115 (3)	– (3)	67.11 (4)	4	4	4	4
Tripura	**3936 (6)**	**82 (5)**	**50.10 (3)**	**0.287 (5)**	**4962 (6)**	**82 (5)**	**60.44 (3)**	**0.389 (4)**	**7935 (4)**	**49 (4)**	**73.66 (2)**	**3**	**3**	**3**	**3**

* Expected Rank for HDI

** As published by the Planning Commission, Government of India.

Note: (i)PCNSDP–Per Capita Net State Domestic Product
IMR–Infant Mortality Rate
LR–Literacy Rate
HDI–Human Development Index
(ii) Figures in brackets shows the rank.

3.4. SWOT ANALYSIS

A. DEMOGRAPHIC SCENARIO :

Strengths :

- The state of Tripura has got a favourable demographic scenario as birth rate and death rate in the state are well below the national level. The infant mortality rate and maternal mortality rate are also lower in the state as compared to India as a whole.

- During the decade 1991–2001, the rate of population growth has significantly declined in the state of Tripura as compared to previous decades. The percentage decadal growth rate and annual growth rate of population during 1991–2001 are lower in the state of Tripura as compared to India and is the lowest among all other north–eastern states.

- The current use of family planning methods is quite high in the state of Tripura. The percentage of current use of any modern method has increased in the state from 28.6 per cent in 1993 to 43 per cent in 1999.

Weaknesses :

- Tripura state suffers a lot due to infrastructure bottlenecks which adversely affect the work relating to family planning motivation and delivery of services in the villages, particularly in the remote locations.

- Shortage of family planning workers due to vacant posts of MPW (M) MPS (M) and medical officers at the PHCs etc. results in poor family planning performance.

- High incidence of poverty and backwardness are the major factor for lower level of contraceptive acceptance among the weaker sections.

Opportunities :

- The percentage of women who are willing to stop or delay their births but are not using any contraceptive method is quite high in the state of

Tripura. This potential group of women can easily be motivated to accept family planning methods.

- The level of overall literacy and female literacy is higher in the state which is a favourable condition for reducing birth rate.

- Age–at–marriage for the females is higher in the state of Tripura than the country as a whole. There is much scope for decline in fertility if efforts are made to further increase female's age at marriage.

Threats :

- Tripura is the smallest state in the north–east region in terms of geographical area but its size of population is largest after Assam. Therefore, density of population of the state is an obstacle to the improvement of its demographic scenario.

- The quality of family planning services has been poor.

Emerging Issues:

- Effective implementation of Reproductive and Child Health and Family Welfare programmes
- Decentralization of governance
- Empowerment of women
- Incentives should be provided to panchayats for best achievement in family planning work and community sector participation in family planning.
- The NGOs and voluntary organizations should be encouraged to takeup activities in the field of promotion of small family norm and population control.

Action Plan :

- The family welfare programme and the reproductive and child health programme should be implemented effectively particularly in the rural areas of the state.

- With a view to reduce infant mortality rate and maternal mortality rate, the institutional deliveries are to be increased sufficiently.

- The quality of the services is required to be improved to attract larger number of couples to practice modern methods of family planning. Health personnel should raise the satisfaction of the couples with the use of contraceptive methods. The satisfied users of contraceptives will motivate other couples to accept family planning methods.The scheme of incentives may be effectively implemented for the couples who limit their family size to one or two children.

- Effective monitoring and management of the family welfare programme and RCH programme is needed. In this regard, the Gram Panchayat can play a significant role. Special programmes should be introduced to provide the needed training to the panchayat members to monitor these population control programmes.

B. EDUCATION :

Strengths :

- The state government took up universal education for all children and provided a minimum level of quality education as its major objectives.

- As a result of the efforts of the state government, the literacy rate in the state has increased appreciably. The levels of overall literacy and female literacy are higher in Tripura as compared to India as a whole.

- Proper stress is being given by the state government for training of teachers in different phases, making the curriculum and syllabus updated and in providing the system of public examination.

- There is continuous improvement in the physical facilities in the school.
- Government of Tripura is implementing schemes two most important sectors viz. the social education and the social welfare. Under these sectors, the education is being imparted to the children of 3 to 6 years and 15 to 45 years of age.

Weaknesses :

- Most of the schools and colleges in the state of Tripura are running with shortage of infrastructural facilities in terms of adequate buildings, accommodation of classrooms, laboratory, library, auditorium, common rooms and sanitary facilities etc.

- Shortage of well–qualified and trained teachers in most of the schools and colleges of the state.

- It is a matter of concern that there is high drop–out and low retention in primary schools, secondary schools and colleges. Enrollment is also low in these institutions.

- Large number of boys and girls are not able to attend the schools and colleges due to long distance and lack of proper transportation.

- Percentage of population educated upto high school and above has been lower in the state of Tripura than the country as a whole.

- There is a huge backlog of un–trained teachers at all levels from primary to higher secondary.

- The governmental efforts of expansion of education have not been supplemented by any private initiative. In the present day of liberalization also, no major private investment in education has taken place in the state so far.

Emerging Issues :

- Achievement of cent percent literacy and increased enrollment in primary and secondary schools and colleges.

- Additional resource mobilisation in primary, secondary and higher education.

    - Infrastructure development such as laboratories, libraries and sanitary facilities etc in educational institutions.

- Developing the capabilities of teachers.
- Strengthening of Tripura Board of Secondary Education (TBSE).

Action Plan :

- In the state of Tripura, there are large numbers of habitations without any primary school in the habitation itself. Schools are not viable in these habitations because of small size of the habitations. All these habitations should be brought under the Education Guarantee Scheme (EGS) as proposed by the Government of India as a step towards universalization of elementary education.

- Alternative and Innovative Education (AIE) should be introduced in a big way for those children who have already dropped out of the education system.

- Adequate infrastructure facilities such as laboratories, libraries and sanitary facilities etc should be provided in the schools and colleges of the state.

- High standars should be maintained/ set for the Tripura Engineering College as well as the Tripura University so that they can be developed into Centres of Excellence.

- The Polytechnic Institute at Narsingarh and the Women's Polytechnic, in Agartala should be modernised and upgraded to provide scope for pursuing relevant diploma–level courses that would suit the manpower requirement at the state and national level.

HEALTH :

Strengths :

- The state of Tripura has a well–laid–out health–care network covering both the rural and urban areas.

- The primary health care is provided through the health institutions in the rural and interior areas and the higher degree of specialized investigations and treatment facilities are provided at the sub–divisional, district–level and state–level hospitals.

- Services of specialists are made available even to the people in very remote areas through the institutionalized mechanism of health camps.

- Health–care–facilities are mostly provided free–of–cost to the citizens particularly to the people living below the poverty line.

Weaknesses :

- Geographical isolation owing to location of the state.

- Poor road and rail link with the mainland and total dependence on air connection.

- The skills development as a part of planned human resource development is difficult due to limitation of the resources.

- Large proportion of the women and children are under–nourished in the state leading to higher incidence of many diseases.

- Large number of the posts of medical officers, nurses, pharmacists and MPWs etc. are lying vacant.

- Large number of households are living under poor housing conditions i.e. in the Kachcha houses which causes larger prevalence of different diseases.

Emerging Issues :

- Strengthening of the Health Awareness Programme.
- Achievement of cent percent coverage of primary health care and extension of health care facilities to remote- rural and tribal areas.
- Reduction of the dependency syndrome on outside hospitals for advanced treatment facilities.
- Enhancing the nutritional status of women and children
- Filling of the vacant position in health centres.

Action Plan :

- Priority should be given to the development of health infrastructure in the state.
- Measures should be adopted to enhance nutritional status of the women and children.
- Action plans are needed for effective health awareness campaign for overall improvement of health scenario of the state.

- Skill–upgradation of medical officers, para–medical staff and other supporting staff should be undertaken through training interventions and encouragement for higher studies.

- Cent per cent immunization should be an integral part of the health action plan.

- Maternal mortality rate is to be reduced through the encouragement of larger institutional deliveries.

- Measures should be adopted for 100 per cent coverage of primary health care.

- Effective implementation of the reproductive and child health programme should be ensured.

CHAPTER–IV

FISCAL PLANNING AND MANAGEMENT

4.1. Introduction :

Finance is the lifeblood of any organization – right from a simple nuclear family to an international organization. Despite the best possible physical potential, an organization can not simply flourish without the availability of institutionally determined basic minimum requirements of financial resources. Obviously, the two important aspects of government finances namely – fiscal planning and financial administration are crucially important in operationalizing the developmental policies and programmes adopted by the Government. While fiscal planning refers to the fiscal efforts of the government in the generating and mobilization of financial resources towards the achievement of the stipulated targets of the various macro–eco parameters of economics, financial administration reflects the more judicious effort of the government in the utilization of the available quantum of financial resources through effective public expenditure management techniques like budgeting, accounting, auditing, reporting, monitoring etc.

It has been well observed in the earlier chapter that Tripura being the smallest and the second populous state in North Eastern region with an infrastructure index of 74.87 (only 2nd to Arunachal Pradesh from the bottom) is one of the most backward state of the region and its backwardness may be clearly attributed to its intensive geographical isolation, frequent occurrence of severe flood resulting from the downstream jacking of the rivers into Bangladesh and absence of an investor friendly economic environment which is mainly because of enthusiasm and entrepreneurial zeal among the people who are always under the custody of despondency and under the grip of insurgency phobia and threat.

The economy of the state is predominantly agriculture oriented and the relative contribution of the agriculture sector to SDP is 42% and its contribution to employment generation is around 64% (during the period

1999–2000). Corresponding by the contribution of the industrial sector and the services sector to SDP during the same period stands at around 8.8% and 53.8% respectively. Moreover, the agricultural sector provides 90% of employment to small and marginal farmers of the state. It has been also observed that while the growth of the secondary sector particularly the industrial sector was insignificantly small on account of hilly terrain, lack of infrastructural facilities and inadequate private investment, there was a considerable progress in the services sector/ tertiary sector which was even much higher than the All India average of 43.3%. However, the growth stimuli of the services sector could not be transmitted to the rest of the economy with the result that the overall economy of the state of Tripura witnessed declining trend growth despite a serotic growth of the services sector. Thus, the contribution of the tertiary sector at current prices was the highest (to the extent of 51.95% of GSDP) followed by primary sector (27.91%) and secondary sector (20.14%).

Moreover, the annual average growth at current prices of the tertiary, primary and secondary sectors were to the tune of 15.36%, 12.87% and 33.88% respectively. It is quite interesting to note that Tripura has attained an annual average growth at the rate of 8.11% of GSDP and 14.53% at current prices during the period of 1993–94 to 2000–01. In other words, Tripura has achieved the highest GSDP growth under the period of reference. However, per capita income of the state was comparatively much lower than the all India average and lower than that of Mizoram, Sikkim and Arunachal Pradesh. There is no denying the fact that a small, landlocked state like Tripura has made every possible effort to augment the process of development as is evident from the special appreciation by the Planning Commission, Ministry of Finance and the Department of Development of North Eastern Region (DONER) for its prudent financial management, efficient execution of plan schemes and active community participation. For all practical purposes, the state could not fully utilize its potential because of its transport bottlenecks and geographical isolation and lack of easy access

and connectivity to the rest of the country. The only lifeline NH–44 available to Tripura is often disrupted on account of landslides and agitational blockades, which very frequently cut off the state not only from the rest of the country but also from the near by places like Kolkata and New Jalpaiguri.

The above sketched scenario clearly points to the fact that Tripura needs to make a massive dose of investment in its potential sectors not only for a quantum jump but also merely for its maintenance and sustenance in terms of assets created under various plans. Unfortunately, the climate is conspicuously lacking in the state due to severe infrastructure bottlenecks and problems of insurgency. In fact, the state has failed to attract private sector investment including foreign investment. Eventually, the state helplessly banks upon special packages from the Planning Commission and larger fiscal transfers from the Finance Commission. However, the special transfers/ assistance from the Central Government have always been less than the optimum level. Further, the fall in the Credit–Deposit ratio of the scheduled commercial banks from 31% in 1999 to 26.20% in 2002 reflects a large scale capital outflow from the state. We now look at the fiscal position of the state in terms of its total revenue receipts, its own revenue, its own tax revenue, own non–tax revenue and fiscal transfers both plan and statutory.

4.2. Critical Fiscal Indicators :

It is always desirable to examine the fiscal performance of the state in terms of revenue deficits as a percentage of GSDP. It has been observed that while in the case of non–special category states, there has been a continuous deterioration in the fiscal position expressed in terms of revenue deficit, the special category states have shown better performance simply because they receive liberal transfers from the Centre.

However, in order to build the perspective of state finance for the state of Tripura, it is desirable to analyze the budgetary scenario. Table – 4.1

depicts the trends in revenue receipts, expenditure and revenue deficits in Tripura.

Table – 4.1 : Trends in Revenue Receipts, Expenditure and Revenue Deficit (Rs. In Crores)

	90–91	91–92	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00	00–01
Receipts	495.3 (48.0)	563.1 (48.3)	604.1 (49.1)	642.7 (36.5)	741.3 (39.2)	937.3 (40.4)	1028.9 (36.2)	1082.1 (34.6)	1268.4 (36.9)	1385.0	1626.9
Expenditure	497.0 (48.2)	547.6 (47.0)	550.2 (44.7)	643.0 (36.5)	705.8 (37.3)	786.6 (33.90	907.2 (31.9)	1060.4 (33.9)	1175.6 (34.2)	1522.7	1900.2
Def./Surp.	+1.7 (0.2)	+15.5 (1.3)	+53.9 (4.4)	–0.3 (–1.0)	+35.5 (1.9)	+50.7 (6.5)	+121.7 (4.3)	+21.7 (0.7)	+92.7 (2.7)	–137.7	–273.2

Figures in brackets indicate percent to GSDP at factor cost at current prices
Source : Economic and Political Weekly, May 26, 2001.
– sign indicate deficit.

It is interesting to note that revenue receipts as percentage to GSDP registered an increase from 48% in 1990–91 to 48.3% in 1991–92 to 49.1% in 1992–93 and then declined to 36.5% in 1993–94. The trend in revenue receipts as percentage of GSDP represented fluctuating behaviour between the period 1994–95 to 2000–01. On the other hand, total expenditure as a percentage to GSDP represented a decline from 48.2% in 1991–92 to 44.7% in 1992–93 to 36.5% in 1993–94. However, this proportion represented fluctuating behaviour from the period 1994–95 to 1998–99. The table also clearly shows the resultant outcome of the behaviour of total receipts and expenditure as a proportion of GSDP, i.e. budgetary structure of the state government witnessed a continuous surplus position from the period 1991 to 1998–99. In fact, from the period 1999–2000 onwards the fiscal position of Tripura started deteriorating in terms of upward trends in revenue deficit resulting from excess of revenue expenditure over revenue receipts. The revenue deficits increased from 137.8 crores in 1999–2000 to 273.2 crores in 2000–01.

Table – 4.2 : Trends in Gross Fiscal Deficit

	90–91	91–92	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00	00–01
Receipts	495.3 (48.0)	563.1 (48.3)	604.1 (49.1)	642.7 (36.5)	741.3 (39.2)	937.3 (40.4)	1028.9 (36.2)	1082.1 (34.6)	1268.4 (36.9)	1385.0	1626.9
Aggregate Expenditure	580.9 (56.3)	657.0 (56.4)	627.1 (50.9)	753.7 (42.8)	851.4 (45.0)	971.2 (50.4)	1150.7 (44.4)	1277.9 (40.9)	1386.7 (40.3)	1831.9	2322.4
Gross fiscal Deficit	85.6 (8.3)	93.9 (8.1)	23.0 (1.9)	111.0 (6.3)	110.1 (5.8)	33.9 (1.8)	121.7 (4.7)	195.8 (6.3)	118.3 (3.4)	446.9	695.5

Figures in brackets indicate percent to GSDP at factor cost at current prices
Source : Economic and Political Weekly, May 26, 2001.

It may be observed from table – 4.2 that aggregate expenditure represented a continuous rise from Rs. 580.9 crores during 1990–91 to Rs. 2322.4 crores in 2000–01 (BE) except for the period 1992–93. As a result of mounting aggregate expenditure exceeding revenue receipts throughout the period under reference, Gross Fiscal deficit as a proportion to GSDP represented a fluctuating behaviour. In other words, Gross Fiscal Deficit as a proportion to GSDP was highest (8.3%) in 1990–91 and lowest in 1995–96 (1.81%) and it was 3.4% in 1998–99.

Table – 4.3 : Components of Gross Fiscal Deficit

	90–91	91–92	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00 (RE)	00–01 (BE)
Revenue Deficit/ Surplus	NA	+15.5 (16.5)	+53.9 (234.3)	–0.3 (0.3)	+35.6 (32.3)	+150.7 (444.5)	+121.8 (100.1)	+21.7 (11.1)	+92.7 (78.4)	– 137.8 (30.8)	– 273.2 (39.3)
Capital Outlay	NA	107.0 (114.0)	76.6 (333.0)	109.7 (98.8)	142.3 (129.2)	183.2 (540.4)	241.7 (198.6)	215.3 (110.0)	208.9 (176.6)	304.8 (68.2)	417.7 (60.1)
Net Lending	NA	2.4 (2.6)	0.3 (1.3)	1.0 (0.9)	3.3 (3.0)	1.4 (4.1)	1.8 (1.5)	2.2 (1.1)	2.2 (1.9)	4.4 (1.0)	4.5 (0.6)

Figures in brackets indicate percent to GSDP at factor cost current prices
Source : Economic and Political Weekly, May 26, 2001.
– sign indicate deficit.

It is interesting to note here that the proportion of Revenue Surplus to Gross Fiscal Deficit was significantly high during the periods 1992–93 (234.3%), 1995–96 (444.5%) and 1996–97 (100.1%). The proportion of Revenue Deficit to GFD was 30.8% and 39.3% during the periods 1999–2000 (RE) and 2000–01 (BE) respectively. Again, plan outlay in absolute terms represented an upward movement from Rs. 107 crores in 1991–92 to 417.7 crores in 2000–01 (BE). Capital outlay as a percentage of GFD was highest in the period 1995–96 (540.4%) and lowest in the period 2000–01 (60.1%). It is also clear from the table that net lending substantially increased from 2.4 crores in 1991–92 to Rs. 4.4 crores in 1999–2000 and to Rs. 4.5 crores in 2000–01. Thus, net lending as a percentage to GSDP was the highest (4.1%) in 1995–96 and lowest (0.6%) in 2000–01.

The following table 4.4 displays the pattern of financing of GFD in terms of loans from the centre, Net Market Borrowing and Other Sources during the period 1990–91 to 2000–01.

Table – 4.4 : Financing of Gross Fiscal Deficit

	90–91	91–92	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00 (RE)	00–01 (BE)
Loans from Centre	NA	17.3 (18.4)	19.2 (83.5)	13.1 (11.8)	17.5 (15.9)	19.7 (58.1)	44.4 (36.5)	71.2 (36.4)	99.3 (83.9)	186.4 (41.7)	217.8 (31.3)
Net Market Borrowing	NA	33.2 (35.4)	69.0 (300.0)	16.8 (15.1)	17.9 (16.3)	17.9 (52.8)	19.7 (16.2)	–12.2 (6.2)	–47.9 (40.5)	75.6 (16.5)	75.7 (10.9)
Others	NA	43.4 (46.2)	–65.2 (283.5)	81.1 (73.1)	74.6 (67.8)	–3.7 (10.9)	57.6 (47.3)	136.7 (69.8)	66.9 (56.6)	185.0 (41.4)	402 (57.8)

Figures in brackets indicate percent to GSDP at factor cost current prices
Source : Economic and Political Weekly, May 26, 2001.
– sign indicate deficit.

It is significant to note that loans from centre (Net) increased from Rs. 17.3 crores in 1991–92 to Rs. 186.4 crores in 1999–2000 and Rs. 217.8 crores in 2000–01. The significant increase in the central loan started showing high order from the years 1999–2000 onwards – the years during which the state started experiencing significant rise in revenue deficit. The ratio of loans from centre to GFD was highest (83.9%) during 1998–99 and lowest (11.8%) in 1993–94. Net market borrowing as an important source of financing GFD also increased dramatically from Rs. 47.9 crores in 1998–99 to Rs. 75.6 crores in 1999–2000 and Rs. 75.7 crores in 2000–01. The proportion of Net market borrowing to Gross Fiscal Deficit was highest (300%) in 1992–93 and lowest (–40.5%) in 1998–99. Finally the other sources for the financing of GFD were significantly high during the periods 1999–2000 and 2000–01 i.e. Rs. 185.0 and Rs. 402 crores respectively.

The upshot of the above analysis inevitably leads us to infer that Tripura was not confronted with a grim fiscal scenario in terms of its revenue deficit normalized by GFD as compared to the overall fiscal position of special category states and all states.

Table – 4.5 : Fiscal Indicators of Tripura vis–a–vis Special Category States and All States (%)

Fiscal Indicators	2000–01 (Accounts)	2001–02 (RE)	(in %) 2002–03 (BE)
a. Revenue Deficit/ GFD			
Tripura	21.56	–0.15	–15.16
Spl. Category States	46.40	33.40	29.10
All States	59.90	56.80	46.90
b. Capital Outlay/GFD			
Tripura	77.90	98.70	113.40
Spl. Category States	48.70	61.50	66.50
All States	34.80	36.00	42.50
c. Interest payments/ Revenue Expenditure	13.00	14.90	17.20

Tripura	13.70	15.50	17.00
Spl. Category States	17.70	19.50	20.40
All States			

Source : RBI State Finances, A Study of Budgets of 2002–03.

It may be observed from table – 4.5 that the proportion of plan outlay to GFD in the case of Tripura, was relatively better as compared to the same ratio for the special category states and even for all states. Thus, while plan outlay to GFD for Tripura increased from 77.90 per cent in 2000–01 to 98.70% in 2001–02 (RE) to 113.40% in 2002–03, the corresponding figures for special category states and all states were 48.70%, 61.50%, 66.50% and 54.80%, 36.00% and 42.50% respectively during the same period under reference. The real problem before Tripura however is a continuous rise in interest payments over the years 2002–03, notwithstanding the fact that interest as a ratio to revenue expenditure in Tripura is slightly lower than all states.

Table – 4.6 : Structure of Revenue (Percentage)

	81–82	85–86	90–91	91–92	92–93	93–94	94–95	95–96	96–97	97–98	98–99	99–00	00–01	01–02	02–03	03–04
A i. Own Tax Revenue	5.54	4.22	5.25	5.12	5.59	5.78	5.86	5.12	5.88	6.62	6.63	7.07	7.67	8.49	8.75	8.08
ii. Own Non–Tax Revenue	8.41	5.04	3.69	3.16	3.53	3.91	3.50	4.11	3.95	3.22	3.53	5.30	5.77	5.23	5.16	5.33
(i+ii) Own Revenue	13.95	9.26	8.94	8.28	9.12	9.69	9.36	9.23	9.83	9.84	10.16	12.37	13.44	13.72	13.91	13.41
B. i. Shared Taxes	13.98	25.08	31.52	33.49	35.50	34.11	33.19	24.36	30.98	39.72	36.03	36.81	14.42	12.46	12.85	13.65
ii. Grants from Centre	72.07	65.66	59.53	58.23	55.37	56.20	55	66.41	59.19	50.44	53.80	50.82	72.14	73.83	73.24	72.93
(i+ii) Total Transfers	86.05	90.74	91.05	91.72	90.87	90.31	90.64	90.77	90.17	90.16	89.83	87.63	85.56	86.29	86.09	86.58
C. Total Revenue Receipts	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source : RBI State Finance, Various Issues

From the table–4.6, it is evident that Tripura undoubtedly has been heavily depending upon grants from the Central Govt. viz as a proportion to total revenue receipts increased from 59.53% in 1990–91 to 73.83% in 2001–02, 73.24% in 2002–03 (RE) and 72.93% in 2002–04 (BE). This liberal flow of grants from the Centre, however, was accompanied by the declining share of taxes under the awards of the Finance Commissions. In other words, the share in taxes as a ratio to total revenue receipts declined from 35.50% in 1992–93 to 13.65% in 2003–04 (BE) except for the years 1997–98, 1998–99 and 1999–2000 when this ratio was 39.72%, 36.03% and 36.18% respectively. On the whole, total transfers as a proportion to total revenue receipts increased from 86.05% in 1981–82 to 90.16% in 1997–98 and thereafter it slightly declined to 86.56% in 2000–01, the same proportion persisted for the subsequent years 2001–02, 2002–03 (BE) and 2003–04(RE).

It can be also seen from the table that over a period of last twenty years i.e. 1985–86 to 2003–04, Tripura has almost doubled its own tax revenue as a proportion to total tax revenue receipts i.e. it increased from 4.22% in 1985–86 to 8.08% in 2003–04. The table further shows that on the front of own non–tax revenue, the state's performance has continuously deteriorated from 1981–82 to 2003–04. Thus, the proportion of its non–tax revenue to total revenue receipts declined from 8.47% in 1981–82 to 3.53% in 1998–99 and thereafter this ratio improved marginally from 5.30% in 1999–2000 to 5.33% in 2003–04.

For the sake of analytical convenience, the various states have been categorized in terms of A, B, C and D groups with respect to 2001–02 (RE). States belonging to A, B, C and D are high performer, low performer and poor performer respectively.

Table – 4.7 : State's Own Tax Revenue as % of Total Revenue

Group A	High Performer with 60% and above	Haryana, Karnataka, Maharashtra, Tamil Nadu and Kerela
Group B	Medium Performer with 50–59% and above	Andhra Pradesh, Gujarat and Punjab
Group C	Low Performer with 40–49% and above	Rajasthan, Uttar Pradesh, West Bengal and Madhya Pradesh
Group D	Poor Performer with less than	Arunachal Pradesh, Assam, Bihar, Chattisgarh, Jammu &

	40%	Kashmir, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Goa, Himachal Pradesh and Uttaranchal

In terms of own tax revenue to total revenue receipts, most of the states fall under the last two groups, while this proportion is the highest in Maharashtra (74.6%) followed by Tamil Nadu (68.53%), it is lowest in Mizoram (1.6%). It is interesting to note that Tripura's own tax revenue as a percentage to total revenue is much lower as compared to the all India average throughout the period under reference. In other words, this proportion was 7.80% during 2002–03 (BE) for Tripura as against 48.90 for all states.

Table – 4.8 : Own Tax Revenue to Total Revenue Receipts (%) (North East States)

	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02 (RE)	2002–03 (BE)
Arunachal Pradesh	1.11	1.20	1.19	1.39	2.16	2.01	2.67
Assam	19.89	20.39	21.81	25.30	25.06	23.76	25.54
Manipur	3.77	4.17	3.45	3.74	4.70	3.80	4.67
Meghalaya	10.55	10.62	10.58	10.91	10.48	10.35	11.39
Mizoram	1.06	1.18	1.16	1.28	1.74	1.60	2.53
Nagaland	3.86	3.71	3.13	3.77	3.96	3.50	3.61
Sikkim	1.90	2.08	1.94	2.05	7.63	5.92	3.48
Tripura	5.83	6.65	6.62	7.09	7.67	7.72	7.80
All India	45.75	46.65	79.72	48.89	48.85	48.44	48.90

Source : RBI State Finances, Various Issues

However, it is also evident from table – 4.8 that in 2002–03 (BE) the proportion of own tax–revenue to total revenue receipts for Tripura is the third highest after Assam (25.54%) and Meghalaya (11.39%). This implies that among the North–Eastern states, Tripura, despite its physical bottlenecks, attempted massive tax efforts, which is evident from continuous increase in the ratio of own tax revenue to total revenue receipts from 1996–97 (5.83%) to 2002–03 (7.80% B.E.) except for the period 1998–99 where it slightly dipped to 6.62%.

Now, we address ourselves to delineating the variations in state's own non–tax revenue as a proportion to total revenue receipts for the special category states in general and for Tripura in particular.

Table – 4.9 : State's Own Non–Tax Revenue as % of Total Revenue Receipts

Group A	25% and above	Goa, Sikkim and Punjab
Group B	15–24%	Jharkhand, Haryana, Chattisgarh and Gujarat
Group C	10–14%	Rajasthan, Maharashtra, Andhra Pradesh and Arunachal Pradesh
Group D	Less than 10%	Assam, Bihar, Jammu & Kashmir, Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Himachal Pradesh, Uttar Pradesh, West Bengal and Uttaranchal

It can be seen from table – 4.9 that across the country, with few exceptions, majority of the states fall under group D. In other words, the ratio of state's non–tax revenue as a ratio to total revenue receipts for group D states including for Tripura is less than 10%. This ratio is the highest for Goa (58.98%) followed by Sikkim (57.50%) and lowest for Bihar (2.76%) during the period 2002–03 (BE). However, as outlined in table–9, an inter–state comparison and the performance in terms of own non–tax revenue during 2002–03 (BE) among the NE states reveals that Tripura occupies the 5th position (5.61%) after Sikkim (57.50%), Assam (8.26%), Arunachal Pradesh (7.56%) and Meghalaya (7.22%).

Table – 4.10 : State's Own Non–Tax Revenue to Total Revenue Receipts (%)

	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02 (RE)	2002–03 (BE)
Arunachal Pradesh	8.16	6.83	7.03	6.64	6.63	6.876	7.56
Assam	8.35	8.81	10.03	9.19	9.34	8.34	8.26
Manipur	6.45	4.75	3.56	4.02	3.99	2.97	3.73
Meghalaya	6.44	4.30	6.13	8.90	7.66	7.77	7.22
Mizoram	6.98	6.76	4.66	4.76	4.88	3.88	5.31
Nagaland	3.86	3.25	4.44	4.28	3.09	3.24	3.23
Sikkim	71.59	71.59	70.90	68.98	33.50	24.68	57.50
Tripura	3.98	3.23	3.55	5.28	5.77	4.77	5.61
All India	15.66	14.93	13.88	14.53	13.29	11.61	12.42

Source : RBI State Finances, Various Issues

In this context, it is worth mentioning here that Tripura again has continued to maintain an upward trend. Non–tax revenue has been found to increase throughout the period 1997–98 to 2002–03 except for the period 2001–02 when the ratio dipped down to 4.77%.

It may be observed here that the proportion of central tax to total tax revenue for all the states taken together has witnessed a continuous decline from the period 1997–98 to 2002–03 (BE). This declining trend in state's share in central taxes may be readily attributed to the declining buoyancy of central taxes resulting from deterioration in revenue mobilization on the part of the central government and the Structural Adjustment Programme undertaken by the Centre.

Table – 4.11 : Share in Central Taxes to Total Tax Revenue (%)

	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02 (RE)	2002–03 (BE)
Arunachal Pradesh	95.21	96.06	96.07	96.05	84.86	83.53	80.06
Assam	60.52	62.58	67.85	54.19	54.31	52.78	49.56
Manipur	88.21	89.69	91.46	90.65	76.90	80.66	81.32
Meghalaya	73.90	79.50	77.38	76.84	58.06	56.60	58.46
Mizoram	96.30	96.88	96.89	96.73	85.87	87.60	84.79
Nagaland	89.29	92.90	93.38	92.17	59.57	70.18	70.23
Sikkim	78.85	76.72	79.86	79.11	52.18	63.61	64.50
Tripura	84.17	85.66	84.47	83.85	65.28	64.20	62.42

Source : RBI State Finances, Various Issues

It is also observed from table – 4.11 that there exist not only pronounced inter–state differences among the various categories of the states of the country in terms of the share in central taxes to total revenue of the states but also widespread variations are present among the NE states. It is clear from the above table that during 2002–03, the proportion of central tax to total tax revenue is the highest for Mizoram (84.79%) followed by Manipur (81.32%), Arunachal Pradesh (80.06%), Nagaland (70.23%), Sikkim (64.50%) and Tripura (62.42%). It is surprising to note here that while this proportion was quite high for the first 4 years 84.17% in 1996–97, 85.66% in 1997–98, 84.47% in 1998–99 and 83.85% in 1999–2000, it is only after 2000 that the share of

Central tax to total tax revenue started faultering i.e. 65.28% in 2000–01, 64.20% in 2001–02 and 62.42% in 2002–03. Thus, the total fiscal position of the state of Tripura started worsening only after 2000 on account of insignificant fiscal transfers in terms of tax devolution and grants–in–aid from the Finance Commission. The unfavourable treatment given by the 10th, 11th and 12th Finance Commissions to Tripura will be discussed in detail in the subsequent sections.

4.3. Revenue Buoyancy Estimates : 1980–81 to 2000–01

A study conducted by NIPFP on Restructuring of Public Finances of Tripura presented an analysis of Revenue Buoyancy in Tripura in the following table :

Table –4.12 : Revenue Buoyancy Estimates

Fiscal Indicators	1980–81 to 1992–92		1993–94 to 2000–01	
	Coefficient	t–value	Coefficient	t–value
Total Revenue	1.27	16.85	0.78	14.31
Own Tax Revenue	1.41	39.05	1.06	27.34
Taxes on Income				
Agricultural Tax	0361	1.16	0.88	1.20
Profession Tax	1.81	31.06	0.80	4.77
Taxes on property and capital transaction	0.64	1.85	1.08	2.04
Land Revenue	1.17	27.29	0.67	17.54
Stamps Registration fee				
Taxes on Commodities & Services	1.38	28.56	1.19	19.68
Sales Tax	2.26	20.13	0.97	14.42
State Excise	0.90	18.76	1.14	5.42
Tax on Vehicles				
Own Non–tax revenue	0.23	1.06	1.08	5.93

Source : Restructuring the Public Finances of Tripura, March, 2004, NIPFP.

The study has attempted to measure revenue buoyancy in two ways; the first method represents the percentage change in revenue with respect to percentage change to GSDP and the second method represents a simple division of the nominal revenue growth rate by the nominal GSDP

growth rate. Under the first method, the following policy conclusions emerged :

- The buoyancy of own revenue in both the periods 1980–81 to 1992–93 and 1993–94 to 2000–01 has been found to be greater than the buoyancy in total revenues. This was mainly because of higher relative growth rate of own revenues and transfer from the centre.
- Excepting land revenue, agriculture income tax and taxes on vehicles buoyancies have been found to be much lower in 1993–01 as compared to 1980–93.
- In view of the volatility of non–tax revenue prior to 1992–93, non–tax revenue as a sound stable and buoyant source of revenue has been found to be a phenomenon of the 1990s.
- Sales tax has been found to have the highest buoyancy in the post 1993–94 periods and this source of revenue has been considered to be the most potential source for future revenue generation in Tripura.

With the help of the alternative method to measure annual estimates of revenue buoyancy, the study also highlighted the following information with the help of different charts reflecting year to year response of revenue to GSDP of sales tax, state excise and non–tax revenue :

- Sales tax has been found to be the main source of revenue which alone contributes 40% to the state's own revenue.

- The greater volatility of sales tax during the period of 1990s has been found to be the outcome of extreme volatility in nominal GSDP growth rates rather than volatility in annual increase in the rate of sales tax.

- There has been a steady annual increase in sales tax independent of GSDP performance suggesting steady progress over the years in reducing tax evasion and tax avoidance.

- State excise duty has been characterized by greater stability in recent years with unit buoyancy but tended to dip in 2000–01.

- Non–tax revenue has been also found to be relatively more stable in the 1990s and having a downward trend during 1999–2000 to 2000–01.

OBSERVATIONS :

The proportion of sales tax to its own revenue increased from 22.63 per cent in 1981–82 to 41.31 per cent in 2001–02 and thereafter it declined to 38.64 per cent in 2003–04 (BE).Sales tax on goods and services is the primary source of states own tax scheme followed by state excise, tax on motor vehicles, professional tax and so on.

- Taxes on income as a proportion to state's own revenue increase from 2.89 per cent in 1981–82 to 7.09 per cent in 1994–95 but the same ratio declined from 7.09 per cent in 1994–95 to 5.10 per cent in 2003–04 (BE).

- Taxes on professional, traders etc, as a proportion to states own revenue is insignificant and it started declining from 0.20 per cent in1990–91 to 0.05 per cent in 2003–04 (BE) with marginal insignificant improvement in the year 1991–92, 1993–94 and 1998–99.

- Agricultural income tax as a proportion to states own revenue declined from 7.85 per cent 1990–91 to 5.10 per cent in 2003–04(BE) with marginal fluctuations in 1999–2000 and 2000–01.

- Taxes on property and capital as a proportion to state's own revenue indicated a declining trend from 6.57 per cent in 1990–91 to 4.08 per cent in 2003–04 (BE) with the exceptions for the years 1994–95, 1997–98, 1998–99 and 2001–02, when the ratio was 6.73 per cent, 5.27 per cent, 6.34 per cent and 4.20 per cent respectively.

- Under the category of taxes on property and capital the performance of stamps and registration fees was satisfactory as compared to land revenue but the proportions of stamps and registration fees to state's own revenue indicated a sharp deterioration from 5.06 per cent in 1990–91 to 3.63 per cent in 2003–04 (BE).

- Land revenue continues to remain an insignificant source of revenue for the state continuously faulted over the years. In other words, its contribution to the state's own revenue declined from 1.51 per cent in 1990–91 to 0.45 per cent in 2003–04 (BE).

- The performance of taxes on commodities and services is undoubtedly better as compared to taxes on income and taxes on property and capital. Its contribution to the states own revenue has indicated an upward movement from 1981–82 to 1997–98. Thus, the share of taxes on commodities and services in the states own revenue represented an increase from 31.01 per cent in 1981–82 to 56.67 per cent in 1997–98 and thereafter it declined to 51.07 per cent in 2003–04 (BE).

- The contribution of state excise duty to states own revenue increased from a very poor level of 2.89 per cent in 1981–82 to 14.05 per cent in 1997–98 but it then declined over the subsequent years to reach the point of 9.37 per cent in 2003–04 (BE).

- Taxes on vehicles as a ratio to states own revenue was only 2.97 per cent in 1981–82 and the same ratio continuously declined to 2.00 per cent in 2003–04 (BE).

- The share of entertainment tax to the state's own tax revenue declined from 1.76 per cent in 1991–92 to 0.49 per cent in 2003–04 (BE).

- Other taxes and duties had very little contribution to the state's own revenue as evident from an insignificant increase in its share from 0.25 per cent in 1992–93 to 0.57 per cent in 2003–04 (BE).

- In view of a very poor contribution of manufacturing activities to the tune of 3.97 per cent of the GSDP at current prices in 2000–01 and a major chunk of total population (66.8 per cent) of rural areas lying below the poverty line, the scope for additional resource mobilization is badly limited and hence, the dependency syndrome.

4.4. DEBT SCENARIO

The insurmountable and uncontrollable growth of public debt has been a major source of concern both for the policy makers of the state government and the Central government. The total debt of the states as on March 31, 1994 was to the tune of Rs. 609.67 crore against the GSDP of the state which was in the order of Rs. 1777.23 crore and thus it was around 31.31 per cent of GSDP of the state against only 21.53 per cent for the central government. Again the debt liability of the state government increased to Rs. 2217.10 crore as on 31st March, 2001 against GSDP of Rs. 5270.07 crore and thus, the debt GSDP ratio during 2000–01, was 42.07 per cent as against 27.44 per cent for the central government.

Table –4.13 : Debt–GSDP Ratios and Percentage Share in Overall Debt in 2002–03 (NE States)

States	Debt–GSDP Ratio	Share in Total debt of States
Arunachal Pradesh	55.45	0.18
Assam	33.91	1.94
Manipur	43.08	0.31
Meghalaya	32.17	0.22
Mizoram	81.56	0.27
Nagaland	52.10	0.38
Sikkim	60.27	0.13
Tripura	37.78	0.46

Source : Report of the Twelfth Finance Commission

It may be seen from the above table that during 2002–03, the debt–GSDP ration was highest for Mizoram (81.56%) followed by Sikkim (60.27%). Tripura ranks sixth among the North East States in terms of debt–GSDP ratio. However, Tripura occupies the second position (0.46%) among NE states after Assam (1.94%) in terms of percentage share in total debt of states. The rising debt of the state undoubtedly reflects the deteriorating fiscal performance and consequently a long–term mismatch between the growth of revenue and expenditure of the state.

The total debt stock of the state of Tripura touched the level of Rs. 3078.23 crore on 31st March, 2003.

Table –4.14 : Source wise Position of the Debt Stock of the State
(Rs. in crore)

Year	Open Market Borrowings	Central Loans	Public Account	Total Debt Stock
1993–94	204.30 (30.00)	296.01 (43.48)	180.48 (26.51)	680.79
1994–95	224.69 (29.60)	313.50 (41.31)	220.78 (29.09)	758.97
1995–96	254.61 (29.95)	333.23 (39.20)	262.22 (30.84)	850.06
1996–97	281.34 (28.83)	377.63 (38.70)	316.76 (32.46)	975.73
1997–98	311.29 (27.48)	448.87 (39.63)	372.62 (32.89)	1132.78
1998–99	395.18 (28.30)	548.19 (39.26)	452.86 (32.43)	1396.23
1999–00	523.46 (29.29)	681.95 (38.15)	581.92 (32.56)	1787.33
2000–01	650.62 (29.35)	670.32 (30.23)	896.16 (40.42)	2217.10
2001–02	841.29 (31.88)	733.85 (27.80)	1064.16 (40.32)	2639.30
2002–03	942.21 (30.61)	729.59 (23.70)	1406.43 (45.69)	3078.23

Source : Memorandum to the Twelfth Finance Commission, Finance Dept., 2004.

From the above table it is clear that loans from central government has been the major source of debt stock till 1999–2000 i.e. during 1993–94 central loan as a ratio to total debt stock was 43.48 per cent which however, declined to 38.15 per cent in 1999–2000 and thereafter it is continuously declined to 23.70 per cent in 2002–03. The second important component of debt stock is loan from public account which was Rs. 896.16 crore in 2000–01 and increased up to Rs. 1406.43 crore in 2002–03 constituting 45.69 per cent in 2002–03. From 2000–01 up to 2002–03, the share of loan from public account exceeded that of central loans. It is also clear from the table that open market borrowing increased at a faster rate from 1998–99 to 2002–03 as compared to the earlier periods. The share of open market borrowing to total debt stock of the state declined from 1993–94 to 1997–98 and afterwards, its share to total debt stock attained the highest value of 31.88 per cent in 2001–02. It has been seen earlier that the increasing dependence of the state on public borrowings has been the resultant consequent of an ever widening gap expressed in terms of negative balance from current revenue for the plan.

With the increasing debt stock, the interest liability of the sate has increased consistently from 1996–97 to 2003–04. The interest liability has gone up from Rs. 22603 crore in 2000–01 to Rs. 300.00 crore in 2002–03(RE) and Rs. 336.90 crore in 2003–04 (BE).

Table – 4.15 : Interest Payments to Total Revenue Receipts (%)

States	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03 (RE)	2003–04 (BE)
Arunachal Pradesh	6.58	7.17	7.71	7.91	12.57	10.30	9.27	11.39
Assam	14.52	14.77	11.55	19.74	15.35	17.80	20.62	18.32
Manipur	7.98	9.13	10.16	12.34	16.95	16.27	12.85	14.34
Meghalaya	7.62	8.74	8.35	10.14	10.04	11.44	11.67	10.79
Mizoram	7.24	9.68	9.53	10.89	12.22	16.84	11.72	16.34
Nagaland	10.55	13.06	13.26	14.24	13.66	14.88	15.55	14.44
Sikkim	2.85	3.36	3.64	4.49	9.12	4.66	4.14	4.48
Tripura	10.71	11.08	11.09	12.87	13.80	13.56	15.44	14.80
All States	17.09	18.20	20.82	22.01	21.93	24.45	25.23	25.00

Source : RBI State Finances : Various Issues.

It may be observed from the table that the proportion of interest payments to total revenue receipts is the second highest for the state of Tripura after Assam. While interest payment as a ratio to total revenue receipts for all states increased from 17.09 per cent in 1996–97 to 23.72 per cent in 2002–03 (BE),* the same ratio for Tripura increased from 10.71 per cent in 1996–97 to 16.41 per cent in 2002–03*. It may be noted here that during the first three years of the award of the Eleventh Finance Commission, interest payment was around 14 per cent of the total revenue expenditure of the state on an average and in the subsequent years also the share of interest payment to total revenue expenditure represented a continuous increase. The following table exhibits the contribution of interest payment as percentage of non–plan revenue receipts and as percentage of non–plan revenue expenditure.

Table – 4.16 : Interest Payment Liability of the State (Rs. In crores)

Year	Interest Payment	Non–Plan Revenue Receipt	Non–Plan Revenue expenditure	Interest Payment as % of non–plan revenue receipt	Interest Payment as % of non–plan revenue Expenditure
1998–	140.58	665.81	851.93	21.11	16.50

99					
1999–00	185.21	763.43	1118.03	24.26	16.57
2000–01	226.03	918.75	1367.16	24.60	16.53
2001–02	253.22	928.92	1536.75	27.26	16.48
2002–03	290.73	1091.95	1621.09	26.62	17.93

Source : Memorandum to the Twelfth Finance Commission, Finance Dept., Government of Tripura, 2004.

From the table, it can be seen that interest payment as a percentage non–plan revenue receipt persistently increased from 21.11 per cent in 1998–99 to 26.62 per cent in 2002–03 again interest payment as a proportion to non–plan expenditure also reflected an upward increased from 16.50 per cent in 1998–99 to 17.93 per cent in 2002–03.

A. The Debt Swap Scheme of Government

With a view to tackle the problem of high level interest payments, the Central Government introduced the debt swap scheme in September 2002 for providing relief to the states on the high cost debt owed by the states of the Central Government, the high cost debt being declined as the debt carrying interest rate of 13% and above. Only state plan loans and small saving loans given upto 31st March 1999 qualified for debt–swap. Two sources of borrowing were identified for swapping the high cost Central Government loans, viz. additional open market borrowings and state governments investment in small saving securities.

The study on “Restructuring the Public Finances of Tripura” conducted by NIPFP for the state of Tripura explored the possibilities of restructuring the interest bill through an empirical study under the debt swap scheme. The following table presents the distribution of open market borrowings in internal debt and total debt stock in Tripura.

Table – 17 : Distribution (%) of OMB in Internal Debt and Total Debt Stock in Tripura

Year	OMB (in cr.)	Internal Debt (in cr.)	Total Debt Stock (in cr.)	OMB/ Internal(%)	OMB/Total
1991	83.25	138.12	482.59	60.27	17.25
1992	99.82	169.34	553.79	58.95	18.02
1993	116.43	185.99	615.76	62.60	18.91
1994	133.18	204.30	680.79	65.19	19.56
1995	151.10	224.69	758.97	67.25	19.91
1996	168.98	254.61	850.06	66.37	19.88
1997	188.69	281.34	975.73	67.07	19.34
1998	210.32	311.29	1132.78	67.56	18.57
1999	270.43	395.18	1369.23	68.43	19.37
2000	345.84	523.46	1787.33	66.07	19.35
2001	422.64	650.62	2217.10	64.96	19.06
2002	270.14	841.29	2639.30	55.88	17.81
2003	582.69	942.21	3078.23	61.84	18.93

Source : Budget Division, Dept. of Finance, Tripura.

The important observations regarding the implications of the Debt–swap Scheme are given below :

- Since interest payment constitutes only 15 per cent of revenue expenditure, the scope for substantial economy in revenue expenditure through the reduction in interest bill is limited.

- A debt swap scheme cannot reduce the stock of debt rather it merely changes the composition such that the overall interest burden is reduced.

- Loans from the Government of India carrying an interest of nearly 13 per cent are an expensive source of borrowing for the state. The share of interest payable to Government of India, in the total interest bill is 39 per cent, when debt owed to Government of India is only 28 per cent of the total debt stock. Thus, the debt swap scheme for government of India debt is the only source from which major reduction in the interest bill can be secured.

- Since the interest rates on market loans are governed by the market forces, the interest rates on market loans cannot be influenced by the state.

- The interest rate on Provident Fund are govern by government of India.

- There may be scope for interest rate reduction through bilateral negotiation with creditors in this category like NABARD and HUDCO. On the whole since interest on internal liabilities accounts for only 12 per cent of the interest bill the scope for savings is limited.

It was observed in the said study that the share of OMB to total internal debt has been hovering around more than 60 per cent over the period 1991 to 2003. Again, the proportion of OMB to total debt stock of the state has been ranging between 17.25 per cent to 18.93 per cent. The following table depicts the details of amount swapped out and swapped in under debt scheme in Tripura in the year 2002–03.

Table – 4.18 : Debt Swap in Tripura (2002–03)

	Year of Raising	Coupan Data	Debt Swap (Rs. in Lakh)
Swapped Out			
High Cost Small Saving Loans	1992–93	14.5	605.70
	1993–94	14.5	1168.00
	1994.95	14.5	1369.35
	1995–96	14.5	205.20
	1996–97	14.5	1645.40
	1997–98	14.5	269.35
	1993–94	15.0	40.00
			5303.00
Swapped In			
OMB	2002–03	6.95	2000.00
OMB	2002–03	6.75	1700.00
Against net small saving proceeds	2002–03	–	1603.00
			5303.00

Source : Budget Division, Dept. of Finance, Tripura.

The amount of debt swapped out in Tripura for the year 2002–03 was Rs. 5303 lakhs. The amount of debt swapped in Tripura in 2002–03 has two components: an amount of Rs. 1603 lakhs released by government of India against the states share of Net Small Savings proceeds and an amount of Rs. 3700 lakhs as OMB entitlement.

4.5. FINANCING THE PLANS

We all know that the primary focus of any scheme of financing the plans should be on the fiscal effort of the state government to generate its own resources. However, the augmentation of tax and non–tax resources depends upon the levels of productivity of the various sectors of the economy. The system of financing the various plans and programmes by the public sector is closely connected with the enshrined objectives of the concerned five year plan. Under normal circumstances a non–inflationary and self–reliant strategy of resource mobilization has been always the desideratum of the policy planners. The following table presents the ninth plan projections and realizations of the state.

Table – 19 : Scheme of Financing : Ninth Plan Projections Vs. Realization

Items	Ninth Plan (1997–2002)		
	Projections at 96–97 prices	Realization at 96–97 prices	% Realization
A. State's Own Resources (1 – 11)	246.21	–286.32	–116.3%
1. Balance from current revenues of which ARM	–354.13 (0.00)	–1486.54 (0.00)	–419.8%
2. Contribution of Public enterprises	–18.54	–31.73	–171.1%
a. State Electricity Board of which ARM	Departmental		
b. State Road Transport Corporation of which ARM	–18.54 (1.21)	–31.73 (0.00)	–171.1 (0.0%)
3. State Provident Funds	247.12	415.03	167.9%
4. Miscellaneous Capital Receipts (Net)	–119.34	–189.67	–158.9%
5. Special Grants under TFC/EFC (a+b)	50.47	21.50	42.6%
a. Upgradation & Special Problems	32.33	15342	47.7%
b. Local Bodies	18.14	6.08	33.5%
6. Loans against net small savings	189.91	288.39	151.9%
7. Net Market Borrowings (SLR Based)	107.15	276.49	258.0%
8. Negotiated Loans (a to f)	120.59	243.37	201.8%
a. LIC	61.29	181.03	295.4%
b. GIC	0.00	0.00	
c. NABARD	29.65	31.42	106.0%
d. REC	29.65	25.83	87.1
e. IDBI	0.00	0.00	
f. Others (HUDCO etc.)	0.00	5.09	
9. Bonds/ Debentures (Non–SLR	22.98	0.00	0.00

Based)			
10. ARM	0.00	0.00	
11. Adjustment of Opening Balance	0.00	176.84	
B. Central Assistance	2331.18	2312.59	99.2%
12. Normal Central Assistance & Others	2269.68	2301.46	101.4%
13. Addl. CA for Externally Aided Projects	61.50	11.13	18.1%
C. Aggregate Plan Resources (A+B)	2577.39	2026.27	76.8%
D. Approved Plan Outlay/ Plan Expenditure	2577.39	1887.84	73.2%

Source : Planning Commission Financial Resources Division (Page, 7).

The following are some of the important observations emerging out of the analysis of the above table :

- Actual realization of ninth plan projections is 76.8 per cent in terms of resources and 73.2 per cent in terms of plan expenditure.

- Deterioration is observed mainly in BCR i.e. (–) 420 per cent over projections, which in turn is due to low revenue receipts (93 per cent of projections) and high level of NPRE (126 per cent of projection)

- Realization of states own tax revenue (SOTR) was 117 per cent and that of non–tax revenue (NTR) (–) 152 per cent of projections. SOTR and NTR however, is sufficient to finance only 7.4 per cent of state's NPRE requirements.

- Actual level of SLR based OMB is 258 per cent of the projected level and negotiated loans is 202 per cent of the projections indicating the high level of borrowings for plan financing.

- Tax/NSDP ratio increased from 2.74 in 1992–93 to 3.27 in1999–2000.

- Debt/GSDP ratio increased from 56.30 in 1992–93 to 76.35 in 2000–01.

- Per–capital NSDP is Rs. 10767 (all India average: Rs. 13934) and the per–capita debt of the state is Rs. 8483.

- Though the per–capital NSDP rank of the state is only 23, it is still higher than that of Bihar, Uttar Pradesh, Assam, Orissa and Manipur.

- Increase in interest payments from Rs. 58.70 crore in 1992–93 to Rs. 205 crore in 2000–01.

- Outstanding liabilities are estimated to increase from Rs. 1780 crore as on March 2000 to Rs. 2707 crore in March 2002 (BE).

In the entire scheme of financing, it can be noted that the deteriorating balance from current revenue position combined with poor performance of the state public enterprises has rendered the realization of the ninth plan falling short of the projections and there has been an inevitable tendency to increasingly rely upon borrowings and central assistance. The deteriorating position of BCR of the state during the period 1997–98 to 2003–04 is given in the following table.

Table – 4.20 : Negative BCRs for Plan Resources – Tripura (Assessed by Planning Commission)

Sl.	Year	Total Plan Resources	Negative BCR
1	1997–98	407.18	143.71
2	1998–99	379.00	412.38
3	1999–00	437.6+1	441.15
4	2000–01	422.60	514.50
5	2001–02	560.00	501.99
6	2002–03	625.00	573.00
7	2003–04	650.00	500.76

Table – 4.20 clearly indicates that the public finance of the state of Tripura experienced a grim scenario as expressed by irreversible increasing negative BCR from 1997–98 to 2003–04.

A comparative profile of the structure of plan financing during the ninth plan and tenth plan projections is given below :

Table – 4.21 : Financing Pattern – Ninth Plan (Projections and Realization) Vs. Tenth Plan (Projections) (Rs. In crores)

Items	9th Plan (1997–98–2002)		10th Plan (2002–07)
	Projections at 1996–97 Prices	Realization at 1996–97 prices	Projections at 2001–02 prices
Total Borrowings % to Aggregate Plan Resources	687.75 (26.7%)	1223.27 60.4%)	1593.43 (104.5%)
States Own funds % to Aggregate Plan Resources	–441.54 (–17.1%)	–1509.61 (–74.5%)	–3808.98 (–249.8%)
Central Assistance % to Aggregate Plan Resources	2331.18 (90.4%)	2312.59 (114.1%)	3740.09 (245.3%)
Aggregate Plan Resource	2577.39 (100.0)	2026.25 (100.0)	1524.54 (100.0)

Source : Various Documents of Ninth and Tenth Five Year Plan of Tripura, Government of Tripura.

The negative BCR consumes away the substantial part of the state plan resources and thereby, compels the government to borrow from the capital account and this tendency usually tends to adversely affect the developmental activities of the state. In the year 2003–04, negative BCR alone constituted 78.88 per cent of the total annual plan resources.

It is interesting to note from the above table that the share of state's own funds to aggregate plan resources increased from –17.1 per cent (ninth plan projection at 1996–97 prices) to –74.5 per cent (ninth plan realization at 1996–97 prices) and –249.8 per cent during the tenth plan projections at 2001–02 prices. As a result of the dismal performance of state exchequer, the share of total borrowing to aggregate plan resources increased from 26.7 per cent (ninth plan projections at 1996–97 prices) to 80.4 per cent (ninth plan realization at 1996–97 prices) and expected to increased by 104.5 per cent during tenth plan projections at 2001–02 prices. The behaviour of central assistance also follows the same path as evident from the fact that proportion of central assistance to aggregate plan resources increased from 90.4 per cent (ninth plan

projections at 1996–97 prices) to 114.1 per cent (ninth plan realization at 1996–97 prices) and expected to increased by 245.3 per cent during the tenth plan projections at 2001–02 prices.

4.6. The Role of the Finance Commission

It has been observed in the earlier discussions that the state of finances of Tripura has been under great stress and strain on account of the lack of overall prosperity of the economy resulting from geographical isolation and critical infrastructural bottlenecks. The fiscal scenario of Tripura is characterized by increasing revenue expenditure, insignificant returns in public investment and absence of revenue generation. Therefore, there is an imperative need of restructuring or reorganizing the state finances of Tripura and there is an underlying belief among the policy makers of the state that the Finance Commission is likely to bail the state out of the existing fiscal crisis. Over the last more than fifty five years, Twelfth Finance Commission have submitted their reports consisting of sets of recommendation related to devolution of taxes under Articles 269, 270, 272 and grants–in–aid under Article 275. Planning Commission on the other hand operates altogether under different legal framework. The role of the Planning Commission has been candidly appreciated by the special category states in view of the liberal treatment given to these states with a view to promoting the physically handicapped states and giving a fair opportunity to those states for rising up to the levels of non–special category states.

The Finance Commissions have taken into account various alternative criterion viz. (a) factors reflecting needs, such as population and income measured either as distanced from the highest income or as inverse, (b) cost disability indicators like area and infrastructure distance and (c) fiscal efficiency indicators such as fiscal discipline and tax effort to rectify the discrepancies arising out of revenue capacity and cost disability factors and to enhance fiscal efficiency of the states. The following table depicts the inter–se shares devolved by the Twelfth Finance Commission to the N–E states.

Table – 4.22 : Inter–se Shares : Award of XII Finance Commission

States	Share (per cent)
Arunachal Pradesh	0.288
Assam	3.235
Manipur	0.362
Meghalaya	0.371
Mizoram	0.239
Nagaland	0.263
Sikkim	0.227
Tripura	0.428

Source : Report of the Twelfth Finance Commission.

It is clear from the above table that under the award of the Twelfth Finance Commission the inter–se share of Tripura is second highest (0.428%) after Assam (3.235%) among the NE states. Interestingly, the share of Tripura in the divisible pool of resources as recommended by the Twelfth Finance Commission is less than 1%. Again, the share of Tripura is the net proceeds of service tax is the second highest (0.433%) after Assam (3.277%).

Table – 4.23 : Pre–Devolution Non–Plan Revenue Surplus/ Deficit (–)

(Rs. in crore)

States	2005–06	2006–07	2007–08	2008–09	2009–10	2005–10
Arunachal Pradesh	–535.21	–564.47	–639.05	–671.81	–714.68	–3125.22
Assam	–3263.86	–3356.94	–3730.26	–3794.54	–3838.37	–17983.97
Manipur	–1139.43	–1220.17	–1323.99	–1418.62	–1511.21	–6613.47
Meghalaya	–715.93	–747.43	–838.93	–868.32	–902.86	–4073.47
Mizoram	–755.73	–806.72	–892.27	–964.16	–1025.43	–4444.31
Nagaland	–1234.13	–1312.98	–1440.34	–1531.46	–1631.26	–7150.17
Sikkim	–274.39	–284.71	–325.56	–335.53	–360.02	–1580.21
Tripura	–1433.25	–1512.35	–1637.01	–1723.12	–1814.56	–8120.29

Source : Report of the Twelfth Finance Commission

Table – 4.24 : Post–Devolution Non–Plan Revenue Surplus/ Deficit (–)

(Rs. in crore)

States	2005–06	2006–07	2007–08	2008–09	2009–10	2005–10

Arunachal Pradesh	–271.84	–262.94	–293.07	–273.92	–256.11	–1357.88
Assam	–305.67	29.83	155.86	674.49	1312.21	1866.72
Manipur	–808.39	–841.17	–889.10	–918.50	–934.82	–4391.98
Meghalaya	–376.67	–359.02	–393.24	–355.78	–312.15	–1796.86
Mizoram	–537.19	–556.52	–605.17	–634.00	–644.91	–2977.79
Nagaland	–993.65	–1037.66	–1124.44	–1168.17	–1212.58	–5536.50
Sikkim	–66.81	–47.06	–52.86	–21.94	1.40	–187.27
Tripura	–1041.91	–1064.30	–1122.91	–1131.90	–1133.18	–5494.20

Source : Report of the Twelfth Finance Commission

Table – 25 : Grant–in–Aid for Non–Plan Revenue Deficit (2005–10)
(Rs. in crore)

States	2005–06	2006–07	2007–08	2008–09	2009–10	2005–10
Arunachal Pradesh	271.84	262.94	293.07	273.92	256.11	1357.88
Assam	305.67	nil	nil	nil	nil	305.67
Manipur	808.39	841.17	889.10	918.50	934.82	4391.98
Meghalaya	376.67	359.02	393.24	355.78	312.15	1796.86
Mizoram	537.19	556.52	605.17	634.00	644.91	2977.79
Nagaland	993.65	1037.66	1124.44	1168.17	1212.58	5536.50
Sikkim	66.81	47.06	52.86	21.94	nil	188.67
Tripura	1041.91	1064.30	1122.91	1131.90	1133.18	5494.20

Source : Report of the Twelfth Finance Commission

It may be noted here that the Twelfth Finance Commission has reassessed the forecast of non–plan needs of the special category states on the basis of normative standards with a view to arriving at the figure of non–plan revenue deficit in each of the five years of the award period in the pre–devolution scenario. Among the North East states the pre–devolution non–Plan revenue deficit was found to be the second highest for Tripura (8120.29 crore) after Assam (17983.97 crore). It may also be noted from the table that all the special category states except Assam are expected to have normatively determined post–devolution non–Plan revenue deficit during the entire award period. In view of relatively high

post–tax devolution deficit of Tripura, it was granted the second highest amount of grant–in–aid (5494.20 crore) after Nagaland (5536.50 crore).

Table – 4.26 : Total Finance Commission Transfers to States (Rs. In crores)

States	Share in Central Taxes & Duties (2005–10)	Grants–in–Aid											Total Transfers (col.2+13)
		Non–plan revenue deficit (05–10)	Health Sector (05–10)	Education (05–10)	Mainten–ance of Roads & Bridges (06–10)	Mainten–ance of Buildings (06–10)	Mainten–ance of Forests (05–10)	Heritage Conser–vation (06–10)	State Specific Needs (06–10)	Local Bodies (05–10)	Calamity Relief (05–10)	Total (col.2 +12)	
Arunachal Pradesh	1767.34	1537.88	–	–	44.36	57.42	100.00	10.00	71.00	71.00	112.56	1758.22	3525.56
Assam	19850.69	305.67	966.69	1107.37	330.12	230.64	40.00	130.00	581.00	581.00	767.89	4478.71	24329.40
Manipur	2221.44	4391.98	–	–	76.96	37.71	30.00	30.00	55.00	55.00	22.11	4648.76	6870.20
Meghalaya	2276.61	1796.86	–	–	86.40	35.02	30.00	35.00	58.00	58.00	44.88	2091.16	4367.77
Mizoram	1466.52	2977.79	–	–	42.12	23.29	25.00	65.00	30.00	30.00	26.19	3194.39	4660.91
Nagaland	1613.67	5536.50	–	–	120.88	46.17	25.00	45.00	46.00	46.00	15.19	5839.74	7453.41
Sikkim	1392.94	188.67	–	–	18.64	32.15	8.00	100.00	14.00	14.00	69.74	436.20	1829.14
Tripura	2626.09	5494.20	–	–	61.48	50.11	15.00	49.00	65.00	65.00	51.12	5790.91	8417.00

Source : Report of the Twelfth Finance Commission

From the above table, it is abundantly clear that the Twelfth Finance Commission has provided the second largest amount of financial assistance to Tripura (8417.00 crore) as against 24329.40 crore for Assam. It is also observed that Tripura received 2626.09 crore as share in Central taxes and duties and 5790.91 crore as grants–in–aid under the headings, non–Plan revenue deficit, health sector, education, maintenance of roads and bridges, maintenance of buildings, maintenance of forest, heritage conservation, state specific needs, local bodies and calamity relief.

The period of fifty five years is quite a long period to review the expectation of states that the Finance Commission would assess in making state finance less dependent on the Union Government and a reduced inter–state disparity. However, it is pertinent to note that the Finance Commissions have been found to ignore the work of their predecessors and they seem to consider the same issue de–novo. The assumptions of the previous Commissions with regard to projections of tax and non–tax revenue, return in investment in public enterprises, and growth in expenditures have not been given much importance while recommending statutory grants to the states. In the calculation of Finance Commission's projection, the behaviour of the various fiscal indicators are important rather than the expected behaviour of the fiscal parameters. In other words, there is an encouragement to spend more especially as the time for the appointment of next commission approaches. This leaves little incentives for the potential states to follow prudent fiscal behaviour and in this process those states who adopt prudent fiscal management feel cheated.

It is to be noted here that the successive Finance Commissions have underestimated the Non–Plan Revenue Deficit of Tripura by under estimating the revenue expenditure of the state. The following table gives the assessment of the own–tax revenue made by the Eleventh Finance Commission and actual revenues generated by the state.

Table – 27 : State's Own Tax Revenues

(Rs. in Crore)

Year	Estimate of EFC	Actuals of EFC	Percentage Variations
1999–2000		101.74	–
2000–01	118.44	125.58	6.03
2001–02	135.50	158.50	16.97
2002–03	155.01	183.37	18.30
2003–04	177.33	205.51 (LE)	15.89
2004–05	202.87	230.49 (Est)	13.61

Source: Memorandum to the Twelfth Finance Commission, Finance Department, Government of Tripura, 2004

It is evident from the above table that despite the limited scope of additional resource mobilization the state has infact exceeded the target during the first three years of the award period of Eleventh Finance Commission. In other words, over the periods 2001–02 to 2003–04 the state's growth rate in own tax revenue exceeded the target of 14 per cent per annum as estimated by the EFC. Like the assessment of tax revenue, there has been a considerable variation between the assessment of Non–tax revenue by the state and the EFC. The EFC while making an assessment of state's own non–tax revenue took into account different growth rates relating to different components of non–tax revenue. The EFC set a norm of 9 per cent return by way of interest of loans and advances to be achieved by 2004–05, a norm of 2 per cent or actuals whichever is higher for dividends for the base year and thereafter 5 per cent for 2004–05. Again, the commission assumed a growth rate of 5 per cent for 2004–05 per annum in respect of forest revenues. The following table depicts the extent of variations between the EFC estimates and the actuals with regard to NTR.

Table – 4.28 : EFC Estimates of Non–Tax Revenues and The Actuals
(Rs. In Lakh)

Year	EFC estimates	Actuals	Target exceeded by	Percentage variations
2000–01	35.59	94.51	58.92	165.4
2001–02	43.84	97.65	53.81	122.7

2002–03	53.41	98.72	45.32	84.8
Total	132.84	290.88	158.04	118.9

Source: Memorandum to the Twelfth Finance Commission, Finance Department, Government of Tripura, 2004.

Table–4.28 indicates that Tripura exceeded the target of non–tax revenues during the first three years of the EFC award period. In other words, while for the period of three years the actual achievement exceeded the target by 118.9 per cent, the same for the years 2000–01, 2001–02 and 2002–03 exceeded the targets by 165.5 per cent, 122.7 per cent and 84.8 per cent respectively.

The total expenditures on pension payments increased substantially on account of revision of pay scales leading to consequential revision of pensions. The projection made by the EFC regarding pension liabilities have been found to be grossly under estimated as evident from the following table.

Table – 4.29 : Pension Requirements : 2002–05–Tripura

(Rs. in Crore)

Years	Estimate by FC	Actual	Increase over estimate
2000–01	87.47	147.99	60.52
2001–02	96.22	175.04	78.82
2002–03	105.84	226.54	120.70
2003–04	116.43	260.52 (LE)	144.09
2004–05	128.03	299.60 (Est)	171.57
Total	533.99	1109.69	575.70

Source: Memorandum to Twelfth Finance Commission, Finance Department, Government of Tripura

It can be seen from the above table that the assessment made for pension liabilities over a period of five years exceeded in first three years of

award. This under estimation of pension by the EFC remitted in under estimation of NPRE and consequently NPRD which is the basis for the recommendations of the Finance Commission for Non–Plan Revenue Grant. During 2003–04 and 2004–05, the expected pension liabilities would be around Rs. 261 crore and Rs. 300 crore respectively. Unfortunately the EFC estimated the pension liabilities to the tune of Rs. 315.66 crore. Again, the EFC estimated total pension requirement for the state to the order of Rs. 533.99 crores as against the actual requirement of Rs. 1109.69 crores. Such a massive under estimation of pension liabilities of small state like Tripura is likely to have severe fiscal and developmental implications in terms of increasing borrowing and future debt burden.

From the following table it is clear that there has been substantial variation between the estimates of EFC and actual position relating to interest liabilities of Tripura.

Table – 4.30 : Interest Liabilities : Tripura–2000–05

Years	Estimate by FC	Actual/ Estimate	Increase over estimate
2000–01	177.84	226.03	27.10
2001–02	195.62	253.22	29.44
2002–03	215.18	290.73	35.11
2003–04	236.70	319.81 (LE)	35.11
2004–05	260.37	351.79 (Est)	35.11
Total	1085.71	1441.58	

Source: Memorandum to the Twelfth Finance Commission, Finance Department, Government of Tripura, 2004

During the periods of 2002–03 and 2003–04, the percentage variations between actual and estimated (EFC) interest liabilities have been the maximum and they are to the extent of 35.11 per cent. This has also been one of the important factors which contributed to debt servicing

problem of Tripura. Thus, underestimation of Non–Plan Revenue Deficit by Finance Commission resulting from underestimated pension liabilities, adversely affected the financial position of the state and consequently retarded the development process of the state.

Table indicates the year wise projections of the state government and estimates of EFC with respect to Non–Plan Revenue Receipts, non–plan revenue expenditure and non–plan revenue deficit.

Table – 4.31 : Pre–Devolution Revenue Expenditure, Non–Plan Revenue Deficit : Own Projections Vs Finance Commission's Projections

(Rs. in Crore)

Sl. No.		Eleventh Finance Commission					
		2000–01	2001–02	2002–03	2003–04	2004–05	Total
A	Non–Plan Revenue Receipts						
i.	State's Projections	129.62	142.37	156.44	171.97	189.13	789.53
ii.	EFC's	154.03	179.34	208.43	242.06	288.61	1072.45
iii.	Estimates Shortfall (i–ii)	–24.41	–36.97	–51.99	–70.09	–99.48	–282.94
B	Non–Plan Revenue Expenditure						
i.	State's projections	2477.76	2799.06	3159.96	3562.39	4021.90	16021.07
ii.	EFC's estimates	940.35	1012.02	1097.66	1175.19	1275.71	5500.93
iii.	Underestimation (i–ii)	1537.41	1787.04	2062.30	2387.20	2746.19	10524.14
C	State's estimates of Non–Plan Revenue Deficits [B(i)–A(i)]	2348.14	2656.69	3003.52	3390.42	3832.77	15321.54
D	Finance Commission	786.32	832.68	889.23	933.13	987.10	4428.48

	estimates of state's Non–Plan Revenue Deficits [B(ii)–A(ii)]						
E	Difference between state's projections and estimates of Non–Plan Revenue Deficits (C–D)	1561.82	1824.01	2114.29	2457.29	2845.67	10803.06
F	Difference in percentage	198.62	219.05	237.77	263.34	288.29	243.95

Source: Memorandum to Twelfth Finance Commission, Finance Department, Government of Tripura, 2004

It may be observe from the above table that state's own estimate of NPRD have through out exceeded the EFC's estimates so much so that the variations have been in order of 198.62 per cent in 2000–01, 219.05 per cent in 2001–02, 237.77 per cent in 2002–03, 263.34 per cent in 2003–04 and 288.29 per cent in 2004–05. The wide spread variations between the projections of the state government and those of the EFC may be readily attributed to the utter failure of the EFC in making adequate provisions for yawning expenditure on account of pay revisions, corresponding underestimation of pension liabilities and interest liabilities. In this context Dr. Amresh Bagchi, Member EFC, rightly remarked that "the problem lies in the absence of a binding accountablility and effective incentives (and disincentives) for public revenue expenditure management (or mismanagement) and that has a lot to do with a system of federal finance as it has been operating in the country."

In addition to this, it has been further observed that despite prudent fiscal management by the state the actual transfers from the centre to the

state have been much lower than the projections made by the Finance Commission. The tax–devolution scenario of Tripura is given below:

Table – 4.32 : Estimates and Actual Devolution of Central Tax Revenues: Tripura

(Rs. Crore)

Years	TFC estimates	Actual	Deficit
1995–96	262.11	228.44	33.67
1996–97	344.19	318.93	25.26
1997–98	486.62	429.77	56.85
1998–99	568.72	457.02	111.70
1999–2000	664.62	529.55	135.07
1995–2000	2326.26	1963.71	362.55
	EFC estimates	**Actual**	**Deficit**
2000–01	263.27	236.22	27.05
2001–02	306.03	232.62	73.41
2002–03	357.92	249.43	108.49
2003–04	417.48	310.65 (LE)	106.83
2004–05	1344.70	1028.92	315.78

Source: Memorandum to TFC, Finance Department, Government of Tripura, 2004.

It is interesting to note from the above table that it is not only the Finance Commission which has faulted in making specific recommendation to the central government for providing substantial resources to the potentially deficit states. The Union Government in its turn did not devolve the required amount of tax revenues as estimated by the TFC and the EFC. The post–devolution Non–Plan Revenue Deficit increased from Rs. 33.67 crore in 1995–96 to Rs. 135.07 crore in 1999–2000. Again, the post devolution NPRD increased from 27.05 crore in 2000–01 to Rs. 106.83 crore in 2003–04. Thus, Tripura was left with a total post devolution deficit of Rs. 362.55 crore under the award of the TFC as against that of Rs. 315.78 crore during the first four years of the award period of EFC. The following table documents the overall revenue account position assessed by Tenth and Eleventh Finance Commission and the actual position of the state.

Table – 4.33 : Revenue Account Position Assessed by the Finance Commission Vis–a–vis the Actual

Items	Tenth Finance Commission (1995–00)		Eleventh Finance Commission					
			00–01		01–02		02–03	
	Estimate	Actual	Estimate	Actual	Estimate	Actual	Estimate	Actual
Own Revenue Receipts	468.07	601.06	154.03	220.09	179.34	256.14	208.43	282.09
Non–Plan Rev. Expenditure	3282.55	3908.65	940.35	1367.16	1012.02	1536.75	1097.66	1621.09
Pre–devolution Non–Plan Rev. Deficit	–2814.48	–3307.59	–786.32	–1147.07	–832.68	–1280.61	–889.23	–1339.00
Transfer through Finance Commission	2814.59	2457.24	756.29	655.52	800.02	546.92	853.32	670.45
i. Share in Central Taxes	2325.81	1963.41	263.00	236.22	307.00	232.62	358.00	249.43
ii. Non–Plan Deficit Grant	488.78	493.83	493.29	419.30	493.02	314.30	495.32	421.02
Uncovered Deficit	0.11	–850.35	–30.3	–491.55	–32.66	–733.69	–335.91	–668.55

The burden of the table clearly focuses on the fact that after adjusting the share in central taxes and non–plan deficit grant against the pre–devolution non–plan revenue deficit, huge amount of uncovered deficit in left out with the state exchequer over the years. It can be seen from the above table that there was a surplus of 0.11 crore as per the estimate of the TFC but while the state government experienced uncovered NPRD 850.35 crore. Again during the first three years under the award of the EFC i.e. 2000–01, 2001–02 and 2002–03, the estimated uncovered NPRD were in the order of (–)30.03 crore, (–) 32.66 crore and (–)335.91 crore as against the actual NPRD of (–)491.55 crore, (–) 733.69 crore and (–) 668.55 crore.

Observations Regarding the Working of the EFC

- There was a short fall of estimate of NPRE by more than Rs. 1474.96 crore and this along with the short fall in the share of central taxes to the

extent of 209.73 crores compelled the state to resort to massive borrowing.

- The EFC estimated an annual increase of 5 per cent growth relating to expenditure on salaries and wages, assuming fresh recruitment against 3 per cent retirement. This assumption was much below the actual requirement because the normal growth due to periodical increment along with promotion and placement under assured carrier peroration scheme alone was 3 per cent. Moreover, factors like urgency for creating employment, creation of community block and districts for interconnecting with the people of remote areas etc contributed to the growth of expenditure salaries and wages.

- The EFC pegged the salary bill at 5 per cent per annum but with a view to tackling the problem of insurgency in the state the government was required create new battalions of Tripura State Rifles (TSR) and eventually the expenditure on salary increased at a higher rate.

- The EFC considered the pension liabilities to grow by 10 per cent per annum as against the much higher percentage of growth projected in its own study report conducted for the north–east states. In fact, pension requirements grew during the first three years of the award period.

- The EFC projected the interest liability to grew by 10 per cent per annum, whereas the actual growth rate for this item increased by more than 12 per cent during the first three years of the award period.

- The expenditure on police increased from 71.88 crore in the first year of the Tenth Finance Commission to 165.0 crore in the last year of the TFC, thus, representing a growth of 123 per cent. Again, expenditure on the same item increased from 173.67 crore in the first year of the EFC to 208.81 crore in 2002–03, registering a growth of more than 20 per cent.

- The incentive scheme provided by the EFC fail to generate any discernible impact on the state's fiscal position. The arrangement adopted by the EFC–exclusion of revenue deficit grants under Article 275 while retaining the share of the state in the central tax revenues share of the state in the central tax revenues for the calculation of fiscal performance–adversely affected the state of Tripura. In 1999–2000, thestate received Rs. 529.55 crore as a share in centrally tax revenues with no amount as NPRD grant. In 2000–01, revenue deficit grant portion and reduction in the share of taxes the total resources received by Tripura in 2000–01 was only Rs. 1145 crore, which was smaller than the corresponding revenue of Rs. 1438 crore in 1999–2000. Thus, with dismal performance of its revenue and proportionately larger growth in expenditure Tripura could not avail the advantage of the incentive scheme of the EFC.

4.7. Monitoring of Fiscal Reform (MFR)

The monitoring committee in its meeting on 9th January 2002, discussed the fiscal scenario of the state fiscal reforms policy of the state and remedial measures to be adopted for restructuring the state finances. The guidelines of Government of India for the release of incentive funds under the Medium Term Fiscal Reform Programme (MTFRP) provided the following principle as the minimum requirement:

Release from the incentive fund will be based on a single monitorable fiscal objective. Each state will be expected to achieve a minimum improvement of 5 per cent in the revenue deficits (surplus) as a proportion of their revenue receipt each year till 2004–05. The base year will be financial year 1999–2000. In terms of the guidelines, each state was expected to adopt revenue generation and expenditure compression programmes so as to achieve the following objectives :

- GFD of the states be reduced to 2.5 per cent of GSDP,
- Revenue deficit of all states to fall to zero,
- Interest payments as percentage of revenue receipts of the state as a whole to remain between 18 per cent to 20 per cent.

On the basis of the above mentioned monitorable target the incentive fund for Tripura as indicated in the guideline issued by Ministry of Finance is given below:

Table – 4.34 : Distribution of Incentive Fund

Year	Consolidated revenue balance as %age of revenue receipts	Incentive Fund (Rs. crore)		
		A	B	C
1999–2000 (BE)	–1.86	–	–	–
2000–01	–6.12	73.99	1.71	75.70
2001–02	+2.66	73.95	2.95	76.83
2002–03	+3.50	74.30	3.23	77.53
2003–04	+8.00	71.71	3.61	75.02
2004–05	+12.30	68.47	3.66	72.13

Note A: Withheld portion of revenue deficits grant
Note B: Centre's contribution
Source: Medium Term Fiscal Plan, Government of Tripura, March, 25, 2003.

The Ministry however, modified the above single criterion in respect of those states, who are already in revenue surplus and observed :

"For those states, who are in revenue surplus, it should be adequate if with improving revenue balance, the state show 3 per cent points annual improvement in their BCR as a percentage of the non–plan revenue receipts". For the special category states, a two per cent point improvement in the ratio of revenue deficit to total revenue receipts was the criterion for entitlement of the incentive fund. It was also decided that 80 per cent of the total cost of reforms would be financed by the Government of India for special category states.

A. Outcome Indicators (Fiscal) :

The broad fiscal target projected in the Medium Term Fiscal Plan is as follows:

Table – 4.35 :

Indicator of fiscal target	1999–2000 (Actual)	2000–01 (Actual)	2001–02 (Actual)	2002–03 RE/LE	2003–04	2004–05
1. Consolidated revenue deficit as % of GSDP	–0.59	–2.03	0.92	1.30	3.27	5.52
2. Consolidated fiscal deficit (including guarantee) as % of GSDP	6.48	9.12	10.10	9.51	8.17	7.02
3. States own tax revenue as % of GSDP	2.24	2.52	2.95	3.01	3.06	3.12
4. States own non–tax revenue as % of GSDP	1.68	1.92	1.82	1.71	1.75	1.78
5. Consolidated debt stock as % of GSDP	41.16	46.68	51.42	56.56	59.24	62.00

Source : Medium Term Fiscal Plan, Government of Tripura, 2003.

In compliance with guidelines provided by Ministry of Finance under the Medium Term Fiscal Reform, consolidated revenue deficit as percentages of GSDP was sought to be progressively reduced and convert the same into surplus by 2002–03 (RE/LE) to 2003–04 and 2004–05. Again, consolidated fiscal deficit (including guarantees) as percentage of GSDP was targeted to be contained within 7.02 per cent by 2004–05. With a view to achieving the comfortable deficit position, state's own tax revenue in proportion to GSDP was required to be increased from 2.24 per cent in 1999–2000 to 3.12 per cent in 2004–05. Similarly, state's own non–tax revenue as a ratio to GSDP was supposed to increase from 1.68 per cent in 1999–2000 to 1.78 per cent in 2004–05. Finally, the proportion of consolidated debt stock as a ratio of GSDP was decided to be within the limit of 62 per cent by 2004–05 from 41.16 per cent in 1999–2000. In order to achieve the above mentioned fiscal targets the Government of Tripura adopted comprehensive reforms in the

areas of tax revenue, non–tax revenue, public debt, public sector undertakings and effective financial administration in budgeting.

B. Measures Adopted for Tax Reforms

- Grand strategy for additional resource mobilization with the help of unexplored fiscal instrument.
- Adoption of VAT system during 2003–04.
- Leveraging tax reforms by reducing compliance cost and increasing transparency.
- Devising the growth strategy with 4 per cent rate of inflation and 4 per cent real growth in 2003–04 and 2004–05.
- Adopting effective steps for streamlining the administration of state taxes.

With respect to state's own tax revenue to reforms the following policy decisions were taken by the government:

- Introduction of uniform floor rate for sales tax.
- Expediting the process of preparation for the introduction of VAT during 2003–04.
- The VAT legislation to be submitted in the Budget session 2003–04.
- Rationalization of stamps and registration fees and the process of rationalization to be implemented by July 6, 2003.

- Excise duty rationalization to be implemented by August 1, 2003.

- Special measures like uniform floor rates for sales tax and adoption of VAT, increase in the number of assesses under profession tax by raising the ceiling upwards, exploring the possibility of increasing the number of liquor shops for widening the base of excise revenue,

increasing the revenue from purchase tax and luxury tax by improving and increasing the number of commodities etc, to be immediately by the government.

The following crucial decisions were taken under the Mid Term Fiscal Plan for augmenting non–tax revenue resource:

- Restructuring the role of government in economic activities to facilitating commercialization and outsourcing. A roadmap highlighting the areas of economic activity to be implemented in consultation with Government of India by August 1, 2003.

- Ensuring that the ultimate responsibility for managing the services is entrusted with statutory non–government bodies like the Panchayati Raj Institutions.

- User charges which are index–linked to input–cost and the process of periodic revision would be automatic and the same be implemented by March 30, 2004.
- Indexation of bus fare to input–cost be introduced by December 31, 2003.

- Water rates for all categories of consumers be reviewed in such a way that it meets atleast 50% of the SBM cost by 31 March 2004 and full OBM expenditure by March 2006.

- Revision of rental arrangements of government houses for ensuring full maintenance be made by 31st March, 2005.

- The process of transferring the minor irrigation schemes panchayats be made effectively from April 1, 2004.

C. Measures Adopted for Expenditure Reforms

With a view to ensuring efficiency in prioritizing expenditure, minimizing the rigidity in expenditure and reducing non–productive expenditure, the following measures were adopted by the Government of Tripura:

- Intensifying the process of control of non–plan revenue expenditure provided in MTFRP.

- Fitting the governmental positions falling vacant from April 2002 purely on need bases. Excepting the police department, appointments in all other sectors like rural development, agriculture, public works, health, education etc., be made on need basis and contract basis.

- The system of engaging workers under the works charge rules as well as under departmental standing orders be completely discontinued from April 2003.

- No new government aided schools be started with effect from April 2003.

- The existing formula of non–salary grants to added institutions be reviewed by June 30, 2003 and frozen thereafter in nominal terms.

- Priority sector spending consistent with MTFRP projections be provided for in the 2003–04 budget and switch over of priority sector spending to non–wage OBM be operationalized.

- The process of DA release to employees and pensioners be staggered.

D. Fiscal Sustainability and Transparency :

In view of the uncontrollable growth of interest liabilities leading to debt–trap situation the Government of Tripura under the MTFRP emphatically decided to decelerate the growth of debt stock as a ratio to GSDP in a phased manner over a period of five years. Moreover, in the light of high rate of interest on part loans, it was agreed to swap old loans with high interest with low interest loans. Towards this end the following steps were adopted:

- Reduction of debt component in annual plans.
- Limiting total net borrowing for meeting negative BCR.
- Wiping out negative BCR and generating revenue surplus for capital formation and developmental activities.
- Exchanging additional borrowing at low interest rate from Government of India to swap costly loans.
- Avoiding off budget measures.

While targeting the MTFRP the government seriously took into account the limitations justifying its inability to control additional expenditure arising out of the following:

- Additional expenses relating to security against insurgency.
- Additional expenditure resulting from any policy direction either from the Central Government or the Court of Law.
- Additional revenue expenditure incurred on account of transfer in the past from plan to non–plan categories as per the requirements of the Eleventh Finance Commission.

Recognizing the failure of the state PSUs in generating profits, the state government had no other option but to put a cap on providing government guarantees to such PSUs. Towards this end the state government firmly decided to withdraw economically unviable PSUs which for a continuous period of time have been generating unnecessary liabilities for the government and adopted the following measures:

- To make every possible effort to maintain consolidated debt within the prudential limits.
- The issue of putting a legislative ceiling on guarantees be considered and suitable legislation be passed during 2003–04.
- A monitoring cell be created by December 30, 2003 for monitoring government debt, off budget borrowings and other contingent liabilities.
- Appropriate fiscal liabilities and management bill be passed by the government.

E. Restructuring and Privatization of PSUs/Cooperatives

In order to improve the financial performance of Tripura Road Transport Corporation the following steps were evolved to be adopted:

- Periodic revision of fares linked to an index and based on cost of measured inputs be made. To this end indexation of fares was to be completed by June 30, 2003.

- Downsizing the total employment to achieve an optimal bus staff ratio to 10.0 over a period of five years through VRS, outsourcing services or enlarging the size of operating fleet be initiated.

- The performance of cooperatives where the State Government has a major stake, be reviewed by December 31, 2003.

- To intensify the steps initiated by the Government for involving private sector with a view to bringing down budgetary support to zero level by 2004–05.

- Introducing VRS depending upon the availability of central assistance to Tripura Jute Mills Limited.

F. Budgetary Reforms

In compliance with the requirements of the Eleventh Finance Commission for introducing necessary modifications in the structure of budget making so as to maintain transparency in respect of salaries and allowances of staff employees pension and terminal benefits, subsidies and outstanding guarantees provided by the state government, the following steps were intended to be adopted:

- Introduction of a separate schedule in the budget indicating total expenditure in salaries and allowances and the number of government employees with departmental categorization.
- Introduction of a separate schedule indicating pension and retirement benefit for :
    - Super annuating and retirement allowance.
    - Commuted value of pension.
    - Gratuity
    - Family pension
    - Pension to legislators

- Introduction of a schedule on guarantees indicating the total amount of guarantees for various types of institutions.

- Introduction of a schedule on direct subsidies for various departments.

All the above mentioned reforms undertaken by the Government under the MTFRP aimed at restoring the fiscal health of the state by improving the system of governance and services delivery and greater private sector participation in the critical areas of infrastructure so as to attract private investment including FDI and fostering economic growth through progressive reduction of the incidence of poverty.

4.8. Issues

- Raising the Tax–GSDP Ratios:
  - Widening and deepening of tax base particularly on services for enhancing the buoyancy in indirect taxes.
  - Speedy implementation of state level VAT in line with CENVAT.
  - Restructuring the stamp duty and registration fees and merger of Motor Vehicle Tax with the state VAT.
  - Additional resource mobilization effort through professional tax and state excises on liquor.

- Augmenting non–tax revenues.
- Expenditure Reforms:
  - Maximizing allocating efficiency in public expenditure through restructuring of public expenditure towards priority sectors and towards maintenance of capital assets.
  - Downsizing and rightsizing of the government departments.
  - Revamping the strategy of plan expenditure.
  - Expediting the process of pension and subsidies reform programmes.
  - Reorientation of state public sector undertakings by way of progressive and targeted reduction of revenue and fiscal deficit.

- Debt related reforms:
  - Optimizing the debt swap scheme.
  - Exploring the possibilities of reduction in interest liabilities.

- Examining the fiscal incentive schemes:
  - Specifying the targets for a Medium Term Fiscal Reforms Programmes.

- Monitoring and evaluation of the implementation of Fiscal Responsibility Bill/Act.

- Financial accountability through systematic budgeting, accounting and performance appraisal.

- Augmenting the resource mobilization efforts of the rural local bodies.

- Enlargement of the divisible pool of financial resources and formulation of progressive criterion of devolution which could lead to increased devolution to north–eastern states particularly Tripura.

- Monitoring central board and restructuring the interest rate policy.

CHAPTER–V

DEVELOPMENT OF FOREST RESOURCES AND NATIONAL MISSION PROGRAMMES

Tripura is endowed with vast natural resources and the recorded forest area is 60% of the geographical area of which reserved forest constitutes 57%. The forests are mainly tropical evergreen, semi-evergreen and moist deciduous. Bamboos are also common. Considering the growing stock hard wood miscellaneous forests, hard wood, bamboo forest and plantations occur over substantial areas and account for total volume of 11.879 million cum of available timber. The present system of management lays emphasis on increasing the productivity in natural forests. The forest perspective plan drawn up by the state envisages 2.33 lakh ha. of afforestation in ten years with financial implication of Rs. 473 crores. Biodiversity conservation, ecological restoration of degraded forests and economic upliftment of tribals and rural poor by enhancing employment generation opportunity are the highlights of this plan.

5.1. Current Status of Forest Sector in Tripura:

A. Forest Resources:

Recorded forest area is 0.63 million ha constituting 60% of the total geographical area of the state.

Table 5.1:

Status	Area (km^2)	% of geographical area of the state
Reserve Forests	3588.183	34.20
Propsed Reserve Forests	509.025	4.85
Unclassified Govt. forests	2195.473	20.93
Total	6292.681	59.98

According to legal status, Reserved Forests constitute 57%, Protected forest 8% and un- classed forest 35% respectively.

The forests in the state are mainly tropical evergreen, semi-evergreen, and moist deciduous. Substantial area is covered with bamboo brakes, which virtually form a “sub climax” resulting from shifting cultivation from time immemorial.

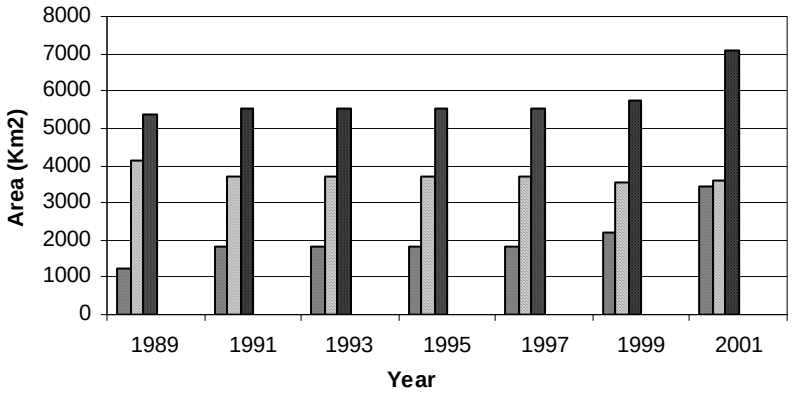


Fig.1. Forest cover classification

B. Forest Types:

According to classification of Champion & Seth (1968) the forests of the state have been classified in the following six types.

Table–5.2: Forest types and area

Types of forests		Area in Km2
1.	East Himalayan lower Bhabar Sal	87.77
2.	Cachar Tropical evergreen Forest	150.94
3.	Moist mixed deciduous Forest	550.28
4.	Low Alluvial Savanna woodland	1316.82
5.	Moist mixed deciduous forests, dry bamboo brakes	1230.04
6.	Secondary moist bamboo brakes	397.09
Total		3732.94

i. East Himalayan Lower Bhabar Sal:

These forests are dominated by sals which form high forest constituting 60-90% of the top canopy which is 25- 40 m high and in undisturbed forest, fairly close and regular. A feature of sal which is important is its semi evergreen habit with a deciduous period of only 5 to 15 days at the beginning of hot weather. Shrubby undergrowth is usual, the shrubs being mostly semi-evergreen. Climbers are few. Canes occur only as a fringe along swampy streams. Bamboo is typically absent but may be present on dry or wet sites especially in open crops. This forest type is found on alluvial loamy soil and sal regeneration takes place following fire incidence.

Cachar Tropical Evergreen Forests:

Large tall evergreen trees form the bulk of the main canopy. Single giant Dipterocarp and similar trees or groups of them may project above the general level. The number of species is very great. Deciduous trees are few. The middle and lower canopies are dense, evergreen and of varied nature. Bamboos are also found. Canes and other climbers are abundant and epiphytes are numerous.

ii. Moist Mixed Deciduous Forests:

These forests are of good density and are of deciduous and evergreen species. A top canopy can be distinguished as also the under-storey and a thick under growth. These forests probably escaped jhuming in the past and occur over number of small areas in isolated pockets.

iii. Low Alluvial Savannah Woodland:

This type of forest is found on the more stable riverain flats which tend to be flooded during the rainy season but which dry out during the rest of the year. The soil is alluvial, mainly sandy with local clay patches particularly in depressions. There is usually a thin surface layer of loam soil with more or less humus. Fires are an annual feature .

iv. Moist Mixed Deciduous Forest / Dry Bamboo Brakes:

This is characterized by dry type of poor quality bamboo resulting due to continuous jhuming. Due to jhuming followed by heavy erosion, the soils have become very impoverished and desiccated resulting in this dry type of poor quality bamboo forest. This is a seral type of forest dominated by muli bamboo mixed with thatch, scrub jungle and some fire hardy miscellaneous tree species.

v. Secondary Moist Bamboo Brakes:

This is a better type of bamboo forest where the conditions are more moist and growing in areas, which have escaped jhuming. These bamboos grow in gregarious form.

5.2. Forest Composition and Growing Stock:

Inventory survey carried out by the Forest Survey of India in the year 1991 (Report on Forest Resources of Tripura) gives average no. of stems and volume per hectare (in all strata ie. miscellaneous, miscellaneous with bamboo, plantation, and shifting cultivation).

The growing stock is as follows:

Table–5.3: Forest growing stock.

Stratum	Area (in Km2)	Forest area (% of geographical areas)	Volume (m3/ha) (weighted average)	Total volume (million m3)
Hard wood misc. forest	1829	17.43	26.178	4.788
Hard wood (misc. mixed with bamboo)	484	4.15	29.839	1.444
Bamboo forest	938	8.94	9.073	0.851
Plantation	2066	19.69	20.69	4.275
Shifting cultivation	975	9.29	5.339	0.521
Grand total	6292	59.50	-	11.879

A. Growth Potential Of Plantations:

Blessed with high rainfall, humidity and nutrient rich soil, the forests of the state are in very high productivity zones. Excellent silvicultural conditions prevail for forest production. According to Patterson's CVP (climate, vegetation and precipitation) index (1000-5000) the potential productivity is estimated to be 9-12 m3/ha/year. Research statistics corroborate the fact and following table shows that Annual Increment (MAI) of commercially important trees in plantations is quite high.

Table 5.4: Growth potential of plantations

Species	Age (in year)	Volume (m3/ha)	MAI (m3/ha)
Teak(Tectona grandis)	20	248	12.40
Sal (Shorea robusta)	20	181	9.05
Gamhar(Gmelina arborea)	20	335	16.75
Chamal (Artocarpus)	20	235	11.75

On the basis of inventories of FSI in 1974 and again in 1989 and other related information, the MAI of natural forests has been calculated as 3.61 m3/ha/year. The allowable cut of wood/ annum from forest has been assessed as 1.526milliom m3 (0.041million m3 timber+ 1.485million m3 fuel wood).

Thus there is a large gap between potential and actual productivity, and generally poor actual productivity in natural forests is due to anthropogenic stress and this is a matter of concern because rising demand and poor productivity lead to the cycle of low productivity to resource degradation of more area to further lower productivity.

There are 50 plant species restricted to Tripura and its neighbouring states. Of these 7 are endemic to Tripura. There are 18 rare plants. A fern, angioperis evecta, and a giant climber, gnetum montanum, are two rare

plants that occur in good numbers in Trishna sanctuary. There are 7 endangered plants in the State and 2 primitive plants available in the forests. Tree ferns (cyathia spp.) which are also primitive and highly endangered can be found in South Tripura. There are 266 species of medicinal plants in the State (68 trees, 39 shrubs, 71 herbs, and 88 climbers).

B. WILDLIFE

The protection of wildlife has a long tradition in Indian history. Wise use of natural resources was a prerequisite for many hunter-gatherer societies, which date back to at least 6000 BC. Extensive clearance of forests accompanied the advance of agricultural and pastoral societies in subsequent millennia, but an awareness of the need for ecological prudence emerged and many so-called pagan nature conservation practices were retained. As more and more land became settled or cultivated, so these hunting reserves increasingly became refuges for wildlife. Many of these reserves were subsequently declared as national parks or sanctuaries, mostly after Independence in 1947.

Wildlife, together with forestry, has traditionally been managed under a single administrative organization within the forest departments of each state or union territory, with the role of central government being mainly advisory. There have been two recent developments. First, the Wildlife (Protection) Act has provided for the creation of posts of chief wildlife wardens and wildlife wardens in the states to exercise statutory powers under the Act. Under this Act, it is also mandatory for the states to set up state wildlife advisory boards. Secondly the inclusion of protection of wild animals and birds in the concurrent list of the constitution has proved the union with some legislative control over the states in the conservation of wildlife. The situation has since improved, all states and union territories with national parks or sanctuaries having set up wildlife wings.

It is estimated that there are 90 mammal species in Tripura representing 65 genera and 10 orders. 7 primate species have been reported from Tripura out of a total 15 found in India. Of these primates low loris and stumped tails monkeys are on the rare list. Phayres leaf monkey locally known as Chasma banar and hoolock gibbon are also found in Tripura.

Ornithofauna comprise 342 reported species in the state. 58 species of migratory birds have also been reported. From the aquatic ecosystem 47 species of fish have been recorded. Due to silting of river beds and filling up of the wetlands, different species of marsh birds and fishes are on the decline.

Survey has revealed that about 10% of the plant species and 21% of mammals are currently endangered. The causes include habitat loss and fragmentation, invasion by exotic species, over-exploitation of resources and deforestation.

i. Protected Area Network:

The protected areas represent diverse ecosystems and wildlife habitat. They are spread over the entire state and are prioritized for protection and conservation of floral and faunal diversity.

Bio-diversity of the State is dwindling at an alarming rate. In order to conserve and develop bio-diversity in-situ, a network of 4 sanctuaries have been established.

Wildlife Sanctuary And Important Animals

Table–5.5: Wildlife Sanctuaries

WL sanctuaries	Area (sq.km)	Wildlife
Rowa	0.858	Many species of birds and primates
Sepahijala	8.53	Birds and primates, migratory birds in the winter
Trishna	194.70	Bison, leopard, barking deer, wild

		dog, capped langur, king cobra, spectacled monkey and slow lorries.
Gumti	389.54	Elephant, samber, barking deer, wild goats and sarrow
Total area of WL sanctuaries	603.628	

Source: As per latest census report, which was conducted in Tripura during the year 1989.
North Tripura District - 9 Leopards and 58 elephants.
South Tripura District - 25 Leopards, 92 bison and 102 elephants.
Tripura District - 5 Leopards and 22 elephants.

Notification under section 26(A) of WL (P) Act is yet to be issued for all the four sanctuaries. Proclamation of the Collector under section 21 has been issued. The PA's are isolated as islands amidst agricultural land and human settlements. These are under tremendous stress and man and animals conflict is on the rise. Identified areas of actual and potential conflicts with surrounding population are, unauthorized collection of timber, fuel wood and NWFP.

In addition of in-situ conservation efforts, Sepehijala Zoo has been established for ex-situ conservation measures. The zoo houses 543 animals (as on 1.4.2003) belonging to 53 different species. Captive breeding programme on selective animals such as leopard cat, binturong, spotted deer and primates with awareness promotion efforts have been launched.

a. Proposals for New Wildlife Sanctuaries in Tripura:

An administrative proposal has been sent to the department of forest, Govt. of India to setup three more new wildlife sanctuaries in Tripura. These three new more proposed sanctuaries are Longtarai Wildlife Sanctuary (100 sq. km.), Atharomura Wildlife Sanctuary (90 sq. km) and Central Catchments Wildlife Sanctuary (75 sq. km.) in the Shakhan, Shermun hill ranges.

The state does not have even a single National Park and considering the importance of wildlife conservation this may be given consideration.

Scientific studies need to be undertaken to determine the carrying capacity of the various ecosystem to ensure habitat suitability especially for herbivore populations. The aquatic systems need to be effectively managed to encourage the visits by migratory birds. Protection with the help of local communities needs to be streamlined for effective conservation. Wildlife areas in the present day context along with the forest areas are serving as the ideal tourist destination especially in the context of eco-tourism. The state can earn substantial revenue from eco-tourism in the days to come.

C. Biodiversity:

Tripura has vast natural resources as it lies in a strategic zone between the Indo-Malayan and Indo-Chinese biological realms. It accounts for 12.78 per cent of the plant resources found in the country. Tripura has been listed as one of the 26 endemic centres in India. Records indicate that it possesses 1545 plant species with 28 varieties, 379 tree species, 320 shrubs, 581 herbs, 165 climbers, 34 ferns, 45 epiphytes, 4 parasites and 16 climbing shrubs out of which 7 are endangered, 7 are endemic and 18 are rare species. The State also has 24 species of orchids and 266 species of medicinal plants. The faunal diversity is represented by 90 species of which 21 are endangered. Of the 15 non-human primates, 7 have been recorded in the forests of Tripura, including Phayres the rare spectacled monkey. It has 78 fish species and 341 bird species of which 58 are migratory in nature.

Habitat destruction and fragmentation has however resulted in the wildlife being confined to the sanctuaries. The State Government adopted the Biodiversity Strategy Action Plan (NBSAP) in July 2000 to strengthen the concerted efforts for preservation of nature and natural resources in the State. As per the need of the hour, the State's bio-diversity strategy action plan emphasizes more on people's involvement to save nature and its resources. Further to promote in situ conservation, it has been decided to set up 30 Biological Hot Spots under the NBSAP e.g. Killa for elephant corridor, Unakoti for clouded leopard, white bear, wild dogs, gibbon, loris, langurs and

python; Jampui for hoolock gibbon and rhesus monkey; Kalapania for turtles, python, snakes, primates; Bidyabill for elephants, endemic flora, hoolock gibbon; Paharpur for elephant, wild dog, migratory birds, porcupine, loris and endemic flora; Maharani for elephant migratory corridor and its dense natural forests, langurs, bears, wild dogs, python and Kacharicharra for hoolock gibbon, rhesus monkey, deer, python, bamboo and canes. Besides, ex situ conservation efforts have also been initiated and a zoo is being maintained. To make these efforts successful, the peoples awareness and participation is also being given due importance in the state and the enactment of the three-tier Panchayati Raj System is a step in this direction.

i. Threats to Biodiversity:

Wildlife conservation in India has met with tremendous success but protected areas management is beset with problems of inadequate fund allocation, a reluctance on the part of the states to establish national parks and sanctuaries because the land is lost forever for other uses, insufficient magisterial powers for wildlife staff to deal with poachers, difficulties of communication in often remote areas, and lack of trained manpower at lower levels.

Major threats to wildlife and habitats are caused by the huge population density, land hunger and shortages of fuel and pasture. Forest fire is a problem in many areas as is overgrazing by a huge population of cattle that cannot be killed under Hindu beliefs. Hunting is a problem in areas where indigenous tribals still live which happen to be the wilder and moister parts of the country where most biodiversity resides. Grazing of wildlife in reserves and conflicts between reserve authorities and local people e.g. tiger and lion kills and grazing rights, are routine issues. These problems are ameliorated by a deep tradition of tolerance and respect for wildlife and a growing popular sympathy for conservation efforts.

ii. Biodiversity Status:

The biodiversity of state is dwindling at an alarming rate and survey has revealed that about 10 % of plant species and 21 % of mammals are currently endangered due to habitat loss and fragmentation, invasion by exotic and over exploitation of resources and deforestation. The protected area network addresses the needs for conservation and development of biodiversity in-situ.

5.3. Contribution of Forestry Sector to Rural Economy:

While the annual revenue from forests in the State is around Rs.300 lakhs, the subsidy that flows to the rural economy on account of free removal of only five items of forest produce has been conservatively estimated to be Rs.12,926/- lakhs, which is about 5.57% of State Domestic Product (SDP). This does not take into account edible fruits, tubers, medicinal plants and many other non timber forest produce. Recorded/unrecorded removal/use of aforesaid five categories of forest produce is estimated as below:

Table 5.6:

PRODUCE	RECORDED REMOVAL (MILLION UNITS)	ACTUAL REMOVAL (MILLION UNITS)	UNRECORDED REMOVAL (MILLION UNITS)	VALUE PER UNIT (RS.)	VALUE (IN RS. LAKHS)
TIMBER	0.012	0.046	0.034	2000/M3	680
FUELWOOD	0.043	2.236	2.194	200/M3	4388
THATCH	0.13	0.343	0.213	80/TON	170
FODDER		1.53	1.53	500/TON	7650
BAMBOO	109.76	184.26	75.50	50000/MILLION	38
TOTAL					12926

A. Present System of Management:

The Reserve Forests of the state are interspersed with private lands and innumerable habitation. Encroachment upon forest areas is a regular feature along with the practice of shifting cultivation, grazing and frequent fires. The existing productivity in natural forest is below 1m3/ha /year though potential productivity of these forests was supposed to be 9-12 m3 /ha/year. This indicates the significant difference between existing productivity and potential productivity. While the forests of moist mixed deciduous character have been attempted to be retained and improved for productive and protective purposes, the forest, which are with the dry bamboo brakes or savannah in character, have been suggested to be replaced with economically important species.

The present thrust of management encompasses :

- Conservation and extension of existing forest areas for water and soil conservation.
- Increase stocking productivity and yield by improving the forests through artificial regeneration methods.
- Exploitation of existing forest resources on sustained yield basis without harming the environment
- Maintenance and improved productivity of bamboos
- Improvement and production of important minor forest produce.
- Conservation of soil cover

- Efficient wild life management
- Economic upliftment of local tribals by meeting their requirement of forest produce and also employment generation.
- To meet these objectives working circles have been formed as follows:

i. Teak Working Circle:

This circle looks after the works of raising teak plantations in open areas along with indigenous species without felling of existing species. The silvicultural system proposed involves clearing of herbs and shrubs followed by artificial regeneration of teak.

ii. Plantation Working Circle:

This circle looks after the maintenance and management of all the plantations of various species either in pure or mixed form, which was raised earlier, and also to convert the open deciduous forests or areas supporting grasses with other valuable indigenous species with a aim to increase the forest cover and consequent value addition. The silvicultural system involves clearing of herbs, shrubs, poles of ordinary species followed by artificial regeneration by indigenous species.

iii. Protection and Improvement Working Circle:

The object of this working circle is to protect and improve the patches of evergreen and semi-evergreen species as well as muli bamboos. The Silvicultural system proposed involves removal of dead, dying and over matured stocks and supplementing existing coverage with artificial means of afforestation.

iv. Bamboo Working Circle:

This working circle looks after the management of muli bamboo (Melocanna bambusoides). The silvicultural system adopted is selection system with a felling cycle of three years.

v. Minor Forest Produce Overlapping Working Circle:

This working circle has been created for scientific extraction of minor forest produce namely bamboo, thatch, arjun flowers etc. This is an overlapping working circle.

vi. Plantation Rehabilitation Overlapping Working Circle:

During 1983 it was decided by the Govt. of Tripura to rehabilitate Tribal jhumias in reserved forest by giving them incentive and alternative means of livelihood for economic upliftment to wean them away from jhum cultivation. Under this programme forestry plantations are being raised besides other plantations for the economical upliftment of selected beneficiaries. These beneficiaries have no right over the forestland but they have usufructuary right over the produce.

B. Status of Working Plans:

The Supreme Court has made it mandatory to get the working plans of every forest division approved by the MoEF to facilitate scientific management of the forest.In this regard the Govt. of Tripura has initiated action and of the 9 forest divisions, working plans for Kailashahar and Gumati Forest Division have been approved. Working plans for Manu and Teliamura have been sent to the MoEF for approval. Working plans for the remaining five-forest divisions ie Kanchanpur Ambassa, Sadar,Udaipur,Bagafa are under preparation.

C. Forest Perspective Plan:

Tripura government has recently announced a Rs 473 crores Ten Year Perspective Plan for afforestation of 2.33 lakh hectares in the state.The main objectives of the perspective plan are Bio-diversity conservation, Ecological restoration of degraded forests and economic upliftment of tribals and rural

poor by enhancing employment generation opportunities. Perspective plan also includes in-situ and ex-situ conservation of wild life, protection of existing forests, development of eco-tourism, strengthening of policy and institutional framework, expanding tree cover beyond forest areas, research and development. Of the 2.33 lakh hectare areas to be afforested during the ten years period from 2002-2012 a total of 25,000 hectares are government land, 26,500 hectares are land under private holding and 1,81,500 hectares forest land. Of the Rs 437 crore for the perspective plan, Rs 254 crore would be available from the external funding agencies, Rs 100 crore from the central and state sector schemes, Rs 95 crores from the non- lapsable pool (Special Central Assistance), Rs 15 crores from the forest revenues. Of the 2.33-lakh hectares to be covered under the Ten Year plan, 2000 hectares and 31,000 hectares would be brought under the medicinal plantation, bamboo and cane plantation respectively.

D. Strategies for Future Forest Management in Tripura:

Planning is an active process requiring careful thought about what could or should happen in the future and involves the coordination of all relevant activities for the purpose of achieving specified goals and objectives. Planning is an integral component of forest management and involves determining and expressing the goals and objectives of government, rural communities and industrial requirements for deciding the targets and steps that should be taken in order to achieve those objectives.

Planning requires clear objectives, imagination and a willingness to consider all points of view having relevance to a given situation. The planning process should lead to the formation of a balanced outlook from which proposals for effective management can be written. An element of flexibility is desirable and necessary, however, in order to cope with unforeseen events, which could affect the achievement of the objectives.

A range of information is used in planning to evaluate the benefits and drawbacks of alternative courses of action, which enables preferred options to be determined and coordinated with other activities.

Balance between Production, Social and Environmental Objectives:

Besides timber, many communities depend heavily upon non-wood forest products for subsistence and as a basis for local trade, for example, canes, medicinal and food plants, gums, resins and wildlife. Forests are an essential source of energy for many communities, directly through burning of wood for cooking and heating and indirectly to protect watersheds as source of water. They have an important role in protecting physical and biological environments at local and provincial levels. Forests are dwelling places for many people and are increasingly of value for recreation and tourism, notably "eco-tourism". They are important havens for wildlife and are the habitats of many endangered species of plants and animals. It is essential in forest management planning to achieve a balance between the long-term objectives and that of wood production, social and environmental management objectives

5.3. Joint Forest Management and Rehabilitation of Various Areas:

The Government of Tripura passed its JFM resolution on 28 Dec. 1991 for the purpose of active participation and involvement of local communities in development and protection of forests on the basis of usufruct sharing. Following the issuing of fresh guidelines by the Government of India dated 21st February 2000; the Government of Tripura revised the original JFM resolution,

The progress is as hereunder:

Table 5.7:

Name of Division	No. of FPRC	Project Area (ha)	Plant Area (ha)	No. of families involved			
				ST	SC	Gen.	Total
Sadar	16	1253	340.00	163	37	289	489
Teliamura	33	8000.00	3397.00	1498	77	65	1640

Sepahijala	-	-	-	-	-	-	-
Research	1	230	115.00	32	92	106	230
Total W.C.	**50**	**9483.00**	**3852.00**	**1693**	**206**	**460**	**2359**
Manu	12	1900.35	479.50	591	9	3	603
Ambassa	12	725.00	112.00	26	51	8	85
Kanchanpur	19	2035.00	380.00	754	8	8	770
Kailashahar	12	800.00	64.15	92	10	43	145
Total N.C.	**55**	**5460.35**	**1035.65**	**1463**	**78**	**62**	**1603**
Gumti	24	4600.00	1973.63	950	63	28	1041
Udaipur	56	1735.44	1165.28	514	123	1113	1750
Bagafa	33	1963.00	1963.00	1069	195	77	1341
Trishna wls	6	235.00	95.00	115	51	43	209
Total S.C.	**119**	**8533.44**	**5196.91**	**2648**	**432**	**1261**	**4341**
Grand Total	**224**	**23476.79**	**10084.56**	**5804**	**716**	**1783**	**8303**

A. Present status of JFM :

In the state of Tripura 91 VFCs /FPCs have been registered till 31.3.2000 and they are involved in the running of 133 projects related to forestry activities especially regeneration with a target of 7106.15 ha.

Given the vast areas of degraded forest, policies and programs should emphasize facilitating ecological restoration through community-imposed access controls. Ecological restoration offers opportunities to restore the productivity and environmental functions of degraded forestlands. The opportunity to reestablish a healthy forest environment should be made increasingly attractive to the local communities who are experiencing microclimatic changes and resource scarcities, to ensure their full involvement with the project.

a.Shifting Cultivation:

✓ **Extent and Impact:**

Large quantity of forest vegetation is burnt in the shifting cultivation and the forests are in danger of disappearing if adequate steps are not taken to arrest its degradation and destruction. With burning of forest vegetation, there is loss of wild life, flora and fauna, wild plants of diverse gene pool and

rare orchids. During shifting cultivation on an average 50 to 80 tones of dry matter is burnt per ha, depending on the shifting cycle. Besides, creating, atmospheric pollution, it causes ecological and soil degradation. As the sustained production of forest eco-system is closely linked to their nutrient cycle as greater percentage of nutrients is contained in the biomass. Strained forest productivity in acid soils requires the use of techniques, which reduce nutrient export, increase nutrient accumulation in the biomass, increase efficiency of nutrient absorption and utilization and conservation of water. The hilly areas of Tripura are becoming increasingly deforested and denuded due to over- exploitation and shifting cultivation. Biotic and abiotic interferences have caused considerable degradation to natural resources such as soil, water and forest to the extent that flow of rivers becomes destructive during flooding and insufficient during dry seasons. Soil conservation measures and afforestation will play a definite role in reducing runoff and control of damage caused by excessive runoff. Shifting cultivation is a common practice with the tribal population of Tripura and as per the SFR 2001 report; an area of 400.88 Sq. Km is affected. Soil loss to the tune of 2 to 200 t/ ha/year has been reported leading to drastic fall in soil fertility and biological productivity. The shortening of jhum cycle from 5-6 years to the present day 2-3 years results in irrevocable loss of soil fertility. Soil under shifting cultivation areas shows acidic pH, which declined with reduction of jhum cycle. Soil organic matter also decreased due to shifting cultivation. Low aromatic condensation of humic acids, low cation exchange capacity, decline in exchangeable cation in soils due to leaching losses in sloppy areas, decline in soil nitrogen availability, low phosphorus availability and a decline in available potassium under shifting cultivation has been reported.

About 10% geographical area is under shifting cultivation in Tripura as against 25% area under plough cultivation(net area sown being 2439.50 sq. km.).

The Tribal Bench Mark Survey Report, 1978, brought out by the Department of Tribal I Welfare, Government of Tripura, indicated that the number of jhumia families was, 46857. Out of this, 23292 were fully dependent on jhuming and the rest 23655 were partly dependent on jhuming. A subsequent survey report in 1987 by the same Department put the number of jhumia families at 55049, out of which 21677 were fully dependent and 33372 were partly dependent on jhuming.

A study on shifting cultivation in Tripura; sponsored by the Government of Tripura and carried out by the Agricultural Finance Corporation Limited in 1983, indicated that 77% households were practicing jhuming. Some of the other findings of the report are as follows:

- 67% of sample household reported that the reason of jhuming is the non-receipt of any assistance from the government for giving it up.
- More than 60% said that they would not give up jhuming as it gives supplementary source of income.
- Only 5% of jhumias families had received financial assistance from the Govt. for giving up jhuming. Of these, 63.5% had actually given up jhuming.
- About 39% of the households cited the difficulties connected with other occupations (e.g. problems of supply of inputs required for other kind of productive activities, etc.)
- Jhumias prefer plantations and fruit growing as long term measures and animal husbandry, pisciculture, and cottage industry as srort-term measures for their economic rehabilitation.

5.4. Development of Non–Wood Forest Products:

The use of non-wood forest products (NWFPs) is as old as human civilization and was the main source of food, fodder, fibre, medicine, cosmetics, etc. The present day agricultural and horticultural plants were also derived from these wild stocks from forest areas. During the course of history, some 12,000 plants have been used for food but only about 2,000 have been domesticated and only about 150 commercially cultivated. Presently about 30 species provide 90 % world's food supply. For millennia, the rural people and forest resident communities have derived sustenance from forests mainly through harvesting and use of the NWFPs. Many important products are now commercially exploited for use all over the world. It will be appropriate to categorize the important NWFPs under following use-based groups:

Fibre: Bamboo, Cane, Rattan, Grasses, Hemp, etc.
Medicinal Plants: A very large group of plant parts used in traditional and modern medicine (35,000 to 70,000 species used all over the world).
Edible Products: Flowers, Nuts, Fruits, Roots, Rhizomes, Spices, Gums, Oils, Honey, Mushrooms, Animal Products, etc.
Exudates: Gums, Resins, Copal, Damar, Rubber, Latexes, etc.
Industrial Oils: Neem Oil, Tung Oil, Shorea seed Oil, Jojoba Oil, Shea-butter, etc.
Essential Oils: Anise, Cedarwood, Citronella, Sandalwood, Vetiver Oil, etc.
Tans and Dyes: Katha/Cutch, Wattle, Annatto, Kamala, Henna, etc.
Miscellaneous: Bidi Leaves, Soap Nuts, Agar Woods, Pyrethrum (pesticide), flowering plants, orchids, etc.

A. Socio-economic Aspects of NWFPs

In the developing countries, vast number of rural population specially the forest dwellers depend on NWFPs for various levels of use.

- Subsistence

- Income & Employment Generation
- Commercialization and Sustainable Use
- Cultural and Spiritual
- Distribution of Benefits

Non Wood Forest Products (NWFPs) represent a vast untapped major resource of Tripura State whose full ecological and economic potentials remain underutilized; it needs to be recognized, developed and promoted in a manner ensuring ecological security for all round sustainable development of the State and well being of its people. NWFPs are the essential component of forest eco- system, which is a dominant feature of state's landscape.

Following are the major NWFPs of Tripura:

Katha,
Gums and Resins,
Rubber
Shellac
Medicinal plants
Aromatic plants
Bamboo and Cane
Khus
Broom grass
Aonla
Harad
Behera
Mushrooms
Orchids
etc.

B. Socio-Economic Status

The economy of the State is primarily agrarian with majority of the people practicing jhum cultivation. There are no major industries in the State to provide regular source of income to the people. About 50,000 persons

alone are employed in various Government and Semi-Government undertakings, which reckons to 6% of the total population. There are 4334 nos. of SSI units as on 1.4.1998 besides people practice poultry, piggery, pisciculture and dairy in the homestead. Per capita income of the State in 1996-97 is Rs.13,360. People are also engaged in sericulture, weaving, knitting and tailoring, bakery, workshops, trade, and in various cottage industries. Although literacy level in the State is 88.84% (2001 Census provisional figures), second in the country, lack of infrastructure development, remote location, poor market linkages, inadequate power supply has resulted in slow pace of industrial development in the State. Difficult topography and limited flat terrain (Just around 3%) has also attributed to economic backwardness.

Jhum cultivation has become unproductive owing to frequent exposure of soil as is evident from the reduction of jhum cycle from 20-25 years to 4-5 years. Soil, moisture, vegetation, and bio-diversity loss has rendered large area refractory and unsuitable for jhuming. Presently jhum cultivation is practiced by burning standing forests which in itself is a great loss in term of revenue.

C. Depleting Scenario of NTFPs in the State

The survey on status of flora identifying 379 species of trees, 320 shrubs, 581 herbs, 165 climbers, 16 climbing shrubs, 35 ferns, 45 epiphytes and 4 parasites (Total 1,545 taxa) reveal that there are 50 plant species restricted to Tripura and its neighbouring states. Out of them 7 are endemic to the state. Rare plants of Tripura have been put to 18 numbers. Two rare plants Anglopteris eveeta, a fern and Gneturn montanum, a giant climber belonging to Gymnosperm occurs in good numbers in Tripura Sanctuary. The former is a species marked are by Botanical Survey of India and the later is a deviation from normal Gymnosperm. There are 7 endangered plants in the forests. Three ferns (Cyathia spp.) which are also primitive and are now highly endangered are also found in South Tripura. There are 24 species of

orchids and Dendrobium has the highest species diversity (14 species). Endangered orchids like Blue vanda (Vanda caerulea) and Red vandal (Renunthera imschootiana) are available. There are 266 species of medicinal plants in the state (68 trees, 39 shrubs, 71 herbs and 88 climbers).

As NWFPs resource becomes scarce, access of poorer sections declines due to competition from outside, other collectors and middlemen as well as new restrictive government regulations for earning royalty. Such a situation calls for a reorientation of the government policies to prevent over exploitation of natural resources as well for ensuring equity in distribution of benefits to the local gatherers and primary processors.

5.5. Bamboo and Cane Resource Base in Tripura

Bamboo is one of the most important non-wood forest resources extensively used by tribals and rural poor in Tripura. While it plays an important role in the economy of the State and in subsistence activities, employment generation and household income, the economic potential is significantly greater. At present only 1-2% of the total extracted bamboo is used for value addition and this is a matter of concern, keeping in view that bamboo handicraft, with superior design, craftsmanship and fineness has been a traditional activity in the State. It is estimated that around 6.1 million man-days per annum of employment is generated on account of management and extraction of bamboo. Around 1.49 lakh artisans are engaged in value addition in bamboo, producing an estimated annual craft sale value of Rs. 35.34 crores.

The bamboo forests of the state may be fitted into the following types and sub types as per Champion and Seth classification.

- Moist mixed deciduous forests-1/3/3C/C3
- Secondary moist bamboo brakes-1/2/2B/2Si

A. Species of bamboo found in Tripura

There are 15 identified species of bamboo (Haridasan et. al. 2001) in Tripura (Table 5.9) besides which another 4 species are yet to be identified. The bamboo growing stock and yield are depicted in the below given table 5.10.

According to Haridasan *et. al*. 2001, there are seven species of rattan (cane) available in the state (Table 5.11) but their presence is very poor. No estimates of existing growing stock of the species are available.

B. Area under bamboo resource

Taking Bamboo, Bamboo with Miscellaneous and Shifting Cultivation stratum, the bamboo resource base extends over 2397 sq km of forests (as per State Forestry Action Plan) and 109 sq km in smallholdings of farmers outside the forests. *(Source-Bamboo Policy of Tripura 2002)*

C. Productivity of the resource

The total bamboo growing stock for the state is depicted in Table 2. The average productivity of the resource for forests and farm areas is estimated to be 0.73 MT/ha/annum, which is higher than all India average of 0.51 MT/ha/annum but compares very poorly with productivity level of 3.79 MT/ha/annum in China. *(Source-Bamboo Policy of Tripura 2002)*

D. Yield and Utilization

The present level of extraction of 184.26 million numbers/annum is much beyond sustainable yield of 142.60 million numbers/annum, meaning thereby that forced supply to cater the existing demand, is being maintained either by reducing the rotation of the crop or by extending the degradation to non-degraded areas by way of over-exploitation of the crop, thereby resulting in further degradation of the resource. The present utilization of aforesaid extracted bamboo is as mentioned below:

Table 5.8:

Housing	134.69 Million nos.
Supply to paper mill	16.51 Million nos.
Handicrafts	3.20 Million nos.
Agricultural implements	1.47 Million nos.
Other uses	28.39 Million nos.
Total	184.26 Million nos.

(Source-Bamboo Policy of Tripura 2002)

Table-5.9 : Bamboo Species Available in Tripura

Sl. No.	Botanical Name	Common Name	Use	
1	Bambusa affinis	Kanak kaich	Fishing rods and Javelin	
2	Bambusa balcooa	Barak	Construction, Agarbati Sticks	Very common, Agartala, Bishalgarh
3	Bambusa nutans	Makal	Paper industry, Construction	Fairly common throughout the state
4	Bambusa pallida	Kanakkaich	Fencing, Domestic article	Fairly common
5	Bambusa polymorpha	Phaura	Paper pulp, Walls, Floor, Roof	Fairly common
6	Bambusa teres	Paora	Agarbati sticks, Mats, Baskets, Food grain containers	
7	Bambusa tulda	Mritinga	House construction, Pulp and paper, Toys, Mats, Bamboo fans, Wall hangers, Hats, Baskets, Food grain containers.	Fairly common
8	Dendrocalamus calostachyus		Construction, Domestic purpose	
9	Dendrocalamus hamiltonii	Pecha	Construction, Baskets, Mats, Water and milk	Dharmanagar subdivision

			vessels, Walling of native huts, Paper and pulp	
10	Dendrocalamus longispathus	Rupai	Paper and pulp, Basket, Food grain containers	Dharmanagar and Kailashahar
11	Dendrocalamus strictus	Lathi Bans	Construction, Paper pulp	
12	Dinochloa compactiflora		Basket work	Dharmanagar
13	Gigantoloa rostrata	Kailai /Kai		
14	Melocanna baccifera	Muli/ Nali	Construction, Paper Pulp, Mats, Walling, Hats, Baskets, Food grain containers	Dharmanagar, Agartala, Baghpasha, Damchera
15	Schizostachyum dullooa	Dolu	Construction, Basket, Mats	Hill ranges

Table-5.10: Bamboo Growing Stock in Tripura

	Clump forming bamboo		Non-clump forming bamboo	
	Numbers (million)	Weight (MT)	Numbers (million)	Weight (MT)
Average/ha	58.954	94.931	1058.36	1255.08
Total for the state	37093	59415.985	665.92	789695.77

Source-FSI Report, 1993.

Table-5.11: Cane Species Available in Tripura

Sl. No.	Species Name
1	Calamus erectus
2	Calamus floribundus
3	Calamus guruba
4	Calamus leptospadix
5	Calamus viminalis
6	Calamus tenuis
7	Daemonorops jenkinsianus

E. Identification of potential Bamboo species or each Agroclimatic regions for plantations:

Tripura is endowed with about 15-20 numbers of bamboo species and about 939 sq km bamboo reserve.

The State Bamboo Policy has been formulated to develop bamboo sector in the state through a market led community based utiilisation, development and conservation of the resource in the forest and farm areas. Te policy envisages:

- provide a fillip to conservation;
- develop resource, both in forest and farm areas through scientific means such as tissue culture, planned cultivation and improved management using community based initiatives;
- improve utiisation of bamboo;
- Develop effective marketing of bamboo based products.

F. Trade of Bamboo and Cane

In India, the scale of bamboo for pulp production is mainly based on forest area. Paper mill has a large demand for bamboo and buy it directly from the forest or through contractors. Most bamboo is used near the center of production and is used locally by villagers for construction and for other purposes. Most of the trade in bamboo takes place where dealers in building materials and bamboo materials and bamboo for sale. Farmers sale bamboo shoot harvested from their farms to local middle man and bamboo shoot canneries. Agarbatti and BMB industries also purchase bamboo from farmers and contractors. External trade is mainly carried out by Japan, Taiwan and China. It can bring the country large amount of foreign exchange. The export in more than 80 countries was valued at about US $ 116 in1979. Generally the cottage units are located near the cane growing forest of three important region-South India, East and North-East states and Andaman & Nicobar Island. From the rattan growing region, cane is transported through

railways, roadways in the main land and through waterways from island to other places. Off late, the resources crunch was realized in the east and N.E. state, South India due to which inter–state transportation of unprocessed cane was restricted in order to improve raw material supply to local processing industries. The forest department in states like Kerala imposed ban on cane extraction. Both the factors threatened the existence of traditional rattan industries. Major fraction of rattan production is still being exported to the main land from Andaman and Nicobar islands.

G. National Mission on Bamboo Technology and Trade Development (NMBTTD)

The NMBTTD aims to implement an action programme with the objective of placing bamboo as a key component in the National effort to generate employment and mitigate environmental degradation and strengthen the process of bamboo based industrial development including handicrafts. The objectives of the Mission are:

- To use bamboo as a means to reclaim degraded land, conserve soil, improve environment and carry out drought proofing. Bamboo plantation could be an important ingredient in Greening India Programme aiming at raising of the forest cover to 25% by 2007 and 33% by 2012.

- To organize harvesting of bamboo from gregarious flowering areas.

- To expand area under bamboo plantation by 2 million ha in the Tenth Five Year Plan, of which 1 mi ha will be raised in forest areas and other 1 mi ha outside forests. The overall aim should be 6 mi ha in the Tenth and Eleventh Five Year Plan.

- Regular and scientific harvesting and extraction from bamboo stands to avoid/overcome congestion.

- Take steps to improve yield and stabilize the existing bamboo plantation.

- To promote plantation of quality species needed by industry and handicrafts sector with the involvement of JFM Committees, SHGs and NGOs.

- To diversify, modernize and expand the bamboo based industries and handicraft sector by application of modern technology and provide policy and financial support.

- To use bamboo development as an instrument of poverty alleviation and employment generation particularly in rural sector.

- To use bamboo as a means to achieve ecological security. Under the Kyoto Protocol of UNFCC, all countries have to take steps for reducing emission of GHGs through mitigation efforts like afforestation and improving the efficiency of energy consumption.

- To promote organized production and processing of bamboo shoots and its consumption as a part of the national efforts to eliminate micro nutrient deficiency which is widespread among women and children. Popularization of bamboo shoots could also improve the nutritional status of tribals in many parts. This will be in conformity with the Tenth Plan Strategy to make a paradigm shift from overall self-sufficiency in food grains to meet human needs for energy and nutrition.

i. Implementation of NMBTTD in Tripura State:

There are two aspects, which need to be addressed for the Implementation of National Mission on Bamboo Technology and Trade Development in the state of Tripura. First, there is the resource base, which need to be augmented for continuous and uniform supply of raw material for

value addition in various industries. Secondly, the bamboo industrial base need to be augmented by way of imbibing latest technologies, processes and machineries for utilization of resources in order to improve the economy of the people and the state.

H. Augmentation of Resource Base:

Despite the fact that the state is endowed with a large bamboo reserve and remarkable species diversity, there are constraints and knowledge gaps related to raw material. For establishing any bamboo-based industry in the state, there is a requirement of adequate quantities of uniform raw material- the quality being defined by species, maturity, harvesting technique and post-harvest treatment. The inability to meet this requirement will inhibit the development of value-added applications and enterprises.

The quality and uniformity aspect of raw material can be met by raising plantations of the required species from quality planting stock in farm lands (Farm Forestry) agricultural lands (Agroforestry) and forest lands (Joint Forest Management).

i. Augmentation of Bamboo based Industrial Base

a. Bamboo Based Industries:

Though the state is abundantly endowed with bamboo and cane resources, there was no effective utilization of resources available except limited value addition and transportation to other states. At present only 1-2 % extracted bamboo is used for value addition despite the fact that 1.49 lakh artisans are engaged in value addition. TRIBAC- the joint venture of Tripura Government with INBAR is good initiative to provide institutional framework for capacity building, establishing linkages in market chain and to provide necessary forward and backward linkages to the bamboo industry.

ii. Bio-fuels (*Jatropha*):

Owing to the increasing requirements of oil for our energy needs as well as transportation needs, importance of oil cannot be gainsaid. It has been estimated that requirement of motor spirit is expected to grow from a little over 7 MMT in 2001-02 to over 10 MMT in 2006-07 and 12.848 MMT in 2011-12 and that of HSD (diesel) from 39.815 MMT in 2001-02 to over 52.324 MMT in 2006-07 and 66 MMT in 2011-12. The domestic supply of crude will satisfy only about 22% of the demand and the rest would have to be met from imported crude. Our dependence on imported oil will continue to increase in the foreseeable future. A ray of hope lies in bio-fuels (ethanol and bio-diesel), which are renewable liquid fuels coming from biological raw material and have proved to be a good substitute for oil in the transport sector. Bio-diesel is made from virgin and used vegetable oils, whether edible or nonedible, and animal fats through trans-esterification and is a diesel substitute requiring very little or no engine modifications upto 20% blends and minor modifications for beyond 20% blends. Bio-diesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a bio-diesel blend or can be used in its pure form. Just like petroleum diesel it operates in compression ignition engine; which essentially requires very little modifications because bio-diesel has properties similar to diesel fuels. It can be stored just like diesel fuels and does not need separate infrastructure. The use of bio diesel in conventional diesel engines results in substantial reduction in unburnt hydrocarbons, carbon monoxide and particulate matters. Biodiesel is also considered a clean fuel since it has almost no sulphur, no aromatics and about 10% oxygen that helps it burn fully. The use of bio-diesel is gaining acceptance as a solution to environmental problems, reducing imports, rural employment, and improving agricultural economy. Sunflower and rape seed are the raw materials used in Europe, soyabean in USA, and palm oil in Thailand.

The main commodity sources for bio-diesel in India can be non-edible oils obtained from plant species as Jatropha curcas (Ratanjyot), Pongamia Pinnata (Karanj), Nagchampa, Rubber etc. Owing to high demand for edible

oils it is not a viable option to divert edible oil for production of bio-diesel. *Jatropha curcas* Linn. belonging to the genus Jatropha, a large genus of herbs, shrubs and trees and family Euphorbiaceae, is a large shrub, 3-4 m. high. Locally known as Jangaliarand or Ratanjot, the plant is of high commercial and medicinal value. It can be grown in low to high rainfall areas and can be used to reclaim land, as a hedge and/or as a commercial crop.

Jatroopha curas has been found most suitable as a source of bio-diesel. Why?

- Oil yield per hectare is the highest among tree borne oil seeds;
- The oil content has been reported upto 60% of the sed weight and has a low viscosity as compared to castor oil;
- Lends itself to plantation in degraded forest land and un-utilised public land, fallow land, field boundaries, along railways, roads, irrigation canals, where non-edible oilseeds can be grown;
- Not browsed by animals;
- Being rich in nitrogen, the seed cake is a excellent source of plant nutrients;
- Plant starts giving seed in a maximum period of two years after planting;
- Raising the plant in nurseries, planting, maintaining them and collection of seeds are labour intensive activities. Except for the cost of fertilizers and transportation of plants from the nursery, all the activities in the nurseries and implanting consist of labour. The cost of the seed is entirely in the form of wage labour;

- various parts of the plant are of medicinal value- its bark contains tannin, flowers attract bees thus the plant has honey production potential;

- Since it removes carbon from the atmosphere, stores it in the woody tissues and assists in the build up of soil-carbon, it is environment friendly;

- Jatropha can be established from seed, seedlings and vegetatively from cuttings;

- The wood and fruit of Jatropha can be used for numerous purposes including fuel. The seeds of Jatropha contain (50% by weight) viscous oil, which can be used for manufacture of candles and soap, in the cosmetics industry, for cooking and lighting by itself or as a diesel/paraffin substitute or extender. This latter use has important implications for meeting the demand for rural energy services and also exploring practical substitutes for fossil fuels to counter greenhouse gas accumulation in the atmosphere.

- Thus, it can meet the domestic needs of energy services including cooking, lighting, an additional source of household income and employment through markets for fuel, fertilizer, animal feed medicine, and industrial raw material for soap, cosmetics, etc., in creating environmental benefits-protection of crops or pasture lands, as a hedge for soil erosion, a windbreak, and a source of organic manure.

I. Prospects of *Jatropha* Cultivation in Tripura

Tripura is the one of the states of Northeast region that has considerable large area under wasteland category. Climatic condition of the region is very much suitable for higher seed production. Tripura state has about 1276.03 sq.km area under the wasteland category; it is further divided

into different categories. Percentage wise state has 46.09 % under Degraded notified forestland followed by shifting cultivation (31.42%), land with shrub/without shrub (22.48%) and Water logged/marshy land .

Table 5.12: Wastelands in the Tripura state (Area in sq. km.)

S.No.	Distribution of wasteland in Tripura State	Area (Sq. km.)
1	Land with shrub/ without shrub	286.87
2	Water logged/marshy land	0.11
3	Shifting cultivation area	400.88
4	Degraded notified forest land	588.18
Total		**1276.03**

However, there is a large variation in per hectare seed production and oil content. Therefore, there is huge scope for genetic improvement.

Tripura is covered under the Phase-I (demonstration project) of the National Mission on Bio-Diesel initiated in 2003 and to be completed by 2007 that seeks to demonstrate the viability of all activities including plantation, seed collection, oil extraction, transesterification, blending, marketing, and its acceptance as an automotive fuel. Alongwith Gujarat, Chattisgarh and Tamil Nadu, Tripura is covered under the micromission for plantation on 50,000 hectares through the Joint Forest Management, and the Forest Department. The Ministry of Environment & Forests through the State Forest Department will implement this plantation through the JFM Committees. The funds would be available to them under plan allocations.

KVIC, Small Scale Industries and Rural Agro Industries will have the overall responsibility and be the nodal agency for micromission on procurement of seed and oil extraction. The finances shall be made available by SIDBI and NABARD. Since the sed procurement and oil expelling centres would be engaged in commercial activities, they should be able to mobilise resources from the financial institutions. The raw oil extracted from seed can be used for a number of applications like cooking, lighting, operating irrigation motors and pumps. With encouragement from the Government the private sector can produce cooking stoves, lamps, and motors to run on this oil. The oil remaining after meeting the needs of the local community would be sold to the agency that sets up the transesterification plant (for making raw oil suitable for blending with diesel).

The micromission on transesterification of oil to bio-diesel and its blending with Diesel will be the responsibility of Ministry of Petroleum. This facility needs to be set up by the oil companies themselves or the parties sponsored by them.

5.6. Development of Medicinal Plants and Their Marketing:

Tripura has one of the oldest, richest and most diverse cultural traditions with use of medicinal plants. There are a large number of village based carriers of herbal medicines and also specialized practitioners who have traditional knowledge of herbal home remedies of ailments and nutrition. Besides, registered medical practitioners of modified system of Indian medicine like Ayurveda use medicinal plants. The herbal medicines used by rural people including tribals have not been properly documented. There are also big gaps in the work of compiling an extensive inventory of medicinal plants in the state. Documentation and inventorization of medicinal plant resources of Tripura reported around 266 species of medicinal plants including 68 trees, 39 shrubs, 71 herbs and 88 climbers in the state.

Medicinal plant diversity of Tripura is very rich in many aspects, which showed continued and long selection provided by natural selection. However, due to increased biotic pressure, expanding cultivation of more remunerative crops, introduction of technological/developmental projects and increasing urbanization are posing serious threat to the indigenous floral wealth of this region. Also, factors like over exploitative extraction, increasing demand, conversion of forests into agricultural land and other uses, intensified shifting cultivation, market forces and socio-economic factors are responsible for the loss of plant species. People in this region are still hunter-gatherer stage because of their dependence on non-agricultural wild stock. In recent years a number of useful plants have become endangered or at the brink of extinction due to continuous decrease in forest cover, unscientific collection and lack of adequate replacement by regeneration means. Excessive and unscientific exploitation has resulted in the loss of population of a number of valuable species and they are not abundantly found in their natural habitat. Limited distribution of some of the medicinal species has also been recorded in specific geographical areas and these are becoming rare. The frequency of distribution of some of the important medicinal species has been found to be reduced to a critical low level and they are under the threat of becoming extinct.

A. Marketing of Medicinal plants

There is a high market demand of medicinal plants in different markets due to their numerous uses. This sector is characterized by a wide range of production, processing and marketing systems. These systems employ numerous species and produce many classes of final products. Within the various “Production–to–consumption systems’, there is a great potential for improvements which could contribute to sustainable increases in the welfare of poor people. To achieve this objective, a fair understanding of very complex social, economic and policy aspects is required. Development

interventions will need to assist the people to overcome the constraints that limit the benefits they earn from their enterprises and resources.

It is important to mention that the organized marketing of various commercially important medicinal plants is quite lacking in the state. No attempt seems to be made by any agency for establishing organized market in the state and it is left to the market forces and middlemen to take care. As a result, the actual collectors/producers are not getting the price of their produce they deserve which is quite discouraging for the persons engaged in such collection and cultivation of medicinal plants. State Forest Departments and plantation Corporations Ltd of Tripura carry out marketing of Dioscorea and its products Diosgenin under Dioscorea project

5.7. Funding for development of infrastructure

Due to the low outlay in the state plan, there has been hardly any scope for investment on essential infrastructure, while even the modest facilities created earlier had withered, due to lack of adequate financial allocation during the past. The flow under the CS/CSS also has been low and dwindling in size. On the other hand, the CS/CSS usually did not provide funds for development of infrastructure, the scheme for Development of Infrastructure for Protection of Forests from Biotic interference continued up to 1992-93, being the only exception. Increased participation of the Central Government, considering the lack of scope for generation of resources in the land locked state, is required by enlarging and widening the scope under CS/CSS to provide for strengthening of infrastructure for better mobility, effective communication, protection, facility for training, publicity and generation of awareness.

There has been steady decline in plan allocation to the Forest Department in the recent years as is shown below.

Table 5.13:

(Rs. In lakhs)

Year	State Plan outlay	Forestry sector outlay under State plan	Percentage	Forestry sector outlay in real terms (wage rate base-1991)
1991-92	22800	720	3.16	720
1992-93	22000	604	2.13	543
1993-94	21821	465	2.13	418
1994-95	24457	406	1.66	275
1995-96	29839	511	1.71	307
1996-97	34691	595	1.72	297
1997-98	40718	493	1.21	225
1998-99	37900	386	1.02	1176
1999-00	47500	488	1.03	195
2000-01	48742	561	1.10	199

There has been sharp decline in employment generation due to steady decrease in fund allocation as is evident from the table below.

Table–5.4:

Year	Mandays generated (in lakhs)
1991-92	34.00
1992-93	34.85
1993-94	32.00
1994-95	32.00
1995-96	30.00
1996-97	13.04
1997-98	9.48
1998-99	9.163
1999-00	6.709
2000-01	7.743

5.8. Perspective plan for the next 10 years

This Perspective Plan of Forestry Sector in Tripura for next ten years, i.e. 2002-03 to 2011-12 is based on sectoral objectives of forestry sector in the State and programmes proposed to achieve such objectives. The programmes have been formulated after detail analysis of identified problems, constraints and issues and the required strategy to overcome the

same. It is mainly based on State Forestry Action Plan (SFAP), which was approved by the State Government and sent to GOI for incorporation in National Forestry Action Programme (NFAP)-India, a document incorporating comprehensive strategy and action plan of 20 years for sustained developed of forests in the country.

In addition, it contains planned developmental activities under different programmes, indicting required financial investment in the sector in next 10 years.

This perspective plan aims to manage renewable natural resources of the State for sustained flow of goods and benefits (tangible and intangible) in reconciliation with requirements of conservation.

The objectives of perspective plan are:

- Biodiversity conservation
- Ecological restoration of degraded forests and fragile areas
- Economic upliftment of tribals and rural poor by enhancing employment and income generating opportunities.
- Enhancing the productivity of the forests and tree cover to meet the growing requirements of multiple use products.

On the basis of development perspective of Forestry Sector in Tripura in next 10 years, i.e. 2002-03 to 2011-12, the financial requirements of Sector, as per proposed activities, would be Rs.472.78 crores. It is envisaged to afforest an area of 2.32 lakh ha during next ten years, as per details given below-

Table–5.15:

(Area in ha)

Species	Type of land to be brought under afforestation/tree cover			
	Govt./community land	Private land	Forest land	Total
Fuelwood	25000.00			25000.00

and fodder species				
Species of high economic value		25000.00	50000.00	75000.00
Bamboo-ANR			100000.00	100000.00
Bamboo/cane plantation		1000.00	30000.00	30000.00
Medicinal plantation			2000.00	2000.00
Total	25000.00	26000.00	182000.00	233000.00

The proposed activities would immensely help in mandays generation in interior areas of the State where it is most needed. It is estimated that around 247.89 lakhs mandays would be generated on account of implementation of perspective plan.

Lack of sense of participation and ownership, and also the poverty of the forest dwelling and fringe communities has been an important factor in causing their indifference towards forest resource degradation. Active participation of these communities in implementation and their economic upliftment by enhancing employment and Income generating opportunities through cultivation/extraction/value addition of different forest produce has been proposed as the most vital instrument for conservation. It is estimated that implementation of perspective plan would generate sustainable employment to around 68950 unemployed youth, tribals & rural families.

Possible funding for activities proposed under perspective plan may be as mentioned below:

Table–5.16:

State Plan Schemes	Rs.70.00 crores
Revenue realized (recycled)	Rs.15.00 crore
Central Sector Schemes	Rs.95.00 crores
Non-lapsable pool/Special central	Rs.38.78

assistance	crores
Special projects (External funding agencies)	Rs.254.00 crores
Total	Rs.472.78 crores

5.9. SWOT ANALYSIS

Strengths

- Forest personnel are present even in remotest areas;

- State Bambo Policy has been formulated to develop bamboo sector in the state through a market led community based utiilisation, development and conservation of the resource in the forest and farm areas;

- State Afforestation policy envisages effective rehabilitation of degraded forests, extending tree cover beyond traditional forest areas through multi product afforestation models to conserve bio-diversity and satisfy local people's need and use;

- Blessed with high rainfall, humidity and nutrient rich soil, the forests of the state are in very high productivity zones;

- The area lies in high potential productivity (CVP Index 9.12 cum/ha/year) zone which may be harnessed through appropriate measures;

- The state has high bio-diversity. It also has vast resources of NWFP including bamboo and medicinal plants;

- Non Wood Forest Products (NWFPs) represent a vast untapped major resource of Tripura State whose full ecological and economic potentials remain underutilized; it needs to be recognized, developed and promoted in a manner ensuring ecological security for all round sustainable development of the State and well being of its people;

- Traditional living and lifestyle of inhabiting society, to a large extent, is dependent on bamboo for its variety of uses and bamboo has much to offer by way of contributing to socio-economic advancement of modern society. They have immense potential in improving rural economy, industrial development and a sound economic base for the state on sustained basis;

- Joint Forest Management has brought about an active participation and involvement of local communities in protection and development of forests;

- Improvement in extent of forest tree species by extending fiscal incentives and technical guidance for productive use of fallow land in private holdings;

Weaknesses

- Tripura's dense forest cover at 21.24% though larger than the national average of 11.7%, is considerably lower than the average of 34.84% for the North East. Even the percentage of open forest to total forest cover at 61.2% compares porly with the national average of 41.6% and the average of 45.96% for the NE region. This indicates poor state of forests of the state;

- The problem of the non-availability of basic information on the actual production, local consumption, surplus available for trade is very acute. At the state level, except for a handful of very important NWFPs like rattan, bamboo, oleoresin, some medicinal plants etc., very little knowledge exists and most NWFPs are rarely covered in national statistics. Only some export data is available through custom realization records;

- Though forestry contributes substantially to rural income, the total impact on the economy remains unstated due to non quantification of intangibles being contributed;

- A shortfall in revenue collection owing to non-disposal of seized timbers in pursuance of Hon'ble Supreme Court's order in WP (Civil) 202/95.. However, as per Hon'ble Supreme Court's order, 50% of revenue of disposal of seized timber would be recycled in te revolving fund for development of forests – with regular disposal of such seized timber investment in forestry sector is likely to ncrease;

- Current investment in forestry sector is very low. The allocation has declined as a proportion off total plan outlay of th State. In view of the low and declining investment in the sector under Stae plan, there has been hardly any scope for investment in essential infrastructure, while even modest facilities created earlier had withered due to inadequate financial allocation;

- Lack of fund for development of infrastructure There has been a steady decline in plan allocation to Forest department in recent years;

- Hardly any provision for eco-developmetn for the benefit of forest fringe dwellers in CS/CSS except a meager proportion for popularization of fuel wood saving devices, soil and water conservation by check dams etc.;

- Due to early monsoon the planting season starts in March-April and non release / non availability of adequate funds during the planting season results in less utilization and lower achievements of targets;

- An acute shortage of nmanpower and infrastructure at different levels vis-a-vis requirements;

- Field offices of Divisions Sadar, Teliamura, Sephijala WLS, Udaipur, Bagafa, Gumti, Trishna WLS, Ambassa, Manu, Kanchnpur, ad Kailashahar are non-operational either due to security reasons, or non availability of constructions or due to shortage of staff.

Opportunities

- Excellent silvicultural conditions prevail for forest production

- Non Wood Forest Products (NWFPs) represent a vast untapped major resource of Tripura State whose full ecological and economic potentials remain underutilized; it needs to be recognized, developed and promoted in a manner ensuring ecological security for all round sustainable development of the State and well being of its people

- Traditional living and lifestyle of inhabiting society, to a large extent, is dependent on bamboo for its variety of uses and bamboo has much to offer by way of contributing to socio-economic advancement of modern society. They have immense potential in improving rural economy, industrial development and a sound economic base for the state on sustained basis

- Large part of most of the products like fruits, nuts, medicinal plants, etc., is consumed locally by trade and barter and only the surplus is sold for national and international level marketing.

- Primary production, processing and marketing are very much interlinked activities. As such, there is urgent need for organizing, through appropriate agencies, the training of local stakeholders in modern methods of harvesting for sustainable production as well as technology for storage and post-harvest treatment, primary processing and quality control. This will ensure value addition and ready acceptance of the products at attractive prices in the markets.

Threats

- Inspite of an increase in the forest cover, there is large scale degradation of forests.
- Dense forest are being transferred to open forest category. Large gap between potential and actual productivity, and generally poor actual productivity in natural forests is due to population pressure, biotic interference, and anthropogenic stress and this is a matter of concern because rising demand and poor productivity lead to the cycle of low productivity to resource degradation of more area to further lower productivity;
- Foresrty crop usually take long in maturity and thus the benefits accruing to the people come quite late as compared to agricultural crops. Thus a tendency to bring more and more areas under agricultural production
- Large influx of people from Bangladesh has not only changed the demographic profile but also put pressure on the forests leading to encroachment and over exploitation of resources;
- Unauthorized tree felling and smuggling of forest produce. The 856 km. long porous border with Bangladesh has increased incidents of unauthorized felling thus adversely affecting the productivity of forests, environment, and bio-diversity;
- The survey by Tribal Welfare Department (1990) has estimated that the practice of shifting cultivation by 55,049 tribal households is a major cause of deforestation, land degradation and soil impoverishment;
- The forests are threatened by encroachment which is nearly 13,925.71 hectares;
- Forest fires started mainly by villagers at the ed of winter, and also due to jhumming severly threaten regeneration;

- Absence of grazing grounds owing to the encroachment or diversion of land for other use coerce livestock to graze in the forests;
- Unregulated removal of forest produce because of the rights and concessions is adversely impacting the forests.

5.10. OBSERVATIONS and ISSUES:

A. Conservation

Issue 1: Paucity of data base on basic hierarchical categories of biodiversity for identification of thrust areas, and formulations of proper strategy and planning for conservation.

This State is rich in its biodiversity. Limited surveys have revealed that some floral and faunal species and some habitats are unique to this State. Still, a comprehensive survey of its floral and faunal resources has not yet been carried out, not even in sanctuaries I protected areas. Therefore, information is lacking on the three basic hierarchical categories of biodiversity, namely: variation at the genetic level within a particular species; species diversity (number and proportion of different species in a particular area); and ecosystem diversity that describes the variation in assemblage of species and their habitat.

It is a known fact that many tropical species are being lost before they are properly investigated and understood for their potential usefulness. There is an urgent need to carry out surveys of plant diversity and initiate conservation measures wherever required. This has been recognized in the National Forest Policy (198) also.

The issue is too involved for the Forest Department to handle alone in absence of adequate trained manpower and lack of financial resources. It will take a very long time to complete this exercise. Zoological Survey of India and Botanical Survey of India are the organizations which could have accomplished this task, but these organizations.

Issue 2: Creating environmental awareness among people and promoting eco-friendly alternatives to reduce pressure on environment and forests ecosystem need to be given proper attention for conservation of biodiversity.

The people of the State, though heavily dependent on its natural resources, are not alive to the consequences of environmental degradation. The State is visited by frequent floods and experiences prolonged periods of drought consequent on severe environmental degradation due to excessive illicit felling in the forests, shifting cultivation, intensive grazing and frequent forest fires. The reasons for lack of appreciation of the need to conserve the environment are mainly as follows.

- Economic considerations, like absence of other means of employment & livelihood, force the people to overexploit natural resources.

- The issue of conservation comes into conflict with developmental process and, so, loses favour with people at large who generally perceive conservation as merely intellectual luxury at the cost of common man's interests. This is because, on the one hand, benefits of conservation are not immediately perceptible and visible to the common man and, on the other, the consequences of environmental degradation/ abuses are often very widely distributed in space and time, making it difficult to relate effects to the cause. For example, removal of vegetal cover from a watershed results in excessive run off causing floods in the downstream areas. In such cases, the deforested watershed and the areas affected by floods are, often, far apart. Also, there is a wide temporal gap between activity of deforestation and the incidence of flood. In Tripura, floods have become a common feature during monsoons, in recent years, due to denudation of catchment areas. The damage to human life and property is colossal and outweighs whatever temporary economic benefits are derived from destruction of forest cover in the easily suffice to clothe the denuded catchments.

- There is a lack of awareness about energy saving/waste reducing devices. Such devices can reduce pressure on forests.

Issue 3: Arresting demand on forests and consequent degradation of environment and biodiversity due to an increase in population

Degraded areas in the forest are increasing with increasing demand for fuelwood, grazing, and agriculture (shifting cultivation). FSI in its study in 1989-90 concluded that majority of the forest area in this State is heavily degraded (ranging from 36.4% to 72.73% in the three districts).

The main reason for degradation of forests is increase in population. As there is no corresponding increase in forest area (on the contrary it is decreasing due to inevitable diversion for non-forestry use), the per capita forest area has been decreasing continuously and this trend will continue unless population stabilizes. The result is that forests are coming under increasing pressure for fuel, fodder and other produce. Increase in population also results in encroachments. In fact, if population would stabilize, all problems could be tackled easily.

Another major factor responsible for the degradation of the environment is low productivity of forests. A given area of low productivity can satisfy the demands of fewer people compared to the same area of higher productivity. Therefore, larger area of low productivity forest is required / exploited by a given population compared with high productivity area. Or intensity of exploitation is higher in low productivity area resulting in further degradation. This situation creates a vicious circle.

Issue 5: Shifting Cultivation

The following problems can be identified related to shifting cultivation and recommendations/ strategies proposed to tackle them.

- Jhumias (shifting cultivators) do not have any other means to earn their livelihood. Jhuming is a necessity for their survival.

- Jhumias are not comfortable with other activities for reasons of unfamiliarity; difficulties connected with those activities, etc.

- Rehabilitation programmes in the past failed, mostly due to the fact that these were short term programmes i. e. efforts under these programmes were not sustained long enough to make jhumias stand on their own feet without having to take recourse to jhuming.

- One of the main reasons for failure of jhumia rehabilitation schemes in the State has been that a number of programmes were implemented and are still being implemented by a number of organizations / departments in isolation without any effective coordination, liaison, and complementarity. This has resulted in frittering away of resources.

Issue 6: Protection of threatened species and unique habitats including aquatic areas of high biodiversity

Work done on mammals reveals that seven species on non-human primates are found in Tripura. These are (i) slow loris (ii) Rhesus macaque (iii) Stump tailed macaque (iv) Pig tailed macaque (v) Capped langur (vi) Phayres leaf monkey and (vii) Hoolock gibbon. Of these, Rhesus monkey is most abundant followed by Phayre's leaf monkey (locally known as "Chashma Banar"), which is reported only from Tripura and a small part of Assam.

It is pertinent to note that eaGh of the 2 wildlife sanctuaries viz. Trishna, and Gumti has the rare distinction of being habitat to 7(seven) species of non human primates (enumerated above).

Besides, there are more than 14(fourteen) species of mammals, reptiles, and birds found in Tripura which are listed as endangered.

A faunal survey carried out by Zoological survey of India revealed abundance of 3 species of Simoceplalus in all wetlands which is a noteworthy feature. Occurance of two holarctic species such as Sida Ctystallina and Disparddona rostracta(Koch) is another finding in this region. Yet another species occurring in China, Russia, and Malaysia is Echinisca copensis monod; which is also available in Gumti reservoir of Tripura. There is, thus a progressive addition to the list of rare/uncommon/newly discovered species in Tripura with the passage of time.

B. Protection of Forests

Issue 7: Changing attitude of forest personnel and people is required to successfully implement the idea of JFM / PFM.

Participatory Forest Management is a rather new concept. It tries to resolve the conflict between the users and managers. Traditionally both these groups have been suspicious of each other with users trying to take away as much as possible and the managers trying to part with only as little as permissible under management principle of sustainable yield and considerations of conservation. The aims of both these groups have been diametrically opposite.

Now, slowly, the realization is beginning to dawn upon the people that their economic well being is linked with forests and reckless destruction of this natural resource is harmful to them. On the other hand, proper protection of the forests and judicious use of its produce can bring about economic prosperity. Forest personnel have also realized that without active cooperation of people, it is not possible to save environment and forests.

Yet, it is not easy to change age old attitude of all persons belonging to both the groups. Many forest personnel look upon the concept of Participatory Management with distrust. Similarly, a large segment of

population still view the forest personnel of oppressors, trying to keep them from exploiting forest wealth.

Attitudinal change is a prerequisite for JFM. This is going to be a very crucial issue for conservation of forests and environment.

Issue-8: Providing immediate benefits to beneficiaries is essential to avoid their disenchantment with participatory management concept.

People are being given some usufructory right on produce under participatory management. In many cases especially in afforestation of waste lands, such benefits can not be provided immediately due to long maturation period. Public interest can be kept from flagging only if they get some immediate tangible benefits, otherwise there is every likelihood that people will lose interest in Participatory Forest Management. This kind of situation will defeat the purpose of the concept.

Issue 9: Resources of the Forest Department are woefully inadequate to fight the menace of rampant illicit fellings and smuggling of forest produce across the border.

The State has 856 km long porous border with Bangladesh, a country having highest density of population in the world and without enough forest resources to cater to minimum rural energy, timber and non-wood produce requirements of its masses. The strength of Border Security Force/Custom Department is completely inadequate to cope with the large stretch of open border. This situation has led to large scale illicit fellings and smuggling of firewood, timber and bamboo across the border. Large tracts of very good natural forests as well as plantations along the entire border have been completely wiped out by the miscreants. This is causing, apart from financial loss to this State, immense harm to environment and biodiversity (two sanctuaries, namely, Trishna, and Gumti are already subject to depredation by smugglers).

Forest Department is hampered by lack of personnel; effective communication network; firearms; and transport facilities. Age-old, battered vehicles, which more often than not remain out of order, of the Department are no match for fast moving, in trim condition, vehicle for smugglers.

Miscreants are often will armed and have a well knit network of informers and spies. The number of personnel entrusted with patrolling is only 308 (Divisional Forest Protection Party -110, Sectoral Forest Protection Party -198). This strength of 308 persons is inadequate to patrol 6292 sq. km area of the forests and 856 km long open international border.

Issue-10: All the nine major rivers of State flow to Bangladesh and make excellent waterway for smuggling of forest produce across the border. Forest Department can not exercise effective control due to lack of infrastructure and adequate man power.

A major portion of smuggled produce goes via these rivers, mostly under the cover of darkness. There are neither check posts of Forest Department nor border outposts (BOP) of Border Security Force/Custom at the entry point of these rivers into Bangladesh. Therefore, there is no control over smuggling through these routes also. Forest Department does not have speed boats, sophisticated arms, and surveillance equipments like searchlights, night vision equipments, adequate manpower, etc.

Issue-11: Poaching has been going unchecked in absence of effective, preventive apparatus for want of funds, bringing down population of a number of species.

Population of many species like barking deer, hog deer, sambar, hare, etc. has declined sharply due to rampant poaching. The Forest Department has been unable to check this menace for want of required funds to take suitable preventive and detective: measures. This has seriously affected the status of predator species also. The population of leopards has gone down sharply and the tiger has become extinct.

Issue 12: It is not practicable to evict encroachers in the existing circumstances as they often have political backing. Inability of the Forest Department to evict encroacher encourages potential encroachers and more encroachments take place. This process is going on unabated.

Although in Tripura, Forest Officials have powers to evict encroachers, it is impracticably leads to law and order problems. Promulgation of Forest Conservation Act, 1980, has also not been very effective.

C. Increasing Forest Productivity, Arresting Demand on Forests and Consequent Degradation of Environment and Biodiversity:

Issue 14: Increasing Forest Productivity :

Degraded areas in the forest are increasing with increasing demand for fuelwood, grazing, and agriculture (shifting cultivation). FSI in its study in 1989-90 concluded that majority of the forest area in this State is heavily degraded (ranging from 36.4% to 72.73% in the three districts).

The main reason for degradation of forests is increase in population. As there is no corresponding increase in forest area (on the contrary it is decreasing due to inevitable diversion for non-forestry use), the per capita forest area has been decreasing continuously and this trend will continue unless population stabilizes. The result is that forests are coming under increasing pressure for fuel, fodder and other produce. Increase in population also results in encroachments. In fact, if population would stabilize, all problems could be tackled easily.

Another major factor responsible for the degradation of the environment is low productivity of forests. A given area of low productivity can satisfy the demands of fewer people compared to the same area of higher productivity. Therefore, larger area of low productivity forest is

required / exploited by a given population compared with high productivity area. Or intensity of exploitation is higher in low productivity area result.ing in further degradation. This situation creates a vicious circle.

- **Increasing Forest productivity in dense forests.**

Extent to dense forest cover (crown density> 40%) in Tripura is 2228 sq. km., which comes to 17.53% of geographical area and 21% of total forest area. Productivity in natural forests is as low as 3.61 cum. per anum per ha. To meet the increasing demand of timber and fuel wood it is required to increase the forest productivity.

- **Increasing forest productivity in open forests**

Open forests in the State (3517 sq. km,) constitute about 56% of total forest area and 34% of geographical area. Increasing the productivity of open / degraded forests would go a long way to meet the growing demand of timber and fuel wood on sustainable basis.

Issue 15: Eco-restoration of ecologically fragile areas

In Tripura, ecologically fragile areas (Jampui hills) have suffered mostly due to deforestation. People have indulged in large scale felling of trees to earn money quickly. This has deteriorated the environment and already there is acute water scarcity in Jampui hills.

Issue 16: Identification of degraded forest areas for raising multi product plantations of identified / prioritized species

Tripura being a hilly State (60% area hilly) and most of the forests being located in interiors, local methods of survey and identification are of little help in identification are of little help in identifying degraded forest areas for raising multi product plantations of identified/ prioritized species to conserve biodiversity and to satisfy local people's need and use as per existing State Afforestation Policy.

D. Reducing Pressure on Existing Resources

Issue17: Reducing demand of fuelwood

The State is predominantly rural. Almost the entire demand of energy for cooking, etc. is met from fuelwood. There is hardly any industry(except brick klin) using fuelwood.

Total requirement of fuelwood per annum is 2.07 million cum. Of this about 2.0 million cum is requirement of rural population and rest 0.07 million cum is the consumption by urban population. Almost entire demand is in domestic sector.

Issue 18: Reducing pressure on forests due to grazing

Total fodder demand in the State is assessed at 2.55 million tons. About 1.02 million tons is met from non-forest areas and balance 1.53 million tons is met from forests. Fodder production outside/inside the forests needs to be developed to allow grazing pressure with in allowable limits.

E. Strengthening Of Policy And Institutional Framework

There is no State Forest Policy and National Forest Policy is applicable in the State. However to address the specific sect oral requirements State Bamboo Policy and State Afforestation Policy has been formulated under overall framework of National Forest Policy.

Issue 21: Strengthening of manpower, and restructuring of Forest Department

The structure of an organization is governed by the nature of activities it has to carry out, scope of works, the level of technological development, and working environment. The existing structure of Forest Department in the State was created long back, when main activity used to be exploitation of

forests for earning revenue. Now, the priorities have completely changed and new functions have emerged due to rapid changes in socio-economic conditions; change in perception of the role of forests; and changes in the admihistrative set up of State (devolution of power to locally elected bodies i.e. Panchayat Raj Institutions). The emphasis has, now, shifted from exploitation to conservation and development, but the structure of the department has remained the same. Further, there has no been decentralization of powers and planning process to the desired extent in the forest administration. The manpower has reduced over the years and the net result is that the organization is unable to cope with new emerging functions due to severe shortage of trained manpower and inadequate delegation of authority/power.

CHAPTER–VI

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

6.1. CURRENT STATUS OF AGRICULTURE :

The economy of Tripura mainly depends on agriculture. Agriculture and allied sectors in the economy of Tripura primarily refers to cultivation, animal husbandry, pisciculture, horticulture and floriculture. More than 70 per cent of its population depends on agriculture for its livelihood and the contribution of agriculture and allied activities in the Net State Domestic Product (NSDP) at current prices is 34.42 per cent and 64 per cent respectively in employment. In Tripura, only about 27 per cent of the total geographical area is available for cultivation and the cropping intensity remains at a level of 174 per cent. About 27 per cent of net cropped area is under assured irrigation. The main crops grown in the state are paddy, maize, wheat, pulses, oilseeds, jute and Mestas. Agriculture is an important potential demand base for industry and services, in addition to being the supply base for food and raw materials.

A. Level of Production and Productivity :

i. CROP PRODUCTION

The main crops grown in the state are rice, maize, wheat pulses, oilseeds, jute and mesta. The total irrigated area under all crops as achieved in 2000-01 is 50,819 ha constituting 18.1% of net sown area. The crop production scenario of the state is presented in Table 6.1.

Table – 6.1 : Agricultural Crop Production Scenario (2001-2002)

Area (A) in Ha, Production(P) in M.T./Bale, Yield (Y) in MT or Bale/ha

Crops		West	South	North	Dhalai	Total
Rice	A	97279	78289	39287	31889	246744
	P	247581	191656	88482	59658	587377
	Y	2.54	2.44	2.25	1.87	2.38
Maize	A	540	525	275	740	2080
	P	510	530	265	780	2085
	Y	0.94	1.00	0.96	1.05	1.00
Wheat	A	377	236	233	374	1220
	P	754	433	420	673	2280
	Y	2	1.83	1.80	1.79	1.86
Gram	A	96	173	58	72	399
	P	61	111	37	46	255
	Y	0.63	0.64	0.63	0.63	0.63
Other pulses	A	2574	2016	1551	1860	8001
	P	1633	1220	938	1189	4980
	Y	0.63	0.60	0.60	0.64	0.62
Total Pulses	A	2870	2189	1609	1932	8600
	P	1694	1331	975	1235	5235
	Y	0.59	0.60	0.61	0.64	0.61
Groundnut	A	108	109	19	294	530

	P	100	113	19	302	534
	Y	0.93	1.03	1	1.02	1.00
Sesamum	A	533	482	234	571	1820
	P	228	286	118	244	876
	Y	0.42	0.59	0.50	0.42	0.48
Rape/Mustard	A	681	647	473	1083	2884
	P	576	549	402	919	2446
	Y	0.84	0.84	0.84	0.84	0.84
Total Oil Seed	A	1322	1238	726	1948	5234
	P	904	948	539	1465	3856
	Y	0.68	0.76	0.74	0.75	0.74
Jute	A	530	475	180	135	1320
	P	4770	4325	1,645	1160	11900
	Y	9.00	9.10	9.13	8.59	9.01
Mesta	A	380	495	140	640	1655
	P	3100	4040	1,140	5220	13500
	Y	8.15	8.16	8.14	8.15	8.15
Cotton	A	70	285	263	670	1288
	P	103	401	388	1008	1900
	Y	1.47	1.41	1.47	1.50	1.48
Sugar cane	A	170	420	155	275	1,020
	P	9035	21,310	8,100	14,255	33,520
	Y	53.15	50.73	52.26	51.84	32.86

(Source: Some Basic Statistics of Tripura 2002, Directorate of Economics and Statistics, Government of Tripura, Agartala).

Tripura ranked second amongst north–eastern states (including Sikkim) in regard to productivity of food grains during 2000–01 which is also

higher than the national average. As regards productivity of oilseeds and pulses, the state ranked fourth and fifth respectively.

The following table shows the comparative production of the major crops in the north–eastern states:

Table 6.2 : Productivity Comparison : Tripura Vs. Other North–Eastern States Including Sikkim & All India

States	In Kg/ha.					
	Rice	Wheat	Total cereals	Total pulses	Total food grains	Total oilseeds
Tripura	2240 (2)	2000 (2)	2232 (2)	625 (6)	2162 (2)	720 (5)
Assam	1495 (5)	1219 (6)	1478 (5)	559 (7)	1443 (5)	515 (7)
Arunachal Pradesh	1056 (8)	1342 (5)	1108 (8)	1000 (2)	1104 (8)	976 (1)
Manipur	2281 (1)	–	2300 (1)	–	2300 (1)	478 (8)
Mizoram	1998 (3)	–	2053 (3)	1625 (1)	2036 (3)	750 (3)
Meghalaya	1617 (4)	1628 (3)	1576 (4)	761 (5)	1547 (4)	667 (6)
Nagaland	1407 (7)	2382 (1)	1365 (7)	770 (4)	1316 (7)	953 (2)
Sikkim	1408 (6)	1403 (4)	1400 (6)	852(3)	1356 (6)	730 (4)
All India	1913	2743	1857	533	1636	791

Note: i. Figures within parenthesis indicate rank amongst north–eastern states.

ii. Figures for Tripura are actual and for others are provisional.

The above table shows that among the north–eastern states, Tripura is the major producer of rice, wheat and cereals, after Manipur and Nagaland. In the production of pulses it has attained the sixth place. However, in terms of total cultivable land, the production level seems to be quite good.

Table – 6.3 : Cropwise Area Coverage in terms of Target fixed and Achieved during 2000–03 (in thousand hectares)

Crops	Target fixed in	Achievement	% achieved

	Perspective Plan		over target
2000–01			
Wheat	7000	1065	15
Maize	2500	1580	63
Pulses	15200	11080	73
Paddy	208.00	215.28	103
Hybrid Paddy	4000	720	18
2001–02			
Wheat	9000	1220	13
Maize	2750	2080	76
Pulses	17400	8400	48
Paddy	210.00	216.13	103
Hybrid Paddy	12000	977	8
2002–03			
Wheat	11000	1150	10
Maize	3000	2310	77
Pulses	19600	8420	43
Paddy	213.00	225.05	106
Hybrid Paddy	20000	526	3

Source : Annual Plan Book, 2003–04, Dept. of Agriculture, Government of Tripura.

ii. Land Use Pattern:

Fragmentation of land holding is still continuing as a part of social phenomenon. The average size of the holding has declined from 1.25 hectares in 1976–77 to 0.97 hectare in 1990–91 and this is the lowest amongst the sister of north–eastern region. Again, number of holdings held by the small and marginal farmers constitutes 90 per cent of total holding while the area occupied by them is only 63 per cent. Marginal farming has posed a serious problem expressed in terms of managerial inefficiency and resource crunch. New cropping technology suggests diversified cropping rather than the traditional system of cultivation. Out of the total land available in the state 2, 80,000 hectares or 27 per cent of land is only cultivable and 60 percent of the total land is under forest cover. The table below shows the land use classification:

Table 6.4: Land Use Classification

Land use pattern	**Area in hectare**	**% to total geographical area**

Total cultivable area	2,80,000	27 (approximately)
Area under forest including other uncultivable land	6,33,168	60 (approximately)
Area under non–agri. use	1,36,001	13 (approximately)
All categories	10,49,169	100.00

The net cropped area in the year 2001–02 was 2, 80,000 hectare and the gross cropped area was estimated to be 4, 85,000 hectare. The cropping intensity has been found to increase to 173 per cent in 2001–02 from 172 per cent in the year 2000–01.

Table – 6.5 : Land Utilization

Classification	Area under land utilization in hectare				
	1999–00	2000–01	2001–02	2002–03	2003–04
Geographical area	1049169	1049169	1049169	–	–
Area under forest	606168	606168	606168	–	–
Net area sown.	279880	279000	280000	–	–
Area sown more than once	200000	201000	205000	–	–
Total gross cropped area	479880	480000	485000	–	–
Cropping industry	171%	172%	173%	174%	175%

The above table shows that there is a continuous and steady increase in the cropping intensity from 1999–2000 to 2003–04.

iii. Cropping Pattern:

Tripura reveals a highly chaotic situation as far as the distribution of High Yielding Variety (HYV) of rice is converted. A considerable area under HYV presently is occupied by varieties that have not been originated by the research institutions of the country. Keeping in view, the threshold level of HYV rice, and the very high projected requirement of cereals there is no alternative to switching over to hybrid rice, which has a much higher production potential. Hybrid rice has already been introduced in Tripura since

1997 and has been found to be a great success. The table below representing cropping pattern in the state during 2000–01 and 2001–02 depicts an increasing trend in area under food crops and decreasing trend in non–food crops.

Table 6.6 : Cropping Pattern

Crops	**Percentage**	
	2000–01	**2001–02**
Cereals	88.1	89.2
Pulses	3.6	3.16
Food–grains (1+2)	**91.7**	**92.36**
Condiments & Spices	1.9	1.84
Other food crops	2.4	2.24
Total food crops (3+4+5)	**96**	**96.44**
Oilseeds	2.3	1.69
Fibers & other non–food crops	1.7	1.87
Total non–food crops (7+8)	**4**	**3.56**

iv. Allocation for Agriculture:

Agricultural activities in Tripura are subsistence in nature and the plan outlay was Rs. 204 and Rs. 168 crore in VIII and IX plans respectively. In the X plan an outlay of Rs. 450 crore is earmarked for agriculture and allied activities. The allocation of state plan in eighth, ninth and tenth plans were 18.1, 6.5 and 10 per cent respectively. The expenditure under centrally sponsored schemes was Rs. 180.08 crore during 2002–03 as against Rs. 163.6 crore in 2001–02. Under agriculture and allied activities, the expenditure in 2001–02 was Rs. 35.23 crore; this constitutes 21.5 per cent of the total expenditure under the central sector schemes. In order to achieve the goals for development of agriculture in the state during the Tenth Five Year Plan (2002–07) the following steps deserve special attention :

Box–6.1

- ❖ Seed replacement – The present rate of seed replacement in respect of paddy, wheat, maize and pulses is much below the desired level. The projected seed replacement of certified paddy and hybrid rice have been aimed at 33% and 100% respectively by the year 2007. In respect of wheat and maize, rate of replacement should be 100% whereas in respect of pulses it should be 50%.
- ❖ Varietal replacement – The present used varieties of paddy have become obsolete and need to be replaced with other varieties having higher yield potential ranging between 3700 kg./hect. to 4700 kg./hect. The same holds good for pulses too.
- ❖ Consumption of plant nutrients – The level of consumption of plant nutrient needs to be increased to the level of 42089 metric tones by the terminal year of 10th Plan i.e. 2006–07. In order to increase organic content of the soil and maintain soil health, consumption of organic manures and bio–fertilizers is required to be increased.
- ❖ Farm power – The state is facing acute farm power problems even at the present level of cropping intensity of 171%. The introduction of new seeds with high yielding potential and increased cropping pattern.
- ❖ Marketing and cold storage – Infrastructural facilities in the existing markets of Tripura are very poor and consequently both buyers and traders are suffering a lot. Storage facilities available in the state are also not sufficient to meet the present need and with the increase in the agriculture production requirement of storage facilities will be increased.

B. Physical and Financial Targets of the Tenth Five Year Plan :

The following tables show the physical targets and the financial requirements under the Tenth Five Year Plan.

Table – 6.7 : Physical Targets

Item	Unit	2002-03	2003-04	2004-05	2005-06	2006-07
Certified seed	MT	3,866	5218	6293	6609	6908
NPK	MT	23,968	31,161	38,660	40,451	42,089
Power tiller	Nos	300	300	300	300	300
Biofertiliser	MT	233	243	252	260	267
Marketing facility	Nos.	5	5	5	5	5
Cold storage	Nos.	3	3	3	3	3
Training of farmers	Nos.	30,000	30,000	35,000	35,000	40,000
Training Institute	Nos.	1	1	1	1	1
Farm implements	Nos.	200	300	400	500	600
PP Equipments	Nos.	250	350	450	550	650
Micronutrient application in field	Ha	6,000	6,500	7,000	7,500	8,000

(Source: Strategies on Agriculture Development in Tripura during 10th five year plan, Directorate of Agriculture, Government of Tripura)

Table – 6.8 : Financial Outlay

(Rs. Lakh)

Item	2002-03	2003-04	2004-05	2005-06	2006-07
Certified seed	94.03	118.67	141.27	148.65	155.75
NPK	253.03	329.0	408.2	427.3	444.6
Power Tiller	300	300	300	300	300
Marketing facility	25	25	25	25	25
Cold storage	90	90	90	90	90
Training of farmers	45	45	52.5	52.5	60
Training Institute	130	130	130	130	130
Farm Implements	10	15	20	25	30
PP Equipments	3.5	4.9	6.3	7.7	9.1
Micronutrients	120	130	140	150	160
Grand Total	1070.56	1187.57	1313.31	1356.1	1404.48

(Source: Strategies on Agriculture Development in Tripura during 10th five year plan, Directorate of Agriculture, Govt. of Tripura)

C. Soil Conservation and Irrigation :

In order to minimize the hazards of soil erosion, maintain soil health and increase production and productivity of different crops, a total of 60 micro watershed projects are being implemented all over the state. The main thrust of the programmes initiated was on treatment of arable and non–arable land according to capability and principle of soil and water conservation.Irrigation potential in Tripura has been assessed as 1, 17,000 ha which is about 42 % of the net sown area. Presently, 50,000 ha has been brought under various modes of irrigation and this area is 43 % of the total irrigation potential. So nearly 58 % of the total assessed irrigation potential is yet to be achieved. Out of 1, 17,000 ha of irrigation potential, 79,000 ha

would be from surface water and remaining of 38,000 ha would be brought under irrigation from water.

Table – 6.9 : Irrigated area under different crops in Tripura

Year	Rice	Wheat	Total pulses	Fruits and Vegetables	Total oil seed	Total irrigated area under all crops (ha)
1994-95	37,600	1,200	1,300	8,805	600	49,505
1995-96	44,100	1,100	1,500	10,805	450	57,955
1996-97	42,200	800	1,200	8,159	400	52,759
1997-98	42,400	970	1,500	7,400	370	52,640
1999-00	37,665	700	910	9,745	905	50,333
2000-01	35,797	800	439	13,000	600	50,819

Source: Some Basic Statistics of Tripura, 2002

The above table shows that the total irrigated area under all crops increased from 49,505 ha in 1994–95 to 57, 955 in 1995–96, declined from 52,759 ha in 1996–97 to 50,819 ha in 2000–01.

6.2. CURRENT STATUS OF HORTICULTURE

The horticulture activities of the state started with the establishment of some model orchards only during the early sixties. The tribal people have traditionally grown fruits like jack fruit, orange, pineapple since times immemorial. But the demand for areca nut, coconut and lemon were almost non–existent. The state has an ideal topography and congenial climatic conditions for raising horticultural crops. Given the favourable agro–climatic conditions, fertile soil, sub–tropical climate with pockets of temperate zone,

large tilled canal and abundance of rainfall offers immense scope for the development of horticultural produce comprising of fruits, vegetables, spices, plantation crops floriculture, medicinal and aromatic plants in the state. In other words, the agro–climate of Tripura offers immense potential for production of a number of tropical and sub–tropical fruits and vegetables. The table below shows the area and the production of some important horticultural crops of the state (2002–03):

Table – 6.10 : Area and Production of Major Crops

Crops	Area (in '000 ha.)	Production (in 000' mt.)
A. Fruits		
Mango	3.175	4.60
Pineapple	3.705	82.60
Orange	2.314	16.01
Jack–fruit	9.02	255.00
Banana	5.011	63.732
Litchi	1.738	8.95
Lime/Lemon	1.45	1.50
Papaya	0.66	6.60
Sapota	0.100	1.10
Guava	0.298	1.22
B. Nuts		
Coconut	3.493	70.10
Arecanut	3.503	6.90
Cashewnut	3.245	1.30

The database on area, production and productivity of different horticultural crops was very weak. The earlier reported figures were based primarily on number of plants/seeds distributed during different years without taking into consideration the actual field position. Besides the area which went out of production due to completion of economic life was also not taken into consideration. To overcome such situation the Horticulture Directorate has recently taken up a panchayat wise detail survey of all horticultural crops in order to have a more reliable estimate of area, production and productivity. The table below shows the present estimated area, production and productivity of important horticultural crops on the basis of the current survey.

Table – 6.11 : Estimated Productivity of Selected Horticultural Crops on the Basis of Bearing Area Only (as per the survey report of 2000–2001)

Crops			West	South	North	Dhalai	Total
Orange	A	NB	63.80	79.40	636.77	297.00	1076.97
		B	35.15	100.64	435.35	369.00	940.14
	P		547.75	690.57	9924.67	5267.20	16430.18
	Y		15.58	6.86	22.79	14.27	17.47
Litchi	A	NB	242.21	221.44	152.24	76.14	692.03
		B	275.15	251.37	172.95	86.49	786.16
	P		3672.00	2795.54	1658.52	743.08	8869.14
	Y		13.34	11.11	9.58	8.59	11.28
Mango	A	NB	473.51	359.74	344.98	168.72	1346.95
		B	607.63	562.67	331.45	231.00	1727.75
	P		1446.31	1631.74	729.19	693.00	4500.24
	Y		2.39	2.89	2.20	3.00	2.61
Cashewnut	A	NB	98.33	817.00	41.00	89.67	1046.00
		B	185.77	1399.30	84.10	390.33	2059.50
	P		241.78	583.91	61.49	218.00	1105.18
	Y		1.30	0.42	0.73	0.56	0.54
Coconut	A	NB	325.79	327.67	128.00	119.00	900.46
		B	1098.11	684.07	181.84	318.20	2282.22
	P		32.47	12.06	3.92	21.07	69.52
	Y		2956	1762	2155	6621	3046
Arecanut	A	NB	127.29	287.79	211.00	317.00	943.08
		B	736.11	541.90	699.55	252.50	2230.06
	P		1969.20	1453.40	2454.97	961.08	6838.65
	Y		2.67	2.68	3.50	3.80	3.06

A–Area (in ha.)
NB–Non–bearing plant
B–Bearing Plant
P–Production (in ton)
Y–Yield/ha. (in ton/ha.)

The above table shows that quite a large part of the area is covered by non–bearing plant. The oranges show the maximum production i.e. of 16,430.18 lacs and least production is of coconuts which are only 69.52 lacs. A comparative profile of productivity with National Average and with north–eastern states has been presented in table 6.12 and table 6.13.

Table – 6.12 : Comparison of Productivity (MT/ hectare) with

National Average

Name of the crop	Present productivity level	National level	Targeted productivity in 2012
Orange	7.77	10.10	22.00
Pineapple(Queen)	19.62	-	30.00
Pineapple(Kew)	30.97	13.60	40.00
Litchi	6.00	7.60	10.00
Banana	12.88	32.50	40.00
Cashewnut	0.36	0.63	2.00
Mango	1.46	7.00	5.00
Papaya	16.00	23.40	20.00

Table –6.13 : Comparison of productivity (MT/ha) with NE States

States	Orange	Pineapple (Kew)	Litchi	Papaya	Banana
Arunachal Pradesh	-	4.10	-	-	-
Assam	11.9	15.4	4.2	13.9	13.9
Manipur	-	7.0	-	-	-
Meghalaya	-	8.60	-	-	-
Mizoram	3.90	5.17	-	-	-
Nagaland	-	33.30	-	-	-
Tripura	7.77	30.97	6.0	16.0	10.88

A. Identification of specific horticultural crops:

There are certain horticultural crops which have been chosen keeping in mind the farmers' expertise of growing productivity, return, market demand and marketing facilities etc. of such crops. The following table shows

the present status of few selected horticultural crops in terms of area, production and productivity.

Table – 6.14 : Area, Production and Productivity of Major Croprs

Fruits	**Area (Hectare)**	**Production (Mt)**	**Productivity (Mt/Ha)**
Orange	2017.11	15682.98	7.77
Pineapple Queen (variety) Kew (variety)	 2176 1274	 42730 39428	 19.62 30.97
Litchi	1478.19	8869.14	6.00
Mango	3074.70	4500.24	1.46
Banana	4934.92	63566.21	12.88
Cashew nut	3105.50	1105.18	0.36
Areca nut	3173.14	6838.65	2.16
Coconut	3182.68	69.52	21.84
Ginger	1350	10125	7.5
Vegetables			
Capsicum	1585	9510	6.0
Betelirne	342	1210 (lacs)	50 (lacs)
Potato	5550	100000	18.02
Off–Season Vegetables			
Summer / Rainy Season Vegetable	13603.5 11009.00	117599.08 108030.48	8.64 9.81

Source: Prespective Plan for 2002–12 for Horticulture

i. Orange:

The present estimated area under orange plantation is about 2000 hectare. Out of the area of 2000 hectare, about 500 hectare requires rejuvenation. The department needs to ensure proper assistance in terms of supply of quality planting materials, insecticides and fungicides along with large–scale demonstration on maintenance of health standard of orange orchards. With the proper availability of the above required assistance the productivity is targeted to go up from 7.77mt. to 22 mt. per hectare of bearing area.

ii. Pineapple:

The pineapple grown in Tripura is mainly of two types–the kew variety, and the queen variety. The productivity of queen variety is estimated to go up from 19.62 mt to 30.00 mt with an addition of area of 1500 hectare. The kew variety, on the other hand, requires an additional area of 500 hectare and the production is estimated to go up from 30.97 mt to 40 mt per hectare. The necessary infrastructure needs to be built up for marketing of both fresh and processed fruits.

iii. Litchi:

Among the north–eastern region, Tripura is regarded to be one of the major litchi producing states–only after Assam. It has an area of 4000 hectare and the production of 18300 mt at a productivity level of 4.2 mt. It has immense potential for higher production and higher productivity level. To achieve targets it requires the assistance of the department in terms of quality planting materials and improved packages.

iv. Mango:

Tripura is not a good producer of mango, the yield is quite poor and the variety is the local one. Department has to make an effort to bring the hybrid mango variety to bring about improvement is quality and quantity.

v. Banana:

There is a high demand in the state for good quality banana like sabri, cavendish etc. which fetches the premium price. The banana cultivation in the state is done on homestead basis, where as it needs to be produced on orchard scale for export to adjoining states. The perspective plan for banana states the plan for setting up of a tissue culture laboratory at a cost of Rs. 115.60 lacs with an installed capacity of 2.5 lac plant lets per annum.

vi. Cashew Nut:

The cashew nut crop was introduced in Tripura very recently during the sixties when good quality seed material was procured from cashewnut

research station in Kerala. The crop has also adapted under the agro–climate of Tripura. The target for the coming years has been fixed at 2 mt at the full bearing stage as against the present production of 0.36 mt.

vii. Arecanut:

Arecanut has good demand within the country as well as outside the country. Being a non–perishable product the emphasis is more on the skill of production. The area which is considered best for cultivation is the interior tribal packets. The department needs to ensure higher market demand along with a improvised package for growers.

viii. Coconut:

Coconut plantation also dates back to early sixties when quality seed nuts were brought from the Central Coconut Research Stature, Kerala. The trend of homestead cultivation is also there in case of coconut mostly in west and south district. Higher production of coconut may also give a kick start to few small scale cottage industries which manufacture coir rope, mat, handicraft items etc.

ix. Ginger:

Ginger grown in India is basically of two main types. One which is fibrous in nature and the other one with very low fibre content. The ginger grown in Tripura is the inferior variety with high fibre content and so it fetches very less price. Efforts are being made to produce good quality ginger in the states.

x. Capsicum:

Most of the chilli and capsicum grown in the state is only to meet the domestic requirements. Capsicum cultivation was only started to meet the domestic demand. The requirement of dry red chilli is met by import from outside the state. Efforts are being made to increase the area by 100 hectare and productivity level to 10 mt per hectare.

xi. Betelvine:

Betelvine is in high demand in Tripura as it is consumed widely by the people living in Tripura. Both the areas the traditional as well as non–traditional are under cultivation. The ordinary variety of Banglapan and Khasia pan is grown the superior variety of *mitha–patti* is not yet under cultivation. The production of mitha patti is expected to give a much higher return.

xii. Potato:

The conventional seed–potato is procured from outside the state. With an increase in area, improved fertilizers and tuber (tuberlet). This activity will replace the dependence and besides it will be able to generate more income for the potato farmers of Tripura.

B. Storage, Processing and Marketing:

In Tripura, there are about 8 cold storages having a capacity of 14,700 MT. These cold storages are all very unevenly distributed. West Tripura has 5 cold storages, North Tripura has 2 cold storages and South Tripura has only 1 cold storage. The cold storage facility is inadequate to keep the farm produce such as potato, pineapple, onion and fish. There is a need to set up four additional cold storages with an approximate capacity of about 5,000 MT each in the four districts of Tripura. To store fruits and vegetables a low temperature and high humidity is (90-95%) required, except for onions and garlic that require low relative humidity. Besides cold storage, zero energy cool chambers also need to be developed at the panchayat level to store perishable products. The storage of field crops such as rice, pulses and groundnuts needs utmost care to save from storage pests. The following suggestions aim at improving storage capacity:

- Grain should be dried to have permissible moisture content varying from 14% to 16%.

- The building where the grains are to be stored should be sprayed with insecticides.
- Use of polythene bags particularly to keep groundnut to maintain its viability for its germination in the next cropping season.
- To prepare a bamboo structure well smeared with cowdung followed by drying and to use neem leaf as insect repellent.
- Fumigation of the sacks and the room with methyl/ bromide/ phosphine/ carbontetrachloride under the supervision of experts of the field.

Value addition to the product can be done through processing of fruits. Jackfruit is produced in Tripura in bulk quantity but there is no organized processing unit to increase the market value of the produce. The following suggestions are aimed at value addition in processing of fruits:

- To make jackfruit pickle by curing the raw fruit in dry salt or brine and subsequently preserving by spices and condiments and vinegar.
- To make jackfruit chips from ripen fruit.
- To attempt fermentation of jackfruit juice followed by distillation for preparation of alcohol.
- To use pure fruit juice from jackfruit, lemon and pineapple for preparation of various types of beverages such as squash, nector, syrup, cordial as well as fermented/ carbonated drinks.
- To adopt preservation techniques of fruit particularly pineapple for the preparation of jam, jelly and marmalade.
- To impart training to the farmers for development of fruit preservation at homestead or small scale.
- To create a common facility for fruit processing unit at Agartala.

Rural marketing and storage in the state are often the main point of articulation between rural producers and other sectors of the regional economy. There are many constraints in both these sectors because of which there comes in bottlenecks in production and distribution. There is an urgent

need for the preparation of a Master Plan for the development of the infrastructure.

C. New Fields of Horticulture / Potentialities:

i. Floriculture:

Under high value horticulture, commercial production of flowers holds a great promise to meet the domestic requirement of nearly 150 MT of cut flowers per annum. The present estimated area under flower cultivation is about 25 ha mostly under marigold. Attempt should be made to bring the total area of 40 ha under flower cultivation in which gladiolus, tuberose, chrysanthamum, rose and marigold are to be grown in commercial scale. As it was also found that flowers like tube rose, gladiolus, rose marigold etc. can be successfully grown in the state under prevailing agro-conditions. The present domestic demand for flower is being met by import from Kolkata, but there is immense scope for the commercial production of flowers in the state itself. A preliminary market survey brought the following points for consideration by the State Government:

- About 10 small traders are engaged in the sale of flowers at Agartala.
- There are 6 small nurseries.
- The annual turnover from sale of flowers is about Rs. 55.00 lacs and Rs. 10.00 lacs from nurseries.
- About 150 mt. of cut flowers are being imported per annum from Kolkata.

To bring about a marked improvement in the field of floriculture the following points need to be considered carefully-

- To introduce the Indian varieties of marigold like *Pusa Basanti Gainda, Pusa Narangi,* French marigold like *Happy Orange, Happy Yellow,* African marigold like *Snowbird, Sugar and Spice, Guys and Dolls* etc. in 20 ha.

- To introduce tuberose particularly variety single for commercial cultivation. The aera earmarked for tuberose is 10 ha. The bulb size is of 2 to 2.5 cm. The bulb requirement is 33 lakh nos.

- To introduce the chrysanthemum variety KS 17, KS 5, Yellow anemone, Bajoria red for commercial cultivation. The area earmarked for chrysanthemum production is 5 ha.

- To introduce gladiolus, the varieties identified are High Style, Tropics Sea, Sunset American Beauty, Moon Magic etc. The area earmarked under gladiolus is 5 ha.

- Selection of some rural and urban youth for training to grow ornamental foliage such as croton, duranta, coleus, poinsettia etc. on a commercial scale.

- Collection and documentation of orchids particularly hot climate suitable species Phalaenopsis, Vanda, Rhynchostylis and some dendrobium species. There is a need to impart training to the unemployed youth for cultivation of orchid and to create the market facility particularly for export and domestic level.

ii. Mushroom:

It has been discovered in the recent years that mushroom cultivation is a successful and profitable field in the state. The standardization in the production technology of system and button mushrooms has already been done by the department. The present value of production of spawn is 15,000 packets per annum. It is contemplated that during the plan period the department shall produce about 50,000 spawn packets per annum. The department needs to under take a rigorous programme for the development of mushrooms by creating awareness amongst farmers and by imparting liaising on the production technology.

iii. Tissue Culture:

A project has been formulated by the department for the commercial production of Tissue culture plants. The production will be about 2.50 lacs plant lets per annum at estimated cost of Rs. 115.00 lacs. The department has been working for the last 4–5 years and has been successful in standardizing micro propagation of horticultural crops like parent lines of potato, banana and mandarin orange and some orchids at laboratory scale. There is a need for micro propagated plant production in Banana, disease free mandarin orange and to keep the parental lines of potato for production of TPS. There is a need to create a tissue culture laboratory having a capacity of nearly 5 lakh plantlets per annum to meet the demands of tissue culture plants gradually.

6.3. CURRENT STATUS OF ANIMAL HUSBANDRY

Animal Husbandry is an important part of the traditional agricultural system in the north east. Meat is a important item of food of the people. Poultry and animals like cow, buffaloes, and pigs are also kept. Development of animal husbandry has considerable significance in an agrarian economy. The government has been encouraging and strengthening its effort for taking full advantage in this sector. Out of 9.5 lakh cattle population as recorded in 1992 the population of local female cow is 1.56 lakh and cross bred female cow is 33,766. She buffalo and goat are 3,539 and 1.08 lakh respectively. The infrastructure available for cattle development is artificial insemination centres (150), semen collection station (3), frozen semen bank (1), liquid nitrogen plant (4), intensive cattle development project (2), milk union (1), dairy plant (1) and disease investigation laboratory (3). The table below shows the present status of animal wealth as per 15th Live Stock census 1992.

Table – 6.15 : Animal Wealth and Their Economic Value

Species	Population(in lakh)	Economic value (Rs. In lakh)
Cattle	9.50	57,000
Buffalo	0.19	1,520
Sheep	0.48	480
Goat	5.13	5,130
Pig	1.88	5,640
Poultry	19.75	1,975
Duck	6.12	612

Tripura is deficient in foodgrain production as well as animal origin of food i.e. milk meat and egg. There is ample scope to develop the animal resources sector, as vast majority of the population of Tripura comprising small and marginal farmers belong to rural areas. Another factor for the prospects of animal husbandry in the state is that the habitants of Tripura are mostly tribal people and are traditionally animal rearers. Table–6.16 gives a comparative account of availability of animal products – for all India and Tripura.

Table – 6.16 : Comparative account of Animal Products

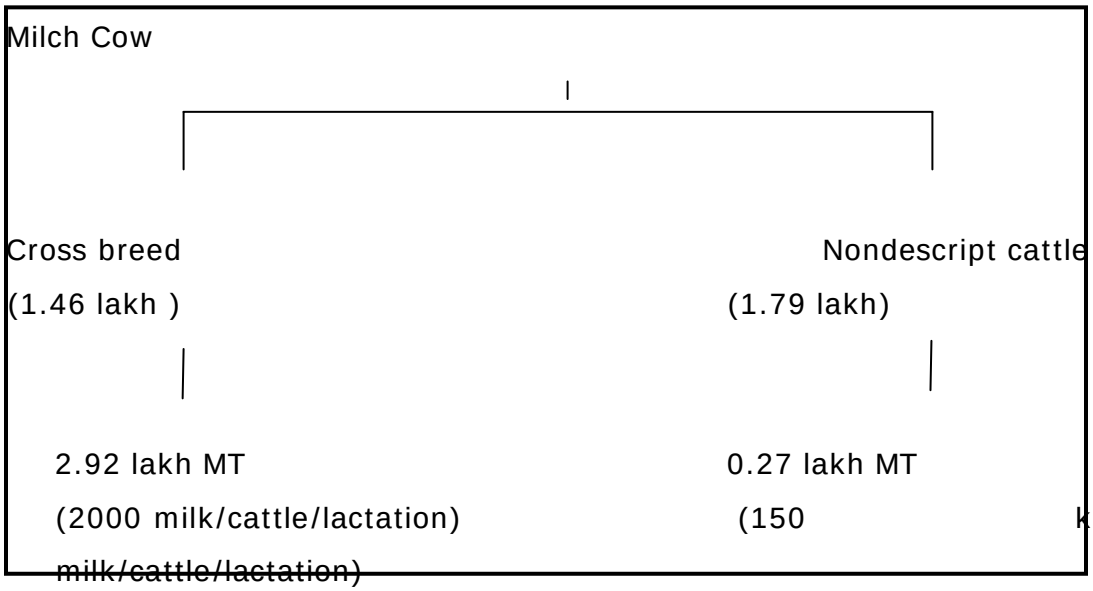
Item	All India		Tripura	
	Total Production	Per Capita Availability	Total Production	Per Capita Availability
Milk	74.4 MT	211 gm/day	76909 MT	58 gm/day
Meat	4.4 MT	4.5 kg/year	6800 MT	1.94 Kg/year
Egg	32.2 billion	31 nos./day	1050 lakh	35 nos./year

Source : As per report, 1998–99.

- The above table shows that per capita milk availability is far below the recommended level or the all India level, where as the per capita egg availability is quite sufficient and also more than the All India per

capita availability of egg. The production of milk and meat needs to be further boosted up in order to bring self–sufficiency in the state. Again, out of a total of 9.50 lakh cattle population in Tripura, female cow is 1.56 lakh (local deshi) and the crossbred is 0.34 lakh (upgraded). The she–buffalo is only 3,539 and the female goat is 1.08 lakh no. The Milk Production is 0.77 lakh MT and milk availability is only 65 g/capita/day which is much below the ICMR recommendation of 220 g milk/capita/day.

Box–6.2



Additional milk yield may be had from 3,500 nos. of buffalos producing 1500 kg milk/lactation and the total milk yield may be around 0.05 lakh MT. However, it may be observed here that due to absence of proper record of artificial insemination programme, improvement of cattle gets hampered and hence there is a need to maintain the proper record so as to have an appropriate breeding strategy. Despite the growth in production in recent years, the state continues to be deficient in animal husbandry production, particularly meat and milk. There is an urgent need to gear up the production of animal products. The starting point for the animal husbandry programmes must be with a clear assessment of local requirements of milk, eggs and

meat. This assessment should be the basis for planning animal husbandry development. There is also a dearth of animal health centres, in the state. Undoubtedly, adequate health facility is a pre–requisite for increasing the productivity of live stock.

The table below gives the present status of veterinary hospitals and dispensary distributed among the districts:

Table – 6.17 : Current Status of Veterinary Hospitals

District	Veterinary Hospital	Veterinary Dispensary	Veterinary First–aid Centre	Stockman Sub–centre	Cases Treated
West	3	20	101	102	528570
South	3	17	64	–	216244
North	2	12	48	45	154737
Dhalai	2	6	25	–	154171
TOTAL	10	55	238	147	1053722

On the threshold of acute unemployment particularly in Government sector, saturation of operational cultivable land, lack of healthy industrial growth, Tripura requires sizeable growth in the animal husbandry sector. The development of this sector will be great importance in the state economy. Therefore the state government needs to make a sustained effort to bring about improvement of this sector.

6.4. POULTRY

Poultry rearing has got tremendous potential to accommodate a large number of unemployed youth, small and marginal farmers and give them a sufficient opportunity to earn their livelihood. There is a need for optimum exploitation of these resources. The state is predominantly inhabited by non–vegetarians and the demand in this region is significantly higher than the national average. Poultry rearing has been much in practice among the tribal population. They generally rear both deshi and cross breeds in small flocks by adopting the free range system. Poultry generally lives on village wastes, though organized poultry in the vicinity of urban areas has started and this

requires proper poultry feed. There is a wide gap between the demand for eggs and its production. Tripura has a capacity of 100 to 1000 poultry birds per fare. The principal problem in the case of poultry is the lack of effective arrangements for the marketing of eggs and broken meat. Hence, there is a requirement for expansion in the pace of poultry development. The supply in Tripura mainly comes from state Poultry farm, Ghandhigram and two District Poultry farms at Udaipur and Panisagar. There has been a substantial increase in the poultry population in the state, but the population is mostly of the Deshi variety having poor productivity. The deficient productivity is also due to lack of balanced concentrated food, poor genetic make up, low management practices and backward system of rearing. The production may be increased by absorbing the facility from NEC, Regional Poultry Breeding Farm etc. It can also be increased manifold by involving mass rearing without putting much strain on feed resources and other inputs required – which is not available with the general mass.

6.5. FISHERY

The fishery sector is one of the major areas allied to agriculture. Fish is one of the major food items of the people of Tripura and due to the increase of fish eating people in the state its demand has further incresaed. It supplements Tripura's food production and offers job opportunities to a number of unemployed skilled and unskilled rural people, uplifting the economic status in general and the fisherman community is particular. Fish is the cheapest source of protein supply to the rural community where the potential for enhanced production exists. Approximately 95 per cent of the population of Tripura is fish eaters.

A. Demand For Fish:

Fish constitutes to be an important item of food in the eastern and north–eastern part of India. The National Commission on Agriculture had earlier estimated that the per capita Nutritional Requirement of fish is 11 kg per annum. Keeping in view the present pattern of consumption, the

following projections have been made for the coming years which is as follows:

Table – 6.18 : Fish Requirement

Year	Requirement of fish per annum
2002–03	34.87
2006–07	37.05
2011–12	39.97

B. Present Status of Fishery in the State:

The present aqua–resource is only 2.22 per cent of the total geographical area of the state which comprises of 42.84 per cent capture fisheries and 57.16 per cent culture fisheries resources. Due to hilly terrain the water bodies in the state are not perennial. Out of the total fish production, 96.55 per cent is contributed by culture fisheries resources and rest only 3.45 per cent is contributed by capture fishery resource. Again, out of production from culture fisheries, 99 per cent is contributed by private water bodies and the rest only 1 per cent is supplemented by both co–operative and government sector water areas.

C. Intensification of Aquaculture : Some Observational Suggestions

i. Renovation of public water bodies

Most of the public water bodies are not utilized or under utilised in respect of fisheries. After clearing the weeds, strengtheing the bunds and removing the silt, we can have good harvest from these ponds. Action plan should be made separately for each water bodies. Regular stocking and harvesting pattern is ideal for bigger water bodies of 1 ha area.

ii. Creation of more water harvesting structures

Fishery Department alone and also in collaboration with various other Departments like Agriculture, Horticulture, Animal Husbandry, Poultry, Soil and Water Conservation, Forestry and Land Use Board should identify the areas where they can go for new water bodies. There are several schemes

already existing in these departments has huge unspent fund for creation of new water bodies. Financial assistance and promotion schemes should be prepared and implemented.

iii. Planning of Promotional Schemes

Promotion schemes should be planned separately for (I) Creation of new water bodies (ii) Intensive and semi-intensive aquaculture (iii) Prawn culture (iv) Flood control (v) Modernisation of aquaculture.

iv. Financial assistance to the fish farmers

There should be a provision to provide financial assistance as loans to the farmers without interest or with least possible interest for constructing new water harvesting structures, purchasing seed, feed and fertiliser. Special promotion schemes should be evolved to introduce aquaculture in the most intensive way.

v. Neglected water bodies

Wherever the intensification is not possible, promotion of aqua–culture in an extensive way. Integration with lowland paddy can be a profitable scheme.

vi. Protective structures to prevent escape of fishes during flood

Some water bodies are not used for the fish culture mainly because that fishes will escape during flood. Protective structures should be made in such cases.

vii. Running water fish culture

Wherever possible, we must modify the water channel conducive to for running water fish culture. Important fishes like trout and mahseer are ideal and highly profitable for running water fish culture.

viii. Ornamental fish culture

More emphasis should be given in this sector. This can be a highly profitable export oriented source. Tripura is ideal for breeding and culture of all warm water species. Promotion, extension and marketing facilities should be created for expansion of ornamental fish culture in Tripura.

ix. Marshy and fallow wet lands

More than 1,000 ha of fallow or marshy land is available. This can be converted into fish ponds for composite fish culture.

x. Reclamation of 10,000 ha water bodies

Under utilised or unutilised water bodies which have been identified in about 10,000 ha of areas by the State Fishery Department should be modified and action should be taken to reclaim the areas and go for composite fish culture. Most of these areas are in forest and action plan should be prepared jointly to develop watershed management in forest areas also.

xi. Integration of aquaculture

Integration of aquaculture with agriculture, horticulture, forestry, animal husbandry and poultry should be planned for enhancing the level of overall production.

xii. Replacement of existing brood stock and introduction of new breeds/varieties

The existing stock is highly inbred and proper breeding management strategy is essential to ensure genetic quality. Certain programmes like importing the brood stock, swaping the brood stocks should be taken up. New varieties/strains of commercially important species should be introduced to enhance fish production.

D. Critical gap : Agricultural and Allied Activities

With respect to 1.57% annual increase as recorded in the decadal growth (1991-2001) of population, population in 2002-03 was 32.41 lakh but it may progressively increase to 37.3 lakhs in 2011-2012. The total food grain production is presently 5.97 lakh MT. Food requirement is calculated (Table–20) keeping in view 500 g consumption per capita per day, 12.5% seed feed and wastage and 10% pipeline. The food deficit is expected to raise from 1.47 to 2.46 lakh MT, from 2003-04 to 2011-12. Against this growth of population, there is every of possibility of the emergence of food deficit.

Table–6.19: Population and food requirement over the years

Year	Population (lakh)	Food requirement (lakh MT)	Deficit (lakh MT)
2001-02	31.91	7.21	1.24
2002-03	32.41	7.32	1.35
2003-04	32.92	7.44	1.47
2004-05	33.44	7.55	1.58
2005-06	33.96	7.66	1.69
2006-07	34.49	7.78	1.81
2007-08	35.03	7.91	1.94
2008-09	35.58	8.03	2.06
2009-10	36.14	8.15	2.18
2010-11	36.71	8.28	2.31
2011-12	37.29	8.43	2.46

- Considering 50 g pulse consumption per capita per day, annual pulse requirement was varying from 0.62 to 0.85 lakh MT. So, the present deficit may increase from 0.57 lakh MT to 0.80 lakh MT by the terminal year of 2011-12.
- Considering 12.4 kg/head/year consumption, annual oilseed requirement was varying from 0.42 to 0.57 lakh MT. So the present deficit may be increase from 0.38 to 0.53 lakh MT by the terminal year of 2012.
- Considering 242 g vegetable consumption/capita/day, the annual requirement for vegetable may vary from 2.99 to 3.29 lakh MT and thus the present deficit may increase from 0.61 to 1.04 lakh MT.

- Considering 170 g of fruit consumption/capita/day, the total annual fruit requirement may vary from 2.10 to 2.31 lakh MT. The deficit in fruit excluding the jackfruit may increase from 0.21 to 0.41 lakh MT. In jackfruit, the total production is around 2.5 lakh MT but the value addition is nonexistent.
- Considering 220g milk consumption per capita per day, the total annual requirement for milk may vary from 2.73 to 2.9 lakh MT, thus the present deficit may be increased from 1.96 to 2.13 lakh MT.
- Considering 60 g meat per day per capita, the total annual requirement may vary from0.74 to 0.82 lakh MT and thus the present deficit may increase from 0.67 to 0.75 lakh MT.
- Considering ½ egg per day per capita, the total annual requirement may vary from 6198 to 6807 lakh nos. and thus indicating expected deficit of 4693 to 5757 lakh nos. over a period upto 2012.
- Considering 11 kg fish consumption per capita per annum, the total annual requirement may vary from 0.37 to 0.41 lakh MT and thus the present deficit may increase from 0.18 to 0.23 lakh MT over a period upto 2012.

6.6. SWOT Analysis

Strength

- Out of the total geographical area of 10.49 lakh ha. 2.80 lakh ha. is the total area sown. On an average 2.10 lakh ha. area is sown more than once.

- The gross cropped area is 4.90 lakh ha. with a cropping intensity of 175%.

- The floral wealth includes 379 tree species, 320 shrubs, 581 herbs, 165 climbers, 16 climbing shrubs, 35 ferns, 45 epiphytes and 4 parasitic plants: total–1545 texa.

- The total annual runoff in 17 rivers of Tripura is 7,61,600 ha.m. Out of which 6,18,400 ha m flows during the monsoon period and the rest 1,43,200 ha m flows during the non-monsoon period. The annual recharge of ground water is 84,000 ha m , out of which the useable ground water is nearly 54,000 ha m annually.

- The cultivators in Tripura are about 3.05 lakh constituting 11.04% of the total population as recorded in the 1991 census. Agricultural labourers are 1.88 lakh which is only 6.8% of the total population.

- The aqua resourse is 23,342 ha constituting about 2.22%, out of which 42.84% is under capture fisheries and remaining under culture fisheries.

Weakness

- Communication bottleneck
- Inaccessibility and marginality
- Small land holding
- Complex, diverse and resource poor type of agriculture
- Absence of commercial ventures
- Lack of Processing/Storage/Post harvest facilities
- Limited availability of seed and planting materials.
- Lack of adequate Farm mechanization
- Monocropping and subsistence agriculture
- Inadequate facilities for disease diagnosis and its control for crop, fish and livestock
- Unscrupulous trade with neighbouring State/Country
- Inadequate credit flow, insurance coverage and other incentives
- Traditional system of cultivation
- Lack of vaccine etc. facilities for prevention of livestock diseases.

Opportunities

- Uncommon opportunities to increase production through:

- High agriculture/horticulture in plain valley ecosystem
- Organic Agriculture/Horticulture/Animal Husbandry in hill and upland ecosystem.
- Possibility and increasing cropping intensity up to 300%

- Inter-State and International trade particularly in value added products and organic products.
- Agroforestry intervention with judicious combination of crop-livestock-fish on watershed concept.
- Commercialization of select crops namely aromatic rice, pineapple etc.
- Introduction of Hitech Horticulture
- Development of high yielding animal/poultry varieties
- Use of waterbodies effectively to increase fish production
- Popularising the concept of agri business/agro clinic among educated youths
- Collection, domestication and genetic characterization of bioresources including medicinal, aromatic and flower species and their conversion into desirable products through biotechnology.

Threat

- Germplasm piracy due to international border.
- Attack of disease and pest from the international border
- Loss of biodiversity due to unorganized control measures and environmental protection.
- Disruption in food supply due to natural and man made hazards
- Threat of areas becoming barren due to unabated soil erosion and water loss.
- Prevailing law and order situation

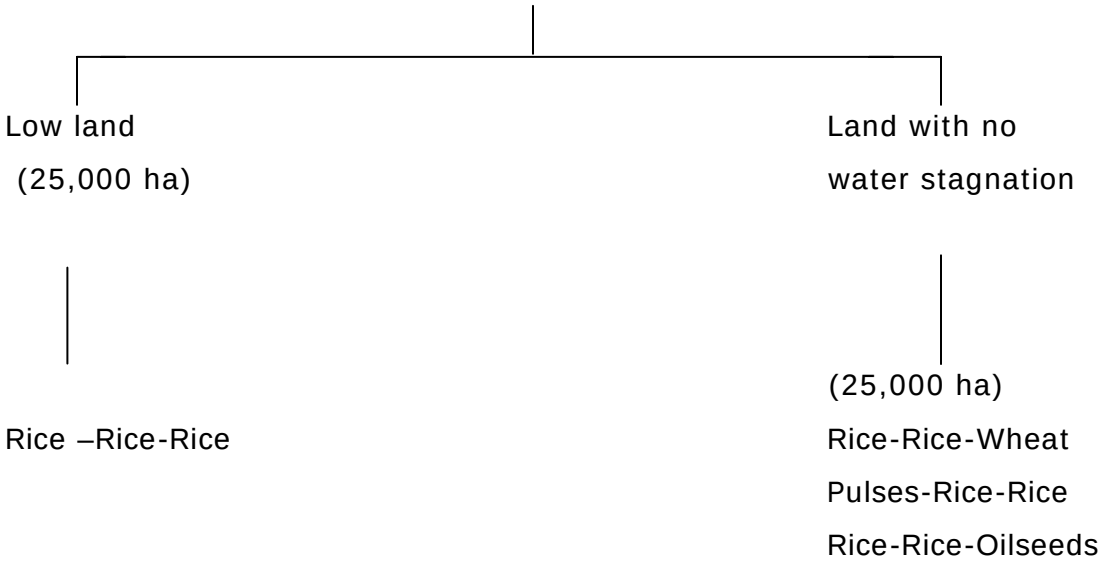
6.7. PERSPECTIVE PLAN:

The policy document of Government of Tripura for the development on agriculture and allied sectors contains an approach to diversification in

agriculture, introduction of high value crops and modernisation in animal husbandry and fisheries. The projections mainly outlined upto 2012 may lead to strengthen the fabric of agriculture and allied sectors in the state and finally generation employment opportunities.

The area under rice is 2.47 ha and the area having plain topography is, on an average, 19.8 %. So an area of 48,855 ha (50,000 ha) has to be brought under high input agriculture. This area can be utilized to grow rice. Here the cropping intensity is expected to be around 300% through inclusion of three rice crops in a year or 2 rice with either pre kharif pulse or rabi oilseeds. So the cropping sequence in this type of land where high input agriculture is expected to be in operation is as follows.

PLAIN VALLEY LAND (50,000 ha)



In the cropping system as stated above, the first crop of rice is invariably an aus crop grown under direct seeded condition followed by either transplanted paddy or wheat/oilseeds.

High input agriculture with 300% cropping intensity needs to be introduced in plain land. The cropping system here may be of 3 rice in pre–kharif, kharif and rabi. Here diversification may be brought about by

introduction of pulses, oilseeds and wheat. Hybrid rice may also be introduced initially in 2,000 ha of land followed by 2% annual increase over the period. Though 89% of the area is under high yielding rice varieties, seed replacement of rice is very meagre (8.33%). Attempts have been made to bring about an initial 40% seed replacement followed by gradual rise over the period. Aromatic rice needs to be grown in 500 ha under organic agriculture. In tilla land having variable topography, rice based cropping system is to be introduced with a change from mono cropping to double cropping. A lot of emphasis is also placed on use of fertilizer and organic manure to sustain the crop productivity. The use of bio–fertilizer and bio–pesticides also an important role in the process of planning. The financial requirement in agriculture to achieve the target of planning is depicted below:

Table 6.20. Financial requirement in agriculture (Rs. in crores)

Year	Institutional credit	Govt. contribution	Beneficiary
2005-06	76.05	93.84	0.81
2006-07	77.81	96.32	0.85
2007-08	80.11	98.92	1.28
2008-09	78.13	101.61	1.36
2009-10	84.87	104.21	1.43
2010-11	87.34	106.93	1.11
2011-12	89.88	119.35	1.18

Like arable crops, vegetable cropping system should be introduced in the area of 12,306 ha in both summer and rabi season. The area earmarked for vegetable production under organic farming may be around 15% of the total vegetable cultivation. New areas should be brought under spices production. Cultivation of betelvine particularly mithapati of high value should also be encouraged among the farmers. There is a acute deficit in the supply of elite planting materials for the fruit crop. Some of the orange orchards of jampui hills are in declining stage. So the fruit productivity may have to be increased through the supply of elite planting materials across the state. Organic production of pineapple is also to be encouraged for wide scale

adoption by the farmers. Attention is also to be given for cashewnut, arecanut and coconut to be grown in half moon terraces under the supply of drip irrigation in the hilly terrains of Tripura. High value crops, viz. Floriculture, vanilla, cardamom, biofuels and mushroom are the need of the hour. The establishment of mushroom laboratory, tissue culture, modern rice mill, dal and crushing mill, cold storage and fruit and vegetable processing unit are also under the perview of this exercise with a view operationalize the conception of growth of of agro industries. Farm power machinery is in infant stage and there is a need to introduce farm mechanisation in a large measure. Concerted efforts are being made to bring nearly 42% of the net sown area under assured irrigation. Soil and water conservation must also be given priority with the objective of setting up to drip/sprinkler irrigation and water harvesting of structure so as to collect rain and run off water. The financial requirement in Horticulture for achieving the stipulated target is given below:

Table 6.21: Financial requirement in Horticulture (Rs. in crores)

Year	Institutional credit	Govt. contribution	Beneficiary
2005-06	70.0	188.17	2.86
2006-07	36.76	16.40	2.42
2007-08	39.26	168.14	2.61
2008-09	38.69	126.29	2.62
2009-10	39.88	103.80	2.74
2010-11	41.05	81.05	2.82
2011-12	42.31	70.29	3.00

There is a long way to go in the area of animal husbandry to achieve the targeted production. Cross breeding programme with cross breed cow supplying 2,000 kg milk/lactation must be introduced. There will be 1.46 lakh nos. of cross breed milch cow by 2012. Feed and fodder development

programme has also become a matter of significance for the departments. Dairy development with the objective of to produce various milk products under the organised milk cooperative society must also be planned. The target of egg production is to be achieved through rearing of high input, rural poultry birds, and khaki campbell duck. The per capita availability of meat in Tripura is only 1.9 kg/annum against the all India average of 4.5 kg/head/annum. Introduction of pig particularly cross breed ones, goat, poultry, broiler duck and rabbit may expectedly increase the per capita meat availability from 8 to 22 kg/annum over a period of 6 years up to 2012. The financial requirement of the Animal Husbandry sector is depicted below:

Table 6.22: Financial requirement in Animal Husbandry (Rs. in crores)

Year	Institutional credit	Govt. contribution	Beneficiary
2005-06	67.69	163.00	3.91
2006-07	212.39	292.06	13.00
2007-08	268.28	202.82	18.23
2008-09	331.87	224.43	21.68
2009-10	418.44	215.37	26.20
2010-11	465.21	273.42	29.90
2011-12	512.94	303.93	35.65

The scientific management of fisheries is yet to be adopted by the farmers and mass awareness of the viable technologies does not exist. Marshy and fallow wet land need to be reclaimed and new aqua resources are to be explored. Composite fish culture in a semi intensive way is definitely an important step for increasing fish productivity in the culture fishery sector. Pisciculture along with the introduction of duckery and piggery will turn out to be highly remunerative. Attempts should also be made to

introduce new breed and replace the existing root stock. There is a need to promote sports fisheries so as to increase avenues self employment. Finally, demonstration and training of the farmers and departmental officers are to be carried out seriously. The financial requirement in fisheries to achieve the projected target is presented below:

Table 6.23: Financial requirement in Fisheries (Rs. in crores)

Year	Institutional credit	Govt. contribution	Beneficiary
2005-06	37.95	14.96	3.29
2006-07	37.95	11.12	3.29
2007-08	37.95	11.00	3.29
2008-09	37.95	12.12	3.29
2009-10	37.95	12.20	3.29
2010-11	37.95	12.43	3.29
2011-12	46.78	15.07	5.02

Transportation and marketing facilities have also been brought under the purview of planning to channelise the collection and sale of the produce from the village levels to the capital via subdivision/districts for capturing the state market– domestic, and international. The financial investment for improving the marketing net work is highlighted below:

Table 6.24: Financial requirement in Marketing (Rs. in crores)

Year	Govt. contribution
2005-06	4.0
2006-07	0.24
2007-08	0.24
2008-09	0.25
2009-10	0.25
2010-11	0.26
2011-12	0.26

Besides self–sufficiency in food and other products, measures are required to be adopted, measures are required to be adopted for diversifying the institutional financing and to this end the requirement would be in the order of Rs. 0.04 crore.

. Agriculture :

On the basis of availability of physical and financial resources, an attempt has been made to delineate the expected targets to e achieved in relating to agriculture, horticulture, floriculture, irrigation, animal wealth and fishery.

- The area under rice is 2.47 lakh ha and out of this area, 19.8 % is plain land. So 0.49 lakh ha is to be put under high input agriculture to obtain an average rice productivity of 5 MT/ha in both kharif and rabi season. Thus the expected production will be 4.89 lakh MT

- Nearly 6.7% of the topography is tilla land with gentle to moderate slope. So the area under this category for direct seeded rice is 0.17 lakh ha. The area having slope in southern direction can also be put under high input agriculture with a productivity range of 2 MT/ha. Thus the expected production will be 0.34 lakh MT.

- The remaining area having moderate to steep slope, rolling topography and comparatively high hills is 73.5 % of TGA. So the area under this category of land is 1.81 lakh ha producing upland rice. The area under jhum cultivation also falls in this category thus having a necessity to implement jhum improvement programme. Assuming the average productivity to be achieved around 1.4 MT/ha, the total rice production is 2.53 lakh MT. So the total production of rice is expected to be around 7.77 lakh MT in 2005-06.So a surplus of 0.11 lakh MT of rice may be expected to be achieved

- The rice production in 2011-2012 will be around 8.57 lakh MT keeping in view the annual increase of 2 %.

- Out of total 0.49 lakh ha, 50 % area i.e 0.245 lakh ha will be put under three crop of rice with productivity of 3,5,5 MT/ha in aus, aman, boro, respectively and the remaining area is under double cropping. So the total production will be 5.61 lakh MT.

- Keeping in view the same level of production of rice in the remaining area (1.98 lakh ha), the total rice production is expected to reach a level of self sufficiency and it is 8.48 lakh MT. So the requirement in 2011-2012 will be around 8.43 lakh MT and the surplus in rice may be around 0.05 lakh MT.

- Attempts be made for introduction of hybrid rice technology ,production of aromatic rice under organic agriculture and augmentation in productivity of direct seeded rice under rainfed condition

- A provision of 20.47 % of the plain area (0.49 lakh ha) i.e. 10,000 ha under wheat cultivation with a average productivity of 3t/ha. be made, so that the total productivity of wheat will be 0.3 lakh MT.

- To bring 25% of the area as a second crop under tilla or high upland (1.98 lakh ha) i.e. 0.49 lakh ha under maize with an average productivity of 4t/ha, so the total expected production of maize will be 1.97 lakh MT.

- To increase the present level of pulse productivity from 6.25 to 10.0 q/ha.

- To bring 25% of the plain area (0.49 lakh ha) i.e.12, 213 ha under pre kharif pulses. Here pulse production will be around 0.12 lakh MT taking average productivity as 1t/ha.

- To bring the 30% of the tilla land (1.98 lakh ha) i.e.0.59 lakh ha under post kharif pulses. Here the productivity of pulse at 850 kg/ha. Production will be 0.50 lakh MT.

- Total expected pulse production will be 0.62 lakh MT

- To have the 10% of the tilla land i.e 0.198 lakh ha under sesamun. With an average productivity of 1MT/ha the total production will be around 0.2 lakh MT.

- To have 10% of the tilla land or riverbed i.e. 0.198 lakh ha with an average productivity of 2 MT/ha. so that total groundnut production will be 0.40 lakh MT.

- To have 25 % of the plain area (0.49 lakh ha) i.e. 12,213 ha under rapeseed and mustard during rabi season. Considering average productivity of 1.3 MT/ha, the total production will be around 0.16 lakh MT. so the total oilseed production in the State is expected to be 0.76 lakh MT.

B. Horticulture :

- To increase the average productivity of vegetables from 10t to 15t/ha. Considering the area 12,306 ha under vegetables, the total expected production will be around 1.85 lakh MT.

- To encourage organic cultivation of vegetables for quality production

- To earmark the area under jampui hill range (North Tripura) for growing off season vegetables particularly cabbage, cauliflower and summer tomato.

- To introduce polyhouse culture both under low and high cost investment for regularisation of temperature and humidity in order to produce high value vegetables.

- To increase the productivity of orange from present level of 7.8 MT/ha to a level of 12 MT/ha, the total expected orange production will be 0.25 lakh MT.

- To rejuvenate the existing orange orchards.

- To encourage pineapple cultivation under organic farming so as to capture national as well as international market for pineapple.

- To create post harvest facility for pineapple

- To produce pineapple round the year

- To bring the elite varieties of banana for enhancement of the present productivity around 13 t/ha to 35 t/ha. The area under banana is 5,000 ha and the total productivity will be around 1.75 lakh MT.
- The area under mango is 3,150 ha, mainly growing local varieties having severe stone weevil problem. The productivity of mango in Tripura is 1.46 MT/ha. So there is a need to supply the elite mango varietiesof regular bearing types with a productivity of 8MT/ha. So the total expected productivity of mango will be 0.25 lakh MT.

- The area under litchi is 1,628 ha with a productivity of 6 MT/ha, there is a need to increase the productivity of litchi upto 12.4 MT/ha and the expected production will be 0.2 lakh MT.Varietal replacement of litchi with low stone/high flesh needs to be introduced.

- The production of jack fruit is 2.5 lakh MT without any commercially viable use. To introduce preservation and processing techniques in order to enhance the marketing potentiality of these fruits.

- To introduce grafted cashewnut in an area of 3,230 ha with a productivity level of 2 MT/ha. There is a need to have improved processing unit of cashewnut to increase the marketing potentiality.

- The present productivity of black pepper is 200kg/ha (dry). So there is a need to introduce the elite blackpepper varieties with a productivity ranging from 600-800 kg/ha

- To introduce blackpepper as a multistoried cropping in a large scale in agroforestry preferably under organic farming.

- The productivity of ginger and turmeric is generally low ranging from 4 to 5 MT/ha. So there is a need to replace the local varieties with ginger of low fibre content and turmeric of high curcumin content.

- To grow ginger and turmeric in forest land on agroforestry mode.

C. Floriculture :

- To increase the production of TPS with an organised marketing network setup for export to the international market.
- To increase the production of flower particularly marigold, tuberose, chrysanthamum and gladiolus in order to fetch quick economic return by the farming community.

- To collect document orchid and create an avenue for export.

- To introduce vanilla to get a high and quick economic return by the farming community.

- To collect and document locally available trees and shrubs having medicinal value and create an avenue for production of medicinal crops.

- To collect and document locally available sources of mushroom and to impart training to farmers as well as entrepreneures for mushroom cultivation in a large scale

- The area under fibre crops i.e. jute, mesta and cotton is 4,263 ha. There is a need to replace the local varieties with high yielding one

- To preserve the coloured cotton grown in shifting cultivation areas for exploiting the export potentiality

- To earmark the marginal land for growing the fibre crop particularly mesta.

- To create proper marketing facility for economic and diversified use of fibre crops.

D. Irrigation :

- Nearly 50,000 ha of land has been brought under various modes of irrigation and this area is only 17.9% of the net sown area.

- To make attempt for achieving the total irrigation potential which has been assessed as 1.17 lakh ha and this area is about 42% of the net sown area.

- To implement watershed based technology for development of hilly undulated terrain and supply of irrigation water through conservation of rain and run off water.

E. Animal Wealth :

- The present milk production is around 0.77 lakh MT. The milk production is to be enhanced to a level of 2.81 lakh MT and 3.0 lakh MT by 2007-08 and 2011-12, respectively keeping in view requirement of milk (220 g milk/day/capita).

- To upgrade the productivity of local poor yielding cattle and buffalo through application of artificial insemination

- It is necessary to have 1.46 lakh no. of crossbred cow having a potential milk yield of 2000 kg per lactation to supply the average requirement/day/capita

- To introduce frozen semen technology for AI programme.

- To provide adequate feed and fooder through increase in production of feed ingredients (maize, wheat, oilcake, soybean etc.) and fodder like Napier, guinea grass, stylo, hybrid Napier, paragrass, dinanath grass etc.

- To strengthen artificial insemination service for maintenance of the maximum no. of breedable female cows of high productivity.

- To create milk chilling plants in subdivision H.Q to prevent milk spoiling and attract more farmers under organised milk marketing system.

- To create dairy plant for marketing pasturised milk and other milk products.

- To make attempt for raising entrepreneurship/commercial dairy farm in private sector with high yielding stock of milch cattle.

- To strengthen the disease investigation laboratory to monitor the disease incidence of livestock

F. Fishery:

- The fish requirement keeping in view the 11 kg per annum per capita is 0.39 lakh MT by the year 2012.
- To introduce composite fish culture under semi intensive mode having 500 kg feed per ha in ponds/tanks (9072 ha). So the total productivity is around 0.27 lakh MT (3 MT/ha).

- To introduce composite fish culture in mini barrage (4270 ha) having a productivity of 2 MT/ha, the total productivity will be 0.09 lakh MT.

- To introduce composite fish culture in reservoir (4,500 ha) having a productivity of 2 MT/ha, the total production will be 0.09 lakh MT

- To introduce composite fish culture in lake (240 ha) having a productivity of 2.5 MT/ha, the total production will be 0.006 lakh MT.

- To maintain the fish productivity in river and rivulets (5,260 ha) at the level of 1 MT/ha, total production will be 0.05 lakh MT.

- Thus the total production of all sources (23,342 ha) will be 0.51 lakh MT.

- To introduce cage and pen culture in river and rivulets in 1-2 ha area as a unit with a stocking density of 20,000nos./ha.

- To maintain the stocking density of 10,000 nos./ha in pond and mini barrages.

- To introduce poly culture of prawn in ponds and tanks and certain area in mini barrages having a potential yield at 1 MT/ha. Here the prawn stocking will have to be maintained at 20,000 nos. per ha.

- To create nearly 1000 ha of marshy/fallow wet land into aqua bodies.

- To reclaim nearly 4,400 ha of old water bodies in order to make these aqua bodies a productive one.

- To make attempts for diversification of aqua cultural practices and to introduce improved varieties of rohu fish.

- To create organised marketing network for sale of various produce of agriculture, animal and fisheries sectors.

- To strengthen the departmental activities through employment of resource persons on contractual basis and impart pertinent training to undertake the planning exercise.

6.8. ISSUES

A. Agriculture :

- Formulation of long–term sustainable agricultural policy for reaping the benefits of technological innovations and upgradation in the agricultural sector.
- Attainment of self–sufficiency in food and hybrid seeds.
- Designing cost–effective land use pattern and resettlement of the Jhumias.
- Maximum utilization of the existing urban potential and exploring the possibilities of enhancing the irrigation potential through long–term water management policy.

- Restructuring and revamping the existing agricultural marketing policy.
- Vertical expansion and streamlining of institutional credit facilities.
- Expansion of the coverage of research and development.

B. Horticulture :

- Expansion and modernization of agriculture.
- Raising fruit production and increasing the productivity of spices like black paper, ginger, and turmeric under organic farming.
- Generation of exportable surplus in fruit production.
- Integration of the fruit processing sector with medium and small scale industries.
- Implementation of cluster approach for production and marketing of horticulture.

C. Animal Wealth :

- Generation of surplus in animal origin products like milk, meat and egg and creation of self–employment opportunities.
- Expansion of the infrastructural facilities and development of entrepreneurial skills for coping with the challenges of the animal husbandry sector.
- Qualitative improvement of the system of delivery services through modern techniques of marketing and field based research inputs.
- Exploring the possibilities of expansion of ornamental variety of fishes, their preservation and protection.

D. Fishery :

- Exploring the possibilities of expansion of ornamental varieties of fish, their preservation and protection.
- Searching new aqua resources for enhancing fish productivity.
- Replacement of the existing brood stock due to rampant in breeding.
- Creation of proper marketing facilities

- Creation of skilled manpower and training facilities

E. Floriculture :

- Popularization of high value crops like flowers, vanilla, mushrooms and other varieties of medicinal plants to get high and quick economic returns.
- Proper marketing facilities of diversified use of fibre such as jute, mesta etc.

F. Irrigation :

- Regular supply of Irrigation water.
- Evolving water–shed Management Projects on public–private partnership basis.

CHAPTER–VII
INDUSTRY, TRADE AND COMMERCE

7.1. Physical Profile

Tripura, a small and landlocked hilly state located in the south–west corner of the North–Eastern Region is a land in transition; a satisfying promise between the old order and the new; a fusion of styles and cultures of hills and plains. Previously a princely state, and subsequently a Union Territory of Independent India, Tripura was elevated to the status of statehood on January 21, 1972.Tripura is mainly a hilly territory with altitudes varying from 50 to 3080 ft above sea level .Since approximately 80% of its population resides in the villages, it is predominantly an agricultural economy with most of its traditional industries being rural oriented. Tripura is the **second most populous state** of the region with a density of population around 304 persons per square km (2001) which is the second highest in the North–Eastern Region. The annual growth of population during 1991-01 was 1.53 % as compared to 3.43 % during 1981-91 and was much below the national average of 2.13% (2001). The annual literacy rate of 73.66 % in 2001 is higher than the national average of 65.38 %. The female literacy rate is reported as 65.41 % (2001) compared to the All India rate of 54.16 %. The sex ratio of 950 is also higher than the All India figure of 933.

About 31 % of the population are Scheduled Tribes and belongs to Reang, Chakma, Halam, Lusai communities, who generally live in hills. Nearly 2/3rd area is hilly leaving very little cultivable land while 60 % of the total area is classified as forests. The total operational holdings in the state are only 3,18,000 out of which 90 % are held by small and marginal farmers.

7.2. Role of Industries in the development of the state economy.

Small scale, Village and traditional industries form the backbone of Tripura's industrial structure. The abundance of natural resources like natural gas and forest produce like bamboo, cane, jute, rubber, tea, pineapple etc. offer great opportunities for industrial development with significant export linkages. But the state has not been able to fully exploit its forest and mineral resources. Most of the industries are agro–based and rural–oriented and lie outside the organized sector. The state has only four medium–scale industry and hardly any large–scale industry. Thus, it is clear that industry has not played a major role in the growth and development of the state. The industrial backwardness of the state is compounded by the high rates of poverty and unemployment, low per capita income, low capital formation, inadequate infrastructural facilities and geographical isolation of this region. The liberalization and reforms of the Indian economy could not give the much needed boost for any industrial growth in this backward state. In fact, the state is yet to receive any significant foreign investment for its developmental projects. The state government is the main facilitator for any investment projects in the state.

If we examine the trends in the sectoral composition of NSDP in terms of agriculture, industry and services, we find that the agricultural sector dominated over industry and services in terms of its contribution to NSDP till the 1980s.The agricultural sector contributed more than half of total NSDP approximately 50.3% while the share of industry and services was relatively much lower ie 9.7% and 39.9% respectively.

Table 7.1 : Percentage Share of Different Sectors in the NSDP

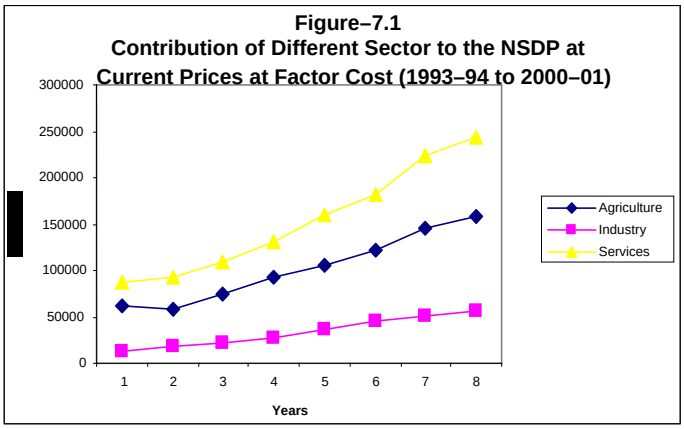
Years	Agriculture	Industry	Services
1972-73	60.0	11.5	28.4
1977-78	61.6	10.8	27.6
1983-84	53.3	11.3	35.5
1987-88	50.3	9.7	39.9

1993-94	37.4	8.8	53.8
1999-00	29.4	15.74	54.9

Sources : (i) Domestic Products of States, EPWRF, Mumbai
(ii) National Accounts Statistics of India, 1950–51 to 2000-01, EPWRF, Mumbai.

The beginning of 1990s saw a dramatic change in the share of services sector which increased from 39.9% in 1987-88 to 53.8% in 1993-94 and further to 54.9% in 1999-00.Not only has the contribution of industrial sector in generating income for the state been low, it has been declining as well. The share of the industrial sector declined significantly during the early 1990s from 11.3% in 1987-88 to 8.8 % in 1993-94. From thereon, its share has continued to stagnate hovering between 12-13 % of the NSDP (see graph).

Figure–7.1
Contribution of Different Sector to the NSDP at Current Prices at Factor Cost (1993–94 to 2000–01)



Although the industrial sector in Tripura has been growing at a compound rate of 15.5 % which is highest among the north–eastern states and second highest in Tripura but ironically the contribution of the manufacturing sector (both organized and unorganized) was only 1.79 % of the total NSDP at current prices in 2000-2001. At present, it employs just 12-13 % of the total workforce and its volume of official trade is Rs 7.04 Crores (2002-03) of which manufacturing goods form a very small part. This is a clear indicator of the industrial backwardness of the state which has been perpetuated by geographical constraints.

It is evident that the state of Tripura has been undergoing a structural transformation. But the main cause of concern is that it seems to have deviated from the standard growth pattern. Most of the developed states experience a shift from the primary sector to secondary sector and only at the very advanced stage of industrial specialization experience a shift from secondary sector to the tertiary sector. However, in case of Tripura, the growth seems to have shifted directly from the primary sector to the tertiary sector instead of the secondary sector. The growth of the secondary sector is significant for sustaining the growth in the primary as well as the tertiary sector. A thriving secondary sector is needed to add value to the commodities produced in the primary sector. The growth in secondary sector also adds to growth of tertiary sector, in terms of creation of incomes and jobs. Hence, it is the most critical link in the economy and its growth is essential for a balanced and all–round development of the region.

7.3. Industrial Structure

The industrial structure of Tripura can broadly be classified into (A) Organized sector and (B) Un–organized sector.

A. Organized Sector

There were 2830 registered agricultural enterprises, 17279 industrial enterprises and 84318 enterprises in the service sector in Tripura in 1998(Economic Review-2001).Although Tripura is predominantly an agricultural economy, the share of registered agricultural enterprises in the total enterprises in the state is just 3 % while the share of industrial and service enterprises is much higher at 16 % and 81 % respectively.

Table 7.2 : Types and Number of Enterprises in Tripura (1998)

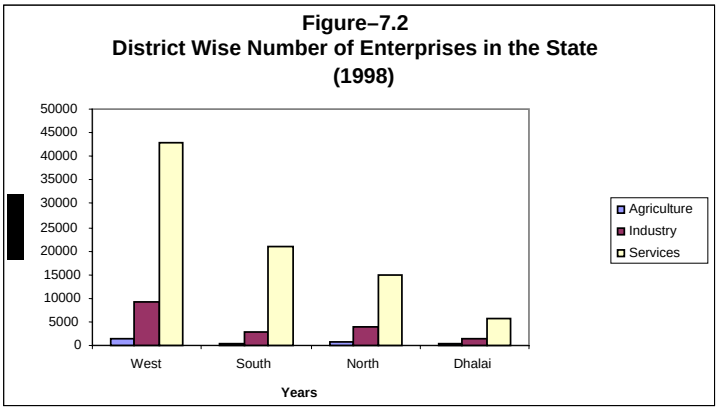
Major Activity	Number of enterprises				
	West	South	North	Dhalai	Total

I. AGRICULTURE	1490	232	621	487	2830
1.Rearing of	701	115	214	292	1322
Livestock	789	117	407	195	1508
2.Agri services &					
hunting etc	9099	3008	3918	1254	17279
	2	9	1	2	14
II. INDUSTRY	8691	2848	3657	1227	16423
1. Mining and	112	54	61	12	239
quarrying					
2. Manufacturing	294	97	199	13	603
3.Electricity, Gas and					
Water Supply	42898	20829	14899	5692	84318
4.Construction	724	281	344	210	1559
	24737	11100	6963	3038	45838
III. SERVICES	2349	1672	1186	443	5650
1. Wholesale Trade	2856	221	1472	106	4645
2. Retail Trade	113	72	17	21	223
3. Restaurants and	221	126	138	20	505
Hotels	404	318	184	57	963
4. Transport	11494	7049	4595	1797	24935
5. Storage and					
Warehousing	-	-	-	-	-
6. Communication	53487	24069	19438	7433	104227
7. Financial Services					
8. Community, social					
and personal services					
9. Other activities					
TOTAL					

Source: Economic Review, 2002-03.

It may be observed here that the above table does not provide complete picture of the industrial structure of the economy as the major part of the economic activity in Tripura lies in the unorganized sector (approx 90%).

But another important observation that can be made from the district–wise comparative analysis is- that there is a concentration of enterprises (agriculture, industry and services) in the West District of Tripura as compared to other districts. The Dhalai Region of Tripura remains utterly neglected both in terms of concentration of enterprises and industrial development on account of low infrastructural development and geographical constraints.



i. Registered Factories

According to the data received by the Factories and Boilers Organization, 2002–03, there are 1499 nos. of registered factories in the state under the Factories Act, 1948. The following table shows the district–wise number of registered factories and employment during 2002–03.

Table – 3 : District–wise Number of Registered Factories and Employment During 2002-03

District	Under Sec. 2m(i)	Under Sec. 2m(ii)	Under Sec. 85	Total Factories	Avg. no of workers employed
West	179	83	720	982	18105
South	34	40	176	250	5695
North	77	13	127	217	6250
Dhalai	12	8	30	50	1775
Total	302	144	1053	1499	31825

Source : Economic Review, 2002-03.

ii. Registered Small Scale Industries (SSI)

So far, 10655 nos of SSI units have been registered with the Directorate of Industries. The Second All-India Small Scale Industries Survey covered 1443 units registered upto March 1988, of which 812 units were operational and provided employment to 10,069 persons. The following table shows the total no of registered SSI in Tripura for five years both under

provisional and permanent registration. The total numbers of provisionally registered industries are 2150 and permanently registered are 253.

Table 7.4 : Total Nos. of Registered SSI units in Tripura for 5 years (1998-03)

Sl. no	Year	Provisional registration permanent registration			
		Sido	Non-sido	Sido	Non-sido
1.	1998-99	298	42	55	14
2.	1999-00	260	30	56	8
3.	2000-01	424	30	32	4
4.	2001-02	474	30	30	3
5.	2002-03	508	54	45	6
	Total	1964	186	218	35

Source: Economic Review, 2001-02.

B. Un-Organized Sector

A large section of the industrial sector in Tripura is unorganized. The concentration of the unorganized sector is more in rural areas than in urban areas. The highest number of unregistered enterprises in Tripura are engaged in the manufacture of wood/ wood products (53.6 %) followed by agriculture and allied activities (9.3%).

C. Contribution of Organized and Unorganized Manufacturing Sector to the Net State Domestic Product :

Since a larger part of the industrial activities in Tripura lie under the unorganized Sector – both in terms of employment and concentration of enterprises, its contribution to the State Domestic Product is therefore much higher than the Organized Sector.

Table 7.5 : Contribution of the Organized and Unorganized Sector in the NSDP of the State (Rs. in lacs)

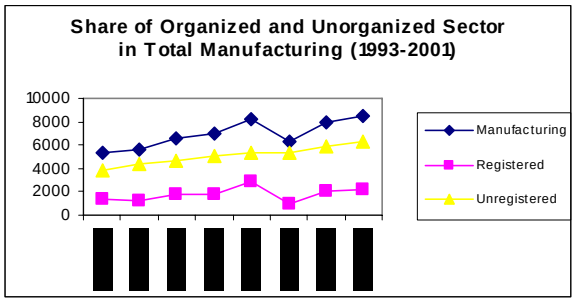
Years	Manufacturing	Registered	Unregistered
1993-94	5289	1396	3893

1994-95	5563	1247	4316
1995-96	6562	1846	4716
1996-97	6932	1837	5095
1997-98	8154	2848	5306
1998-99	6286	987	5299
1999-00	8003	2105	5898
2000-01	8560	2260	6300

Source: Some Basic Statistics of Tripura,2002.

In 2000-01, the contribution of the Un–registered manufacturing sector to the total manufacturing was almost 3 times higher as compared to the contribution made by the registered manufacturing sector in the state. In percentage terms, the Unorganized Sector contributed approximately 73% of the total manufacturing in the State during 2000-01. While the Organized Sector contributed only 27%. But since the contribution of manufacturing Sector in the total NSDP is already very low (approx 1.86 % in 2001), their contribution in the total NSDP is almost negligible.

Figure–7.3



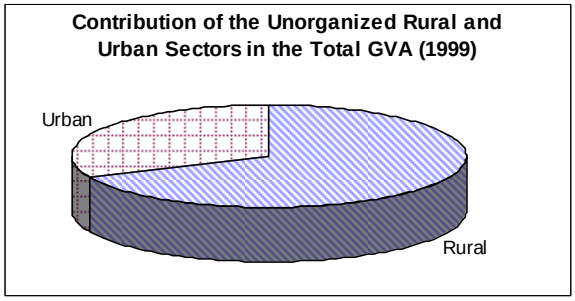
It is interesting to note that share of the Organized sector in total manufacturing although very low has remained consistent over the years. The sudden dip in total manufacturing which occurred in 1998–99 was mainly on account of low manufacturing activities in the Unorganized Sector. The share of unorganized sector in total manufacturing declined significantly in

that year from 73.49 % in 1997–98 to 65.07 % in 1998–99. It, however, recovered remarkably in the subsequent year with its share rising to 84.29 % in 1998-99.

D. Gross Value Added in the Unorganized Sectors in Rural and Urban Areas (1999)

In terms of Gross Value Added (GVA), the contribution of the Unorganized Rural Sector is more than the Unorganized Urban sector.

Figure–7.4



In the Year 1999 the GVA in the Unorganized Rural Sector was Rs 4092 lacs and that of the Unorganized Urban sector was Rs 1933 Lacs In percentage terms, the unorganized rural sectors' contributed 67%of the Total Gross Value Added while the unorganized Urban Sector contributed 33 % in the same year 1999.

E. Employment in the Organized and Unorganized Sector in Tripura

According to the 1991 Census, it is estimated that of the 8.02 Lacs main workers listed, barely 12.2% were engaged by the Organized Sector, while the remaining 87.8 % were employed in the Unorganized Sector. The unemployment in the organized sector is low in the state due to absence of any large and medium industries and lack of private investment. The workers in the unorganized sector have access to the statutory social security/welfare measures while their counterpart in the unorganised sectors is totally deprived of the facilities. Social security / welfare include series of the benefits to meet the contingencies like sickness, disablement, old age,

maternity, invalidity, unemployment etc. Statistics reveal that only a very negligible number of workers could be bought under the social security/ welfare schemes on account of weakness of the Labour Directorate and the District offices including non-computerization of its offices. Table 6 provides a sector-wise account of employment in the Unorganized Sector in Tripura.

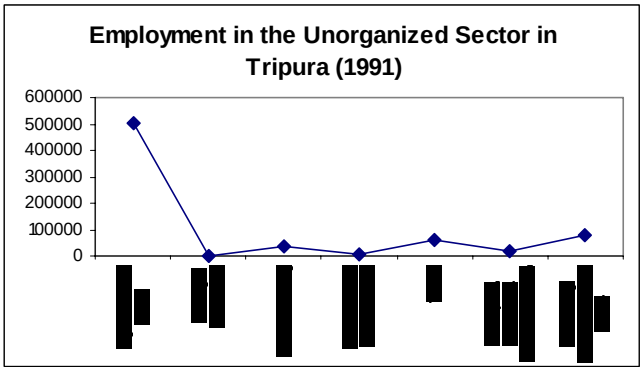
Table 7.6 : Sector Wise Estimates of Employment in the Unorganized Sector in Tripura (1991)

Name of the sector	Employment in Organized sector			Estimated Employment in unorganized sector	Total Employment
	Public sector	Private Sector	Total		
Agriculture and Allied sector	1610	8336	9946	5,01,706	5,11,652
Mining and quarrying	1384	0	1384	942	2326
Manufacturing	2656	509	3165	34,163	37,328
Electricity	2299	0	2299	-	2299
Gas, water and Construction	3980	0	3980	7,772	11,752
Trade	309	28	337	61,284	61,621
Transport, storage and communication	1345	34	1379	20,814	22,193
Financing, insurance and real estate	3507	63	3570	77,137	80707
Community, social and Personal service	70,591	1594	72185	-	72185
Total	87,681	10,564	98,245	7,03,818	8,02,063

Source: Sub Regional Employment Exchange, Agartala.

The above table clearly indicates that the Public Sector provides the larger employment in the organized sector as compared to private sector.

Figure–7.5



During 2000, there were 935 Public sector factories employing an average of 22,289 workers. The industry wise grouping reveals that the majority of the employed labour is engaged in the manufacture of non–metallic mineral product followed by food / food product, metal products and paper based industries.

Table 7.7 : Number of Registered Public Sector Factories and the Average Daily Workers Employed

Major group of industry	1998		1999		2000	
	Avg no of registered factories	Avg no of workers employed	Avg No of registered factories	Avg no of workers employed	Avg no of registered factories	Avg no of workers employed
A. Manufacture of food and food products (20 and 21)	147	2881	168	3082	171	3288
B. Manufacture of beverages (22)	2	95	4	201	4	201
C. Manufacture of cotton textiles (23)	4	78	5	87	5	87
E. Manufacture of jute textiles(25)	1	5	1	5	1	5
F. Manufacture of textile products(26)	2	17	3	42	3	42
G. Manufacture of wood and wood products(27)	93	733	69	550	69	550
H. Manufacture of paper and Paper products(28)	160	1010	165	1023	160	1075

I. Manufacture of leather and Leather Products(29)	2	16	2	16	2	16
J. Manufacture of chemical and chemical products (30)	14	106	1 4	106	14	106
K. Manufacture of rubber, Petroleum and coal products (31)	33	310	33	310	33	310
L. Manufacture non metallic Mineral product (32)	151	14442	160	14782	162	14286
M. Manufacture of basic metals and alloys (33)	13	209	13	209	13	209
N. Manufacture of metal products (34)	140	1152	155	1206	160	1206
O. Manufacture of machinery Other than transport (35-36)	11	96	11	96	11	96
P. Manufacture transport Equipments and parts (37)	4	37	4	37	4	37
Q. Manufacture of other manufacturing industries (38)	2	13	2	13	2	13
R. Repair of capital goods (39)	4	24	4	24	4	24
S. Wholesale trade in wood, paper skin, leather and fur, fuel, ceramics, glass and metals (61)	–	–	–	–	–	–
T. Personal Services(96)	–	–	–	–	–	–
U. Repair Services (97)	108	695	115	726	117	732
TOTAL	891	21919	928	22515	935	22289

Source : Statistical Abstract of Tripura, 2001.

In the Unorganized Sector, on the other hand, most of the workers are employed in Agriculture and Allied Activities, Manufacturing and Trade. An area–wise analysis of employment in the unorganized sector reveals that the unorganized sector is highly concentrated in the rural areas. The following table reveals some facts about rural employment in the unorganized sector. In rural areas, most of the unorganized workers are engaged in the manufacture of wood/ wood products, manufacture of non–metallic mineral products and agricultural industries.

Table 7.8 : Percentage Distribution of Rural Employment and Enterprises in Unorganized Sector In Tripura By Industry Division

Major Group of Industry	% distribution of enterprises	% distribution of rural employment
a. manufacture of food and food products (20 and 21)	9.3	10.0
b. Manufacture of beverages (22)	4.4	4.1
c. Manufacture of cotton textiles (23)	4.6	5.4
d. Manufacture of wool and silk textiles (24)	2.3	2.1
e. Manufacture of jute textiles(25)	–*	0.0
f. manufacture of textile products(26)	1.1	0.7
g. Manufacture of wood and wood products (27)	53.6	49.6
h. Manufacture of paper and paper products (28)	0.0	0.0
i. Manufacture of leather and leather products (29)	0.1	0.0
j. Manufacture of chemical and chemical products (30)	0.0	0.0
k. Manufacture of rubber, petroleum and coal products (31)	–*	0.0

l. Manufacture non metallic mineral product (32)	8.3	11.3
m. Manufacture of basic metals and alloys (33)	2.0	2.4
n. Manufacture of metal products (34)	0.7	0.6
o. Manufacture of machinery other than transport (35-36)	0.0	0.0
p. Manufacture transport equipments and parts (37)	0.0	0.0
q. Manufacture of other manufacturing industries (38)	0.6	0.6
r. Repair of capital goods (39)	0.1	0.0
s. Repair services (97)	1.9	1.2
t. Other activities (99)	1.7	2.0

* Indicates negligible percentage

Source: Sarvekshana, Oct–Dec., 1999**.**

7.4. State-Wise Analysis of Employment in the Organized Sector

A state–wise analysis of employment in the organized sector reveals that 1.1 lac of Tripura workers were employed in the organized sector as compared to 20.6 lacs in Assam, 0.8 lac in Manipur & Nagaland and 0.4 lac in Mizoram.

Table 7.9 : State Wise Analysis of Employment in the Organized Sector

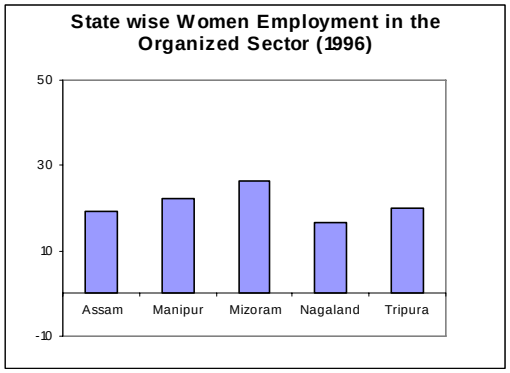
(as on 31st march , 1996)

States	Total Employed (in lacs)	% of Women Employment to total Employment
Assam	20.6	19.4
Manipur	0.8	22.2
Mizoram	0.4	26.5
Nagaland	0.8	16.6
Tripura	1.1	20.1

Source : Directorate General of Employment and Training, Ministry of Labour.

If we look at the statistics revealing women employment in the state as a % of total employment we find that only 20.1% of its women are employed in gainful employment in the organized manufacturing sector in Tripura as compared to 19.4 % of Assam , 22.2 % in Manipur, 26.5 % in Mizoram, and 16.6 per cent in Nagaland.

Figure–7.6



The average daily no of women employed in profit making factories in Tripura has significantly been decreasing from 909 in 1997-98 to 280 in 1998-99 and 283 in 1999-2000.This is an indicator of high gender disparities existing in the state and the decreasing role of women in the economic activities of the state.

7.5. Status of The Industrial Sector

Tripura being a landlocked state with a predominant over-saturated agricultural economy lags far behind developed states so far as overall growth is concerned. The economy suffers from near stagnation of the industrial sector viz–a–viz other sectors of the economy- both in terms of contribution to NSDP and employment generation. A developed infrastructure is a pre-condition for industrial development and growth of a state. The infrastructural facility in Tripura is, however, not favourable both in terms of quantity and quality. The 12th Finance Commission ranks Tripura as the most backward state among its North-Eastern sisters in terms of Infrastructure index.

The aim of the government should, therefore, be to revitalize the industrial sector of the state by providing a boost to the infrastructural development of the state. Emphasis should be made on the creation of an integrated and comprehensive base for industrialization through proper linkage between medium, large scale and small scale industry. Along with local entrepreneurship, efforts should also be made to encourage outside investors in the public and private sector for their technical and financial expertise for the medium and large scale units.

A. Estimation of Industrial Units In the State

As per the Directorate of Industries, Government of Tripura, there are 10995 SSI in the state, 4 medium–scale and 2 large–scale industries in the state.

The four medium scale projects recorded presently are :

- Bowry Plywood (North Tripura)
- Neramic Fruit Juice Concentrate Plant (North Tripura)
- Tea Factories (West Tripura)
- Jute Mills (West Tripura)

The 2 large scale thermal plants in the state which are starting operation soon are :

- Barmora Gas Thermal Project
- Rokhia Gas Thermal Project

Most of the small–scale industries are randomly located. They are either located on roadside or in the thickly populated residential and commercial places. Rests of the industries are located in five designated industrial estates namely:

- Arundhutinagar Industrial Estates
- Badarghat Industrial Estates

- Dhajanagar Industrial Estates
- Kumarghat Industrial Estates
- Dharmanagar Industrial Estate

In addition to this, there are 8 industrial PSU's in the state

- Tripura Industrial Development Corporation Ltd. (TIDC)
- Tripura Natural Gas Company Ltd.(TNGCL)
- Tripura Small Industries Corporation Ltd (TSIC)
- Tripura Handloom and Handicrafts Development Corporation (THHDC)
- Tripura Khadi and Village Industries Board (TKVIB)
- Tripura Tea Development Corporation (TTDC)
- Tripura Jute Mills Ltd. (TJMC)
- Society for Entrepreneurship Development (SOFED)

Some of the departments and association involved in respect to existing industries and other industrial units in the state are:

- Directorate Of Industries, Government of Tripura
- Factories and Boilers Organization
- Tripura Chamber of Commerce and Industry
- Federation of Association of Cottage and Small Industries (FACSI),Tripura
- Directorate of Handloom and Handicrafts, Government of Tripura
- Rubber Board, Government of India

B. Industrial Infrastructure

The Industrial Infrastructure in Tripura is not very well developed. At present there are just 5 industrial estates and only 1 Industrial Area, 1 Growth Centre and 1 Export industrial Park in the state.

i. No of Industrial Estates : 5
ii. Industrial Areas : 1
iii. Growth Centre : 1

iv. Export Promotion Industrial Park : 1

C. Ongoing Infrastructural Projects

In addition, the State Government with the assistance from the Central Government has decided to set up an agri-export zone for the purpose of providing access to international market for agri-produce of the state. The AEZ is expected to be Bodhjungnagar in West Tripura. An MOU has already been signed in this regard between the State Government and APEDA. The Government of Tripura is also planning to develop a Rubber Park for the growth of rubber based industries. With this end in view, the rubber board has prepared a detailed feasibility report on Rubber Park in the state. The proposed location was Bodhjungnagar in West Tripura and the area is 50 acres. Total Project Cost is estimated to be about Rs 6.60 Crores. Project report has been sent to GOI for according sanction. Moreover, NEDFI is in the process of setting up an IT Park at Agartala and the works for setting up a Fruit Processing Technology Park has also been taken up. TIDC is the implementing agency for this project. Ministry has also released an amount of Rs. 2 crores towards this project. Work has already started for cold storage, warehouse, common packaging facility etc.

Government of India has given approval for setting up of mini tool room with the total project cost of Rs. 1481 lacs out of which Rs. 900 lacs will be provided by Government of India for purchase of machineries. This project is now being implemented with 8 acres of land within the growth centre at Bodhjungnagar after creating infrastructure like training centre, tool room, godown. The purchase committee has been formed. As per the decision of the committee, implementation of the project on turn key basis has been assigned to CTTC, Kolkata with the consultancy fees of Rs. 35 lacs.

For balanced industrial growth and development, it is important that along with basic infrastructural support, the backward and forward linkages to industry are well developed. Backward linkages basically include Banking

and credit facilities and forward linkages include marketing, selling and distribution networks**.** A careful Study and analysis of these areas reveals that the forward and backward linkages to industry in the state are inadequate, both in quantitative and qualitative terms.

D. Availability of Banking and Credit Facilities for Industrial Development

Banking is one of the important instruments for economic development. A well–developed banking infrastructure lays the base for sound industrial development and speedier economic growth. The banking and credit facilities have considerably improved over the years. In 1969, there were 5 Commercial Bank Branches which served an average population of 2,76,000 per Bank branch. At present, there are a total of 22 Bank branches (including Scheduled Commercial Banks, Co-operative Banks and Regional Rural Banks) serving an average population of 14,375 per bank branch.

Till March 2002, there were 180 Scheduled Commercial Bank Branches (including Tripura Gramin Bank), 33 branches of State Bank of India and 36-branches of Tripura State Cooperative bank, 5 Branches of Tripura Cooperative Land Development Bank and 1- branch of Agartala Co-operative Urban Bank.

Table 7.10 : Area–wise Distribution of Bank Branches and Average Persons Served Per Bank Branch (March , 2002)

Sl. No.	Type of the bank	Distribution of bank branch			Average population served per bank branch	
		Rural	Urban	Total	Rural	Urban
A.	State Bank of India	17	16	33	26,8074	33944
B.	Commercial Bank /					

	Nationalised Bank	32	28	60	82752	19396
C.	Regional Rural Bank	71	16	87	-	33944
D.	Agartala Co-operative Urban Bank	-	1	1	-	5,43,094
E.	Tripura Cooperative Land Development Bank	-	5	5	-	10,8619
F.	Tripura State Cooperative bank	18	18	36	147115	30172
	Total in the state	138	84	222	19189	6466

Source : Economic Review, 2001-02.

Although the banking infrastructure has greatly improved over the years, the credit–deposit ratio of the banks is very low. The present credit deposit Ratio in Tripura is 22 % which is much below the All India Average. The total deposit in all Scheduled Commercial banks and the State Bank of India till March 2002 was Rs 2419.19 lacs and the total credit was 511.96 lacs. The Credit–Deposit Ratio was 21.16 % which was far below of All India level of 56.7 % in March 2001. Tripura ranked 4th position among northeastern states in terms of credit–deposit ratio in March, 2000, followed by Manipur (37.9%), Assam (35.5%) and Mizoram (26%).

This is a clear indicator of low private investment in the state. At present, the State Government is the main facilitator of investment projects in the state but since its own resources are limited, there is a dire need to give a fillip to private investment for the industrial development of the state.

Table 7.11 : **District–wise Break–up of Public Sector Banks (March, 2002)**

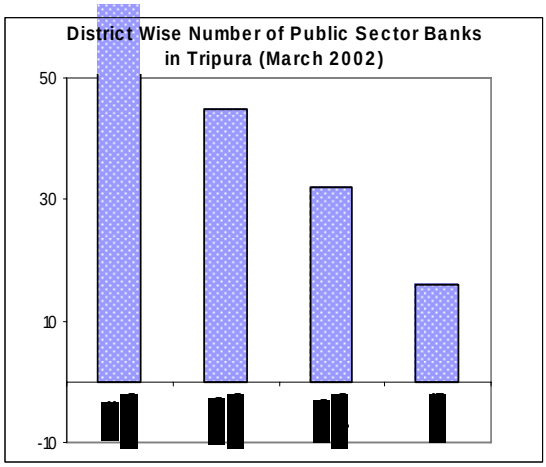
Sl. No	Name of the Districts	No of offices	Credit deposit ratio (in %)	Avg no of persons served per branch
1.	West Tripura	87	18.29	17,592

2.	South Tripura	45	31.30	16,946
3.	North Tripura	32	34.03	18,458
4.	Dhalai	16	37.40	19,241
	Total	180	22.34	17,729

Source : Economic Review, 2001-02.

Apart from Low Credit–Deposit Ratio of the banks, another factor which has come in the way of its industrial progress is the unbalanced distribution of these bank branches. A district–wise analysis of all Public Sector Banks and Regional Rural Banks reveals that there is a concentration of Bank Branches in West Tripura and Agartala District as compared to North Tripura and Dhalai Regions. West and South Tripura alone account for 73 % of Public Sector and RRBs in the state while North and Dhalai District account for the remaining 27%.

Figure–7.7



The average number of persons served per bank branch (Public + RRBs) is, therefore, the highest in the Dhalai region at 19, 241 persons per bank branch. These points towards high regional disparities in the state as a result Agartala is the most developed district while Dhalai region has been fairly ignored in this bargain.

Table 7.12 : District–wise Distribution of Outstanding Credit of Scheduled Commercial Banks of Tripura by Occupation (March 1998) (Rs. in Thousand)

Occupation	West	South	North	Dhalai	Total
	Amount outstanding	Amount outstanding	Amt outstanding	Amount outstanding	Amount outstanding
1. Agriculture	170655	156355	154354	90244	571608 (18.90 %)
2. Industry	332602	96123	85340	17904	531969 (17.59%)
3.transport operators	139402	16067	15331	1982	172782 (5.71%)
4.professional & other services	41856	20370	16329	3300	81855 (2.70%)
5.personal loans	241093	43345	49020	8294	341752 (11.30%)
6. Trade	629410	184485	183498	86868	1084261 (35.85%)
7. Finance	58214	3592	274	--	62080 (2.05%)
8. All others	58562	105867	11847	1651	177927 (5.88%)
Total	1671794	626204	515993	210243	3024234

Source: Statistical Abstract of Tripura, 2001.

A disturbing trend that can be observed as regards the credit structure of these banks is concerned is that of the total credit loaned in March, 1998 only a small amount has been taken for boosting industrial development in the state. Efforts should be made to devise more attractive schemes to increase investment in this sector.

E. New Industrial Policy

The New Industrial Policy enunciated for the North East to ensure accelerated industrial growth in the region lays little emphasis on the growth of medium and large scale industries in the state. The salient features of the New Industrial policy are given below.

Box–7.1

Salient Features of the New Industrial Policy (1996)

The salient features of the New Industrial Policy for the North East are as follows:

- Development of Industrial Infrastructure- Growth Centre
- Subsidy Schemes on
  - Capital Investment
  - Transport upto 90%
  - Interest on Working Capital
  - Excise Benefits
- Relaxation of PMRY to cover areas of horticulture, piggery, poultry, fisheries, small tea gardens etc
- One time grant of Rs 20 crore to NEDFI by the Centre to buy debt of the manufacturing units, especially in respect of supplies made to the Government Departments so as to reduce the problems of blocking of funds for these units.
- Development of VSI Sector- Strengthening of Weavers Service Centre and NIFFT, Guwahati to promote Handloom Industry.
- Industries identified as appropriate for development of N.E Region.

It is evident from the careful observation of the New Industrial Policy that little emphasis has been paid on the development of those sectors and industry in which Tripura has competitive advantage like Power and natural gas based industry, Bamboo / Paper Industry, Handloom industry etc. The Industrial Policy should focus on the growth of gas based medium and large units and ancillary and auxiliary units in view of the large deposits of natural gas in the state. Bamboo based paper industry appears to have considerable potential for both- employment and income generation in the state. Handloom and Handicrafts of Tripura are also in great demand and reflect the

inherent quality of workmanship. This sector however suffers from low productivity on account of use of low grade and obsolete technology. The application of appropriate modern technology would increase productivity and income through value addition without compromising the handcrafted character of Indian Handloom and Handicrafts. Upgradation of technology should also, therefore forms the focal issue of the Tripura Government policies.

7.6. RESOURCE ASSESSMENT

A. Physical Availability of Resources

The state of Tripura has been hugely blessed with natural resources. There is an abundance of natural gas, bamboo, cane, rubber, jute, tea in the state. Its favourable agro–climactic conditions are ideal for horticultural products like jackfruit, coconut, oranges, pineapple, mangoes, lichi etc. The state is located in the bio-geographic zone of 9-B north east Hills and possesses an extremely rich biodiversity. 266 species of medicinal plants are bound in the state. There are 90 mammal species in Tripura and in the aquatic ecosystem 47 species are found. Thus, the state has a lot to offer but it lagged far behind on the industrial front on account of geographical isolation, infrastructural bottlenecks, inadequate exploitation of resource, lack of finance and an underdeveloped industrial sector.

i. Mineral Resources

The mineral resources of any state provide an avenue for economic development but the process of mining may have an extensive impact on land, soil and water resources. The mining projects have as a consequence become a part of development sector requiring environmental clearance under Environmental Protection Act, 1986, EIA Notification, 1994. In Tripura, the mineral resources are mainly **glass sands, limestone, plastic clay and hard rock** all of which are being used to a variable degree.

Box–7.2

Mineral	Location	Uses
Hard rock	Jampui hills	Road metals
Limestone	Longatari hill sakhan and manpui area (990,000t reserve)	Not suitable cement
Clay	All over the state generally in river bank deposit.	Suitable for
	Good clay deposit in west and south Region	Inferior quality of lime puzzsolana mix
	Total 1.73 million ton deposit in four out of six zones*	
Glass sand	[*mohanpur-bamutia-kamalghat; bisramganj- bagma; champamura-teliamura- ampi; shantirbazar-udaipur; kumarghat and baidyathakurpara anadanagar and maheshkho La- dhukli-sonamura area]	Sanitary wares
		Stone wares
		Sewerage pipes
	Bishramganj(160,000t)	
	Old agartala(16,000 t)	
	Jogendranagar(3627 t)	Electric insulator
	Sekerkota(80,000 t)	
	Dasharambari (5330 t)	Refractory grade
Total reserve	Mohanpur (97,875 t)	
	Baidyathakurpara-	Many uses
	Anadanagar mahes-	
	Khola and dhukli (na)	
	3,62,832 tonnes	

Of the total geographical area of Tripura, 76 % can be marked as of “Tertiary” origin and 24 % belong of Quaternary period; none of these contain any major mineral resource. A GSI Report of 1982 provide a non–metallic and metallic mineral vis-à-vis their location or otherwise in Tripura. The following table highlights the poor profile of the mineral resource potential in Tripura.

Table 13 : Mineral Resource Potential in Tripura

Sl no	Minerals	Status
a.	Non metallic	
1	Limestone	Commodity not
2	Dolomite	located/absent
3	Coal	Commodity not
4	Clay	located/absent
5	Refractories	Commodity not
6	Glass sand	located/absent
7	Graphite	Commodity not
8	Fertilizer	located/absent
9	Gravel sand silt	Commodity not
10	Building stone	located/absent
		Good reserve/ low grade
		Commodity not
		located/absent
		Commodity not
		located/absent
		Good reserve/ low grade
		Commodity not
		located/absent
b	Metallic	
1	Ferrous	Commodity not
2	Non-ferrous	located/absent
3	Noble metals	Commodity not
		located/absent
		Commodity not
		located/absent

Source : GSI Report, 1982

From the above table, it is clear that there is hardly any mineral resource in Tripura worth the mention except Glass Sand and Gravel Sand Silt and even that is of low grade**.** Gravel Sand Silt can, however, be used for the production of Concrete tiles, Hume Pipes, Gypsum Boards, Insulation Boards, Grinding wheels and Abrasives. Glass Sand, on the other hand, can be used to promote Glass Industry in the state.

With a view to explore the availability of minerals in the state and to have liaison with the ONGC and the Government of India, the Geological Cell of this Directorate is proposed to continue its activities. An outlay of Rs 49.5

lacs is projected in the 10th plan. The Geological Cell is also engaged in respect of realization of Petroleum Exploration License (PEL) and Renewal fee as well as Royalty of Natural Gas etc.

ii. Natural Gas

Natural Gas is available in the non- associate form, with a high methane content of upto 97%. During the Ninth Plan, against the target of 1489.95 Million Standard Cubic Meters (MMSCM), the actual production was 1647.25 MMSCM. In the Tenth plan, the gas production target for Tripura region has been fixed at 2764.21 MMSCM. During the Annual Plan 2002-03, gas production has been estimated at 431 MMSCM i.e. 1.2 MMSCMD.

The Natural gas production in the state is much more than the requisite demand**.** As a result, the gas is available at attractive concessional price. The current consumer price at landfall point is about Rs 1700 / MCM for North East as against general price of Rs 2850 / MCM. Further discount of Rs 300 / MCM is possible on a case–by–case basis. Current production based on consumer demand / off–take in the state is 1.5 MMSCMD, however, the total production potential has been estimated to be 4.0 MMSCMD annually for a plateau period of 9-10 years which may require additional facilities to be put up. But this could not be achieved due to inadequate demand for power in the state. It is evident that although the state has abundant sources of Natural gas, they are not being exploited to their peak potential. The major Gas consuming sector in the region has been the power sector. Besides power, the other natural gas–based projects include Urea Complex, Urea-PVC Complex, Urea- methanol Complex and Liquid / solid Hydrocarbon complex. Besides this, it is also being used as an alternate fuel of LPG in both domestic and commercial sector.

ONGC is the main gas producing company in Tripura region. Since the Oil and Natural Gas Commission (ONGC) struck natural gas at Baramura in 1975, three other fields viz. at **Rokhia, Agartala Dome and Gijaria** (with

a potential of 18 lac cubic metres per day expected to reach 60 lac cubic metres per day by 1995) have been located. Unless adequate demand for gas is created it would be difficult to exploit gas reserves at their peak potential. As per the Sub–group report on Natural gas, demand of 1.4 million cubic metres per day has been projected in the terminal year of the Ninth plan, against which the planned production is 0 .9 million cubic metres per day is falling short of 0.5 cubic metres per day in meeting the commitments. The production of natural gas can be increased if there are enough downstream industrial units to utilize the gas. Therefore, action for setting up downstream industrial units should precede the further exploitation of natural gas in Tripura.

Tripura Natural Gas Company has started implementing the City Gas Distribution Project for the distribution of piped natural gas to the domestic as well as commercial consumers. Under this project, a total number of 30,000 households will be covered. Also the state Government is very interested to implement the Compressed Natural Gas Project at Agartala. With this idea, already some positive efforts have been made. The techno-economic feasibility Report on CNG for the city of Agartala has been conducted by engaging the reputed organization Indraprastha Gas Limited. Further steps are being taken on this.

B. Availability of Resource Based Industries

Tripura, despite its vast resources, is one of the most backward states of the north-eastern region. Although the state is abundantly blessed with natural gas and other commercially viable resources, the state can hardly boast of any large scale and medium scale industry. Till late, Jute Tripura Mills Ltd. was the only medium scale public sector undertaking in the state which too was facing financial losses. The situation is compounded by geographical isolation of the state, infrastructural bottlenecks such as inadequate railway link, unbalanced regional development in the state, high rate of poverty and unemployment, low resource mobilization capacity etc.

Small scale and village industries, therefore, form the backbone of its industrial sector. In view of the availability of raw material and the tremendous capacity of this sector to provide employment, this sector is being rigorously promoted. For the balanced industrial growth and development of the state, it is important that all sectors grow in tandem. It is, therefore, necessary that that large scale and medium scale projects in the state should be encouraged. Efforts should be made to promote natural gas based industries, petro–chemical and cement industry (in view of the large scale limestone deposits in the state). There is also a need to promote auxiliary and ancillary industries with forward and backward linkages for speedier development.

For the purpose of simplification and in view of the unavailability of data, the resource based industries have been subject to the following classification and their availability have been discussed accordingly

- Small Scale and Village Industries : These include handloom, handicraft, sericulture , food processing industries, Tea industry, forest based industries like Rubber industry, Paper industry, Jute industry and other ancillary activities like Bee keeping cum honey processing etc

- Other Industries**:** These basically include natural gas based industries predominantly the power and energy sector.

(I) Small Scale and Village Industries

In conformity with its national policy of revitalization of its rural economy, the government has placed high importance on the development of small scale, village and traditional industries considering the fact that 80% of its population lives in the villages and most of its traditional industries are rural–oriented.

i. Handloom Industry

Handloom is the single largest industrial sector in the State and in terms of employment potential second largest after agriculture. Almost one fifth of the total population and an average of 1.20 lac persons are employed in the commercial and non–commercial fields in this sector. This state can boast of a distinct traditional heritage in handloom. While weaving is a traditional household activity among the tribal, there are a good number of Bengali and Manipuri weavers who have added colour and dimension to its unique culture. In order to provide a fillip to the handloom and handicraft development in the state a new directorate of Handloom, Handicraft and Sericulture was set up in 1989 to ensure balanced growth of these sectors through cluster approach and co-operative societies and providing various other forms of assistance for the development of weavers, artisans, and sericulturists such as provision of inputs, skill development programmes etc.

Among the traditional produces of handloom in the state, mention may be made of Risa and Riha (breast garments). Riha is remarkable for its colourful variety and texture. The Bengali weavers who have migrated to Tripura from the erstwhile East Pakistan (Bengal) are the main commercial weavers and play a significant role in the development of handloom industry. They have also contributed to the growth and development of textile variety in the handloom industry. The Manipuri weavers are also playing an important role in developing handloom industry in Tripura.

On a broad scale, the handloom of Tripura can be classified into : (1) Commercial and (2) Non–commercial looms. Non–commercial looms are operated by the tribal inhabitants of the state. They weave fabrics for their own consumption whereas the commercial looms are controlled by the Bengalis as well as the Manipuri Weavers. So the handloom industry in Tripura is a reflection of Tribals, Manipuri and Bengalee.

Variety of Handloom

Different types of looms are in use for production of handloom cloths. The type of loom chosen depends on variety of fabric produced. The following types of looms are in use in Tripura :

I. Primitive looms :

- Tribal looms (loin looms)
- Manipuri loin loom

II. Fly shuttle

- Fly shuttle pit looms
- Throw shuttle frame looms
- Fly shuttle frame looms

III. Improved looms :

- Chittaranjan looms
- Banaras semi–automatic looms

On loin looms, half healds are used. On the other loom, cotton clasped and healds are used. On improved looms, cotton varnished healds are used. All parts of the primitive looms are mainly made of bamboo. Nowadays Jacquard and Bobbies are used in this state to some extent. Jacquards is 100 hooks, 200 hooks with frame form, 60 hooks and 120 hooks. Main Jacquard with wooden frame is also used. These are mainly used for extra weft and warp designs. The industry consumes cotton yarn count varying 6s to 100s, 2/20s, 2/60s, 2/80s and 100s are used. The industry also uses polyster and its blend including staple fiber and fancy yarn. Tripura Silk is used for producing Silk Sarees, Raw silk cloth and other fabrics. Tripura is now producing very good quality silk yarn (Mulberry).

Types of Products :

Furnishing cloth fabrics, Bed spreads , Polyester shirting , Silk Kota sarees, Cotton Jamdani Sarees , Buti Sarees , Buti long length dress

materials , Lungees , Towel , Napkins, Handkerchiefs , Pachra , Laisumphi , Acrylic Shawls

Status of Handloom Industry:

As per Economic Review, 2001–02, there are 24 Primary Weavers Co-operative societies in Tripura and 1, 35,334 lakh weavers in the state. Most of the Primary Weavers Co-operative Societies are located in the West district of Tripura which further adds to the regional disparity in the state.

Box–7.3

(a). 24L Cluster Organized

(b). 24 nos of primary weavers Co-operative Societies Ltd.

i. West District = 13

ii. South District = 6

iii. North District = 4

iv. Dhalai District = 1

(c). Total Weavers = 1,35,334 lacs

(d). Commercial Artisan = 30,000

(e). Total Out turn = 39.5 million mtrs

In the Handloom Sector, through the cluster approach, the existing 24 PWCs are being strengthened financially by modernizing looms and accessories and other equipments. Special emphasis for skill up-gradation of the handloom weavers has also been undertaken. In addition to this, Common Facility centres could also be built which would offer the following facilities- provision of training, provision of tools, work shed, working capital, and marketing support. New infrastructural facility in the form of construction of office cum godown, Community centres, Health sub–centres, school building etc. could also be arranged in cluster societies to boost the development of this sector.

For improvement of quality of fabrics, and ensuring fastness of colours, systematic design up-gradation programme has been taken up. 4

nos of new quality dyeing units have been set up at Nalchar, Khowai, Birchandranagar and Muhuripur societies for better dyeing facilities. Steps have been taken for dyeing all required yarn from these units.

Handloom Promotion Activities in the State

A special Handloom Expo was organized at Agartala in February 2002 with the financial assistance from the Government of India for Rs 5 lacs. During the financial year total handloom products purchased by marketing agencies i.e THHDC Ltd. were Rs 237.06 lacs and total sales of handloom goods was Rs 262.84 lacs. The total production including domestic consumption was about 39.50 million / sq. m. Production of handloom goods has been made strictly as per the new comprehensive marketing policy which is now in operation. Various activities for weavers have been taken up for the benefit of large numbers of weavers and assisted 937 nos in the form of providing reimbursement of cost of medicine @ Rs 155/ each , maternity benefit @ Rs 55/ each and family planning @ Rs 100 each and spectacles @ Rs 150/ each.

In addition 35 nos bore well could be installed in various concentrated areas for which an amount of Rs 19.25 lacs has been spent. During the year 2001-02, 1405 nos weavers have been brought under group insurance scheme and 58 nos of weavers have also been brought under Thrift Fund Scheme. 189 nos of weavers covering all 24 nos clusters be provided with assistance for construction of work shed Rs 7000/- per beneficiary in the rural area. In order to provide better marketing facilities to those PWCS at the state headquarter, tender has been finalized for construction of composite handloom complex near ITORMA with an estimated cost of Rs 1.79 crores.

Beneficiaries Covered Under Handloom Programme :

Directorate of Handloom, Handicrafts and Sericulture has imparted training for skill up gradation of 40 nos of weavers , provided looms and

accessories, work shed, working capital during the year 2002-03.Besides, there is a project for development of Design and Market Access of Tribal Handlooms and Handicrafts, which is under implementation. The total project cost is Rs 38.50 lacs. As a part of the implementation of the programme 1st and 2nd workshops have been organized during the month of November 2001 and April 2002.The rural Tribal Women Weavers had also placed an amount of Rs 1 lac in 2001-02 with the Tripura Tribal Areas Autonomous District Council for production of traditional Pachra.

It is disheartening to observe that because of various limitations, Tripura handloom has not been able keep pace with the changing tastes and times. There are highly skilled weavers who can certainly catch up with the changing trends of the world provided they get the training in modern methods of weaving and appropriate inputs are made available to them. National level programmes should be held to achieve product diversification with newer designs and modern technology. Quality yarns of appropriate counts should be made available at reasonable prices through NHEC and other sources.

ii. Handicrafts Industry

From time immemorial, Tripura is known for its unique advantage in producing exquisite handicrafts. Cane and bamboo occupy a distinctive place in the life of Tripura. Approximately 10,000 artisans are employed in this sector- working part time or full time producing more than 200 exquisite products. However this sector remains largely unorganized.

Cane and bamboo handicrafts of Tripura are acknowledged to be among the best in the country due to their beauty, elegance and exquisite designs. Here the nimble finger of the artisans with their glorious chisel played wonders through the ages. From products like cane, bamboo and wood, innumerable objects of magnificent beauty are carved out everyday which range from cosmetic table to elegant drawing rooms, from ordinary

wall decoration to the more sophisticatedly adorned upholstery. Some of the popular products of handicrafts are room divider, cane furniture, Table lamps and upholstery scrolls, table mats and other mat products. Some of these products are also being exported. For interior decoration, Tripura Handicrafts offer a wide range of options from false ceilings, paneling, plaques, pot containers made of Gossamer to thin bamboo mattress ornated with wood inlay and cane and bamboo. The household items have a blend of utility and artistic beauty. Panel and partitions provide another range of utility items made out of solid but thinly spitted bamboo pasted on plywood.

Lamp shades here are made of fine strips of cane and bamboo and add distinct touch and glamour to the whole collection. The supply capacity however is much less than the requisite demand. Cane Furniture of Tripura is also in great demand. Once exclusive to royal palaces they still retain their excellence and and exquisite workmanship. The most sought after items include Sofa sets, Garden Chairs, Dining chairs, Baby chairs, Centre and side tables, Morah, Apple Morah etc.There are a few species of bamboo like Bambusa tulda, Bambusa nutans, Bambusa pallida and Bambusa affinis which can be used to make products like sofa, chairs, tables, dining tables, cots, stools, partitions, mudah (low stool made of bamboo and split bamboo), Bamboo baskets, Bamboo top gun (interesting toy made for children), musical instruments like flute, tukri, date basket, fish trap, fish dalla, bamboo whistles etc.

Baskets knitted out of cane and bamboo strips offer another popular range of products. Exquisite tray planters, Fruit Baskets of different shapes, sizes, pattern and designs offer a rare combination of art and utility. A wide range of baskets and baskets with division are being used for making gift packages with some traditional artistic touches especially tailored to the consumers need. Mat, Mat articles and Chatai are some of the other items in good demand. Mat articles include ladies bag, Hand fans, Portfolio bag. Some of low range item which are very popular include cosmetic table items such as small framed mirror, Hair clips, Powder Case and Decorative case etc.

Ivory works is also an important handicraft sector in Tripura. Ivory is available locally and its ivory products include hairpins, bangles, necklaces and earrings. However in order to suit the contemporary taste and to keep pace with the modern concepts, there is a need to add new dimension by introducing an innovative approach. In order to achieve this objective, training need to be imparted under the active guidance of agencies like All India Handicrafts Board, National Institute of Bamboo and Cane Development on an extensive scale.

Some of the Cane and Handicrafts Items : Partition Cane, sofa ,Garden chair, Dining chair, Baby chair, centre table, Morah, Apple morah, Flower pot container, Fruit basket, Different basket,Running basket, Table mat, Chatai, Door screen, Ladies bag, Hand fan, Portfolio bag, Table mirrors, Small mirrors, Decorative trays, Ornaments Panels, Decorative pillar

Status of Handicrafts Industry

A lot of emphasis has been given to the development of this sector as it is one of the major income and employment, generating sectors of the state. So far,

Box–7.4

- Organized Handicrafts Cluster – 9
- Primary Handicrafts Weavers Co–operative Societies – 9
- West District – 5 nos
- South District – 3 nos
- North District – 1 nos
- No of artisans under Co-op societies – 2500
- No of artisans already benefiting – 709

During the year 2001–02 special efforts have been made to diversify the products and also upgrade the skills of the artisans. At the design extension centre, Indranagar, Agartala a number of new designs on Cane and Bamboo products have been developed and given to the marketing

agencies for replication. The Tripura Handloom and Handicrafts Development Corporation Ltd. have organized one Design Workshop on Handicrafts and 26 nos of new designs have been made. Tripura Handloom and Handicrafts Development Council is organizing rural poor in order to provide works for income generation. One workshop –cum- training programme on Design Development for 20 nos of S.T Handicrafts Artisans have been organized for 5 days in the month of march,2001 at Saheed Bhagat Singh Youth Hostel, Agartala with the financial help of Tribal Welfare Department, Government of Tripura bringing design Exports from NID (National Institute of Design), Ahmedabad.

It is indeed disturbing to observe that despite the abundance of bamboo in the state which can be used to boost its handicraft exports, only 1-2 % of the total extracted bamboo is actually used for value addition. This is a matter of great concern especially keeping in view that bamboo handicraft, with its superior design, craftsmanship and fineness, has been a traditional activity in the state. It is estimated that around 6.1 million man-day per annum of employment is generated on account of management and extraction of bamboo. Around 1.49 lakh artisans are engaged in value addition in bamboo, producing an estimated annual craft sale value of Rs 35.34 crores. The utilization of extracted bamboo is of about 3.20 million nos (State Bamboo Policy,2001, Government of Tripura).

iii. Sericulture Industry

The agro climatic conditions of Tripura are reported to highly favourable and provide considerable scope for mulberry cultivation in the state. Sericulture provides a vast self- employment at negligible investment income. This is an ideal programme for small and marginal farmers. Special steps will therefore be taken to promote development of sericulture industry through private farmers in an organized manner. Inputs should be provided by the Government free of cost or at concessional rates and cocoons to be purchased through an appropriate government distribution and marketing

agency. At present, mulberry cultivation is being encouraged departmentally and also under various schemes such as Jawahar Rozgar Yojana (JRY) and similar other schemes such as social forestry. The Sericulture Directorate is planning to produce and supply DFLs of Bivoltine Silk worms at low and concessional rates.

The sericultural activities in the state are being done through cluster approach. There are 10 nos cluster area in the state through which the schemes are being implemented covering both State and Centrally Sponsored schemes. Under each cluster one MRCS (Mulberry Rearers Cooperative Society Ltd.) is functioning. During 2001-02, the cocoon production in the state was 3.9 MT. The entire cocoon has been purchased in the Reeling Centres. During the year, silk yarn to outside state was worth Rs 42 lacs. To utilise the silk waste, a unit namely By Product Use is now functioning and spun yarn are being produced from silk wastes. Silk and Zamdani sarees made from these sources are in great demand all over the world.

The Sericulture industry in Tripura has the potential of becoming one of the major revenue–generating sectors of the state. It is important that adequate infrastructural facilities are provided by the state Government to boost Sericulture industry and mulberry production in the state. So far :

Box–7.5: Status of Sericulture Industry

(a) No of MRCS clusters organized : 10

(i) West District : 3

(ii) South District : 3

(iii)North District : 3

(iv) Dhalai District : 1

(b) No of Mulberry Extension Centres : 6

Different Parameters	(2001-02)
No of beneficiaries	2214
Area bought under cultivation	976.5 acres
Cocoon production	39.5 mt
Raw silk production	3.9 mt

Source : Economic Review, 2001-02.

Sericulture Promotion Activities in the State

A special project exclusively for women beneficiaries was taken up in the West and South Tripura District. The project period of which was completed during 2001-02. About 2214 nos of women beneficiaries were provided various assistance and inputs as a result of which 976.5 acres of area could be brought under mulberry cultivation. Another special project for women beneficiaries for North and Dhalai Districts has been started from 2001-02 with the financial outlay of Rs 335.94 lacs. At the end of the project period total 3000 nos of women beneficiaries could be benefited and 1500 acres of area could be brought under mulberry cultivation. For installation of one common Facility Centre necessary action has been taken up during 2001-02 which is likely to come in operation soon.

The sericulture industry is on the threshold of a revolution especially post MFA. The golden thread is now in great demand with the growing popularity of silk textiles, silk garments, saree and scarves. This has attracted the interests of foreigners particularly People of Indian origin (from the Gulf). They have been showing keen interest and are planning to invest in the sericulture industry. The state should take advantage of this opportunity and undertake serious reforms. Bivoltine culture in sericulture should be immediately introduced. Online cocoon trading could be started linking Tripura to cocoon mandis like the one at Ramnagar in Karnataka which would ensure higher economic returns for its mulberry cocoons. In addition, the state can also produce eri silk which is spun from open ended cocoons produced by domesticated silk worms that feeds on castor leaves.It is also referred to as ‘divine silk’ as in this case the yarn is derived without killing the insect inside the cocoon. Sericulture is a household activity and can generate additional employment especially for the tribal population of the state.

iv. Food Processing Industry

In view of the established importance of the agro-horticulture and other food processing industries sector, the Directorate of Industries and Commerce, Government of Tripura has been declared as the State nodal agency during 1998 for food processing industries. Further a separate cell under the Directorate of Industries and Commerce of the state Government has also been constituted to follow up the various activities of the state nodal agency. One state level monitoring Committee has been constituted under the chairmanship of Chief Secretary, Government of Tripura. The number of food product industries in the state have been put 47 in 2001-02.To strengthen the state nodal agency, the Ministry of Food Processing, Government of India has sanctioned and released an amount of Rs 4.15 lacs during 2001-02.

Food Processing Park :

The Ministry of Food Processing Industries, Government of India has sanctioned an amount of Rs 4 crores under this scheme for creation of common facilities in a Food Park during 2001.The Park will be set up at Bodhjungnagar, West Tripura covering an area of 30 acres.

Fruit Processing

The Fruit Processing industry in Tripura is still at a nascent stage. As regards pineapple processing, NERAMAC (a Government of India undertaking), has set up a modern Pineapple Juice Concentrate Plant at Nalkata in North Tripura District, with a processing capacity of about 5760 TPA.The plant at Nalkata is operating at a low level due to non-operation of aseptic filter. However, the same is being rectified and natural juice will be made available from the pineapple season of next year. TSIC (a state Government undertaking), is also operating a small Fruit Canning factory, producing fresh canned pineapple juice and other pineapple products. The factory has processing capacity of 400 TPA. Cashew Processing has also been

taken up by NERAMAC by setting up a small unit. As regards other fruit products, proper processing facilities are yet to be created.

v. Tea Industry

Tripura is a traditional tea growing state and tea plantation has been identified as a priority area for development. It is one of the most important cash crops of the state. Suitable land and climate conditions offer good potential for development of tea industry in the state. Tea produced in this state has good blending qualities. There are approximately 60 tea estates and 4,000 small tea growers in the state producing 7.5 million kg of tea. Area under tea cultivation is about 8222 hectares. The Government formed a Tea Development Corporation to organize the efforts for revival of this vital industry. There are 7 tea gardens under TTDC. A new small Tea Growers scheme was started with a total unit cost of Rs 77,905 per acre over 3 years ago. The scheme was funded by contributions from the RD Department/ Bank loan / I & C Department, and Tea Board, besides the beneficiaries' own contribution. During last 4 years, around 3500 nos of small growers have come up. The production of made tea in the state during 2001-02 is 7.2 million kgs of which Small Tea grower's contribution was 14%. During last four years, 598 nos of small growers have been registered under Tea Board through special Registration camps.

Due to the lackadaisical attitude of the private management, the industry suffers very badly over the years and most of its tea gardens have become chronically sick. A number of sick tea gardens have been taken over by the Worker's Cooperative Bodies. The government is seeking assistance from private co-operative bodies for improving the status of this industry. The total package will include better irrigation facilities, supply of fertilizers and better processing facilities. Efforts are also being made to revitalize the sick gardens by providing them additional land, rebate in taxes etc. Better inputs and implements along with financial assistance will be provided under the active participation and involvement of agencies like NEC etc. Production

of **Bio–Tea** which does not have any chemical residue has been taken up as a special venture. Some reputed exporters have shown interest in such tea**.**

Present Status of Tea Industry

The tea industry in the state has been flourishing but a large part of this sector lies in the unorganized sector. At present there are:

Box–7.6: Status of Tea Industry

(A) No of Tea Garden	59
(i) Private Tea Gardens	43
(ii) Tea Garden Run by TTDC	7
(iii) Co-operative Tea gardens	9
(B) Total No of Tea Processing Factories	25

Source: Economic Review, 2001–02

Tea Production in Tripura

Although this state is one of the main producers of tea in the north–eastern region after Assam, the tea produced here is not of very high quality. As a result, it does not fetch a high price in the auction market. The details of production of tea leaves and price of tea in the auction market and cost of production of tea are depicted in the table given below

Table 7.14: Yearwise- Production of Tea Leaves in Tripura (1998-2000)

Year	Production of Tea leaves (kg in lacs)	Price of tea in the auction Market (Rs in per kg)	Cost of Production (Rs in per kg)
1998	8.70	58.00	57.00
1999	4.35	58.51	63.70
2000	6.50	44.11	68.50

Source : Economic Review, 2001-02.

It is clear from the above table that cost of production of tea per kg is higher than the price of tea in the auction market per kg for the year 1999-2000, although there is marginal difference between cost of production of Tea (per kg) and price of tea in the auction market in 1998. The large scale production of tea in the state is severely affected by frequent strike and lockouts in this industry. In 1994 alone, 4090 man-day were lost as a result of 2 strikes in this industry. In 1998, 70 man–days were lost on account of one strike and one lockout. Although warm agro-climactic conditions of the state are very conducive for the growth of tea, the tea produced in the state is not of very high quality. As a result, tea has not proved to be a commercially viable exportable. The congenial climate of the state, can, however be utilized for the growth of Orthodox Tea which has great international demand.

At present, the state produces mainly CTC variety of tea which is available in dark granule form and which caters mostly to the domestic market. Orthodox tea, on the other hand is in a long leaf form and is made from good quality tea leaves. It is milder in taste, has a better aroma and is in great demand in Russia and Iran. Since India is the largest tea producer in the world with North India accounting for major share of its tea production, these states can benefit immensely from the export of this premium quality tea. At present, this tea accounts for less than 10 % of the total tea production but the lifting of tea import ban in Iran and the surging demand of this variety of tea in Russia foretell a bright future for the tea sector in the state. An overview of the total number of small tea growers registered in the state along with area covered is given below. There were a total of 1164 nos of registered small tea growers in the state covering a total of 1172 acres in 2002-03.

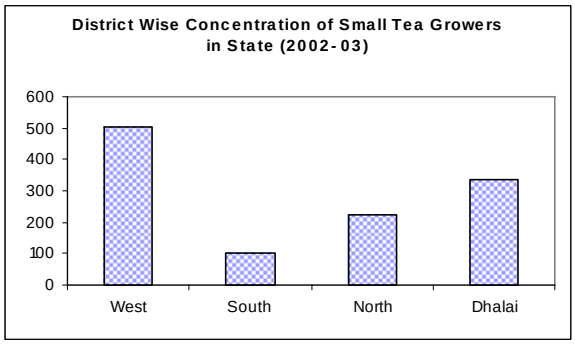
Table 7.15 : District wise Number of Small Tea Growers in Tripura (1998-03)

Year	West		South		North		Dhalai	
	Nos	Area (acres)	Nos	Area (acres)	Nos	Area (acres)	Nos	Area (acres)
1998-99	219	167	41	71	211	355	458	442
1999-00	225	173	100	99	20	20	262	105
2000-01	480	478	96	68	5	5	335	195
2001-02	68	72	21	24	119	116	330	330
2002-03	502	504	101	97	226	376	335	195

Source: Economic Review, 2001-02 and 2002-03.

From the above table, it is evident that the maximum number of small tea growers were concentrated in the West District of Tripura followed by Dhalai region.

Figure–7.8



The West district had the largest area under small tea growers in 2002-03 approx 504 acres followed by the North District with 376 acres. It is important to know that the total area under small tea growers has been declining significantly from 442 acres in 1998-99 to 195 acres in 2002-03.In addition to the registered Small Tea Growers; there are small tea growers who have not registered. Little information is available on their present status.

Tea Promotional Activities in the State

The state holds various awareness programmes at the State and Zilla parishad level and block level for promotional activities. Recently Tea Board has agreed to a proposal of the state Government to render advisory services through Tea Research Area (TRA) and accordingly TRA will open their office at Agartala in April, 2002. During 2002, the Lilagarh Tea processing factory in south Tripura has started their commercial production. **Steps have also been initiated to set up two tea processing factories at Durgabari in West Tripura and another at Mayachari in Dhalai.**

vi. Other Forest based Industries

The forest area occupies a large chunk of land area in the state of Tripura (60%). About 64 varieties of commercial wood is found in this state. It has 24 species of orchid, 8 rare plant varieties,266 medicinal plant varieties and 19 species of bamboo. Tripura also grows one of the best varieties of rubber. Based on these forest resources, a number of forest based industries can come up with assured commercial returns. There is a great potential for development of rubber industry in the state as the abundance of rubber in the state can be used to make compressed rubber sheets, surgical gloves, cycle tyres and tubes, hawai chappals, rubber toys and other common household stuff. Veneer and plywood industries can also come up with limited capital investment. **Diascorea Floribunda**, a rarely grown medicinal plant whose extracted juice is the base material for steroid group of drugs is also being successfully grown in the state as against being imported earlier. The government should also render active assistance in R and D for the identification and cultivation of such value added items on project basis. The main forest based industries include Rubber industry, paper industry, jute industry and bamboo based industries.

a. Rubber Industry

Rubber has been identified as one of the thrust areas in Tripura, in view of its sustainability to the terrain and the acceptability amongst the people. At present 14000 MT of Rubber is produced annually. Studies have shown that about 100,000 hectares of area in the state can be bought under rubber cultivation. The area under rubber plantation at present is said to be about 27000 hectares, which is the second largest after Kerela. The Yield @ 1500 kg per hectare and the quality of rubber are also comparable to Kerela's plantations. In fact, Tripura has recently been declared the "Second Rubber Capital of India" by the Rubber Board. The estimated production of rubber in Tripura during 2001-02 and 2002-03 are as follows

Table 7.16 : Total Tapping Area and Estimated Production of Rubber in Tripura (2001-03)

year	Tapping area (in hectares)	Estimated Production	Total Val. of Prod. (Rs in lacs)
2001-02	11000	9980	2844
2002-03	17,701	17,849	69.42 (crores)

Source: Economic Review, 2002 and 2003.

Rubber Promotion Activities in the State

The state Government had taken up an ambitious programme to increase the area under rubber plantation by another 20,000 MT by the end of Ninth Plan with the assistance from the central government, the Rubber Board and the World Bank. The state is very keen to promote processing of rubber based industries in the state. TFDPC (a state Government undertaking) has already set up a Centrifugal Latex Processing factory with installed capacity of 5.76 TPD, which is being increased to 13.44 TPD. The state Government is also putting up a Process-cum- Product Development Centre at a cost of Rs 12 million with a view to create basic infrastructure for promotion of rubber–based industries.

b. Paper Industry

The paper industry in the state is yet to take off. Hand made paper in the state is derived from recycling the waste agro raw materials predominantly agro fibres like jute, straw and banana. The paper produced has an aesthetic and grand look. Hand made paper today is in great demand and are used for artwork, in greeting cards, deckle edged stationary, exclusive greetings, unique carry bags, file covers etc. It can prove to be another potential industry for the state due to availability of abundant raw material, low production costs and rising demand for handmade paper in the country. One project based on water hyacinth (i.e. aquatic plants) as raw materials is not operational in the state due to high transport costs and non availability of raw material.

c. Jute Industry

The Jute Industry in Tripura has a lot of potential in terms of income and employment generation in the state. Tripura Jute Mills Ltd till date was the only medium scale industry in the state. It came into being as a Public Sector Undertaking wholly owned by the State Government. It was established as a result of a Commission set up by the Government of India in the early 1970s to study the feasibility of setting up of industry in the industrially backward states like Tripura. The company was commissioned on 10th October, 1974 with the following objectives:

- To ensure remunerative prices for the Jute growers of the state
- To provide employment for the growing number of un-employed youths of the state
- To train the youths to develop industrial culture as a prelude to further industrialization of the state.

The company was inaugurated on 30th November 1979 in a partially complete state of the project. The delay in the completion of the project was

due to inordinate delay in the disbursement of loans by Financial Institutions and Commercial Banks and infrastructural problems. After a brief period of training for the workmen and trial run, the company entered into commercial operation with effect from 16th Nov, 1981.

The operation of the company started with a promising note and its main objectives were fulfilled. But the company could not maintain its financial viability due to various reasons. The company managed to survive with the support of the State Government in the form of Share Capital. The company remained non- operative for a period of two and half years with effect from April, 1992. The company took various measures to revive its health viz. running under the financial management of a private industrial house and conversion systems of various forms. But all those measure were short-lived. Recently, the company adopted a modified form of conversion system of production and came to an agreement with M/S Colin Traders Pvt., Kolkata with effect from December 2001. Under this agreement, the conversion party will supply all required raw material and pay conversion charge to the company for the conversion of raw material to finished production. Moreover, the conversion party is committed to gradually increasing production target in the first year to a steady production target of 20 M.T per day in the second year and onwards.

Box–7.7: Present Status of Tripura Jute Mills Ltd.

1. Total no of employees	1511 nos
2. No of working days	286 nos
3. Raw jute procurement by TJML	
1.local	737.10 m.t
2. from outside state	919.82 m.t
3. by convertor	423.00 m.t
4. total procurement	2079.92 m.t
4.Capacity utilization	

1. No of loom	200
2. Avg. no. of loom utilized per shift	42
3. Total production	1851 m.t
4. Production per day	6.47 m.t
5. Share capital contribution from state Government	Rs. 920 lacs

Source : Economic Review 2001-02

The company achieved some positive results under the new system and the production of the company by this time has reached a maximum level of 13 M.T per day from an earlier average of around 6 M.T per day during last financial year. The financial position of the company has become better and stable now with the payment of term loans by the state Government and reduction in its statutory liabilities.

Although the jute industry in Tripura has a lot of potential both in terms of income and employment generation, it has been unable to generate significant revenue for the state. The state Government has been making various efforts to revive this industry but it has not achieved any tangible results. Although some proposals for setting up of an export oriented Jute Goods manufacturing unit have been made and have been accorded sanction from the Textile Ministry, Government of India – the project is still in a state of limbo.

The phasing of the Multi-Fibre Agreement (MFA) under the WTO in 2005 could, therefore, open considerable opportunities for this industry. Since, the golden fibre, jute, is back in vogue both in domestic and international markets, jute products ranging from handbags, home furnishings to lifestyle accessories have come in great demand. Despite the increasing popularity of jute and jute blends, artisans in this state have been unable to realise better returns due to poor designs and inability to market the produce. Efforts should, therefore, be made to help artisans to generate innovative and sleek designs and harness material manipulation skills

through various Design Awareness Workshops held by NID in collaboration with National Centre for Jute Diversification. NID's assistance will help in bringing out high–end–products meeting to the latest lifestyle accessory demands to provide a fillip Distribution, marketing and selling network in the state should be strengthened through organization of Fairs, Expos and urban haats in the state. Creation of diversified use of Jute products and better marketing facilities in the state will go a long way to revive the sick jute industry of the state. The GOI has been undertaking various labour reforms that had been restricting the growth of these sectors-such as removal of archaic labour laws, relaxation of late night work shifts for women and the move towards a fibre neutral tax regime. In addition to this, the industries should also start an ambitious programme to renovate all its installed machinery for optimum capacity utilization since it is expected to face stiff competition in the future.

d. Bee keeping cum Honey Processing

Other ancillary activities like Bee farming and honey processing have come also come up in a limited way in the state but they have not been exploited to their full potential. Honey has milk like nourishing value and it helps to build hemoglobin. It is a high demand commodity and is used in tea, coffee, milk etc for its delicious flavour, used as medicine bases in almost all homeopathic medicines. KVIC along with KVIB conducts training programme to impart skill in bee keeping in the state.

e. Manufacture of Non-wood Forest Products

Non Wood Forest Products (NWFPs) represents an untapped but a major resource of Tripura state whose full ecological and economic potentials remain underutilized. NWFPs are the essential component of forest eco-system which is a dominant feature of state's landscape. The major NTFPs of Tripura include Katha, Gums and Resins, Shellac, Khus, Broom grass, Aonla, Harad, Behera and Mushrooms. NTFP-sector development

should be a high priority thrust area of the state government and the Government of India. They have immense potential in improving the rural economy, industrial development and developing sound economic base for the state on sustained basis. Thus there is a need to promote bamboo development for the benefit of the rural sector. The change over from traditional use to a modern use tracking a high potential growth path in an eco friendly manner needs a clear vision, an appropriate policy framework and a road map.

II. Other Industries

a. Natural Gas Based Industry

Although this state has abundant resources of natural gas, it is not being exploited commercially. Natural Gas is basically being utilized for power generation in the state. The other natural gas based industries in the state are basically -Urea Complexes and Hydrocarbon Complexes.

On–going Power Sector Projects

In keeping with the increasing demand for power in the state, the state government has undertaken various projects. Some of the state financed Power projects which are still in the pipeline include Baramura Gas Thermal Extension project (24 MW), Rokhia Gas Thermal Project Phase -1 (21 MW), Rokhia gas Thermal Project, Phase -2 (21MW) and Micro Hydel project with a capacity of 1 MW.NEEPCO has also planned to set up 500 MW gas based power generation at Monarchak near Sonamura during 10^{th} plan period. Private participation for power generation has also been approved by the Government. A 400 KV transmission line will also be required to be constructed from Monarchak up to MISA, Assam .The length of the line will be around 600 km. A scheme for construction of 132 KV lines and substations has been prepared at a cost of Rs 57.92 Cr. To meet the demands of the state upto 10^{th} plan period. The scheme comprises of 110 km 132kv single circuit line, 50 km 132 kv double circuit line and 132 substation of 110 MVA capacity with augmentation of existing substation by 25 MVA. To

improve voltage profile and to supply power to the rural villages, distribution line to the tune of 6000 km will be required to be constructed during next 10 yr. period. Department has also planned to electrify 2158 habited localities by end of 2012 for which Rs.135 Cr. will be required during the period. Programme has also been taken to extend power lines to 4,00,000 families during 10 yr. period i.e. by 2012.The cost involvement for such power line connection will be around Rs. 80.00 Cr.

B. Other Natural Gas Based Industry

Natural Gas is available in the non- associate form, with a high methane content of upto 97%. Against the present availability of 4.0 MMSCMD, the actual utilization is 1.3 MMSCMD As a result; the gas is available at attractive concessional price. The possible projects include- Urea Complex, Urea- PVC Complex, Urea- methanol Complex and Liquid / solid Hydrocarbon complex. The state Government has taken several steps for proper utilization of the natural resources. Presently the gas is mainly used for power projects. Besides this, it is also being used as an alternate fuel of LPG in both domestic and commercial sector. At present there are just 4 natural gas based projects in the state. The details of which are given as follows.

Table 7.17 : Details of Natural Gas Based Projects in Tripura

Project	Product/capacity	Gas requirement	Project cost
a. Urea complex	urea- 1186 tpd	0.74 MMSCMD	Rs 1145 crores
b. Urea–PVC complex	urea- 741 and pvc-261 TPD	0.74 MMSCMD	Rs 1305 crores
c. urea methanol complex	urea- 866 TPD and methanol – 200 TPD	0.74 MMSCMD	Rs 987 crores
d. liquid/ solid hydrocarbons complex	Diesel – 8000 TPA Naptha – 4000 TPA Soft wax – 12000 TPA	0.40 MMSCMD	Rs 376 crores

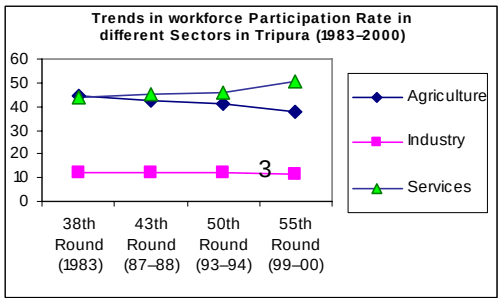
	Hard wax – 24000 TPA		

Source: http//tripura.nic.in

7.7. Employment in the Industrial Sector

The contribution of the industrial sector in generating employment has remained stagnant over the years and provides employment to less than 13 % of its total workforce. Despite the potential, this sector has been unable to generate substantial employment for its workforce due to various limitations. In the services sector, most of its work force is employed in the community, social and personal services followed by Retail Trade and Manufacturing. An interesting observation that can be made from examining the Workforce participation trends in different sectors is the structural shift in employment that is taking place as a result of which the share of industry in total work force employment is declining while that of services is increasing.

Figure 7.9



The workforce participation rate in the industrial sector has declined from 12.41 % in 1993-94 to 1.52 % in 1999-00 in Tripura while that of the services has increased significantly from 46.15 % in 93-94 to 50.43 % in 1999-00. Besides structural transformation, this change can also be attributed to the rising share of the services sector in the total plan outlay of the State government from 54 % and 57 % in the Seventh and Eighth Plan to 84 % in the Ninth Plan. This has created additional gainful employment opportunities for its educated youth. Not only has the labour workforce participation rate in the industrial sector been declining, there has also been a decline in the labour productivity especially among the industrial workers.

In fact, fall in labour productivity among industrial workers is one of the main reasons for the slow industrial progress of the state.

Table 7.18 : Per Worker Value of Output among Industrial workers in Tripura vis a vis North-Eastern states (in Rs)

STATES	1996-97	2002-03 *	COMPOUND ANNUAL RATE OF GROWTH (%) 2002-03 / 1996-97
A.P	479095	899246 (31.10)	11.1
ASSAM	470200	1130471 (59.70)	15.7
MANIPUR	186063	148097 (-2.40)	-3.7
MEGHALAYA	209038	682718 (-47.60)	21.8
NAGALAND	292601	231654 (-36.40)	-3.8
TRIPURA	189527	175344 (-37.70)	-1.3
ALL STATES	777881	1378773 (16.00)	10.0

Note : * Figures in brackets indicate percentage change over the previous year

Source : Annual Survey of Industries, Central Statistical Organisation, GOI, ET ,Jan 23, 2005

From the above table, it is seen that per Worker value of output among industrial workers in Tripura was Rs 189527 in 1996-97 which fell to Rs 175344 in 2002-03. While labour productivity for All States grew at an annual compound growth rate of 10 % per annum between 1996-97 to 2002-03, that for Tripura, Nagaland and Manipur fell to -1.3 %, -3.8 % and -3.7 % respectively registering a decline of 37.7 %, 36.4 % and 2.4 % respectively over the previous year.

A. Manpower Employment–Industry–Wise Classification

Most of its work force is employed in the services sector, more specifically in community, social and personal services followed by Retail Trade and Manufacturing.

Table 7.19 : Industry Wise Classification of Labour Employment in the State (1998)

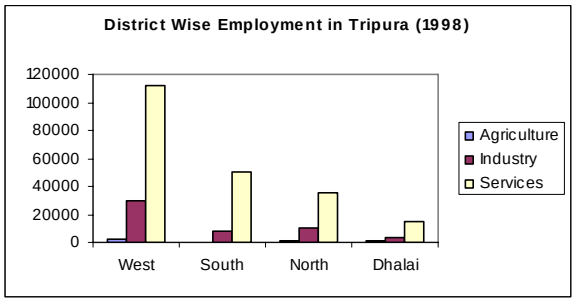
Major Activity	Persons usually working				
	West	South	North	Dhalai	Total
I. Agriculture	2718	377	812	844	4751
1.rearing of livestock	1414	159	365	540	2478
2.agri services & hunting etc.	1304	218	447	304	2273
	29540	7890	10619	3999	52084
II. Industry	3	17	13	5	38
1. Mining and quarrying	27799	7371	10206	3931	49307
2. Manufacturing	1229	148	104	31	1548
3.electricity, gas and Water supply	509	354	296	32	1191
4.construction	111788	50244	35073	14317	211422
	1648	347	822	498	3315
III. Services	33218	14185	9083	3852	60338
1. Wholesale trade	3769	2485	1840	714	8808
2. Retail trade	4286	422	2148	116	6972
3. Restaurants and hotels	569	89	72	62	792
	939	431	488	60	1918
4. Transport	1867	777	727	190	3561
5. Storage and	65492	31508	19893	8825	125718

warehousing					
6. Communication	-	-	-	-	-
7. Financial services	144046	58511		19160	268257
8. Community, social and			46540		
Personal services					
9. Other activities					
Total					

Source: Economic Review,2002-03

The West district of Tripura provides employment to a large share of its workforce as most of the industrial and agricultural units are located in this district.

Figure–7.10



It is pertinent to note that although the manufacturing sector employs a large proportion of people in the industrial sector, employment in the registered manufacturing sector has been continuously declining from 44092 workers to 30012 workers in 2000.This indicates that more and more workers are shifting to the unorganised sector due to higher economic returns.

B. State-Wise Analysis of the Labour Workforce Participation Rate

State–wise analysis of the labour work force participation rate reveals that the Labour work force participation rate in Tripura is very low (36.07 %) much below the all India Level of 39.25%. Among the North–Eastern States, it is the second lowest after Assam.

Table 7.20 : State–Wise Comparison of Total Population and Workforce
Participation Rate in the North–Eastern States

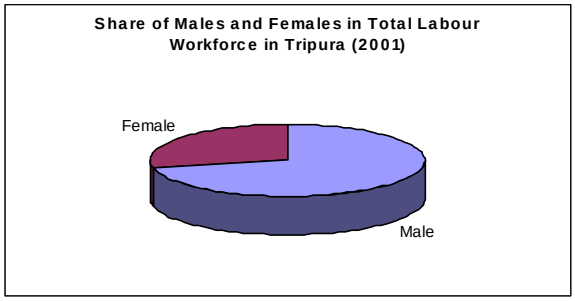
States	Total pop (in lacs)	Total workforce (in lacs)	Male workforce (inlacs)	Female workforce (inlacs)	Total workforce participation rate (in %)	Male work force participation rate (in %)	Female work force participation rate (in %)
A. P.	10.97	4.82	2.93	1.89	43.93	60.79	39.21
Assam	266.38	95.57	68.84	26.73	35.87	72.03	27.97
Manipur	23.88	10.70	5.95	4.75	44.80	55.61	44.39
Meghalaya	23.06	9.56	5.58	3.99	41.45	58.26	41.74
Mizoram	8.91	4.70	2.64	2.05	52.74	56.38	43.62
Nagaland	19.89	8.50	4.88	3.62	42.73	57.41	42.59
Tripura	31.91	11.51	8.31	3.27	36.07	71.58	28.41
All India	10252.51	4025.12	2754.64	1270.48	39.25	68.44	31.56

Source: Census of India, 2001.

Although the male labour work force participation rate is high (71.58 %), the female labour work force participation rate in the state is very low (28.41 %), much below the all India Level of 31.56 %. The male labour work

force participation rate is highest in Assam followed by Tripura and Arunachal Pradesh and female labour work force participation rate is highest in Manipur.

Figure–7.11



The above table clearly highlights the gender disparities in the state and the insignificant role played by women in Tripura's economy. The active participation of males in the economic activity makes them the major bread earners of the family and perhaps the dominant section of the society. Although there are no tribal laws or social customs which prevents females from joining the work force, their contribution in the economic activity of the state has always been low**.** Lack of employment opportunities especially in the rural areas is one of the reasons hindering their active participation and involvement in the working labour force of the state.

7.8. Pattern of Expenditure for Industrial Growth

Till the 1980s, agriculture was the driving engine of economic growth and therefore received approximately 50% of the total plan outlay. Plan outlay for the industrial sector has always been low hovering between 5-7 % of total outlay. More importantly, its share has been further reduced in the Ninth and projected Tenth plan Outlays. This is a major anomaly on part of the policy makers and clearly reflects the apathetic attitude towards industrialization. The industrial sector of the state is already in dire straits and unless adequate investment is injected into this sector, there is little hope of its revival.

Table 7.21: Percentage Distribution of Plan Outlays Among

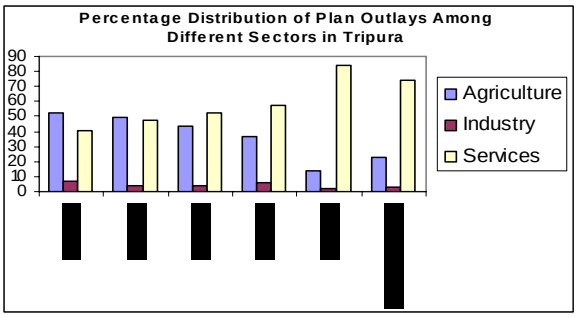
Different Sectors in Tripura (1974–2007)

Plans	Agriculture and Other Allied Activities*	Industry	Services
5th Plan (74–79)	52	07	41
6th Plan (80–85)	49	04	47
7th Plan (85–90)	44	04	52
8th Plan (92–97)	37	06	57
9th Plan (97–02)	14	02	84
10th Plan (02–07)	23	03	74

Note : * Other Activities include Irrigation, Flood Control, and Power.
Source: Derived from Basic Statistics of North Eastern States,2002 North Eastern Council, Shillong.

Another interesting trend that can be observed is the significant increase in the plan outlay for the services sector. Due to increased Government emphasis on the provision of basic social and community services to its people, the share of the services sector in the total plan outlay has increased considerably over the years and its share constituted approximately 84% of the total Outlay in the Ninth plan.

Figure–7.12



A. Plan Outlay for Development of Small Scale, Village and Other Industries

One of the prime reasons for the industrial backwardness of the entire N.E Region has been the over-dependence on the small scale sector as the

engine of growth. This is clearly reflected in the allocation pattern of the plan outlays for the small scale and other industry. When we examine the plan outlay and expenditure pattern for the state of Tripura, we find that till the 8th Plan , SSI and VSI Sector has continued to receive a major chunk of outlay for industrial sector ie more than 50 in % terms (see table). Only in the 9TH Plan do we a see change in the allocation pattern with due emphasis being paid to the development of large–scale and medium–scale industries in the state

Table 7.22 : Percentage Distribution of Plan Outlay Allocated for Industrial Development Among SS and VSI and Other Industry

Sixth Plan (outlay)			Seventh Plan (Actuals)			Eight plan (outlay)			Ninth plan (outlay)			Tenth plan (projected)		
SS & VSI %	Other Industries %	Tot (in cro res)	SS & VSI %	Other Industries %	Tot (in cro res)	SS & VSI %	Other Industries %	Tot (in cro res)	SS & VSI %	Other Industries %	Tot (in crores)	SS & VSI %	Other Industries %	Tot (in crores)
61	39	13.69	68	32	19.67	53	47	65.00	48	52	79.34	18	82	37389

Source : Tenth Five Year Plan of Tripura, 2002-07

In view of the large employment generation capacity and low capital investment required in the small scale sector, this sector has been rigorously promoted over the years at the cost of medium and large scale industries. As a result the state has hardly any large scale projects to boast of.

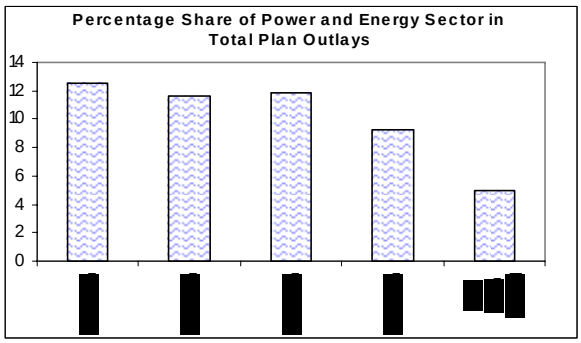
Table 7.23 : Actual and Anticipated Expenditure in Tripura (Rs in Lacs)

Sector	Sixth plan		Seventh plan		Eighth plan		Ninth plan		Tenthplan
	Outlay	Actual exp	Outlay	Actual exp	Outlay	Actual exp	Outlay	Actual exp	Outlay (projected)
1.Agriculture	4489	5018.80 (16.98 %)	7410	11361.62 (16.35 %)	23000	17665.91 (13.09 %)	19568	17964.13 (8.01 %)	45000 (10.0 %)
2.Energy	2300	3708.50 (12.55 %)	4800	8078.28 (11.63 %)	12000	16061.36 (11.90 %)	17454	11800.96 (5.27 %)	22500 (5.0 %)
3.Industry and Minerals	1295	1200.75 (4.06 %)	1610	3027.011 (4.36 %)	6500	6260.53 (4.64 %)	7934	8313.90 (3.71 %)	13500 (3.0%)

* Figures in brackets show % expenditure out of total outlays
Source : Statistical Abstract of Tripura-2002.

The above table reflects another disturbing trend that can be observed we examine the expenditure pattern of the State reduced Government expenditure on industry and power. State expenditure on industry has fallen from 4.06 % in the Sixth Plan to 3.71 % in the Ninth Plan and that on energy and power has been reduced significantly from 12.55% in the Sixth Plan to 5.27% in the Ninth Plan.

Figure–7.13



Since power is the only sector where there is potential for development of large scale industrial units, adequate flow of funds to this sector should be ensured for speedier industrial growth of the state.

B. State-wise Analysis

One of the prime reasons for the industrial backwardness of the entire N.E Region has been the over-dependence on the small scale sector as the engine of growth. This is clearly reflected in the allocation pattern of the plan outlays for the small scale and other industry. Small scale and village scale industries continued to receive the major share of outlays allocated for industrial growth in most of the NE states till the Sixth and Seventh Plan. Plan outlay for the development of large and medium–scale industries was increased significantly in the Eighth and the Ninth Plan in almost all states but considering the burgeoning population of this region and the industrial backwardness of this region vis–a–vis other parts this has clearly not been enough. The states need to inject more funds for the development of large scale industrial units in the region.

Table 7.24 : Statewise –Plan Outlay for SSI & VSI and Other Industries

(Rs. in Crores)

STATES	Sixth Plan		Seventh Plan		Eighth Plan		Ninth Plan	
	Outlay		actuals		outlay		outlay	
	SS & VSI	Other industries	SS & VSI	Other industries	SS & VSI	Other industries	SS & VSI	Other industries
Arunachal Pradesh	2.75	7.51	7.73	2.75	13.00	13.94	34.32	11.78
Assam	30.00	24.75	55.00	53.10	109.68	214.25	174.77	205.27
Meghalaya	4.00	5.50	6.78	13.10	11.11	32.06	32.00	72.00
Mizoram	4.00	0.58	16.37	2.35	37.50	7.25	59.73	9.19
Tripura	8.50	5.46	13.42	6.25	34.50	30.50	37.99	41.35

Source : Ninth Five Year Plan of Tripura (1997-2002)

7.9. STATE PERSPECTIVE PLAN – 2007, 2012, 2020

With a view to provide a fillip to industrialization in the state, a State Perspective plan has been prepared for the years 2007, 2012 and 2020. The contribution of the industrial sector to the NSDP (at constant Prices) (Rs in lacs) for the above mentioned years is expected to be as follows.

Table 7.25: Projected Values of the Share of the Industrial Sector in the

Tenth, Eleventh and Twelfth Plans (Rs. In Lakhs)

Industry	2007	2012	2020
a. Manufacturing	4559	4543	4530
b. Mining	4154	5208	6883
c. Electricity, gas and water supply	2004	4420	8286
d. Construction	55888	73544	101794
Total	66605	87715	121493

Financial Resources

The sector wise plan outlay required for the Tenth, Eleventh and Twelfth Plans has been given below. It may be observed that while the plan outlay for the agricultural sector is likely to increase from Rs 135 Cr to Rs 153 Cr to Rs 184 Cr during 10^{th} , 11^{th} and 12^{th} Plans respectively, the same for the industrial sector is likely to increase from 450 Cr to Rs 781.35 Cr to Rs 136.53 Cr during 10^{th} , 11^{th} and 12^{th} Plans respectively and that for Power and Energy Sector is likely to increase from Rs 225 Cr to Rs 277.27 to Rs 330.32 Cr during the 10^{th} , 11^{th} and 12^{th} Plans respectively.

Table 7.26 : Sector–Wise Projected Plan Outlay for the Tenth, Eleventh

and Twelfth Five Year Plans (Rs. In lakh)

Sectors	Plan outlay (in lacs)		
	Tenth Plan (2002 - 07)	Eleventh plan (2007-12)	Twelfth Plan (2012-17)
Agriculture	13,500	15,388	18,461
Industry	45,000	78,135	13,6531
Power and energy	22,500	27,727	33,032

Thus, it is clear that, in the Long Term Perspective Plan, the industrial sector deserves maximum financial resources for the expansion of the industrial sector followed by Power and Energy. The maximum dose of

investment for the expansion of the industrial sector is justified on the ground that huge amount of investment is required for the development of infrastructure and proper exploitation of natural and mineral resources which are essential requirements for industrial prosperity.

7.10. Special–Area Programmes

The effort of the Government in Tripura is to create an integrated and comprehensive base for industrialization through proper linkages between small–scale, medium and large–scale units. Its main objectives include

- Generating private sector employment and self-employment in the state
- Efficient Utilization of physical and human resources of the state, and
- Creation of infrastructure for setting–up of in the state by utilizing these natural resources.

With a view to achieving these objectives, the state and the Central Government have started various sector specific and area development scheme.

(A). Centrally Sponsored Schemes

i. Prime Minister Rozgar Yojana (PMRY) :

The scheme was started during 1993-94 .The project aims at self employment of educated unemployed youths by providing financial assistance in the form of loans up to Rs 1 lac in Service and Business sector and upto Rs 2 lac in Industrial sector. Loan is being provided by the commercial banks and central Government at 15% subsidy. Besides Central Government is also placing fund for imparting training and other contingencies to the implementing department i.e. Directorate of Industries and Commerce. Steps are being taken on a regular basis to give publicity to the scheme, to increase awareness and to get better public response.

ii. Growth Centre :

A Growth Centre is set up as Bodhjungnagar, Tripura (west) under centrally sponsored schemes covering an area of about 240 acres. The centre will offer industrial plots to large, medium and small scale industries. The growth centre is equipped with gas pipeline and dedicated power supply. Other common facilities like water, telecommunication etc will also be made available to the industrial units. Total project cost is Rs 15 Crores and this is a 100% centrally sponsored scheme. Already an amount of 10.70 crores has been received from the ministry and for the balance amount the matter has been taken up with the Government of India. This project will be completed in 2003-04.

iii. Export–Promotion Industrial Park (EPIP) :

The EPIP in Tripura is being established at Bodhjungnagar, Tripura (west) covering an area of 126.12 acres. The site is adjacent to the Growth Centre. Total project cost is Rs 10 lacs and it is a 100% CSS. Already the ministry has sanctioned an amount of Rs 3 crores during the 9th plan. Tripura Industrial Development Corporation is the Nodal agency for implementation of the scheme. An amount of Rs 700 lacs is being considered to be released during the 10th plan.

iv. Integrated Infrastructure Development Centres (IIDCs) :

Steps are being taken for setting up of the IID centres in North Tripura, South Tripura and the Dhalai District. Total project cost of each centre will be Rs 5 crores and out of which 4 crores will be provided by the Government of India and the balance will be paid from the State Financial Corporation. An amount of Rs 200 lacs is projected in the 10th plan. The project reports have already been prepared by NECON and sent to SIDBI for preparation of the appraisal. As soon as the projects are sanctioned, implementation will be started.

v. Food–Processing Park :

The Government of India, Ministry of Agriculture in collaboration with the Department of Food Processing Industries has established a Food Processing Park to help establish food processing activities in the state. The Ministry of Food processing Industries, Government of India has sanctioned an amount of Rs 4 crores under this scheme for creation of common facilities such as analytical and quality control laboratories, cold storage and modified atmosphere, warehousing facilities, supplementary pollution control facilities. TIDC being the implementing agency, is finalizing the matters related to detailed engineering works etc. The park will be setup at Bodhjungnagar, west Tripura covering an area of 30 acres. Total project cost is Rs 7 crores. Balance will be provided by the state Government. The ministry has already released an amount of Rs 2 crores during the 9^{th} plan. During the 10^{th} plan an amount of Rs 2 crores is projected to be released from the Ministry.

vi. Critical Infrastructure Balance Scheme :

The official trade between Tripura and Bangladesh started in 1995-96. Since then, it has been growing consistently. Main items of export are fresh fruits, fish, onion, ginger, coal, dry fish etc. Imports have been increased from about Rs 3.76 Crores in 1995-96 to about Rs 9 crores in 1999-2000. Main import items are fruit juices, zamdani sarees, fish etc. Presently there are 7 notified Land Custom Station namely Agartala, Srimantpur, Muhurighat, Khowai, Dhalaighat, Manughat and Raghnabazaar. During last few years, a number of projects have been sanctioned for development of infrastructure at LC stations. These are the schemes of GOI for the development of infrastructure of the existing LC stations as well as new export–related projects. Under this CIBS, besides the central Government grant, state Government contribution is mandatory (sometimes to the extent of about 20-30%). An amount of Rs 800 lacs is projected under this scheme in the 10^{th} plan.

vii. Central Transport Subsidy :

Under the Central package of incentives transport subsidy is available @ 90% of transport cost of raw material cost/ finished good calculated between Siliguri and factory site and @ 50% of transport cost of finished good movement within the state. Transport cost of equipment to site of the project would not be applicable. Earlier reimbursement was being made by the central Government to the state Government under this scheme. But as per the industrial policy declared for the northeast state, reimbursement is being made through the NEDFI. During the 9th Five Year Plan, an amount of Rs 339.06 lacs at 1996-97 prices was received from GOI and during the 10th plan an amount of Rs 700 lacs is considered.

B. State Sponsored and Other Schemes :

The Department is implementing the TSP and SCP schemes. The schemes are mainly beneficiary–oriented schemes. The main among them are :

i. Development of Entrepreneurs for setting up of Small scale Industries:

For development of skill and entrepreneurship the following programme are to be organized during 2003-04 with special emphasis for motivation of persons belonging to SC,ST and other weaker sections of the community.

- Training in vocational trades such as Wireman, Electrician, Stenographers etc
- Entrepreneurship training to be conducted for motivation and development of entrepreneurs.
- Apprenticeship training of persons who have completed institutional training in ITI in different vocational engineering and non–engineering trades.

ii. State Package of Incentives :

Tripura is located in a landlocked backward region. So to offset the locational disadvantage some special package and subsidies are given to local industrial units such as Capital Investment Subsidy and Interest Subsidy on Bank loan etc.

iii. Craftsmen Training Programme :

The programme envisages imparting training to local educated young persons in developing their skills. The main activities under the scheme are as follows :

- Modernization of existing ITI by replacing old machinery.
- Introduction of new trades having gainful employment opportunities. At present there are 4 ITI in the state.

iv. Small Growers Scheme :

It is expected that both SC and ST will benefit under this scheme of SCP and TSP.

The Draft Annual plan 2004-05 is prepared, keeping in consideration the existing on–going schemes and also the future developments proposed to be taking place in the coming years and the projected amount is Rs 2272 lacs. In addition to this the state Government of Tripura has also initiated the task of setting–up an Agri–export zone and a Rubber Park in the state.

7.11. TRADE AND COMMERCE

Foreign trade with other countries can act as a major catalyst for all-round economic development of the state. For this, it is important to set–up export oriented units in the state. Cheaper imports, on the other hand, can improve the competitiveness of the industrial units. All these efforts can play

a propellant role in guiding the state towards economic growth and paving the way for an industrial revolution.

In the context of Tripura, the main trading partner country for foreign trade is Bangladesh.In the past, Tripura had excellent transportation links with the erstwhile East Bengal and through it , with West Bengal. The straight-line distance between Agartala and Kolkata via Bangladesh is only about 350 km..

A. PRESENT STATUS OF TRADE WITH BANGLADESH

Bangladesh surrounds Tripura on three sides and has 84 % of its border common with Bangladesh. The official trade with Bangladesh started in early1995. During 2002-03, total volume of official trade was Rs 7.04 crores only but the same is expected to be much higher during the current financial year. The major exports to Bangladesh include fruits, fish and certain vegetables. However versus recently some other select items like cane/ bamboo handicrafts, true potato seeds have also been exported.

Major Commodities :

EXPORTS : Fresh fruits (orange, Jackfruit), Fish (Rui, Katla), Onion, Ginger

IMPORTS : Fruit Juices, Zamdani saree, Fish (hilsa), Processed food and Dry fish.

Trends in Border Trade with Bangladesh

The following table provides an year-wise account of total exports and imports to Bangladesh from 1998-99 to 2002-03.

Table 7.27: Trends in Border Trade with Bangladesh

Years	Exports (in crores)	Imports (in crores)
1998-99	1.36	14.10
1999-00	1.74	7.44

2000-01	0.81	9.69
2001-02	1.27	4.38
2002-03	1.57	5.47

Source: Economic Review, 2002-03

It is evident that the trade balance of Tripura with Bangladesh has always been negative i.e. its imports have been higher than exports. Its exports basically include horticultural products and fruits. On account of low industrial activity in the region, there is little potential for export of manufactured goods. The state has been undertaking huge imports of dry fish, since there is a great demand of fish in the state as 90 % of its population are fish eaters. Imports in the state especially of fish can be drastically reduced if proper emphasis is given to the development of pisciculture so that the state can become self–sufficient in the years to come. Exports of rice, tea and other horticultural products should also be encouraged as the state seems to have competitive advantage in these areas.

B. Trade Promotional Activities in the State

Over the years, a number of initiatives have been taken to promote economic relations with Bangladesh. Some significant efforts made during last few years are as follows :

- Serious efforts have been made to improve relation between Tripura and Bangladesh, both at the level of the business communities as well as the Governments. A number of seminars on the promotion of trade and investment have been held in Tripura as well as in Bangladesh in recent years
- Various issues of concern to Tripura with respect to Bangladesh have been taken up and pursued through Government of India. These include

(i). Transport: Agartala–Akhaura Rail Link

The Government of Tripura and the Bangladesh Government have already signed a protocol to establish Rail Link between Agartala (Tripura-India) and Akhaura (Bangladesh). The Government of Tripura and the Railway Board, through the MEA, are pursuing the matter regularly. This proposed link is of crucial significance to Tripura as Akhaura is an important junction on Bangladesh Railway Network and establishment of this link will greatly facilitate movement of passengers as well as cargo.

(ii). Transit / Transshipment : Declaration of Ashuganj as Port-of–Call and Multi–modal Transport Agreement with Bangladesh :

The existing Trade Agreement with Bangladesh does not provide for a multi-modal transportation of goods from India to Bangladesh (involving road transportation from Agartala to Ashuganj onwards by river and vice versa). Ashuganj is only 30 kms from Agartala and the Ashuganj Port remains open around the year, unlike Karimganj, which is available for only 6 months in a year. The matter may be strongly taken up with the Bangladesh Government.

(iii). Access to Chittangong Port :

The Chittangong Port is only about 75 kms from Sabroom (in Tripura) and would be highly suitable for opening up of trade not only from Tripura, but also from rest of the North-Eastern Region. Large industrial Projects, based on available natural resource in the north-eastern state can be set up once the transport bottleneck is removed.

(iv). Transit / Trans-shipment through Bangladesh :

Bangladesh Government should allow transit facilities for movement of Indian goods between the North-Eastern Region and the Eastern region of India, through Bangladesh, by land routes (Road/ Rail Transport)

- In order to get feedback from importer/ exporters regarding their problem/ grievances, a State Level Export Promotion Committee (SLEPC) under the chairmanship of Chief Secretary has been constituted, which meets regularly. The issues raised in this committee are either locally resolved or are taken up with higher authorities, wherever necessary.

- Some specific export–oriented projects have been taken up, particularly for export of handlooms and handicrafts.

C. Infrastructural Projects Undertaken to Boost Trade and Commerce in the State

Presently there are 7 notified LC Stations on Tripura- Bangladesh Border– namely at Agartala, Srimantapur, Raghna Bazaar, Manughat, Dhalaighat, Khowai, Muhurighat. Out of these only Agartala, Ragna Bazaar and Srimantapur are active at present. The major constraint is the absence of required infrastructural facilities on Bangladesh side of these LC Stations.

During last 4 years, the Government of Tripura with the assistance of Government of India has taken steps to improve the infrastructure at the Indian side of the Land Customs Station. A brief outline of the projects under the Critical Infrastructure Balance Scheme (CIBS) of Ministry of Commerce and Industry, Government of India are given below :

1998-99 :

- Installation of Electronic Weigh bridges at Agartala LCS and Old Raghna Bazaar LCS. The total sanctioned project cost is Rs 27 lacs.

- Improvement of approach road from Fire brigade Chowmuhani to Agartala LCS. Total sanctioned project cost is Rs 82 lacs

1999-00:

- Installation of Electronic Weigh bridges at Srimantapur LCS, Muhurighat LCS and Manughat LCS. Total sanctioned cost is Rs 46.50 lacs

2000-01:

- Construction of Integrated Development Complex at Agartala LCS. Total sanctioned cost is Rs 297.86 lacs
- Development of road, construction of permanent bridges etc at Old Raghna Bazaar LCS. Total sanctioned project cost is Rs 950 lacs.
- Improvement of road from Satmura chowmuhani to Muhurighat LCS, Belonia. Total sanctioned project cost is Rs 274.42 lacs.

2001-02 :

- Construction of Marketing Complex at Golchakker near Agartala LCS. Total sanctioned project cost is Rs 93.95 lacs
- Installation of High Powered Sodium Vapour Streets lights from TRTC, Krishnanagar to Agartala LCS. Total sanctioned project cost is Rs 35.23 lacs.
- Improvement of road from Nidaya – Sonamura to Bibir Bazaar Checkpost via Srimantapur LCS. Total project cost is Rs 75.78 lacs

Due to various efforts, there have been some positive developments with respect to border trade in this State. Besides export of traditional items, other items like fresh fruits, fish, ginger etc have also been under taken. Export of cane / bamboo handicrafts and some handloom textile items and Rubber have also started very recently. Export–oriented pineapple powder project has been set up for implementation. An Export Development Plan has been prepared for Tripura with the help of IIFT, New Delhi in which the State Government has been advised to focus on certain specific items as part of export strategy, namely pineapple products, cane/ bamboo, handicrafts, rubber and rubber products and tea. State Government is accordingly, focusing the efforts in these areas.

Although border trade has been increasing consistently over the years, a large part of this trade is unofficial. **The volume of unofficial trade is expected to be over Rs 100 crores according to some estimates**. A wide range of goods are being informally exported from the NE Region to Bangladesh which include oranges, pineapple, jackfruit, potatoes, ginger, spices, rice, betel, plywood, coal, petroleum products, medicines and drugs, fish, raw cotton, clothes and garments, bicycles, time pieces, tyres, paper, cosmetics, milk products, utensils, tea, salt, tobacco, wood, leather, yarn etc. The imports and/or smuggled goods consist of electronic goods, coconut oil, goat, jute, poultry products, synthetic fibres, consumer goods, high quality clothes etc. The State Government is making considerable efforts to reduce the volume of unofficial trade but these are severely being constrained by the long open border it shares with Bangladesh. Despite all the constraints, efforts are being made to simplify trade mechanism, so that more and more trade comes into the official channel. Simultaneously, efforts are on to exports to other countries.

Although the Border Trade Agreement between India and Bangladesh was signed as early as 1972, to meet day–to–day requirements of the border people, the state has achieved little success on that front. The present volume of annual trade with this state is only 170 million**.** If trade between Bangladesh and India is further liberalized as a result of the formation and effective functioning of SAFTA, it would provide great boost to trade and commerce in the state and would also help to reduce smuggling along the border. **The volume of foreign trade from Tripura is expected to increase from Rs 7.04 crores during 2002-03 to at least Rs 25 crores by the year 2002-07**. This is a very conservative estimate and if some major breakthrough in policy framework is achieved, there could be a quantum leap in the volume of trade.

7.12. SWOT Analysis of the Industrial Sector

The industrial sector of Tripura has not achieved any significant progress over the years despite the potential. The contribution of the manufacturing sector (both organized and unorganized) has been only 1.79% of total NSDP at current prices during 2001-02 which is a clear indicator of the poor industrial scenario of the state.

The main **Strengths** of this sector lie in

- Availability of natural resources like tea, bamboo, coffee, rubber
- High literacy rate in general and high female literacy rate in particular
- Congenial climate for horticultural products
- Existence of Tourist spots (approx 27 in number)
- Abundance of bamboo used as raw material for Handicraft products and availability of mulberry / silk cocoons.
- Availability of quality rubber and abundance of tea in the state
- Very rich biodiversity, unique flora and fauna, large forest area, availability of medicinal plant resources and availability of huge quantities of bamboo, cane, timber and firewood in the state.
- Active participation of SC community fisherman population in fish farming, involvement of 3–tier PRIs and adequate flow of funds in the fishery sector.
- Availability of vast resources of Natural Gas in the state.

Although there is a lot of scope for the commercial exploitation of these resources not much has been achieved in quantitative terms from these sectors during the last few years due to chronic and structural deficiencies.

The main **Weaknesses** of the industrial sector in Tripura are :-

- Geographical isolation and poor communication leading to high transport costs
- Lack of technical expertise among first–generation entrepreneurs

- Inadequate social and economic infrastructure including railway link impeding speedy growth
- Unbalanced Regional development
- Paucity of financial resources and insignificant foreign investment
- Low credit–deposit ratio and capital formation in the state
- Low productivity among industrial workers.
- Limitations of the secondary sector to provide large–scale employment
- Acute shortage of minerals required for large–scale manufacturing and industrial commodities.
- Lack of processing and marketing facilities for horticultural crops
- Tea Sector – prevalence of low price for tea in the auction market due to the poor quality of tea
- Handloom Sector - non availability of required yarn for producing handloom in the state, inadequate selling and marketing facilities, low and inferior quality products, lack of proper institutional set–up to provide training to weavers in latest design and technology
- Handicrafts Sector – low and inferior quality products , obsolete technology, lack of innovative designs and patterns
- Increased forest degradation caused by increasing population, biotic interference , and anthropogenic factors (approx 72.73% of forest area are heavily to moderately degraded)
- Insurgency from neighbouring states

On the domestic front, the state has been abundantly blessed with natural resources like tea, rubber, bamboo, cane, jute and natural gas which have significant commercial values. Its handloom and handicrafts products are liked and appreciated all over the world.

The main **Opportunities** for this sector lies in

- Tripura being in the phase of transition may certainly be considered as the land of Opportunities**.**

- The phasing out of MFA Agreement (under the WTO) by Jan, 2005 could open up new opportunities for the Handloom and Silk Textile industry in the state.
- The declared goal of SAARC Nations to declare South Asia as a “Free Trade Area’ in the coming year is expected to have significant trade impact on the state economy. If formal trade is developed with these countries on the basis of specialization on the thrust areas, north east India can emerge as a major exporter to the Myanmar, China and other South–East Asian countries of various items especially Jute and Handicrafts products which are in great vogue.
- The issue of border trade through north east India is going to receive a priority within a short period of time due to the agreement signed in 2003 between India and the Association of South East Asian Nations (ASEAN) comprising ten member countries of Brunei, Cambodia, Laos, Vietnam, Indonesia, Philippines, Singapore, Myanmar, Malaysia and Thailand. Such an agreement could also provide a great boost to the tourism activities in the state. If modern transport and communication system between the ASEAN countries along with requisite infrastructural facilities are developed, tourists visiting the ASEAN countries are likely to extend their tour programmes to the north east India for visiting it exotic bio-diversity and heritage sites.
- There is considerable potential for development of natural gas based, power, chemical, urea and fertilizer plants in the state as the state is blessed with abundant resources of natural gas.
- The unique flora and fauna of the state can prove to be a great asset. Out of the 925 varieties of orchids available in India, over 600 can be grown in this region due to the favourable climatic conditions. In fact, approximately 200 varieties are unique to this region and 60 % of these are ornamental in nature with a high demand at the international markets. Tripura alone has 20 varieties of Orchids and 50 rare plant species of which 7 are endemic to Tripura .Moreover, the forest of north-east offers a vast array of aromatic plants which can be used in the

aromatic industry for the manufacture of perfumes, incenses etc. In fact, there is an increasing trend towards natural perfumes and room fresheners. With proper planning there exists great potential for the development of aromatic industry in the region.

- The state has a very congenial climate for growth of high quality Orthodox tea. At present most of the tea produced in the state belongs to the cheaper CTC (Curl, tear and crush) varieties which are in granule form and cater mostly to the domestic market. Orthodox tea, in long leaf form, is made from high quality tea and is milder in taste but has a better aroma. The orthodox tea is in great demand in Russia and Iran. Russia alone buys around 160 million kgs of tea every year of which 60 % is orthodox tea.
- Its agro–climactic conditions and fertile soils are favourable for producing horticultural fruits (mango, pineapple, oranges, Jackfruit, banana, guava, lichi), vegetables (like potatoes, kokral, patal, raddish and bitter gourd) and nuts (like coconuts, areca nuts and cashew nuts) which can constitute as commercially viable exportable.

At present the major **Threats** facing the state are

- Insurgency from Bangladesh and other neighbouring countries.
- The unique bio-diversity of the state is getting increasingly threatened due to over–exploitation. Surveys reveal that about 10 % of plant species and 21 % of mammals found in Tripura have become endangered due to habitation loss, fragmentation of land, invasion and deforestation.
- The state has very little hope of attracting investment and undertaking development activities in the state for its economic growth unless there exists a congenial, peaceful and stable domestic environment.

7.13. Emerging Issues and Thrust Areas :

Tripura being a landlocked with a predominant over-saturated agricultural economy lags far behind the developed states in the North-East

region so far as the over all economic prosperity is concerned. As per the provisional estimate of 2000-2001, the primary sector contributes 34.42 %, secondary sector 12.36 % and tertiary sector 53.22 % of Net State Domestic Product at current prices.

An careful analysis of the economy brings out the following ground realities:-

- About **80 % if its total population lives in villages of which 66.81 % are below the poverty line.**
- The incidence of Open unemployment at 3.52 % is higher than the All India average of 2.56 % in 1993. The incidence of educated unemployment is 16.69 % which is again higher than the all India average of 9.56 %.

The **Thrust areas for industrial development** are establishment and promotion of :

- Natural Gas based industries like thermal, fertilizer, urea and power plants.
- Natural Rubber based industries like veneer, plywood, rubber wood and paper industry
- Brick kilns and bamboo–bricks industry
- Other Bamboo–based industries

A. Tiny and village industries

- Bamboo Rounds- used for scaffolding or for props for growth of horticultural products
- Bamboo Splints – used for making incense sticks, chopsticks and toothpicks
- Venetian Blinds
- Bamboo bedspreads
- Agarbatti industry

- Pencil industry
- Match Industry
- Packaging Industry

B. Small and Medium Industries

- Bamboo Plyboards
- Construction
- Bamboo mat roofing
- Door shutters
- Bamboo flooring

- Textile industries, Handloom and raw silk reeling industries based on sericulture and ericulture
- Glass industry (from Glass Sand)
- Concrete tiles, Gypsum Boards, Insulation Boards, Grinding wheels, Abrasives and Hume Pipes Industry (from Gravel Sand Silt)
- Agro- processing industries like fruit canning, meat processing and timber processing
- Rice mills
- Cement industry and other petro–chemical industries
- High quality Orthodox tea and other forest–based industries
- Aromatic Industry (natural perfumes and room fresheners)
- Other ancillary activities like Bee farming, rare and ornamental varieties of fish, Herbal medicines and Oil.
- Tourism

Given the high employment generation and income generation capacity of these sectors, there is considerable scope for industrial progress in the state. This includes not only small scale and village industries but also medium and large scale. But for achieving these objectives, first and foremost the state is required to remove infrastructural bottlenecks and rigidies.

CHAPTER–VIII
RURAL DEVELOPMENT

8.1. Planning for Rural Development

There are no universally accepted approaches to rural development. It is a choice influenced by time, space and culture. The term rural development connotes overall development of rural areas to improve the quality of life of rural people. In this sense, it is a comprehensive and multi–dimensional concept, and encompasses the development of agriculture and allied activities, village and cottage industries and handicrafts, socio–economic infrastructure, community services and facilities and, above all, human resources in rural areas. As a phenomenon, rural development is the end–result of interactions between various physical, technological, economic, social, cultural and institutional factors. As a strategy, it is designed to improve the economic and social well being of a specific group of people - the rural poor. As a discipline, it is multi-disciplinary in nature, representing an inter–section of agriculture, social, behavioural, engineering and management sciences.

In the Indian context, rural development assumes greater significance as 72.22 per cent (according to the 2001 census) of its population still lives in rural areas. Most of the people living in rural areas draw their livelihood from agriculture and allied sector (60.41 per cent of the total work force), and poverty mostly persists here (27 per cent in 1999-2000). At the time of Independence around 83 per cent of the Indian population was living in villages. Accordingly, from the very beginning, our plan strategy emphasized rural development and will continue to do so in future. Strategically, the focus of our planning was to improve the economic and social conditions of the under–privileged section of the rural society. Thus, economic growth with social justice became the proclaimed objective of the planning process under the rural development. It began with an emphasis on agricultural production and consequently expanded to promote productive employment opportunities

for rural masses, especially the poor, by integrating production, infrastructure, human resource and institutional development measures.

During the plan periods there has been a shifting in strategy for rural development. The First Plan (1951–56) was a period when community development was taken as method and National Extension Services as the agency for rural development. Co–operative farming with local participation was the focus of the Second Plan (1956-61) strategy. The Third Plan (1961–66) was the period for re-strengthening the PRI system through democratic decentralization mechanism. Special Area programmes were started for the development of backward areas in the Fourth Plan (1969–74). In the Fifth Plan (1974-79), the concept of Minimum Needs Programme (MNP) was introduced to eradicate poverty in rural areas. There was a paradigm shift in the strategy for rural development in the Sixth Plan (1980-85). The emphasis was on strengthening the socio-economic infrastructure in rural areas, and initiatives were taken to alleviate disparities through the Integrated Rural Development Programme (IRDP). During the Seventh Plan (1985-90), a new strategy was chalked out to create skill-based employment opportunities under different schemes. The people at the grassroots level formulated special programmes for income generation through creation of assets, endowments and land reforms for participation. The focus of the Eighth Plan (1992-97) was to build up rural infrastructure through participation of the people. Priority was given to rural roads, minor irrigation, soil conservation and social forestry. Strategic changes were made in the Ninth Plan (1997-2002) to promote the process of nation building through decentralized planning. Greater role of private sector was also ensured in the development process. The Ninth Plan laid stress on a genuine thrust towards decentralization and people's participation in the planning process through institutional reforms. It emphasized strengthening of the Panchayati Raj and civil society groups for promoting transparency, accountability and responsibility in the development process. The role of the government, in general, had to shift, from being the provider, to the facilitator of the

development processes by creating right types of institutional infrastructure and an environment conducive to broad-based economic development.

8.2. Demographic profile of rural areas of Tripura:

Tripura lives in villages. Almost 83 per cent of the present population lives in the rural areas of the state. The economy of the state is backward and with a rural base. Therefore, the State Government treats Rural Development as a top priority zone for eradication of poverty as well as for income and employment generation programmes.

It may be observed that as per the 2001 census, that out of the total population of approximately 27,57,000 people, 23,53,000 people live in the villages of Tripura. The total number of families residing in the villages is 5,95,397 out of which 3,97,798 families are living below the poverty line. There is an acute shortage of basic facilities such as housing, drinking water and roads as well as other social facilities like health care, education etc. in rural areas. The table below shows the sex–wise distribution of the population in the Rural and Urban Areas of the State:

Table 8.1 : Sex–wise Rural and Urban Population (in Lakhs)

Year	Rural Male	Rural Female	Total Rural Population	Urban Male	Urban Female	Total Urban Population
1983-84	9.94	9.40	19.34	1.24	1.18	2.42
1993-94	12.62	11.88	24.50	2.45	2.34	4.79
1999-00	13.42	12.73	26.15	2.87	2.75	5.62

Source : NSS rounds

The above table shows that there was a big increase in the decade 1983 – 1993, but the increase in population comparatively slowed down in the next decade. The approximate ratio of the rural population to urban population is about 80 : 20 in the years 1983 – 84, and it showed a very less

reduction in the gap in the next two decades.

8.3. Labour and Work Force :

The table below gives a comparative account of the urban and rural labour force as well as the work force of the state of Tripura.

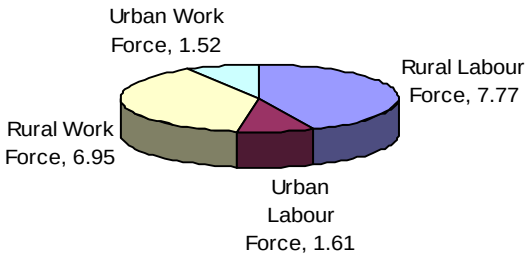
Table 8.2 : Rural and Urban Labour Force and Work Force (in Lakhs)

Year	Rural Labour Force	Urban Labour Force	Total Labour Force	Rural Work Force	Urban Work Force	Total Work Force
1983 – 84	5.19	0.72	5.91	5.15	0.69	5.84
1993 – 94	6.54	1.23	7.71	6.37	1.12	7.49
1999–2000	7.77	1.61	8.64	6.95	1.52	8.47

Source : NSS Rounds

A study of the table reveals that there is a vast gap between the labour and work force of the rural areas with that of the urban areas. It is evident from the table that with the passing of time, the Government has not been successful in lessening this gap.

Figure–8.1
Rural & Urban Labour Force and Work Force
(1999–2000)



The available data shows that a major chunk of the population is engaged in the agricultural sector. The cultivators account to 11.04 per cent whereas agricultural labour and allied activities add upto 7.48 per cent of the total population (as per the 1991 census). The table below shows that the

main workers add upto 29.09 per cent, marginal workers to 2.04 per cent and non-workers form the biggest chunk adding upto 68.87 per cent. The rural workers on the whole add upto 23,35,414 persons and urban workers as 4,21,721 persons.

Table 8.3. : Economic Classification Of Population (1991 Census)

Classification	Number of Workers			Percentage of workers out of total population
	Rural	Urban	Total	
A. Main Workers	682008	118965	802063	29.09
i. Cultivators	301003	4520	305523	11.04
ii. Agricultural Labourers	180715	6823	187538	6.80
iii. Livestock Forestry Fishery and Plantation orchards and Allied activities	17760	831	18591	0.68
iv. Mining and Quarrying	1031	1295	2326	0.08
v. a. Manufacturing Processing Servicing and Repairs in household industries.	9943	1441	11384	0.41
b. Manufacturing Processing Servicing and Repairs other than household industries.	18629	9614	28243	1.02
vi. Construction	7116	4636	11752	0.43
vii. Trade and Commerce	37396	242225	61621	2.24
viii. Transport storage and Communication	12470	9723	22193	0.55
ix. Other Services	96035	56857	152892	0.80
B. Marginal Workers	54579	1875	56454	2.04
C. Non – Workers	159880	299881	1898668	68.87
Total	233541 4	421721	2757205	100

Source : 1991 Census Publication.

The following table represents the percentage share of each sector in Tripura and India. It gives the details of three main sectors namely Agriculture, Industries and the Service Sector from 1972 – 73 to 1999 – 2000.

Table 8.4 : Percentage Share of Each Sector in Tripura and India.

Year	Tripura			All India		
	As percentage of NSDP			As percentage of NSDP		
	Agriculture	Industry	Services	Agriculture	Industry	Services
1972-73	60.0	11.5	28.4	45.1	21.7	33.2
1977-78	61.6	10.8	27.6	44.4	22.6	33.6
1983-84	53.3	11.3	35.5	40.4	22.7	36.9
1987-88	50.3	9.7	39.9	34.8	24.1	41.1
1993-94	37.4	8.8	53.8	32.9	23.8	43.3
1999-00	29.4	15.74	54.9	27.0	23.4	49.6

Source : State Perspective Plan – 2002–2012.

The above table reveals that in the past agriculture had been the predominant sector, but lately from 1993 onwards the services sector has been dominating the scene in Tripura. If compared to the all India statistics, it is noticed that this shift can be dated way back to the 1987-88 and after a span of six to seven years this shift has crept into Tripura.

The table below shows the percentage distribution of Plan outlays among different sectors in Tripura.

Table 8.5 : Percentage Distribution of Plan Outlays among different Sectors in Tripura

Plans	Agriculture and other Activities	Industry	Services
5th Plan	52	07	41
6th Plan	49	04	47
7th Plan	44	04	52
8th Plan	37	06	57

9th Plan	14	02	84
10th Plan	23	03	74

Source : Economic Review, 2002–03.

8.4. Contribution of Rural Development in the State Economy :

The approach to the Tenth Plan prepared by the Planning Commission, Govt. of India and approved by the National Development Council, the highest body to take policy decisions in this area, at its meeting held on 2001, has thrown up a major challenge for each state in the country. It has set out an ambitious target of 8 per cent annual growth rate in the national economy. The approach considers it a feasible target, but at the same time, makes a very significant observation that the sharp increase in the growth targets contemplated for the Tenth Plan is possible only if there is a significant improvement in the growth rates of the slow growing states. Tripura is also one of the slow growing states. To achieve the lofty targets, a balanced development strategy is essentially required.

If we take a closer look at it – we see that the rural development forms an important component of the development process. The statistics show that in the year 2000-01 (Annual Plan) 10.53 per cent of the total expenditure was approved for rural development which came down to 7.45 per cent in 2000-02. Among the other sectors more amounts was allocated to Industries, Minerals, Housing and Transport as compared to other departments. During the Eighth Plan, out of the total expenditure, 6.09 per cent was kept for rural development, whereas in the Ninth Plan 13.87 per cent of the total outlay and 11.82 per cent of total expenditure was incurred on rural development, which was double the amount of the previous plan. This clearly indicates the importance attached to rural development in the state economy. The table below shows the Government Expenditure on rural development. A study of the table reveals that out of the total outlay of the

Ninth Five Year Plan maximum importance has been allocated to the Social Service Sector i.e. 39.90 per cent and the minimum has been allocated for the communication sector i.e. 0.04 per cent. The second most important sector as per the outlay being the Transport with 14.25 per cent and Rural Development attaining the third most important sector with 13.87 per cent of the total outlay.

The table further shows that Rural Development gets the second priority with a share of 11.82 per cent in the total expenditure led by 46.86 per cent for Social Service Sector, and followed by 10.36 per cent share of the Transport Department in the Total expenditure. Communication constitutes the least priority zone with 0.04 per cent share in the total expenditure of the state in the Ninth Plan (1997 – 2002). When we compare the outlay and expenditure patterns, we find that rural development has been assigned high priority.

8.5. Rural Unemployment :

Poverty and unemployment go hand in hand or it may also be said to be the two sides of the same coin. One of the major drawbacks of the states of India is that the major portion of the unemployed population is exerting its pressure on the agricultural sector. The fields are being divided and sub–divided resulting in poor and low yield per hectare. The main objective before every state is to create jobs for the poor unskilled rural youth in order to help the poor people in the period of high demand for jobs through various schemes. The second objective is to provide employment opportunities and channelize proper development through building of proper. One of the primary issues relating to the village development is enhancing the process of eradication of poverty by creating employment opportunities and self–employment schemes. In other words, taking steps to create employment opportunities with the help of local controlling body in the overall development of the village. Another important point in this connection is to improve the economic condition of the village people by speeding up primary

jobs such as agriculture, gardening, fishery and animal husbandry etc. This issue occupied the most important position in Tripura as more than 80 per cent of the population of the state lives in the villages.

This department has achieved considerable success under different schemes during the last four years i.e. 1998 – 99 to 2001 – 2002. The department has taken up various schemes for overall development of people, permanent employment opportunity and wealth circulation along with required infrastructural development. The main approach of the Tenth Five-Year Plan is to evolve ways and means of creating employment opportunities for the large rural population specially those who are living below the poverty line. In order to fight poverty in rural areas as well as provide employment opportunities to the rural people, Government of India has introduced a new employment generation scheme known as Sampoorna Gramin Rozgar Yojana (SGRY) clubbing the earlier two schemes namely EAS and JGSY. The said new scheme has become fully operative from April 2002. This is a Centrally Sponsored Scheme on 75: 25 sharing basis between the Central and State Governments. The main objectives of the said scheme are to provide additional wage employment, social and economic assets and infrastructure development in rural areas. The programme is self–targeting in nature and would be available for all rural poor (BPL/APL) who are in need of wage employment and are willing to take up manual / unskilled work. Priority would be given to provide wage employment to the poorest among the poor women, SC/ST. Under the scheme, 5kgs of food grains in kind will be distributed as part of wage manday. The remaining wages will be paid in cash to ensure normal minimum wages. The Mandays proposed to be created during 2003-2004 is as follows :

Box–8.1

Proposed Mandays (in lacs) = 164.65 Lacs

Proposed Outlays (Rs. In lacs)

Centre = 3918.27

State =2706.74

Total =6625.01

The box below shows the Physical Targets and Achievements of the special programs under the Tenth Five Year Plan. A perusal of the table gives a clear indication that in most of the cases the proposed targets of the Annual Plans have been successfully achieved so far.

Table 8.6 : Physical Targets and Achievements of the special programs

Schemes	Tenth Plan Target	Annual Plan 2002-03		Annual Plan 2003-04	
		Target	Achievement	Target	Achievement
SGSY (Swarozgaris)	24000	2800	1555	700	700
SGRY (Mandays)	123.80	19.89	19.89	20.00	20.00

Source : Draft Annual Plan 2004–05 : Dept. of Rural Development, Govt. of Tripura

The above table reveals that almost 100 per cent target achievements have been made during the Annual Plans in case of the total mandays. The progress shows that if the target achievements continue in the same ratio it will not be difficult to achieve the targets of the Tenth Plan (2002 –2007) In case of the target achievement of the SGSY (Swarozgaris) the state was a little behind the set target in the Annual Plan (2002 – 2003) but it was completely achieved in the Annual Plan (2003 - 2004). Although there is no mention of the backlog left behind by the Annual Plan (2002 – 2003).

8.6. Rural Infrastructure :

The Rural Development Department is primarily concerned with providing the basic requirements of the people living in the rural areas of the state. The primary issues relating to village development are as under :

- Housing
- Health and sanitation
- Drinking water
- Connectivity (roads)
- Electrification
- Irrigation

These facilities are provided from the funds available under Plan Schemes as well as from the Centrally–Sponsored Schemes. Major funding is from the Centrally Sponsored Schemes. The basis of providing these facilities is based on the data of BPL survey conducted during the year 1997.

A. Housing :

Man cannot live under open air. Housing is a basic need. For every citizen a house provides significant economic security and status in society. For a person who is homeless is lacking both. After Independence of the country, especially for the first 25 years, the problem of housing did not receive any serious attention from the Government and gradually the problem of housing became acute due to less weightage in the past. There is a direct connection between poverty and housing. The poor either does not have a house or lives in an unserviceable kutchha house. Considering the magnitude of the problem, in 1998 the Central Government announced a National Housing and Habitat Policy, which aims at providing “Housing for All”.

In the 1991 Census, it was shown that total number of people not having proper housing in the country is 22.90 million of which 14.67 million are in rural areas. This data clearly shows that in order to achieve overall development of people in the rural sector the aspect of housing needs a better stress. Actually, the housing problem in Tripura and in fact that in all the states of the north-east region of the country is different from that of the other parts of the country. This problem is not only of having just a shelter or

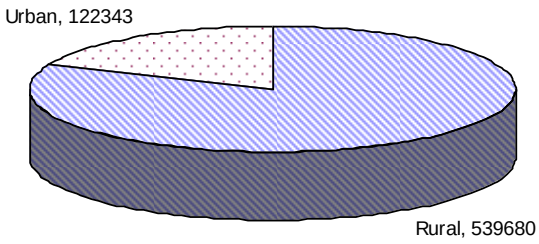
of having a roof overhead, but a problem of having better housing. People need better and comfortable houses having drinking water, toilets facilities, proper drainage and electricity, within their affordable meansetc. 1991 census shows that 81 per cent of rural houses had tiled / thatched roofs, 47 per cent rural houses had walls made of bamboo sticks and 53 per cent had walls made of mud. Table 8.7 and figures 8.2 and 8.3 portray the distribution of households by the type of houses in both rural and urban areas.

Table 8.7 : Distribution of Households by the Type of Houses Occupied in 2001

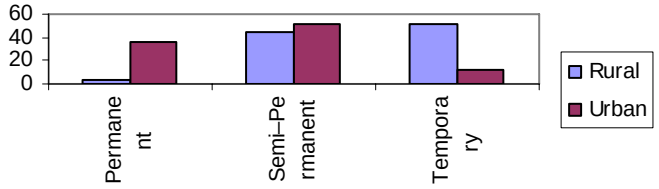
Type	Total households	Permanent Houses %	Semi Permanent %	Temporary Houses %
Rural	539680	4	44.5	51.5
Urban	122343	36.1	51.7	12.2
Total	662023	9.9	45.8	44.2

Source : Draft Annual Plan, 2001–02.

Figure–8.2
Total Number of Households in Rural and Urban Areas



Figure–8.3
Distribution of Household by type of Houses Occupied in 2001



Thus, it is a matter of practical necessity to convert temporary houses into permanent and better houses. The department has taken initiative to provide proper housing to rural people through some schemes. In other words, the main motto of the rural development department has been to provide all rural people with proper housing. Schemes relating to building up new houses and improvements in the standard of houses in the villages has been taken up in the process of materializing central–level schemes, such as Indira Awas Yojna and Prime Minister's Rural Yojna.

B. Health and Sanitation

In India, rural health development programme has started late. Where rural water development schemes have a history of more than three decades, Government initiated rural health programme after 20 years of such water development programme. In 1986 Central Government developed Rural Toilets and Hygiene programme and in 1987 Central Government included this programme in the minimum requirement programme. In rural areas forget better toilets, in fact it is difficult to find any in the houses. Normally village people have developed to do this work in the open air and are still carrying on the same line. But the people in Tripura were found to be well aware of the requirement of better toilet facilities. In 1991 census, it was found that 62.5 per cent used their own toilet, which is the same in rural areas. So, we can say that the people are aware of the fact. The department, among the other programmes has also achieved success in providing toilet facilities. Rural toilet programme has the main objective of providing the

rural people with proper toilets as well as creates awareness about health and hygiene. For changing the earlier habits of the people and provide them with toilets at lower cost the following programmes are available :

i. Drinking water :

Water constitutes to be one of the vital requirement for the survival of human beings. The irony of the fate is that it is also one of the major causes of the infectious and non-infectious diseases. One of the important components of the basic minimum requirements is the easy availability of clean–and–safe drinking water. In Tripura out of the total state area of 10,491.69 sq.km., most of the plain area is covered under the water supply system with connecting pipelines above or below the ground level. But nothing could be done for around 30 per cent of the people living in the medium or high land. According to the 1991 census among 8,39,137 village families around 55 per cent used water from the well, 14 per cent used tap water, 17 per cent used tubewells and the rest 14 per cent used water from rivers, ponds and other water sources and this 14 per cent lives in middle or high lands. Due to very low water level in this middle or high lands and the absence of the regular water supplying system it is very difficult to provide safe drinking water with the help of tubewells. So to remove this difficulty new schemes have been taken up by the Government. According to the 1997, BPL census total number of localities where people used to live were 7412. If with the help of local authorities we divide the area in block with respect to areas covered by drinking water supply scheme, not covered or partially covered the earlier figure will reach around 8000. Localities identified under the 'Not Covered' or 'Partially Covered' under drinking water–supply scheme, as on 1st April, 2001 were 714 and 1199 respectively. The state Government made a decision that by March 2002, they will cover all areas identified as 'not covered' under the drinking water supply scheme. For these they have taken up the following schemes.

C. Rural Road Connectivity

Rural road connectivity is not only a key component of rural development in India but also recognized as an effective poverty alleviation programme. Inspite of all the efforts since Independence, about 40 per cent of India's villages do not have proper road connectivity. Tripura being a hilly area, the roads have indifferent slopes. The fact that the state is detached from the main land of the country shows that the roads are not properly developed. 1991 Census shows that the total number of populated localities in Tripura is 7412 among which 1170 have got no road connection. Among the 3652 Km. rural roads 3200 Km. needed to be kept ready for movement. In order to connect the interior 1170 localities around 3510 Km. road is required. In view of the above, the department has not only tried to bring all the detached villages under the road connectivity scheme but also taken steps to develop underdeveloped roads into developed one. The primary point for rural development is road connectivity**.**

D. Electrification

Modern civilization depends on the development of power. It plays the key role for industrial, agricultural and commercial sector of the economy and is also the most crucial source of meeting domestic energy requirement. The demand has, therefore, been going at a faster rate. There are three sources of power viz. Hydro, Thermal and Nuclear. Presently, the state has two sources of power generation namely Hydro and Thermal. The state is endowed with natural gas, which gives potentiality for thermal power generation.

We have already seen in the earlier chapter that out of the two major sources of power generation Thermal power accounts for more than 77 per cent while 22 per cent is generated from Hydel power (i.e. Gumti Power Project). During the year 2001-2002, the total installed capacity was 85.35 MW and total power generated was 283.73 MU. Total purchase of power was 332.00 MU in 2001-2002. Again, total revenue collected by the power

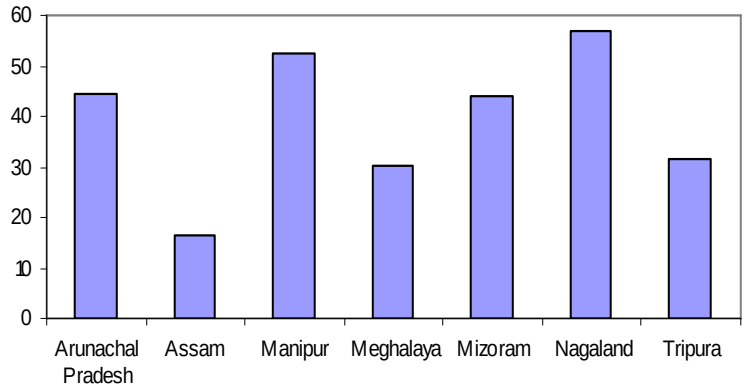
department in 2001-2002 was Rs.39.03 crores and the total expenditure incurred by the power department was Rs.112.82 crores. Therefore, it left a deficit of Rs.73.79 Crore. The table below shows a comparative account of the rural households having electricity in the North–Eastern States of India.

Table – 8.8 : Statewise Household (rural) Having Electricity (2001 Census)

States	Total No. of rural household (2001 Census)	No. of households having electricity	Percentage of rural household having electricity (2001 Census)	Percentage of rural household having electricity (1991 Census)
Arunachal Pradesh	164.501	73.250	44.53	33.88
Assam	4,220.173	697.842	16.54	12.44
Manipur	296.354	155.679	52.53	41.73
Meghalaya	329.678	99.762	30.26	16.34
Mizoram	79.362	35.028	44.14	35.47
Nagaland	265.334	150.929	56.88	47.16
Tripura	**539.680**	**171.357**	**31.75**	**28.5**
All India	138,271.559	60,180.685	43.52	30.54

Source : Registrar General & Census Commissioner, GOI.

Figure–8.4
Rural Household Having electricity (2001 Census)



The above table shows that Tripura has attained the fifth position among the 7 north–eastern statesand a simple comparison shows that the

Tripura on an average is not very far behind the All–India average in rural electrification.

The state has undertaken few schemes for rural electrification. One of the centrally–sponsored schemes is the Kutir Jyoti Scheme.

E. Irrigation

Tripura is a hilly State having geographical area of 10,491 sq. km. Only 25 percent of the geographical area is plain land. Total cultivable land in the State is only 2.08 lac hectares. About 1.17 Lac hectare of land may be brought under assured irrigation with 200 percent crop intensity. There is no scope of any major irrigation project in the state. Medium Irrigation projects are also limited. The State has abundant potential of surface and ground water. Average annual rainfall is around 2100 mm.

Presently, there is no big or medium level irrigation projects available in the State. The agriculture of the state is standing on the basis of small irrigation projects. By observing the sources of irrigation, we opine that the irrigation in Tripura is supported by water below the ground level and by the rain water stored through permanent and seasonal barriers. Under the Jal Vibhajika Scheme, around 78 per cent of the irrigation projects are done. The remaining 22 per cent of the requirement is fulfilled by surface water sources. In the analysis conducted by C.W.C., the land in which irrigation project is possible is 1,17,000 hectares. In other words, means less than 50 per cent of the possible irrigable land has got the facility of irrigation. Rural Development, Water Resource Department and Agricultural Department etc. are working simultaneously to increase the agricultural output through small irrigation project attempting to cover more and more land under the irrigation project scheme.

With the intent to improve the irrigation system, the Rural Development Department within this project is working jointly with

Panchayati Raj and local controlling authority of the autonomous zilla parishad. Under the small irrigation project, deep tube well, shallow tube well with pump and overflow tube well have been provided. Apart from this, farmers have been provided with diesel pumps so as to use surface water sources for irrigation work. Moreover, three medium irrigation projects were taken up over Gumti, Khowai and Manu rivers. The Planning Commission approved all these projects. The projects on completion will irrigate 13,199 hectare of land. All the 3 projects are expected to be completed within the Tenth Five Year Plan. Head works for all the three medium irrigation projects have been completed. But due to non-completion of canal networks and cross drainages full designed command could not be brought under irrigation as yet. It is to be noted here that Tenth Plan has primarily focused on completion of canal system including cross drainages to achieve targeted irrigation potential of 13,199 hectares through the three medium irrigation projects. It is also proposed to complete all the three Medium Irrigation Projects within Tenth Five Year Plan period. The fund required to complete the projects during 2002 – 07 will be around Rs.4417.51 lakhs. Out of the aforesaid amount Rs.3051.00 lakhs is expected to be received from Government of India as Central Loan Assistance (CLA) under AIBP and remaining amount will be arranged from State plan fund as per AIBP norms.

8.7. Rural Development and Panchayati Raj Institutions (PRIs)

The first step towards setting up of Panchayati Raj system was taken up in the State in the year 1959 by adopting the Panchayati Raj Act of U.P. with some modifications. Following this, the Tripura Panchayati Raj Rules 1961, was framed under the said UP Act. Under the provision, single–tier Panchayati Raj (PR) system was introduced in the state at the village level. The Panchayats were assigned a special role in implementation of various development activities at the block level. With the enactment of the Constitution (73rd Amendment) Act, 1992, constitutional status has been provided to the Panchayati Raj Institution (PRIs). Alike other States, Tripura has also enacted the necessary legislation pertaining to the PRIs. In Tripura,

soon after the enforcement of the 73rd Amendment of the constitution, a new Act named **'The Tripura Panchayats Act, 1993'**, has been enacted which came into force w.e.f. 16th November, 1993. Consequently, Panchayats at the village level, intermediate level (Block level) and at the District level have been constituted in the State. With the 73rd amendment of the constitution, Tripura has made a strong stride towards achieving decentralization of powers of having 3–tier panchayat system since 1994. The first generation elections following the 73rd Amendment was held in 1994 by providing reservation of seats and offices for the SC, ST on the basis of composition of population at 3 levels including reserving one third seats for the women. This was followed by the second generation election in 1999 with the experience of first level, people of the state in the rural areas could find that the panchayats are the people's organization and for their effective functioning in the pursuit of ensuring social justice and economic development of the rural people, the role played by the PRIs are pro–people. People's participation in the affairs of rural development was further strengthened by making necessary provisions in the rules in 2002 for constitution of Gram Sansad for participation of concerned electors in the policy making. The electors can themselves participate in at least 2 meetings in a year to select beneficiaries under various government schemes including selection of site. This itself ensures the proper transparency in the functioning also. The Government of India has already acknowledged the role of state government for effective implementation of provisions of 73rd Amendment. Under the 73rd Constitutional Amendment Act, the Panchayats are required to be endowed with adequate responsibilities, powers and finances to enable them to function as the 'Institution of Self–Government' under Article 243G.

In consonance with the provisions under 73rd Amendment of the Constitution, the elected PRIs have been empowered with the different functional, financial and administrative powers. Further, first State Finance Commission was set up in the year 1994 and in compliance of its report, actions were taken by the State Government for devolving large amount of

fund to these bodies for undertaking different developmental works. Later, in the year 1999, second State Finance Commission was constituted and its report has been submitted during 2003–04.

Structure of PRIs:

A. Zilla Parishad at District Level :

- There are 4 Zilla Parishad at District Level viz. Uttar Tripura Zilla Parishad, Dhalai Zilla Parishad, Paschim Tripura Zilla Parishad and Dakshin Tripura Zilla Parishad.

- Each Zilla Parishad has one elected Sabhadhipati and Sahakari Sabhadhipati and other elected Ex-Officio Members.

- Each Zilla Parishad has seven Standing Committees headed by one Chairman along with other members elected by the concerned Zilla Parishad.

- District Magistrate and Collector of each District is the Chief Executive Officer of the concerned Zilla Parishad.

- District Panchayat Officers of each District is the Secretary of the concerned Zilla Parishad

- Besides the above officials, each Zilla Parishad has Addl. Chief Executive Officer (P.D., DRDA) and some other officers and staff

B. Panchayat Samiti (P.S.) at the Block Level

- There are 23 Panchayat Samitis in the State. Each Panchayat Samiti consists of the Chairman, a Vice-Chairman, other elected and Ex-Officio members. There are 7 Standing Committees in each Panchayat Samiti, which are elected by the members of the concerned Panchayat Samiti.

- Block Development Officer of the concerned Block is the Executive Officer of the Panchayat Samiti. The Panchayat Officer or in case of non-availability of Panchayat Officer, the Panchayat Extension Officer of the concerned Block is the Secretary of the Panchayat Samiti. Besides these officials, there are other staffs in each Panchayat Samiti.

C. Gram Panhchayat at the Village Level

- Out of total 540 Grams, there are 537 elected Gram Panchayats. Each Gram Panchayat consists of an elected Pradhan, an Upa Pradhan and other elected members. Panchayat Secretary posted in the concerned Gram Panchayat performs the function of the Secretary of the Gram Panchayat.

8.8. Institutions in Autonomous District Council Area :

In Autonomous District Council Areas of the state elected Panchayat bodies are not functioning. The ADC area is functioning with the help of the Block level bodies and village level bodies in the state.

A. Block Level Bodies

Total 29 Block Advisory Committees have been formed to look after the developmental work in the rural areas under the ADC like Panchayat Samiti as per orders, instructions and guidelines issued from the Department from time to time. This body enjoys identical powers, functions and authority like Panchayat Samiti except financial powers.

B. Village Level Bodies

Total 452 Village Development Committees have been formed to look after the execution of the different developmental activities in the village

as per orders, instructions and guidelines issued from the Department from time to time. The Local Body enjoys identical powers, functions and authority like Gram Panchayat except financial powers.

Table 8.10 : Total Number of PRIs In Tripura.

Panchayati Raj Institutions in Tripura	Total Number
1. Gram Panchayats	513
2. Panchayat Samitis	23
3. Zilla Parishads	4

Source : The Directorate of Panchayats; Government of Tripura

Table – 8.10 : Achievements During the Recent Years

Physical Achievement (in nos.)	1998–99	1999–00	2000–01	2001–02
No.of Mandays Generated	2822650	4050951	2881489	2657066
Construction and Maintenance of Assets	9069	1578	1320	1225
Irrigation Channels (Km.)	799.55	3447.7	2116.03	1248.33
Irrigation Units i.e. Pumpsets etc.	3286	4019	2675	1756

Source : Directorate of Panchayats, Government of Tripura

The above table shows that the PRIs have made a significant achievement in the field of rural development. During the years 1998–99 to 1999–2000, there has been considerable development in all the areas, but the speed of development has comparatively slowed down during the years 2000–01 and 2001–02. During 1998–99 to 1999–2000, the number of mandays of employment generated increased from 2822650 to 4050951 whereas during 1999–2000 to 2000–01, it declined to 2881489.

8.9. Salient Achievements

PRIs / ADC bodies have been involved effectively for accelerating rural development through out the state. Salient features of the strategy adopted for the purpose is depicted below:

- Further Functional, Administrative and Financial powers have been delegated to different ladders of PRIs and Bodies under ADC so that these institutions can enjoy enhanced freedom and powers in the process of grass root level planning, in formulating schemes and sanctioning and executing the works.

- All the PRIs and the ADC bodies have been provided adequate powers and authorities for undertaking grass root level planning and execution of different development works. The bodies have been maintaining strict restrain to keep the establishment expenses bare minimum as per guidelines issued from the Department.

- Optimum emphasis has been given for utilization of development fund on land-based scheme of Agriculture and allied sectors including irrigation with a view to boost production in a big way within shortest possible time.

- Involvement of all electors of the Gram Panchayats through Gram Sabha/ Gram Sansad in the process of selection of beneficiaries, identification of the projects, submission of full accounts of expenses including achievement etc. convening of meetings more than one meeting of Gram Sansad/ Gram Sabha for the above purpose have been made mandatory. In the process, a new enthusiasm for people's involvement has been generated throughout the state. Submission of full accounts of income and expenditure of the Gram Panchayats before the electors ensures the purpose of social audit.

- Proper maintenance of accounts of the entire devolved fund and other resources, incurring of expenditure only against specific resolutions taken in the meeting of the PRIs has been made mandatory.

- Generation of employment through labour intensive schemes.

- Development of infrastructure and maintenance of existing assets.

- Encouraging beneficiaries' contribution for procurement of agriculture implements, creation of water area for irrigation and fisheries and other schemes, irrigation, plantation and self employment etc.

- Encouraging mobilization of internal resources, as a long-term strategy to reduce over-dependence on government assistance for development and maintenance of assets.

- Imparting training to elected representative of Panchayat bodies to enable them to perform their functions efficiently and to keep them posted about the latest happenings in the field of development.

- Imparting training to the newly elected members of the Panchayat Raj Institutions, Chairman of Block Advisory Committee of ADC area and officials have been emphasized During the year 2001-02, 163 of Male Pradhans, 15 of Chairman of BCAs under different blocks and 104 of Panchayat Secretaries under different blocks have been imparted training in the Panchayat Raj Training Institute, Arundhutinagar. Efforts are made to improve the quality of training.

8.10. Funding of PRIs and ADCs :

In the Tripura Panchayats Act, 1993, provisions have been made for the collection of taxes, fees, rates and tolls by each tier of Panchayat. There are other sources of internal income for PRIs such as markets, fairs, water area, cattle pond and ferry etc. further, the Gram Panchayats and ADC Villages also get an income out of issue of copy of the entry of Register of Ordinary Residence (ROR). The Gram Panchayat and the Village Development Committee of the ADC Village will be competent to make purchases upto the cash equivalent of 200 mandays i.e. Rs.10,000/- on the

basis of present rate of wages of labourer. The Panchayat Samiti and the Block Advisory Committee will be competent to make purchase upto Rs.50,000/- and the Zilla Parishad upto Rs.1,50,000/-

As per provisions of the Tripura Panchayats Act, 1993, First State Finance Commission was constituted and the recommendations of the First State Finance Commission was put in practice w.e.f. 1997. Table 8.11 gives the important highlights of physical and financial achievements of PRIs in Tripura.

Table 8.11 : Highlights of Physical and Financial Achievements.

Name of Schemes	Achievements	
	Physical	Financial
1. Direction and Administration	Establishment and office expenses of the entire Department.	335.05
2. Training	**Ten courses**	14.95
3. Grant – in – Aid (PDF)	3513.00	
4. 11th Finance Commission for construction of Zilla Parishad Office, Panchayat Samiti Office, Panchayat Ghar cum Library etc.	441.13	
i) Additional fund for construction of Dhalai Zilla Parishad, Dakshin Tripura Zilla Parishad office building.	2 Nos.	34.58
ii) Furnishing for Panchayat Ghar cum Library completed during 2000-2001	10 Nos.	0.70
iii) New construction of Panchayat Ghar cum Library.	20 Nos.	45.75
iv) Additional fund for construction of Panchayat Ghar cum Library etc	20 Nos.	6.26
v) Additional fund for construction of Panchayat Samiti Office building	7 Nos.	59.34
vi) New construction of Panchayat Samiti Office building	2 Nos.	52.00
vii) Boundary wall for Bagafa Panchayat Samiti Office	1 Nos.	2.00
viii) Copier Machine for Panchayat Samiti Office	4 Nos.	3.47
ix) Furnishing of Panchayat Samiti Office	4 Nos.	10.32

building		
x) Furnishing of Zilla Parishad Office building	1 Nos.	8.44
xi) Additional fund for construction of RWS godown	1 Nos.	0.52
xii) Electrification of Panchayat Samiti Office building	1 Nos.	4.65
xiii) Renovation and electric installation of PRTI	1 Nos.	2.18
xiv) Upgradation of Computers	4 Nos.	0.58
xv) Development of Data base maintenance of Accounts through computerization	10 Nos.	10.00
xvi) Various types of Civil works in GPs Villages	968 Nos.	200.34
Total		**441.13**

Source : The Directorate of Panchayats; Government of Tripura.

Prior to the 73rd Constitutional Amendment, the PRIs were getting fund against specific schemes and contingent expenses. However, the picture has undergone a radical change after the 73rd amendment. As mandated, the first State Finance Commission was set up in 1994 and the recommendations of the First Finance Commission have been implemented in the State. The following table indicates year-wise devolution of fund to different tiers of the panchayats during the period 1997-98 to 2002-03.

Table 8.12: Annual Grants released under Untied Fund / Panchayat Dev Fund

Year	Released to GP	Released to PS	Released ZP	Total released
1997 – 98	4203.51	1584.90	844.59	6633.00
1998 – 99	1855.58	1501.88	1911.72	5269.18
1999 – 00	2178.83	1046.15	1444.60	4669.58
2000 – 01	1583.25	987.45	2098.51	4669.21
2001 – 02	2100.64	1002.05	2368.25	5470.94
2002 – 03	2545.96	1142.82	2423.68	6112.46

TOTAL	9821.18	5120.38	11091.36	32824.37

Source : The Directorate of Panchayats; Government of Tripura.

Fund was provided to all the 3-Tiers of Panchayat Raj bodies on a per capita basis @ Rs.200/- per capita based on population as per 1991 Census. Out of Rs.200/- per capita, Rs.100/- per capita is given to the Gram Panchayat, Rs.60/- to the Panchayat Samiti and Rs.40/- to Zilla Parishad based on the population in its area.

A. Internal Mobilization of Resources :

The position of distribution of resources from the State to the PRIs has already been discussed while dealing with internal mobilization of resources by PRIs. As already stated 66.81% of the rural population is living below the poverty line thereby limiting the scope for raising substantial resources by the Pachayat bodies. However, the State has taken the following measures for augmenting internal resource mobilization.

- Encouraging beneficiary contribution in the form of cash and labour
- Gainfully utilizing of the existing asset of the PRIs to realize rent, fees etc. for mobilization of sources.
- Gradual introduction of taxes, fees under the Panchayat Act.

Mention should be made of the non–tax revenue being raised by the PRIs. During the year 2002–03, the Gram Panchayat/ BACs/ Village Committees have mobilized Rs. 71,68,409/– as non–tax revenue and the Panchayat Samiti ashave mobilized Rs. 24,96,828/–. This is a good beginning made by the PRIs of the state and it is expected that this will be further increased during the years to come.

C. Proposals for Resource Mobilization :

As the rural areas of Tripura are very backward and inhabited predominantly by people below poverty line, and large percentage of scheduled Tribes and other weaker sections the scope for raising funds by

the PRIs have been limited. The Second State Finance Commission has submitted its report during 2003–04 and made the following recommendations :

- Grants–in–aid of Rs. 400/– per capita to the PRIs as Panchayat Development Fund in place of Rs. 200/– per capita for PRIs and Rs. 250/– per capita for 6th Schedule Areas as is presently followed.

- The placement of discretionary funds to the Sabhadhipatis, Sahakari–Sabhadhipatis of the Zilla Parishads for implementation of Local Area Development Scheme on the lines of MPLAD/ MLALAD schemes.

- Increase in the present level of honorarium of Pradhans and Upa–Pradhans of Gran Panchayats and introductions of honorarium to Panchayat Members. Presently, the Pradhan and Upa–Pradhans have been receiving honorarium of Rs. 300/– and Rs. 200/– respectively per month.

- The State Government may place the request before the 12th Finance Commission for construction of office buildings of the remaining Gram Panchayats and Panchayat Samities which do not have office building etc..

- Training infrastructure for imparting training to PRI representatives should be strengthened besides setting up of District Training Centres. The Commission has recommended to project the requirement to the 12th Finance Commission. It may be mentioned here that presently one Panchayat Raj Training Institute is located in Agartala.

In view of the financial constraints of the state, and the need to develop infrastructure of PRIs and make them more active, the incremental expenditure to implement the recommendations of the 2nd State Finance Commission was proposed for funding from the Twelfth Finance Commission. In addition, the commission may also give award of grants to RLBs to

supplement their revenues. The financial involvement in implementation of the 2nd State Finance Commission recommendations is indicated in the following table :

Table – 8.13: Incremental Expenditure for Implementation of 2nd State Finance Commission Recommendations

(Rs. Lakh)

Sl.	Items of Recommendation	Gram Panchayats	Panchayat Samitis	Zilla Parishads	Total
1	Distribution of Grant–in–aid (including ADC villages and BACs)	15537.50	8727.24	3833.94	28098.68
2	Construct6ion of Office Building	405.00	30.00	80.00	515.00
3	Strengthening of Training Infrastructure	0.00	0.00	2.58.42	2058.42
4	Honorarium to elected office bearers	415.20	24.84	7.68	447.72
	TOTAL	16357.70	8782.08	5980.04	31119.82

8.11. Tripura Tribal Areas Autonomous District Council (TTAADC) :

The tribal areas of the state have been organized into Tripura Tribal Areas Autonomous District Council under the 7th Schedule of the Constitution in 1982 and subsequently brought under the 6th Schedule of the Constitution w.e.f. 1st April 1985. The TTAADC under 6th Schedule has a Legislature Body called District Council. It has legislative power on subjects covered by para – 3 of 6th schedule and perform several executive functions. The Judicial Powers have not been exercised by the TRAADC so far. Consequent to the coming into force of the TTAADC under the 6th Schedule the State Government has transferred all the Primary Schools, and Social Education Centres in the ADC areas, markets, Village Roads, 74 Nos of Bridges, besides some specific schemes of various line departments. The TTAADC is running 1362 Primary Schools and 2 Residential Schools with enrollment of 1,10,000. The Social Education Centres numbering 476 have also been transferred to

the TTAADC. The TTAADC is also in charge of Village Roads with a road length of more than 1500 Kms. and maintaining 74 nos. of Bridges. The population of the Autonomous District Council area is 29% of the total population of the state. The TTAADC accounted for 68% of the total land area of the state. A particular feature of TTAADC is that unlike many other Autonomous District Councils, its jurisdiction extends over the predominant tribal areas of all the 4 districts of the state. The TTAADC has a legislative Body called District Council elected by adult franchise and a Executive Committee drawn from the Members of the District Council. The Chief Executive Member who is executive Head of the TTAADC is elected by District Council. The TTAADC is empowered to constitute Village Committees. The Autonomous District Council have constituted 526 Village Committees.

The area of the Autonomous District Council is covered by hilly terrain, pre–dominantly forest, poor infrastructure, inadequate connectivity and abject poverty. The economy is agrarian in nature characterized by subsistence agriculture. 50,000 tribal families live in ADC area and practicing shifting cultivation popularly known as Jhum Cultivation. The productivity of Jhum crops is extremely low which can sustain a tribal family for only 3–months in a year. For even–development of the area, large resources have to be earmarked. While the 12th Finance Commission's terms of reference (TOR) do not specifically refer to the ADC area, it is in the fitness of things that the future Finance Commission should take into its consideration the problems of TTAADC while making its recommendations in respect of other rural local bodies in view of dire need of resources for development of the tribal pockets. The TTAADC has 4650 owned employees and 3833 deputed from the State Government. The requirement of fund to meet likely salary expenditure during the forecast period is shown in the following table :

Table – 8.14 : Projected Salary Expenditure during the Forecast Period

Year	Salary Expenditure

	(Rs. Lakh)
2004–05	4492.18
2005–06	4896.48
2006–07	5337.16
2007–08	5817.50
2008–09	6399.26
2009–10	7039.16
TOTAL	33981.74

Sources: Memorandum to the Twelfth Finance Commission

The main source of the TTAADC include plan funds and share of taxes from the State Government. In addition to the above, the TTAADC has also been receiving funds from the State Government for execution of transferred schemes and also salary, wages bill on account of transfer of institutions and staff. It is interesting to note that in view of high salary and wage bill, more than 95% plan and non–plan funds devolved to the TTAADC go for meeting the salaries and wages leaving a little scope for taking up any development work on its own. It is pertinent to mention that the TTAADC has come into existence as a result of aspirations of the tribal people and in the backdrop of the social tensions existing in this border state. The financial base of TTAADC needs to be properly strengthened so that it could play a meaningful role as expected by the Tribal People. The entire expenditure on salary and wages may be recommended as grants by the Finance Commission.

The TTAADC submitted the following schemes for consideration of the 12th Finance Commission:

Box–8.2

1. Strengthening of Education and Social Education infrastructure in TTAADC Area — Rs. 3330.00 lakh
2. Construction of 30 barracks for teachers — Rs. 85.00 lakh
3. Construction of four residential primary schools — Rs. 42.00 lakh
4. Administrative infrastructure — Rs. 422.00 lakh
5. Upgradation of Mini–hospital — Rs. 85.00 lakh

6. Establishment of 12 health centre Rs. 84.00 lakh

7. Internal Audit Wing Rs. 14.31 lakh

8. Computerization in TTAADC Rs. 49.56 lakh

The State Government has requested the 12th Finance Commission to consider the provision of funds for meeting the salary, wage bill as indicated in table and pension liabilities, besides Rs. 1489.87 lakh for above works/ purposes listed above.

The Twelfth Finance Commission recommended the shares of local bodies on the basis of the following criteria along with their respective weights:

Box–8.3

Criteria for Inter–se Allocation of Grants

	Criterion	**Weights (per cent)**	
i.	Population	40	
ii.	Geographical Area	10	
iii.	Distance from highest per capita income		20
iv.	Index of Deprivation		20
v.	Revenue Effort of which		
	a. With respect to own revenue of states	10	
	b. With respect to GSDP		10

The following table gives the inter–se shares of the panchayats under the award of the Twelfth Finance Commission:

Table–8.15: Inter–se of Panchayats in North–East States

Sl. No.	**State**	**Per cent**	**Rs. Crore**
1.	Arunachal Pradesh	0.340	68

2.	Assam	2.630	56
3.	Manipur	0.230	46
4.	Meghalaya	0.250	50
5.	Mizoram	0.100	20
6.	Nagaland	0.200	40
7.	Sikkim	0.065	13
8.	Tripura	0.285	57
All states		100.00	20000

Source: Report of Twelfth Finance Commission, 2004.

It is evident from the table that as per award of the Twelfth Finance Commission the share of PRIs of Tripura is the third highest (0.28 per cent) after Assam (2.630 per cent) and Arunachal Pradesh (0.34 per cent)

8.12. Measures Needed for Improving Financial Position of the Panchayats :

The panchayats have to depend on grants and assistance from the State and Central Governments. While grant from Government may enable the PRIs to manage their affairs in the short term, they shall have to take steps for mobilizing resources in the long–run, which is the only way to enable them for function as effective institutions of democratic decentralization. The Panchayati Raj Institutions shall have to give particular attention to utilizing the available resources in an optimum manner and create durable assets. Besides, expenditure has to be checked and controlled and all avoidable and unproductive expenditures have to be done away with. Again, the PRIs should take steps to impose tax selectively for avoiding much hardship to the families living below poverty line in particular. Due care should be taken to collect the tax and check any evasion and avoidance of tax.

The cooperative sector has got enormous strength. Due to a number of factors, cooperative movement in Tripura has not gained due momentum. The Panchayat Raj institutions may give special attention for building of cooperatives and create awareness among the people about benefits of cooperatives. With required support, cooperatives can be made to play a

leading role in social and economic transformation of the rural areas in general and rapid development of agriculture and allied sectors in particular, which are of critical importance to the development of the state.

A. Income from Assets Owned by the PRIs :

The PRIs have built up certain assets like fishery tank, horticultural orchard etc. in the past year with the fund available under various labour intensive schemes like NREP, RLEGP, SREP, JRY, EAS etc. Thus, assets are required to be managed in an effective manner for generating resources for the panchayats. Even though, these resources may be initially small, it is of much greater significance than the assistance received from state government, as it will indicate the own–contribution of the PRIs. The PRIs are required to be assisted for building up additional assets, which can provide them steady source of income. In the course of our discussion with the newly elected members of PRIs, we have come across a number of constructive suggestions, such as development of horticultural orchards, rubber plantation, plantation of bamboo and other economic species under social forestry scheme, scientific management of fishery tanks etc. in the land owned by panchayats. The fund available under various labour–intensive schemes from the state government and Government of India can be utilized by the Panchayats for building up the assets. However, it would require strong technical support and guidance. The state government may issue appropriate instructions to the technical departments for assisting the PRIs in this regard. Beides technical guidance, appropriate action may be taken for building up awareness about the potential of PRIs for generating assets. We feel that by exploiting the inherent strength of the people, the PRIs will be able to generate resources, which would put them on a sound footing in the long run.

B. Institutional Finance :

The PRIs have been organized as per provisions under the constitution. In addition to the three different sources of revenue indicated in the preceding analysis, the PRIs can avail loan and financial support from various financial institutions i.e. banks, public sector undertakings and external funding agencies for building infrastructures and assets which would generate resources. Some states like Uttar Pradesh, and Bihar have set up Panchayat Finance Corporation for provision of institutional finance support to the PRIs. Keeping in view the recommendation of the Finance Commission and the prevailing situation in the state, it may not be prudent to set up any new public sector undertaking for this purpose at the initial stage. Once technically feasible and economically viable projects are formulated for the PRIs, there may not be much problem in getting institutional finance for the purpose. The commercial banks and financial institutions have been delegated adequate powers for financing such viable projects. As the credit deposit ratio in Tripura is less than the recommended, the commercial banks operating in the state are under moral obligation for ensuring greater credit flow in the state. In case sufficiently big projects are prepared, external funding agencies would be too eager to assist the PRIs. As this is a new area and preparation of viable projects requires considerable expertise, we would like to mention that the state government may take necessary steps for preparation of projects reports for the purpose. Besides the commercial banks, financial institutions and public sector undertakings of the state government like the TCLDB and TIDC etc. may also consider financing the PRIs for taking up viable projects. This issue may also be projected to the central financial institutions like NABARD, SIDBI and IDBI also for evolving appropriate strategy for assisting the PRIs for playing a vibrant role in economic development of the rural areas.

C. Contribution from the Public :

The PRIs represent the grass–root–level institution of the people formed by democratic process. Our country has a rich tradition of self help and voluntary contribution. Before Independence, a number of public

institutions such as schools, library, community hall etc. were made in the rural areas with contribution from the benevolent public. Contributions were made in form of land, furniture, books, building materials and labour for building up community assets, which were used by all. Gandhiji had emphasized on this concept of self help during the freedom struggle. However, after Independence, the Government has taken up number of activities in the rural areas. Involvement of Government in almost all fields has given a sense of dependence on the Government. There are incidence of people in the rural areas waiting for repair of a tubewell or a community hall by the Government department, notwithstanding the difficulties faced by them and their ability to undertake the repairs. There are limitations in the resource and ability of government in the discharge of all functions in the rural areas. Under the community development programme, involvement of the rural people for managing their affairs was taken up. However, it has not cut much ice in the past. The 73rd Amendment to the Constitution has laid specific emphasis on the involvement of the people in the rural areas to solve their problems to the extent possible. We feel that involvement of the people can come in the best way by voluntary contribution either in cash or kind of labour for the cause of the PRIs. The elected member of the PRIs may provide leadership for the purpose and rise above petty groups and political considerations for involving the people in general. With a view to encourage public contribution, the PRIs may take suitable steps for recognizing the contributions by naming the institutions against the persons contributing sizably and such other means of recognitions, as may be felt appropriate. We are hopeful that this would help the panchayats in bringing about the socio–economic development of the rural areas to a considerable extent.

Development of the PRIs would require utilization of the available resources in a proper manner and checking any mis–utilization. The PRIs may observe transparency in the utilization of their fund. Details of the schemes formulated and utilization of fund may be discussed in the meeting and give due publicity for information of the general public. As these

organizations are close to the people, they would be able to create awareness and involve the people to a larger extent, which would serve as effective check against any possible mis–utilization. The account of the PRIs may be audited properly and the audit report may be published regularly. This report may be prepared in the local language i.e. Bengali for benefit of the common people. There is a general feeling that institutions become unpopular, in case they take correct decisions. Such apprehensions have been proved wrong in large number of cases. The PRIs may be assisted for discharging their responsibility in a better manner so that they can render better public service, which will give them higher credibility and respectability in the long run. At the end, we would like to reiterate that the Panchayati Raj Institutions of Tripura shall have to take mobilization in the right earnest. In view of the typical situation prevailing in the region, the state government and Non–Government Organizations should give required help, support and guidance to the Panchayati Raj Institutions in this regard.

8.13. State Perspective :

Tripura, the smallest state in the north–east in terms of geographical area has a total population of 31,91,168 as per 2001 census. During 1991–2001, the decadal rate of population growth significantly declined in the state of Tripura as compared to previous decade. The figure shows that the annual growth rate and the decadal growth rate were lowest in Tripura when compared to the other north eastern states.

We have already shown the population projections of Tripura for 20 years from 2001–2020 in the earlier chapter. The total population of the state is projected to increase from 31.91 lacs in 2001 to 35.05 lacs in 2007, 37.94 lacs in 2012 and 43.38 lacs in 2020.

A. Unemployment :

The following table shows that the variation in the rural and urban growth rates of unemployment. The projections show that while urban

growth rate of unemployment is increasing unemployment in the rural areas there is a steady decrease in the number of people unemployed.

Table – 8.16 : Projection for Unemployment Rates in Tripura on Current Daily Status (in % Terms)

Year	Rural	Urban	Total
1983	1.58	2.67	1.71
1987–88	1.97	7.72	2.48
1993–94	2.60	8.94	2.85
1999–00	1.14	5.59	1.97
2005–06	0.84	7.69	2.32
2011–12	0.54	8.26	2.37
2017–18	0.27	8.68	2.42

B. Irrigation :

The estimates of the irrigation department aims at providing assured irrigation to the entire command area by 2010 so that Tripura can become self–sufficient in food production. To achieve that target, Government has constituted a task force for the implementation of the programme. The committee has fixed a year wise target as per the schedule.

It has been proposed in the perspective plan that PWD, Water Resource, Rural Development, Panchayat, TTAADC and Agricultural Department will jointly implement the programme.

Table – 8.18 : Target for Achievement of Irrigation

Year	Target (ha.)
2002–03	7300
2003–04	7055
2004–05	6470
2005–06	5925
2006–07	5650
2007–08	5800
2008–09	5700
2009–10	3398
TOTAL	64803

8.14. SPECIAL AREA PROGRAMMES

A. HOUSING :

i. Indira Awas Yojna (IAY) :

Housing is provided to the BPL families mainly under the scheme of IAY. The department has designed models and estimates for plain and hilly areas separately. In plain areas, GCI sheet roofing with mud wall and steel tubular truss for structure is used and in hilly areas GCI sheet as roofing with bamboo partition and wooden structure is utilized.

Objectives : The objective of IAY is primarily to help construction of dwelling units for member SCs and STs, free bonded labour and also non–SC/ ST rural poor below the poverty line by providing them with grant–in–aid. The benefits are also extended to the families of ex-servicemen / para-military forces killed in action. Three per cent of the houses are reserved for BPL physically and mentally challenged persons living in rural areas.

a. Pattern of Assistance :

The ceiling on construction assistance under IAY currently is Rs.20,000/= per unit for plain areas and Rs.22,000/= for hilly / difficult area. The ceiling on up-gradation of a Kutchha house to semi-pucca / pucca house is Rs.10,000/=. The Gaon Sabha is empowered to select the beneficiaries under the scheme. All IAY houses must provide provision of smokeless chulha, pure drinking water and sanitary latrine. People are inspired to use improved process, less costly, environment–friendly materials in this construction. In all cases, the houses are allotted normally in the name of the female member of the family but later on houses are allotted in the joint name of both husband and wife.

b. Pattern of Funding :

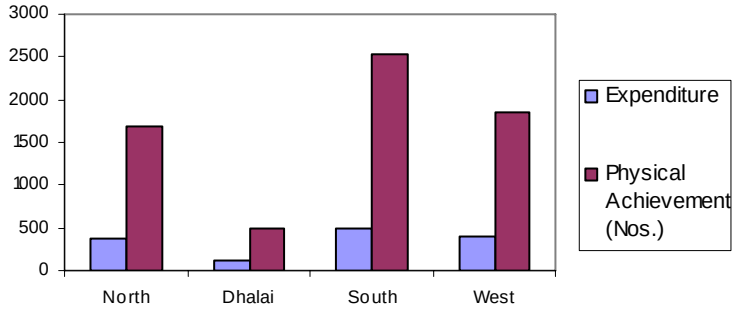
The share of fund is in the ratio of 80: 20 between Centre and State Government respectively. Financial and Physical performance of IAY scheme during the year 2001 – 2002 stands as under :

Table 8.24 : District wise Expenditure and Physical Achievement of IAY

District	Expenditure	Physical Target	Physical Achievement (Nos.)
North	372.393	1684	1684
Dhalai	107.09	486	486
South	485.07	2528	2528
West	406.75	1849	1849
Total	**1371.303**	**6547**	**6547**

Source : Draft of Annual Plan, 2001–02.

Figure–8.6
Expenditure and Physical Achievement of IAY



From the above figure, it is evident that 84.64 per cent of the available funds were utilized. It indicates that though performance was moderate but it was expected to achieve better results so that the benefits of noble scheme could reach the targeted groups with adequate coverage.

ii. Pradhan Mantri Gramodaya Yojana (PMGY), Gramin Awaas :

The scheme is a part of the comprehensive 'Pradhan Mantri Gramodaya Yojana' introduced during the year 2002-03 to achieve the objective of sustainable human development at the village level including shelter on the pattern of IAY. The following table shows the performance of the scheme during the year 2002-03.

Table 8.23 : Performance of the Pradhan Mantri Gramodaya Yojana during 2002-03

Name of District	Opening Balance	Fund Released			Total availability of Fund	Expenditure incurred	Per cent of expen–diture	Physical Target	Physical Target
North	00	00	400.90	400.90	400.90	400.90	100 %	1932	1034
Dhalai	00	00	320.72	320.72	320.72	320.72	100 %	1545	902
South	00	00	501.13	501.13	501.13	501.13	100 %	2415	2276
West	00	00	781.76	781.76	781.76	781.76	100 %	3767	3767
Total	00	00	2004.51	2004.51	2004.51	2004.51	100 %	9659	7979

Source : Economic Review 2002-2003

iii. Credit – cum – subsidy scheme for Rural Housing :

The credit–cum–subsidy scheme for Rural Housing was launched from 1st April 1999. The scheme targets rural families having annual income up to Rs.32,000/- while subsidy is restricted to Rs.10,000/-. The maximum loan amount that can be availed is Rs.40,000/-. The centre shares the subsidy portion with the state in 75 : 25 ratio loan portions.

B. Health and Sanitation :

i. **Rural Sauchagar Programme (RSP)**
ii. **Centre–Supported Rural Sauchagar Programme (CRSP)**

The above mentioned programmes was proposed to work with similar objectives and funding pattern. The objective of the scheme was to build up low–cost toilets, school, school toilet with 80 per cent subsidy and encourage people to develop toilet in their own houses, create awareness and toilet with separate arrangements for rural ladies. In the materialization of this programme department of the state Governments/ Boards / Panchayati Raj and private social organizations played important roles.

Under the changed programme building up of the general toilets in district is a necessity. In the 1st year 50 per cent has been expended on currently identified programmes, where as it was reduced to 30 per cent in the 2nd year and 10 per cent in the 3rd year. During 1998–99 to 2001–02, under the RSP and CRSP schemes 30, 242 toilets were constructed.

iii. Total Sanitation Scheme (TSS) :

This scheme was started in 2001-02 financial year. General toilets were first introduced in Western Zillas. It was implemented in Western Tripura through DWSM, which under regional redevelopment scheme dealt with drinking water.

The main objectives were to create toilet systems 100 per cent for the rural people living below the poverty line, to create awareness regarding the requirement of health, education and toilet systems, to provide general toilets in village schools, to use proper technology at a proper price, and to control diseases created due to absence of proper toilets and improve the life style of the people. Total expenditure under this scheme was Rs.1294.42 lakhs. The expected contribution of the Central Government, State Government and NGOs were 60 percent, 30 percent and 10 percent respectively.

In view of the above, 1, 31,383 toilets at a subsidy of Rs.500 would be built for the people living below the poverty line, 1014 toilets would be built for various schools, with a subsidy of maximum upto Rs.18000, and 150 for rural medical health centres. Apart from this, in each block there would be scope for rural people to build toilets at a lower cost. In order to provide help in the construction of toilets in western Tripura in 15 blocks around Rs.2,00,000 (2 lakh) was spent.

C. DRINKING WATER :

i. Rural Water Supply (RWS) :

The main objective of this scheme was to provide safe and clean drinking water to the village people living in the plain land as well as in the hills. The department has taken steps to provide the areas, which did not get water through the departmental sources or do not get enough for their full requirement, through the generally–used water sources and side–by–side through new evolved sources. The RWS scheme was run with the help of Rajiv Gandhi National Drinking Water Mission. The data given below shows that the physical targets were not achieved successfully under the RWS and ARWSP.

Table 8.24: Achievement of Ninth Five Year Plan for Rural Drinking Water Supply

Sector	Unit	Target	Achievement
ARWSP	No. of Habitations	2915	1582
RWS	No. of Habitations	2482	284

Source : One step towards success (Bengali Text)

Of the total expenditure under RWS, Rs.446.97 lakhs was capital content, and Rs.4506.84 lakhs was spent on salary and establishment.

ii. Rajiv Gandhi National Drinking Water Mission

In the RGDWM faster rural water supply project, the Government has taken up strong steps to provide safe drinking water free from chemicals and bacteria at the rate of 40 liters per person to the areas identified as partly or fully covered under the scheme and according to the census of the locality, within 1.6 km radius in the plain land to the hilly areas upto 100meters high in the State / Union Territory. The objective of this project / sub–project was to control excess iron, complete control of arsenic, water conservation, proper analysis of the quality of the water, creation of the human wealth,

support and research and provide information and create awareness about education and health education. Central government share in the ARWSP scheme for rural areas was 100per cent and for cities it was in the ratio 50:50. The scheme was being funded by the state government's minimum requirement scheme.

Achievement :

The RD department and the department of public works and health are working together in a very determined way to provide safe drinking water to the rural people. During the last four years Rs. 2564.45 lakhs were spent for providing safe drinking water, 1583 mark three tubewells, 3010 sanitary wells and 7613 shallow tubewells have been provided along with the identification of 89 more new type of water sources.

iii. Water Purification Work :

The work of distributing filter water free from iron has been brought under this scheme. During the last four years i.e. 1998-2002 around 390.63 lakh rupees was spent to provide 77608 filters to the rural people.

iv. Newly Planned Schemes of Drinking Water :
Jumpuy Hills – Tlangsang village drinking water project

The service branch of the rural development has been working to recycle the spring water in the Jumpuy village. The details of the project are as mentioned below :

- Total cost of this project is Rs. 1, 36, 33, 651.00
- The villages of Jumpy hill area covered under this scheme are – Tlangsang, Bilaship and Banglabari.
- In these villages around 2100 people use the facility of this project.
- The reservoir here has 33, 39, 400 litres water stoned in it.
- 40 litres of drinking water per person is taken as an average.
- Everyday there is a demand of 84000 litres of water.

- The tanks made for supplying water are fed from the reservoir in three steps with a help of a pump.
- At every stage 5000 gallons of water is pumped in with 25 HP pump.

v. Sector Reforms Project

The scheme is run to provide water to the Zillas through the DWSM mission by assuming West Tripura zilla as the controlling zilla.

vi. Prime Minister Gramodaya Yojana (Rural Drinking Water), PMGY :

The primary focus of PMGY (Rural Drinking Water) has been :

- Emphasis on taking up projects and schemes for water conservation, rainwater harvesting, water re–charge and sustainability of drinking water sources in rural areas under Drought Prone Areas Programme (DPAP) and Desert Development Programme (DDP), over–exploited dark and grey blocks and other water–stressed and drought–affected areas.

- Undertaking a project/ scheme to tackle quality related problems and for providing safe drinking water to uncovered and partially covered habitations.

Table 8.22 :Physical and Financial Achievement under the PMGY (Rural Drinking water) 2001–2002

Name of the District	Opening balance as on 1-4-2002	Total state fund available	Expenditure	Physical target	Achievement (Rs. In Lakhs)
West District	20.00	33.00	20.00	Mark III-	
				S.Well	873 Minor Repairing
				Shallow-1425	552 Re-sinking
South District		239.94	184.26	Mark III-280	238
				S.Well -264	172
				Shallow - 142	85
				Innovative - 16	0

North District		205.21	205.21	Mark III-109	109
				S.Well -246	246
				Shallow -0	0
Dhalai District		279.30	279.30	Mark III- 66	29
				S.Well -628	164
				Shallow - 150	70
				Innovative - 0	0
ADC area and also Domestic		228.00	228.00	S.T.Well - 248	142
				Shallow -0	0
				Innovative - 41	10
Filter in ADC areas 5033 –filter	-	-	16.00	16.00 Filter	Domestic – 5033 Distributed
Tlunsung Project – North	-	50.00	50.00	Innovative - 79	79

Source : Draft Annual Plan, 2003–04

The table shows that no central share was released for the purpose during 2001-2002.

D. CONNECTIVITY (ROADS) :

i. Pradhan Mantri Gram Sadak Yojana (PMGSY)

Road is the key infrastructure for village development. Considering the real needs, the Central Government has launched a 100 per cent Centrally Sponsored Scheme called the “Pradhan Mantri Gram Sadak Yojna” (PMGSY). The programme aimed at providing connectivity to all unconnected habitations in rural areas with a population of more than 500 persons through good all–weather roads by the end of the 10th Plan period. In case of hill states and desert areas, the objective was to connect habitations with a population of 250 persons and above. Ideally, Tripura has introduced the scheme with honest objective of making the State developed in road connectivity. Priority has been given to this work. In the last four years 1998 – 2002, 129.69 Km. rural road has been built and during 2001-02 around

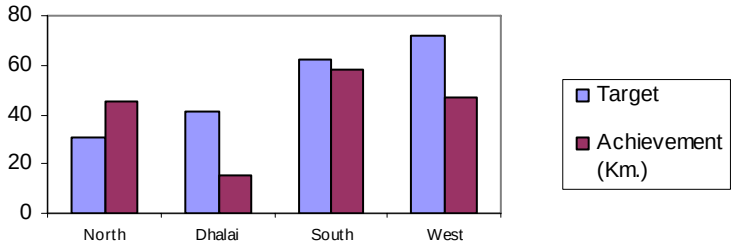
164.69 Km. of road has been built under PMGSY. During the year 2001-2002 the progress achievement of this scheme is reflected in the following table and figure.

Table 8.25: Physical Achievement of PMGSY (2001-2002)

District	Target	Achievement (K.M.)
North	30.94	44.85
Dhalai	41.25	15.00
South	61.88	58.11
West	72.20	47.00
Total	**206.27**	**164.96**

Source : One Step towards success – 2001–02.

Figure–8.7
Physical Achievement of PMGSY (2001-02)



E. ELECTRIFICATION :

i. Kutir Jyoti Scheme :

It is a centrally–sponsored scheme (CSS) to give assistance to the people living below the poverty line. Under this scheme, the houses of the people living below the poverty line were electrified free of cost. Till 1997–98, total number of connections under the scheme was 6,217 which increased to 15,688 in 1998–99, and it further rose to 46,937 in 2001–2002. The table below shows the achievements of the Kutir Jyoti Scheme, since 1989 onwards.

Table 8.24 : Achievements of the Kutir Jyoti Scheme.

Year	**Total No. of Connections Given**
1989 – 1990	1600
1993 – 1994	1400
1995 – 1996	800
1996 – 1997	761
1997 – 1998	1656
1998 – 1999	9248
1999 – 2000	16222
2000 – 2001	8546
2001 – 2002	6704
Total connections	**46937**

Source : Economic Review 2001-2002

Figure–8.8
Total No.of Connections Given

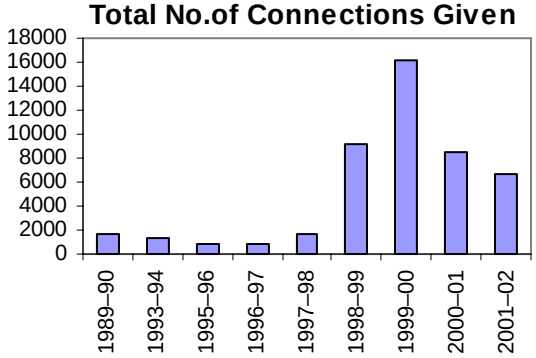


Table 8.25 shows the total amount of electricity supplied through various sources and the number of connections given as on 1st April, 2002.

Table 8.25 : Power Generation / Connection through various sources (2002)

Power Generation / Connections	As on 1st April,1998	As on 1st April,2002
1. Transmission Line (kilometers)	533	869
2. Sub-Transmission Line (kilometers)	5,385	6,642
3. Kutir Jyoti Connections (Nos.)	6,217	46,937
4. Service Connections	1,49,637	2,27,747

(excluding Kutir Jyoti) (Nos.)		
5. Power Generation (MW)	80	101
1. Bio-mass based Power Generation (by S & T Department) (KW)	Nil	1000

Source : Cultural Affairs and Tourism, Govt. of Tripura.

F. IRRIGATION :

a. A.I.B.P. Scheme :

Rural Development Department has taken up 149 A.I.B.P. projects out of these 199 is for Western district, 22 for Southern district, 4 for Northern Zilla and rest 4 for Dhalai Zilla. In order to materialize these projects in the identified 1551 hectare the project has been funded with Rs. 1152.82 lakh. Some of the projects of A.I.B.P. have already materialized by March 2002 out of which 10 in Western Zilla, 13 in Southern Zilla, 4 in Northern Zilla and 2 in Dhalai Zilla.

Achievements and Future Prospects

The table below shows the Irrigation potential created by different executing departments during 01 – 02 through minor and medium projects.

Table 8.26 : Achievements Through Minor and Medium Irrigation Projects.

Name of the Projects	2001 - 2002	2002 - 2003
PWD, Water Resources	3432 hectares	3100 hectares
Rural Development (Panchayat)	2738 hectares	2500 hectares
T.T.A.A.D.C.	60 hectares	520 hectares
Agriculture	1397 hectares	1180 hectares
Total	7327 hectares	7300 hectares

Source : Draft Annual Plan, 2003–04

G. PROGRAMMES UNDERTAKEN FOR VILLAGE UPLIFTMENT :

i. Gramodaya

In the 'Approach to People's Plan in Tripura', finalized by the State Planning Board and later approved by the Council of Ministers, a realistic and time-bound resource based planning with involvement of local people and their democratically elected representatives was evolved for rural development. 'Gramodaya', a programme for resource-based participatory planning, was launched in Tripura with a view to decentralize the process of planning and decision making.

The State Government has identified seven priority sectors for over-all development of the State. These were (i) Agriculture with irrigation (ii) Drinking water (iii) Housing (iv) communication (v) Education (vi) Rural Electrification (vii) Health. It is emphasized that under the Gramodoya, these priority sectors will be adequately reflected while formulating developmental plans for villages, blocks and districts. Under 'Gramodaya'; area–based plans are proposed as against the present practice of preparing the department–wise plans. The smallest unit of planning is Gram Panchayat/ Gram. The basic presumption of the area based approach is that the local people are, by and large, aware of the resources locally available, multiple uses to which resources can be put to be, out of all the alternatives available and the best use of the resources for the development of the area. The Gramodaya programme was launched in one district (west) of the state during 1999-2000 and extended to other districts during 2000-01 for the preparation of the annual plan 2000-02. At the time of preparation of the 10th Five Year Plan through Gramodaya programme, grass–root–level planning approach in its ideal form has been adopted. In this process, the Village Development Plans have been prepared in all the 1062 Grams on the basis of the total needs of the locality as revealed in the people's perceptions and opinions expressed in the village–level meeting. The residual needs of the Grams/ GPs

were then passed on to the Blocks for implementation. The remaining needs of the Grams/ GPs are then passed on to the Districts and States for possible implementation.

ii. Jawahar Gram Samridhi Yojana (JGSY) :

JGSY was started w.e.f from 01.01.1999 to ensure development of rural infrastructure at the village level by restructuring the erstwhile JRY. The main objective of JGSY is creation of demand–driven community village infrastructure including durable assets to enable the rural poor to increase the opportunities for sustained employment. The other objective is to generate wage employment for unemployed poor in the rural areas.

The salient features of the JGSY are as under:

- 100 per cent of funds (both central and state shares) are released directly to the village Panchayats through the DRDAs / Zilla Parishads.
- Village Panchayats are the sole authorities to prepare Annual Action Plan and its implementation with the approval of the Gram Sabhas.
- Gram Sabhas have been empowered to approve the scheme works.
- Village Panchayats can execute individual work / scheme costing upto Rs.50,000/- without technical or administrative approval.
- 30 per cent of the employment opportunities are reserved for women.

It has been observed that 82.42 per cent of the available funds have been utilized for the purpose. Cent per cent utilization could not to be achieved due to non-availability of fund to the implementing agencies at the right time. Physical achievement is also 85.81 per cent of target, which is below the expected level. State level–monitoring cell attempted exerting pressure on implementing agencies to achieve the objective in proper perspective for the greater interest of the rural poor.

H. EMPLOYMENT GENERATION :

i. Swarn Jayanti Gram Swarozgar Yojana (SJGSY)

On 1st April 1999 the outdated, age–old in–active schemes like IRDP, TRYSEM, DWCRA, SITR, AGKY and MWSR were replaced by SJGSY. This programme was designed for people living below the poverty line in rural areas. In this scheme, the main aim was establishing a large number of micro-enterprises in rural areas based on the ability of the poor and potential of each area. Social mobilization of the poor was the main thrust of the scheme. Training and infrastructure development is also part of the scheme. Target group of the SJGSY is the families living below the poverty line (BPL) in rural areas comprising 50 per cent reservation for SC/STs, 40 per cent for women, 3 per cent for physically handicapped. 30 per cent of the rural poor are targeted to be covered under this scheme. The scheme is basically for giving the debt. All facilities of the self-employment scheme are available under this scheme. In this scheme the poor are brought together to form a society, so as to avail improved training facility, improved technology improved, infrastructure and marketing network. There is a deliberate attempt to involve atleast one woman. Thus the success of the scheme is inherent in the success of the society.

Pattern of Funding :

Subsidy for individual Swarozgaris is 30 per cent of the project cost subject to maximum of Rs. 7500/-. In respect of SCs/STs the subsidy is 50 per cent of the project cost subject to a maximum of Rs.10,000/-. For groups of Swarozgaris, the subsidy is 50 per cent of the cost of the scheme subject to a ceiling of Rs.1.25 lakhs. There is no monetary limit to subsidy for irrigation projects. No interest is charged on the subsidy amount and Swarozgaris have to bear interest for the loan portion only.

Involvement of PRIs :

For schemes more than Rs.50,000/- apart from the permission of Gram Sabha, statutory permission is required from proper authority.

Panchayats can spend upto 15 per cent of the fund provided to protect the wealth created through the scheme within its own geographical area, 22.5 per cent is reserved for personal help scheme for STs/SCs ; and 3 per cent is reserved for physically handicapped. Money is distributed between panchayats on the basis of the population under such panchayats. With respect to the above scheme, the performance of the state is much satisfactory. It has been observed that the performance of Central Bank of India is the worst though its operation is confined to West District only. The following table and figure reflect district–wise allocation under SJGSY scheme:

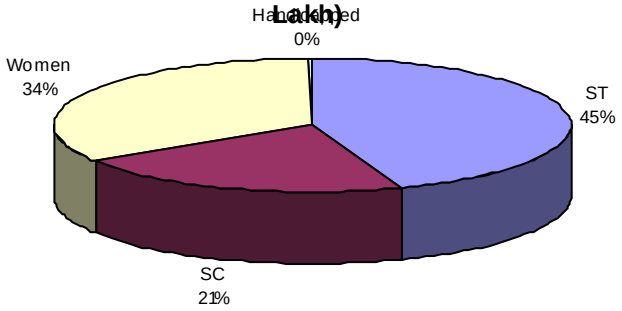
Table 8.27: District-wise Achievement under SJGSY During 2001-2002 (Rs.In Lakhs)

Item	West	North	South	Dhalai	Total
1. Central Allocation	181.360	103.64	145.09	88.11	518.20
2. State Allocation	60.453	34.547	48.363	29.370	172.733
3.Total Allocation	241.813	138.187	193.453	117.480	690.933
4. Opening Balance	0	71.960	80.410	23.040	175.410
5. Centre Release	181.360	75.800	121.350	88.110	466.620
6. State Release	114.604	96.175	105.378	70.270	386.427
7. Other Receipts	17.897	67.606	45.732	16.350	147.585
8. Total Fund	313.861	311.541	352.870	197.770	1176.042
9. Total Expenditure	313.856	301.283	352.818	197.830	1165.787
10. Infrastructure Expenditure	20.236	4.722	0.894	10.330	36.182

11. Training Expenditure	5.662	2.780	2.030	2.300	12.772
12. Revolving Expenditure	12.440	0.000	6.300	2.950	21.690
13. Subsidy Expenditure (new case)	246.500	207.781	247.020	155.530	856.831
14. Credit Expenditure (new case)	359.310	227.755	479.440	234.200	1300.705
15. Physical Target (No. of Swarozgaris)	5120	4000	4481	2399	16000
16.Achievement (No. of Swarozgaris)					
a) Total	5001 (98 %)	3323 (83%)	4126 (92%)	2374 (99 %)	14824 (93%)
b) ST	1680 (34%)	1097 (33%)	1646 (40%)	1317 (55%)	5740 (39%)
c) SC	993 (20%)	479 (14%)	787 (19%)	488 (21%)	2747 (18%)
d) Women	2061 (41%)	654 (20%)	1087 (26%)	566 (24%)	4368 (29%)
e) Handicapped	17 (0.3%)	0	11 (0.3%)	3 (0.1%)	31 (0.2%)

Source : Draft Annual Plan, 2003–04

Figure–8.8
Achievement Under SJGSY (2001–02) (Rs. Lakh)



ii. Self Help Groups (SHGs)

The Self Help Group is meant for Swarozgaris drawn from BPL list approved by the Gaon Sabha. The Scheme provides for the formation of Self Help Groups (SHGs), nurturing and their linkages with Banks. Group activities are being given preference progressively majority of the funding are for Self Help Groups formed at Block level and should be exclusively women groups. The target for formation of Self Help Groups along with the achievement during the year 1999 – 2002 is shown in the table below.

Table 8.28 : Targets and Achievements in the Formation of Self Help Groups.

	North	South	West	Dhalai	Total
Year 1999 – 2000					
Target					
Achievement	17	118	267	16	418
Year 2000 - 2001					
Target					
Achievement	46	97	127	104	374
Year 2001 - 2002					
Target	210	270	350	170	1000
Achievemen	170	174	351	144	839

t					

Source : Draft Annual Plan, 2003–04.

iii. Employment Assurance Scheme

The scheme was first introduced on 2nd October 1993 in some selected drought prone areas, Desert, Tribal and Hill areas but subsequently w.e.f. 01-04-99 it became an allocation based scheme with the primary objective of creating additional employment opportunities during the period of acute shortage of wage employment through manual work for rural people living below the poverty line. Priority is given to those areas where people have to go to other places for employment. Out of all the poor families only two adults not having scope of getting involved in agriculture is brought under this scheme. The second objective of the said scheme was the creation of durable community, social and economic assets for sustainable employment and development. The scheme is funded by the Centre and the State in the ratio 75 : 25. The DRDAs release 70 per cent of funds to the Panchayat Samitis 30 per cent of the funds are reserved at Zilla Parishad. All the work started under EAS are required to be labour intensive and have a wage–materials ratio of 60 : 40.

8.15. SWOT Analysis

Strengths

- High literacy rate and pro–active response of the people in the field of decentralization and rural development.
- The response of the programmes launched are quite overwhelming by active participation and involvement of PRIs in rural development programmes.
- High degree of consciousness among the people about development potential of the state in the rural sector.
- Good governance at the sub–national level reflected in implementing various rural development programmes.

Weaknesses :

- The topography of the state also forms a major drawback in the progress of the state.
- The real weakness of the state's economy arises from its geographical isolation from the main land, poor infrastructure facilities, communication bottlenecks, higher poverty rate, low per–capita income, low level of capital formation, inadequate exploitation and use of forest and mineral resources, poor progress in industrial front, insurgency, un-employment and poor facility from banks.

- The infrastructure facilities such as road transport, railway links and airlines are poor both in terms of quantity and quality. The state does not have inland water transport facility. Agartala, the state capital is yet to be connected to the railway map of the country. Transport by road is the only dependable mode of transport for the economy of the state and that too on a limited scale.

- The number of persons on live registers of employment exchange as on 31.03.2002 was 3,94,663. The industrialization in the state is yet to take–off and industry sector is not able to open employment opportunities, despite the government's effort to set up a comprehensive base for industrialization. On the other hand, agriculture sector has become stagnant and not ready to absorb the growing demand for employment. Against this background, the State Government has decided to encourage the self-employment through a programme called "Swavlamban".

- The State is characterized by unbalanced regional development. The Dhalai district continues to remain the most backward area of the state. The Planning Commission, New Delhi has selected Dhalai District under backward district initiative programme of Rastriay Sam Vikash Yojna

(RSVY) for its future development and also to fill critical gaps in physical and social infrastructure.

Opportunities :

The economy of the State has ample opportunities for setting-up as well as developing the following industries and trade.

- Agro-based food processing industries.
- Natural–gas–based industries.
- Rubber–based industry.
- Bamboo and cane-handicrafts.
- Tea–Processing industry.
- Tourism based on wildlife, green-forest and Buddhist / Hindu religious places of ancient times.
- Trade with Bangladesh.

Threats

- The state faces a big threat of insurgency in the state.
- Though there are opportunities of agro–based industries in the state, but it will be seasonal as there is no proper storage facility in the state.
- If at all the industries are set up in the state, due to lack of demand the chances of the industry flourishing will slowly diminish.
- The state is separated from the mainland which gives rise to the problems of bottlenecks in marketing and problems of communication with the mainland.
- The land holdings are small and so very less labour is required in the fields and it does not make room for any gainful employment opportunities.
- There is easy availability of cheap labour from Bangladesh and therefore the state's own manpower is underutilized or not utilized–giving rise to unemployment in the state.

8.17. ISSUES :

- Additional employment generation and poverty alleviation programmes in the rural areas.

- Formulation of rural development plan programmes and policies relating to rural infrastructure like housing, electricity, road, drinking water etc. and financing of these programmes.

- Management of the rain water harvesting programmes and watershed development programme in the rural areas by the PRIs.

- Provision of wholesome clean drinking water to the rural inhabitants by the village panchayats.

- Judicious settlement of long–standing demand of non–tribals in terms of their representation in Autonomous District Councils without jeopardizing the interest of tribals.

- Strengthening of Self–help groups through effective coordination with North East Council and Department of North–East Region, Government of India and Community participation in rural development programme through community based organizations.

- Functional and financial autonomy of Panchayati Raj Institutions.

- Provisions for resource mobilization and effective utilization of the non–Plan revenue grant sanctioned by the Central Government under the recommendations of Eleventh Finance Commission.

- Separate BPL survey for accurate poverty assessment and for resolving their problems.

- Adequate financial assistance for total sanitation campaign.

- Maintenance of existing sources of clean drinking water to be ensured and to keep them serviceable.

- Improvement in rural connectivity.

CHAPTER–IX
Urban Development

Tripura was enjoying the status of a princely state till October 14, 1949 and it was included in the Indian Union as part 'C' state on October 15, 1949 and, thereafter, the management of its administration continued to remain under the Central Government of India as per the policy directives of the Union Government. However, during 1956, 1963 and 1972 significant structural changes were introduced and Tripura was designated the status of a full–fledged state of Indian Union from January 21, 1972. It had a system of self–administration among the tribals during the rule of the Maharajas but there were different self–sufficient, self–governing institutions among different tribes and, infact, these institutions were responsible for administering the social, economic and developmental problems of the respective jurisdiction. The social, economic and political life of the tribals were governed by the age–old customs and traditions enforced by their self–governing institutions even after the rise of a Chief Ruler of the entire state. *Manikya* was the title of the Monarch or the Chief Ruler who used to enjoy the sovereign power in political administration. However, the Maharaja of the state used to exercise indirect control over the subjects of the state through the system of self administration and social customs. In British India, the local self government became important during the period of Lord Ripon in 1882 and accordingly local self–governance was adopted in 1885.

Among the several attempts made for the development of a municipal organization during the period between 1871 to 1961 at Agartala, the first important attempt was made by Maharaja Bir Chandra Manikya in 1871 for the establishment of a municipal committee under the chairmanship of British Political Agent. After three years, an act was passed in 1874 for the establishment of Municipality at Agartala with a committee of nominated members dividing the entire town into eight wards. In 1912, Maharaja Birendra Kishore Manikya passed the second act with a committee consisting of seven nominated non–official members. Later on, in 1937, Maharaja Bir

Bikram issued an official order for reducing the number of wards to six. Thus, the Municipal Act of Tripura state passed in 1939 by Maharaja Bir Bikram Manikya laid down the Modern foundation of Municipal organization. Even, though the said act provided for municipalities in towns of Tripura but no where it has been established except at Agartala. The act also provided that three–fourth of the commissioners were to be elected and six out of twelve commissioners of the municipal committee were to be nominated. After its merger with the Indian Union the wards were converted into three–member constituency in 1951. In 1961, the Government of India extended the Bengal Municipal Act, 1932 to Tripura and this act was more comprehensive consisting of 557 sections and four schedules. Thus, for a period of more than 100 years it had been shaped on the line of similar institutions in British Indian Towns and has been transformed from a Maharaja–ruled organization to one ruled by law and act. The only municipal organization established at Agartala remained for most of the period under the direct control of the government and governed by an administrator.

We have already seen that the socio–economic–cultural fabric of the state of Tripura has witnessed several shocks and changes over the last few decades. The community character of the state and the man–land ratio have undergone a profound change account of influx of Bengali refugees from the then East Pakistan, now Bangladesh. This has contributed to many fold economic, social and political problems of the state because of which the state is still under the grip of some kind of vicious circle of poverty despite its tremendous potential. As per census 2001, the total urban population of the state is 5,43,094 which is 17.02 per cent of the total population of the state. The following table presents the districts–wise profile of urban population of the state.

Table–9.1:District–wise Urban Population in Tripura

Sl. No.	District	Total population	Urban population	Percentage of urban population to total population

1.	West Tripura	1530531	407501	26.62
2.	South Tripura	762565	54067	7.1
3.	Dhalai	307417	18871	6.12
4.	North Tripura	590655	62655	10.61
	Total	3191168	543094	17.02

Source: Basic Statistics of NER 2002, Government of India, North Eastern Council Secretariat, Shillong

From the table it is evident that the concentration of urban population is maximum in West Tripura District (26.62 per cent) followed by North Tripura (10.61 per cent), South Tripura (7.1 per cent) and Dhalai district (6.12 per cent). Moreover, out of the total population, the population of Agartala Municipal Council and twelve Nagar Panchayats is 369417 and the remaining total urban population was residing in ten census towns in 2001. The distribution of population of urban local bodies belonging to various districts along with area is given in the following table:

Table–9.2: Urban Local Bodies in Tripura

Sl. No.	Urban Local Bodies	Population (as per Census–2001)	Area (sq. km.)
1.	Agartala Municipal Council	189327	58.84
2.	Dharamnagar Nagar Panchayat	30785	7.77*
3.	Kailashahar Nagar Panchayat	20279	6.19*
4.	Kumarghat Nagar Panchayat	11591	3.5*
5.	Kamalpur Nagar Panchayat	5141	10.16
6.	Khowai Nagar Panchayat	17621	5.82
7.	Teliamura Nagar Panchayat	19606	3.75*
8.	Ranirbazar Nagar Panchayat	11003	1.95
9.	Sonamura Nagar Panchayats	9997	4.13
10.	Udaipur Nagar Panchayat	21751	6.10
11.	Amarpur Nagar Panchayat	10863	7.15*
12.	Sabroom Nagar Panchayat	5766	2.53*
13.	Belonia Nagar Panchayat	15687	4.13*
	Total	369417	

*In these cases, area figures for 1991 census have been used as the 2001 area figures are not available.

Source: Economic Review, 2002–03, Government of Tripura; Report of the Tripura State Finance Commission on Urban Local Bodies, 1999; and

Report from the Department of Urban Development, Government of Tripura

From the table, it is clear that West Tripura district is having the highest urban population of 203399 residing in the maximum area of 74.49 sq. km. The North Tripura district occupies the second position in terms of urban population of 56724 residing in 17.46 sq. km. area. The South Tripura district with a strength of urban population of 44823 occupies an area of 19.91 sq. km. The Dhalai district is having urban population of 4300 which resides only in the area of 10.16 sq. km. Thus, it is evident that there is a marked inter–district disparity in Tripura with West Tripura having the highest potential of urbanization followed by North Tripura, South Tripura, and Dhalai district (Table–2) in terms of urban population of the districts. In 1991, Tripura was having an urban population of 0.42 million i.e. 17.6 per cent of the states total population out of which 0.07 million people were living in the slum areas.

Before making an assessment of the status of urban development in the state of Tripura, it is worthwhile to have a look at the inter–state comparison of the distribution of urban population and literacy percentage of urban literacy to total urban population among all the states of the north–east.

Table–9.3: Proportion of Urban Population to Total Population in North–East States

Sl. No.	States	Total population	Urban population	Percentage to total population	Literacy to total population
1.	Arunachal Pradesh	1091117	222688	20.41	66.58
2.	Nagaland	1988636	352821	17.74	74.59
3.	Manipur	2388634	570410	23.88	70.09
4.	Mizoram	891058	441040	49.50	82.78
5.	Tripura	3191168	543094	17.02	81.11
6.	Meghalaya	2306069	452612	19.63	78.58
7.	Assam	26638407	3389413	12.72	76.44
8.	Sikkim				
9.	India	1027015247	285354954	27.78	70.10

Source: Basic Statistics of NER, 2002, Government of India, North Eastern Council Secretariat, Shillong.

It may be mentioned here that against the growth of urban population of 27.78 per cent for the entire country the growth of the same in Tripura has been recorded at 17.02 per cent during 1991–2001. From the table it may be noted here that the proportion of urban population to total population is highest in Mizoram (49.50 per cent), followed by Manipur (23.88 per cent), Arunachal Pradesh (20.41 per cent), Meghalaya (19.63 per cent), Nagaland (17.74 per cent), Tripura (17.02 per cent) and Assam (12.72 per cent) respectively. However, in terms of urban literacy Tripura occupies second rank after Mizoram among the North East states. In other words, the proportion of urban literates to total urban population in Tripura is 81.11 per cent as against 82.78 per cent of Mizoram and 70.10 per cent for the country as a whole. Thus, the commendable growth in the urban literacy rate of Tripura provides the basis for the future prospects of urban development in the state.

It is interesting to know here that in terms of urban literacy South Tripura is ranked first with 83.2 per cent of urban literates of total urban population of the districts and North Tripura, West Tripura and then Dhalai are being ranked second, third and fourth respectively with 82.9 per cent,

80.68 per cent and 78.14 per cent of urban literates to total urban population of the concerned district.

Table 9.4: District–wise Urban Literacy in Tripura

Sl. No.	District	Urban population	Urban literates	Percentage of urban literates to total urban population
1.	West Tripura	407501	328786	80.68
2.	South Tripura	54067	45011	83.25
3.	Dhalai	18871	14746	78.14
4.	North Tripura	62655	51945	82.91
	Total (Tripura)	543094	440488	81.11

Source: Basic Statistics of NER, 2002, Government of India, North Eastern Council, Secretariat, Shillong

9.1. Status of Urban Development in Tripura

The state government of Tripura has been playing an important role in the process of urban development and management and the urban development department of the state has been entrusted with the responsibility of formulating, coordinating and evaluating the urban development projects/schemes sponsored by Central Government and State Government and HUDCO. The Agartala Municipal Council and twelve Nagar Panchayats have been implementing the urban development projects and the local bodies which are more or less are fully dependent on state government grant have also been carrying out the development activities in their respective jurisdictions. The main objectives of the concerned urban development department may be listed below:

- The process of urban planning aims at achieving maximum benefit for the urban people with optimal utilization of the resource basket.

- The Directorate of Urban Development aims at bringing about improvement in the existing civic amenities/the service levels by formulating suitable urban development schemes, monitoring the centrally–sponsored and state–sponsored schemes, identifying new urban

growth centres and acting as the coordinating agency between the state administration and urban local bodies.

- The Urban Development department adopts various alternative courses of action for strengthening the urban infrastructure particularly the system of drinking water, sewerage, drainage and solid waste management.

- The department also accords top–priority to urban housing i.e. providing housing facilities to the urban poor and shelter–less people.

- The overall function of the Town and Country Planning for urban development is to prepare Master Plan for improving the infrastructure facilities of the urban area, project report like integrated development of small and medium town scheme for housing and shelter upgradation, integrated low–cost sanitation building centres etc. The report of the Tripura State Finance Commission on Urban Local Bodies, 1999 explicitly laying down the following objectives and targets to be achieved have been documented below:

The urban centres of the states can be classified into six categories viz, class–I (100,000 and above), class–II (50,000–99,999), class–III (20,000–49,999), class–IV (10,000–19,999), class–V (5,000–9,999) and class–VI (less than 5,000). As per census data 1991, out of 18 identified urban centres of Tripura only one belongs to class–I category i.e. Agartala and seven urban centres belong to class–II category. However, as per 2001, census data the total number of urban centres have increased to 23 of which West Tripura district has the largest number of urban centres (13) followed by South District (04), North Tripura and Dhalai districts (03 each)

9.2. Financial Status of Urban Local Bodies

The sources of funding for the Urban Local Bodies of the state may be categorized in terms of (i) own resources, (ii) income from assets, (iii) funds

from government, and (iv) other sources. Under the heading of own sources, each urban local before generates its own sources through the imposition of certain tolls, fees, cess etc, within its jurisdiction. The main sources of income under this category are given below:

- Tolls on ferries and bridges
- Tax on cart and carriage
- Fees on license
- Construction fees
- Tax on advertisement
- Property tax
- Parking fees
- Entry fee on goods vehicle/passenger vehicle
- Water tax
- Application fees
- Fees on specific services
- Levy on surcharge
- Levy on congregation
- Others

The devolution and transfer of financial resources from the centre to the states are routed through three important channels, viz, statutory transfers, effected through the recommendation of the Finance Commission, plan transfers through plan grants by the Planning Commission and discretionary transfers mobilized through central ministries. Their discretionary grants are given mainly for carrying out centrally–sponsored schemes. The following table represents the pattern of outlay and expenditure for the development of the urban sector of the state of Tripura:

Table 9.5: Pattern of Outlay and Expenditure

Rs. In Crore

Financial	Outlay	Expenditure

year	State plan	Non – Plan	Total	State plan	Non– Plan	Total
1997–98	8.27	4.57	12.84	8.27	4.57	12.84
1998–99	5.28	3.68	8.88	5.20	3.68	8.88
1999–2000	4.60	4.65	9.25	4.60	4.65	9.25
2000–01	3.52	8.00	11.52	3.52	8.00	11.52
2001–02	6.10	9.53	15.63	6.10	9.53	15.63
2002–03	17.02	0.47	17.49	16.07	0.47	16.54
Total	44.71	30.81	75.52	44.71	30.81	74.66

It may be observed from the table that the total expenditure incurred by the state urban department has increased from Rs. 12.84 crore in 1997–98 to Rs. 16.54 crore in 2002–03. Infact, the total expenditure and budgetary outlay continuously increased from 1997–98 to 2002–03 except during the periods 1998–99, 1999–2000 and 2001–02 witnessed a decline in the plan expenditure for the department of urban development. Finally, non–Plan expenditure which was to the tune of 4.57 crore in 1997–98 increased to 9.53 crore in 2001–02 but heavily declined to Rs. 0.47 crore in 2002–03. The decline of expenditure in the non–Plan account possess a big challenge to the state government in terms of maintenance and upkeep of the assets already created in the previous year.

9.3. Status of Urban Development Schemes

The following state urban development schemes and centrally–sponsored schemes were implemented during 2002–03.

Box–9.1

Schemes Implemented	
State–Sponsored Schemes	Centrally–Sponsored Schemes
1. National Slum Development Programme (NSDP) 2. Border Area Development Programme 3. Solid Waste Management 4. Drainage	1. Swarna Jayanti Shahari Rozgar Yojna 2. Integrated Development of Small & Medium Towns 3. Valmiki Ambedkar Awas Yojana 4. National Lake Conservation Plan

Significantly the speedy implementation of the above schemes has certainly contributed to the expansion of infrastructural facilities like roads, drains, construction of office building, dumping grounds in the nagar panchayats, purchase of vehicles for solid–waste management, electrification of the border areas, development of bus stands, truck terminals, development of parks and play–grounds and self–employment through banks. The physical and financial performance of the border–area programme which aimed at meeting the special need of the people residing in remote and inaccessible areas near the border is exhibited below:

Box–9.2

Name	Name of Scheme	Amount (Rs. in lakhs)	Expenditure (Rs. in lakhs)	Physical achievements
Dharamanagar Nagar Panchayat	Construction of town bazaar	25.00	25.00	Work in progress
Belonio Nagar Panchayat	Construction of super market	12.00	12.00	Work in progress
Sabroom Nagar Panchayat	Construction of youth hostel	20.00	20.00	Work in progess
Total		57.00	57.00	

The solid–waste–management project for cleaning the urban areas of the state has also been implemented by the urban local bodies, for instance, 75 meter of garbage was collected and 15 industries were constructed during 2002–03 for cleaning the Agartala city. In summary, the achievements under

the state–plan schemes during 2002–03 by the urban local bodies are given below:

- Construction/maintenance of 24 stalls
- Improvement of 11 kms road
- Construction of 13 culverts
- 27000 man–days generated through cleaning drains and other allied works.

9.4. Achievements of the Centrally Sponsored Schemes

A. Swarana Jayanti Shahri Rojgar Yojana (SJSRY):

During 2002–03, the government of Tripura received Rs. 114.37 lakh from government of India for the implementation of SJSRY which has three important components viz, community structure, Urban Self–Employment Programme (USEP) and Urban Wage Employment Programme (UWEP). The major achievements of the said programme are listed below:

i. Community Structure

- No. of beneficiaries covered – 39200
- No. of RCV selected – 923
- No. of NHG groups formed – 923
- No. of NHC groups formed – 143
- No. of CDs formed – 13

ii. Urban Self–Employment Programme

- No. of beneficiaries identified for sanction of loan – 2169
- No. of beneficiaries imparted training – 1397
- Training schemes – Tailoring, carpentry, radio & television repairing, nursing, and allied course, hair cutting/hair dressing

iii. Urban Wage–Employment Programme

- Man–days created – 14000
- Number of DWCUA groups formed – 39
- Total number of members in DWCUA groups – 780
- Number of beneficiaries identified – 7275

- No. of application forwarded to banks – 6178
- No. of application disbursed by banks – 3374
- Loans disbursed by banks – Rs. 13.11 crore
- Number of T&CS Societies formed – 39
- Number of persons covered under health/life/accident and other schemes– 380
- Incentive (subsidy) – Rs. 22800 lakhs

B. Integrated Development of Small & Medium Towns (IDSMT):

The urban development department, Government of Tripura, decided to take up the areas like Agartala, Udaipur, Kailashar, Belonia, Ranibaror and Teliamura under the second phase of the IDSMT scheme during 2003–04 and Amarpur under the same scheme during 2004–05. The total estimated project cost should be around Rs. 25 crore and the shares of the central government, state government and HUDCO would be Rs. 11.40 crore, Rs. 7.60 crore and Rs. 6.00 crore respectively.

C. Valmiki Ambedkar Awas Yojana (VAAY) :

The scheme under reference aimed at solving the most urgent problems of housing and shelter for the slum dwellers living below the poverty line in urban areas and funds are made available from the concerned organization for construction of dwelling units and renovation of the existing structure. The “Nirmal Bharat Abhiyan”, a sub–component of the Yojana was required to deal with the problems of the community–toilet complexes which where to be maintained by community–based organizations comprising the urban slum dwellers. The scheme was to be funded on a 50:50 basis with beneficiaries’ contribution and subsidy from the Government of India. Agartala Municipal Corporation had already completed the construction of 199 dwelling units with a central subsidy of Rs. 26.775 lakh from HUDCO. Nagar panchayats had also completed the construction of 475 dwelling units with the assistance of Rs. 106.953 lakh from HUDCO as central subsidy.

Besides the above schemes during 2001–02 and 2002–03, funds were also sanctioned out of 10 per cent fund earmarked for North–Eastern States

and Sikkim from the Ministry of Urban Development and Poverty Alleviation, Government of India.

Table 9.6: Urban Development (2001–02)

Sl. No.	Name of the project	Total cost of the project	Amount sanctioned	Amount released	Expenditure incurred
1.	Improvement of city roads in Agartala, Tripura (executing agency NBCC)	1305.61	1305.61	652.80 (50%)	652.80 (50%)
2.	Improvement of Agartala Drainage System, Tripura executing agency NBCC	1311.37	1311.37	655.68 (50%)	655.68 (50%)
3.	Solid waste management for Agartala city, Tripura (executing agency NBCC)	761.82	761.82	627.38	627.38
Total		**3378.80**	**3378.80**	**1935.86**	**1935.86**

Source: Working Paper Urban Development Department, Government of Tripura

Table 9.7: Urban Employment & Poverty Alleviation (2001–2002)

Sl. No.	Name of the project	Total cost of the project	Amount sanctioned	Amount released	Expenditure incurred
1.	Construction of shopping centre for rehabilitation of evicted hawkers at Durga Chowmuhani	1063	1063	799.17	799.17
2.	Construction of shopping centre at Chandrapur (2002–03)	440.28	440.28	220.14	220.14
3.	Construction of shopping centre at Bardowali (2002–03)	219.019	219.09	109.55	109.55
4.	Construction of shopping centre at G.B. Chakkar	331.13	331.13	165.57	165.57
5.	Construction of shopping centre at	773.13	386.56	386.56	386.56

	Maharajganj Bazar (Lalmatia)				
Total		2826.63	2440.06	1680.99	1680.99

Source: Working Paper, Urban Development Department, Government of Tripura

The NBCC was interested in the responsibility of the execution and successful completion of the above projects.

9.5. Proposed Projects in the Pipeline

The following projects have been proposed by the Department of Urban Development, Government of Tripura, and forwarded to the Ministry of Urban Development and Poverty Alleviation, Government of India under 10 per cent lump–sum provision:

- Night shelter for truck drivers at Kumarghat and Dharamanagar.
- Low cost–sanitation project in Agartala Municipal Council
- Infrastructure development in city slum areas of Agartala Municipal Corporation
- Rehabilitation of evicted hawkers of Kamalpur Nagar Panchayat
- Rehabilitation of evicted hawkers of Sonamura Nagar Panchayat
- Rehabilitation of evicted hawkers of Ranibazar Nagar Panchayat
- Rehabilitation of evicted hawkers of Kailashashar Nagar Panchayat.

In addition to the above proposals, the state government has also submitted the following projects to the Government of India for consideration under phase–II:

- Improvement of Agartala city roads (length 25.21 km) with an estimated cost of Rs. 24.75 crore.
- Balance question of Akhura Kalapania Khals at Agartala with an estimated cost of Rs. 11.00 crore.
- Construction of cover drain at Akhura Kahal in front of Secretariat Complex, Agartala with an estimated cost of Rs. 5.00 crore.

9.6. Projects and Schemes Under the Tenth Plan

A. The state government proposed a sum of Rs. 494.43 crore during the visit of the ADB consultants for the creation and upgradation of infrastructural facilities in and around AMC area. The thrust areas for the infrastructure upgradation programme consisted of the following:

- Improvement in the water–supply system and pipelines.
- Improvement in the system of city–bus stand.
- Widening and improvement of 165 municipal roads.
- Improvement of street–lighting facilities.
- Construction of ring roads.
- Improvement in existing truck–terminals and construction of new terminals
- Improvement in municipal markets.

B. Extension of AMC and Five Nagar Panchayats:

In compliance with the decision of the Council of Ministers, the structure in terms of area and population of AMC and five other nagar panchayats under went a drastic change. It was also decided in the meeting of the Council of Ministers that the funding of the plan for the structural changes would be done on the basis of non–solar, component of the divisible pool from 2004–05 onwards and one time allocation of the newly declared Municipal areas was pegged at Rs. 5.00 crores. After the successful implementation of this scheme the population hitherto residing in the Gram Panchayat/Gram Sabha would have the accessibility to the benefits of the Municipal areas like assured water supply, electric connections, efficient solid–waste management, street lighting, pacca roads and drains etc. The following table vividly presents the position of area and population before and after the extension.

As per the recommendation of the second State Finance Commission, the urban development department would be receiving a plan grant–in–aid of

Rs. 3.95 crores[1] over and above the present size of plan allocation with effect from 2004–05.

III. Schemes Under Tenth Five–Year Plan:

The state government under the Tenth Five–Year Plan adopted a resource base of participatory planning system for the upliftment and development of the urban areas under the nomenclature 'Nagarodaya' with the single most objective of ensuring direct and effective participation of the people in the process of planning/programming and implementation of the developmental projects/schemes which aimed at providing qualitative civic amenities and facilities, improving the quality of life and enrichment and upgradation of economic and environmental surroundings. The said Nagrodaya programme was categorized in terms of three distinctive phases generation, collection and compilation of comprehensive database at the ward level, organizing brain stormings among the sensible adult citizens and administrators for formulation and revelation of the preference and perception of the people relating to the developmental requirement and recording the same in the part two of the format and development and preparation of people's plan. On the basis of the above normative standards, the special component for the urban local bodies under the Tenth Five Year Plan has the following attributes:

- A HUDCO chair was constituted in the State Institute of Public Administration of Rural Development (SIPARD). In collaboration with HUDCO for the upgradation of the core competencies of the elected representatives and officers of the urban local bodies with a mutual contribution of Rs. 7.50 lakh per annum.

- The state government also decided to establish a prestigious State Habitat Centre at Agartala similar to that of India Habitat Centre, New Delhi and

[1] Total no. of people=197286
per capital plan grant for urban local bodies=Rs. 200
total Grant–in–aid = 197286 x 200 = Rs. 3.95 crore

the said project with its prime location at Kunjaban having 4.95 acres of land would be implemented by the state government in collaboration with HUDCO. The primary objective of Agartala Habitat Centre is to create a conducive physical environment that would serve as the basis of for establishing cordial nexus between individuals and institutions having diverse interests. The proposed habitat also aimed at dealing with the environment–related issues for the maximization of welfare of people of Tripura.

The following box depicts the major activities of the urban development department for the Tenth Five Year Plan:

Box–9.3

Name of the scheme/work	Unit	Target (Tenth Plan)
A. Urban Development Works		
1. Construction of roads	Kms	150
2. Generation of man–days (including UWEP)	Nos	145000
3. Improvement of footpath	Nos	75
B. Development of Urban Slums	Nos	500
4. Water taps/hand pumps	Nos	60
5. Community bathrooms	Nos	35
6. Community latrines	Nos	26
7. Community Hall	Nos	100
8. Housing /Shelter facility /Upgradation		
C. Solid Waste Management		
9. Construction of dustbins	Nos	80
10. Silt Clearance (man–days to be generated)	Nos	95000
D. Drainage		
11. Improvement of drains	Kms	60
E. Urban Housing		
12. VAMBAY, House sites to be constructed	Nos	5000

Source: Working Paper, Urban Development Department, Government of Tripura

The state government was seriously concerned about the absence of proper infrastructural facilities in the Nagar Panchayats of Tripura on account

of paucity of funds, and in the absence of the required level of physical infrastructure the urban population were deprived of the benefits of developmental activities which could have been carried out at a faster pace in the presence of such required facilities. During 2003–04, the state government undertook the exercise of a correct assessment of the existing level of physical infrastructure and the required level of physical infrastructure in the respective areas of the Nagar Panchayats. With a view to bridge up the gap in the level of physical infrastructure, the state government carried out the exercise of the provisional requirement of financial resources and the respective sources of funding for the period 2003–04 to 2007–08. The total requirement of funding for the upgradation of the level of the physical infrastructure was estimated to the tune of Rs. 544.31 crore. The detailed break–up of the requirements and sources of funding are shown below:

Box–9.4

i.	Requirement from 10% lump sum provision of the Ministry @ Rs. 25 crore per annum	Rs. 125 crore
ii.	Funds from ADB assistance @Rs. 50 crore per annum	Rs. 250 crore
iii.	City challenge fund @Rs. 10 crore per annum	Rs. 50 crore
iv.	Normal State plan fund @ Rs. 17 crore per annum	Rs. 85 crore
v.	Requirement of 1,97,286 numbers of persons increase due to extension of the area of Agartala Municipal Council and 5 Nagar Panchayats @Rs. 200/– per capital per annum as per recommendations of SFC totaling to Rs. 3.95 crore	Rs. 15.80 crore
vi.	One time grant proposed for infrastructure development of extended area of AMC %& 5 NPs.	Rs. 5 crore
vii	Requirement of roads, drains, electricity line of 12 Nagar Panchayats (as per enclosed list at Annexure–A)	Rs. 25 crore
	Total	**Rs. 555.80 crore**

Source: Working Paper, Urban Development Department, Government of Tripura

9.7. State Perspective

We have seen earlier that the Department of Urban Development of Tripura has been making conscious and deliberate efforts to strengthen the process of urbanization through various projects and schemes under the state plan, central plan and external assistance. However, because of lack of infrastructural facilities particularly transport, the maintenance cost for the provision of the basic amenities in the urban areas has compelled the government to large–scale borrowing the servicing of which has been a matter of serious concern for the fiscal managers and the policy makers of the state. It is at this juncture the state government has been heavily depending upon the quantum of fiscal transfers effected through the recommendations of the Finance Commissions. The EFC provided a sum of Rs.4.01 crore for five–years period ending 2004–05 for urban development. The amount was effectively utilized in renovating projects in the area of supply of drinking water, sanitation, construction of roads, drains, solid waste management etc. Unfortunately, state government could not undertake the major core services like piped drinking–water supply, adequate street lighting, modern sanitation and solid–waste management, maintenance of sewage lines and town halls in the respective jurisdictions of the urban local bodies. The state government submitted a comprehensive estimate of gap in resources and own resources of urban local bodies by making a scientific assessment of the desired level of development and the existing level of development of urban areas. The desired level of funding is required for financing the huge list of urban development activities given below:

- Surface road
- Drainage including storm water
- Potable drinking water
- Street lighting
- Sold waster management
- Low cost sanitation
- Urban housing

    - Development of sites by ULBs, if necessary
    - Housing for the poor (VAMBAY)
    - Housing under LIF/EWSH
- Urban transport and traffic congestion (bus stand, truck terminal, bus terminals, cycle/rickshaw stands, parking lots etc.)
- Development of town parks
- Water bodies/lakes
- Cremation ground
- Provision of tourist facilities
- Slaughter houses
- Public amenities like garden, town hall, play grounds, marriage halls, pay and use toilets.
- Construction of retaining walls/slope stability measures in towns
- Social amenities for the poorer sections
- Slum development projects (project specific)
- Employment schemes and skill training
- Any other item of interest like night shelters to truck drivers, night shelters to labourers, building centres, working women hostels, youth hostels, recreation and sports facilities, social forestry, environmental safety.

The following table depicts the above information:

Table 9.8: Estimated Gap of Fund of Urban Local Bodies

(Rs. in crores)

Year	Requirement of funds	Own resources of ULBs	Gap in resource generation
2005–06	34.21	3.40	30.81
2006–07	38.25	4.01	34.24
2007–08	41.85	4.83	37.02
2008–09	47.16	5.33	41.83
2009–10	52.69	6.55	46.14
Total	214.16	24.12	190.04

Source: Memorandum to the EFC, Finance Department, 2004

9.8. SWOT Analysis:

Strengths:

- High literacy rate conducive to speedy urbanization.
- Favourable law and order situation in urban areas.
- Increasing degree of consciousness and awareness among the urban people regarding their rights and duties.
- Effective and responsive administrative set–up.
- Active and dynamic elected representatives.

Weaknesses:

- Absence of adequate technical and general experience in various urban development related issues.
- Existence of reserve army of unemployed manpower exerting undue pressure on the financial position of the ULBs.

- Poor condition of infrastructure facilities in the urban local bodies like shelter, pacca road, safe drinking water, adequate street lighting, sanitation and sewerage system, garbage disposal system etc.

- Lack of desired level of industrialization.
- Paucity of funds and absence of private sector investment.
- Absence of urban development–aware education system.
- Absence of proper management and accounting system.

Opportunities:

- Availability of plenty of wood products and bamboo for environment–friendly construction activities.
- Scope of border trade.
- Plenty of natural gas reserve provides the opportunity of expansion of fixed capital assets.
- Utilization of its own natural gas for domestic/institutional purposes.
- Establishment of Tripura Development Authorities for promoting Nagarodaya programme.

Threats:

- Unplanned expansion of programme by urban local bodies may lead to urban congestion and collapse of town and Country planning.

- Absence of proper garbage disposal and waste management may play havoc on the general health and hygiene of the people.

- Absence of underground sewerage system may create problems of water and environmental pollution.

- Absence of road networking system may defeat the overall purpose of industrial expansion and accelerated economic development.

9.9. Issues:

- Massive improvement in the infrastructure facilities like roads, power, water supply, sewerage, lighting etc.

- Extension in the coverage of Integrated Development of Small and Medium Towns (IDSMT).

- Improvement in the status of infrastructure of the existing growth centres by utilizing the full potential of the urban areas.

- Development and establishment of new urban centres like Greater Agartala census towns, Kanchanpur and Ambassa.

- Evolving a systematic and scientific process of long term perspective of urban town and country planning and integration of the short–and–medium–term plans with the long term perspective plan.

- Encouraging Nagar Panchayats and other growth centres for enrichment of social infrastructure like education and health.

- Integration of annual plans of the urban local bodies with the 'Nagarodaya' plans under the tenth plan period.

- Adequate provision of recreation facilities like parks and play grounds for old people and children.

- Construction of 'Old Age Homes' for elderly people having no dependents.

- Ensuring expansion of sports and cultural activities in the underdeveloped urban local bodies.

- Preparation of realistic and comprehensive urban development policy with due consideration of physical targets and availability of financial resources.

- Additional resource mobilization by urban local bodies.

- Formulation of effective expenditure compression policy with suitable budgetary accounting, monitoring and evaluation reforms.

- Application of improve Management Information System (MIS) in operation and management of urban finances.

CHAPTER–X
TOURISM

10.1. Introduction

The beginning of the present century has witnessed tremendous change in the social, economic and political fabric of the country. The changes in the social and economic spheres have been so dramatic that the policymakers and the environmental analysts are in a fix to delineate the factors which contribute to the changes in the social and economic aspects of the country. However, one can easily and safely speculate that the unprecedented growth of the tourism sector is going to render tourism as the undoubted leader of all the industries countrywide. Following Industrial Revolution–transport revolution– and then communication revolution the boundaries and compartments among the states and regions are getting narrowed. Moreover, the entire globe is getting transformed into a 'small village' where factors like mobile technologies are transferable between countries' and ideas are flexible. All these factors have contributed to all–round expansion of the tourism sector of the country.

Surrounded by China, Myanmar, Bangladesh and Bhutan, the north–east region of the country exhibits a hidden treasure and latent potential of development. The region has abundant resources of rich mineral petroleum, natural gas, coal, limestone, agriculture, horticultural, forest products, water bodies, vast production of orange, pineapple, tea, rubber and the second largest biodiversity area of the world. We have already observed that Tripura is well–endowed with vast forest cover clean environment lust green vegetation diverse flora and fauna rich natural beauty and cultural heritage. In addition, the state has rich treasure of diverse traditional culture multi–ethnic society and wide spread tourist spots–all these made Tripura a tailor–made tourist destination for attracting both domestic and international tourists. Thus, number of river and streams draining into Bangladesh abundant reserve of sub–soil water, moderate climate, pollution free and

eco–friendly environment etc, make Tripura a wonderful tourist place in India in general, and in north–east region in particular. The state endowed with national treasure and natural beauty, offer the scope for utilizing the rich potential for the development of tourism spots, destinations etc. Thus, Tripura truly represents a land of mysterious past and exciting present. Probably, this is the reason why it is commonly called a laboratory of exotic cultural synthesis wherein one can find mountains lakes, culture, festivals, forests, sanctuaries and all other natural ingredients which render the state well suited for the development of a tourism destination. Tripura's physical attributes differ from north to south and it is a land of high hills, hillocks and interspersed, with river valleys. On the northern side, it has four valleys which have been separated by hills with height of above 1000 mt and on the southern front, it has open forested land spread over a wide range of area. Significantly, two–third of its total land area is covered with forest giving a wide coverage to sanctuaries which is at Sepahi Tala. The panoramic state of Tripura has a touch and mixture of bundle of features which are really essential for the expansion of the tourism sector. For example, fairs and festivals are celebrated throughout the year, it has attracted temples, Buddhist monsters, palaces, edifices and a unique tribal community which symbolizes peace, harmony, tranquility and fraternity irrespective of differences in caste, creed and religion.

In view of the universal potential of tourism, the pertinent issue is to contrive a mechanism for delineating the various alternative ways and means to effectively exploit the potential of tourism sector and transmit the benefits of this sector to the rest of the economy. The environment impacts associated with tourism can be considered in terms of their direct, indirect and induced effects and these impacts can be positive or negative. The direct environmental impact of tourism represents the preservation/restoration of historical monuments and sites, the creation of national parks and wild life parks, the protection of reefs and beaches, the conservation of forest and other natural surrounding. The negative environmental effects of tourism

include the annihilation and extinction of natural beauties, addition to wild life environment and immoral traffice spreading diseases. Thus, growth of tourism may disturb the ecology that is the nexus between plants and animals. In other words, the promotion of tourism can be ensured only at a price.

Without a good transport system, without the availability of power including electricity, without an easy access to flora and fauna of the state, the infrastructure cannot provide the necessary support to the growth of tourism. However, it may be mentioned here that infrastructural support is necessary but not sufficient for facilitating the easy and comfortable movement of the tourists. Thus, there should be simultaneous development of infrastructure and super structure. In fact, the creation of proper super structure such as availability of travel related services of the agents, guides, information centres, restaurants, hotels, shopping complexes etc., is essential for horizontal expansion of the tourism sector. Simultaneous development of infrastructure and proper super structure is possible through the development of various kinds of linkages–forward, backward and sideward.

The development of a state primarily depends upon the development of the various sectors of the state/ the regions. There is no denial about the fact that the all–round development of the agricultural and industrial sectors is crucial and fundamental to the overall prosperity of the state. However, the unprecedented growth of the services sector of a state opens up new opportunities and vistas for accelerating the pace of development, particularly when a state/ a region is constrained to easily develop its primary and secondary sectors on account of structural constraints and economic bottlenecks. It is precisely at this juncture the growth of the tourism sector of a state can powerfully contribute to giving an onward momentum to the expansion of the primary and secondary sector of the state economy with the help of transmitting the growth impulses from the

services sector to the rest of the economy. Undoubtedly, the pre–condition for such type of transmission is the presence of linkages among all the sectors of the economy. We have already noted in the earlier chapters that the required development of the agricultural and industrial sectors of the state of Tripura has been confronted with physical and structural constraints on account of its typical location in the north–east region. The geographical isolation, the presence of hilly terrain, large forest area and less cultivable land, infrastructural bottlenecks, insurgency and other factors have been responsible for the retardation in the process of development. Despite all these natural and geographical constraints, the state can definitely come up in the map of development and make a dent in to the situation with the fullest possible utilization of the tourism potential which the state posses. The large forest areas, existence of a widespread green belt, rich vegetation and lovely ponds and lakes etc. can really add to the values of eco–tourism, social and cultural tourism and religious tourism.

We have also observed that Tripura is well–endowed with vast forest cover, clean environment, lush green vegetation, diverse flora and fauna, rich natural beauty and cultural heritage. In addition, the state has rich treasure of diverse traditional culture, multi–ethnic society and widespread tourist spots, all these render Tripura a tailor–made tourist destination for attracting both domestic and international tourist. Thus, number of rivers and streams draining into Bangladesh, abundant reserve of sub–soil water, moderate climate, pollution free and eco–friendly environment etc. make Tripura a wonderful tourist place in India and in north–east region in particular. The state is endowed with natural treasure and natural beauty offer the scope for utilizing the rich potential for the development of tourism spots, destinations etc. The following places with rich cultural/ religious/ historical/ ethnical values deserve brief description.

A. UJJAYANTA PALACE :

This famous royal house stands at the heart of the capital city of Agartala within a covering area of one sq. km. which was built by Maharaja Radha Kishore Manikya in 1901. This palace has huge Mughal style gardens, magnificent tiled floors, crafted doors and beautiful pools and fountains. This palace of two storied mansion having a mixed type of architecture with three high downs has large tanks on the two sides is a central place of tourist attraction.

B. NEERMAHAL :

This place being 55 km away from Agartala was developed as a summer resort in 1930 by Late Maharaja Bir Bikram Kishore Manikya Bahadur in the middle of a natural lake known as Rudrasagar. With an area of 5.35 sq. km. A tourist lodge known as Sagarmahal was constructed on the bank of Rudrasagar lake. The domes of the palace represents a combination of Hindu and Mughal architecture and the western side of the palace having 15 rooms with a beautiful garden is known as Andermahal. The palace which is surrounded by a motor boat ghat with the facilities of water sports is also used for theatre, drama and other cultural activities.

C. DEVTAMURA :

This is located on the bank of river Gumti between Udaipur and Amarpur and is about 75 kms away from Agartala. This place has become an interesting place for the tourists because of the extensive range of hills between Amarpur and Udaipur and the multitude of images of Shiva, Ganesha, Vishnu, Kartika, Mahishasur–Mardini, Durga and other God and Goddesses carved on the hills facing river Gumti. This place in addition having the rowing facility has 37 rock cut images is the most beautiful place in the north–east region with such picturesque sculptures.

D. PILAK :

On the basis of rich tourism potential, the Government of Tripura has prepared a Master Plan for the development of tourism circuits covering the

major tourism destinations within the state. The local circuits having connectivity with those of the different states of north–east region. While planning for the development of viable tourist circuits the special requirement of the domestic and international tourists (consumers) and tourism products have been carefully analyzed. The regional tourist circuit for the north–east region and neighbouring SAARC countries have also been identified for establishing the complete network of tourists which would provide employment opportunities, and help in generating income for the poverty–ridden state. These circuits are:

i. Domestic Circuits:

a. North–West Circuit

- ✓ Agartala
- ✓ Gandachhera (Domboor Lake)
- ✓ Kailashahar
- ✓ Unokoti
- ✓ Jampui Hills
- ✓ Agartala

b. West–South Circuit

- ✓ Agartala
- ✓ Kamlasaghar
- ✓ Sipahijala
- ✓ Neermahal
- ✓ Udaipur (Matabari)
- ✓ Pillak
- ✓ Mahamuni
- ✓ Agartala

ii. North Eastern Circuit:

c. Kolkata

- ✓ Guwahati
- ✓ Shillong
- ✓ North–Tripura (Umakuti and Jampui)
- ✓ Agartala

d. Dhaka

- ✓ Agartala
- ✓ Shillong
- ✓ Guwahati
- ✓ Agartala
- ✓ Dhaka

e. Guwahati

- ✓ Shillong
- ✓ Agartala
- ✓ Dhaka

10.2. The Current Status Of Tourism Facilities In Tripura

The present status of tourism facilities provided by the government and the number of tourists both domestic and international can be perused from the following table:

Table–10.1 : Facilities for Tourism Under Public Sector

Sl. No.	Tourist Facilities	Number	Beds
1.	Tourist lodges	14	176
2.	Tourist cottages	2	12
3.	Yatri Niwas	2	64
4.	Yatsika	2	28
5.	Pantha Niwas	6	42

Source: Directorate of Economics and Statistics

Table 10.2: Tourist Number in Tripura

Year	Domestic	Foreign	Total
1996–97	202659	192	202851
1997–98	236119	806	236925
1998–99	237804	1194	238998
1999–2000	240036	1353	241389
2000–01	2420036	1353	243389
2001–02	257989	2564	260553
2002–03	258089	2360	260449

Source: Department of Information, Culture Affairs and Tourism, Government of Tripura, Agartala

It is evident from the above table that the tourism activity of the state has been continuously increasing since 1996–97 and because of the attractive tourist spots, tourist products and tourist sites the total number of tourists both domestic and foreign visiting Tripura have been increasing despite the problem of insurgency. Three important tourism information centres viz., Kolkata Tourist Information Centre, Tourist Information Centre at Agartala and Kolkata Airport are functioning for catering to the ever increasing needs of the tourists. Besides these centers tourism information are readily available from Tripura Bhawan New Delhi, Kolkata and Guwahati. The publicity material are regularly published and tourism festivals are regularly organized in the state for attracting the tourists. The Information, Cultural Affairs and Tourism (ICAT) Department of Tripura, has also developed a separate website for the proper marketing of tourism products for proper dissemination of information and tourism products. The department aims at establishing a two–way communication system for providing necessary information on various mutually beneficial aspects of the state and establishing understanding 'between the buyer and seller' based on truth, knowledge and quality information. We have already seen that because of severe infrastructure bottlenecks a large section of the society, particularly in the rural areas, has no access to the flow of information. In order to avoid the existing rural–urban bias in terms of easy accessibility of the flow of information the department has launched various plan schemes relating to tourism information and publicity which aim at spreading these activities at the grass root level of the rural areas through the involvement of panchayats and NGOs. This healthy development and expansion of information and tourism activities of the state at the decentralized level is not only of paramount significance for bridging the cultural gap among the ethnic and linguistic groups but it will also contribute to national integrity including emotional and cultural harmonization.

Having rich diversity and the vast treasure of nature's beauty the following potential areas of tourism products have been identified by the government for their sustained development:

10.3. Eco–tourism :

Tripura with rich flora and fauna, substantial forest base and cover can certainly benefit from the development of eco–tourism which would help in promoting tourism and generating sustainable employment opportunities in addition to preservation and conservation of the vast forest resources. The development of eco–tourism would not only help the state in integrating the wildlife centuries with tourism products but it will also open the opportunities of the expansion of commercial trade of forest products.

10.4. Village Tourism :

The villages of Tripura having natural beauty and diverse culture with 21 ethnic tribes provide an wonderful opportunity for the development of tourist spots which would help in the networking and exchange of cross–cultural ideas leading to overall socio–economic expansion of the villages for instance the clusters of village based collages in the severe environment of Jampui Hills with minimum facilities–health club, sports complex, small shopping complex, yoga centres etc, will certainly attract the eco–friendly tourist.

10.5. Religious Tourism:

The temples of Tripura located in different districts like Matabari, Umakoti, Pillak etc, may be marketed for the promotion of religious and pilgrimage tourism. With the active participation of the private sector a comprehensive package tour covering Matabari, Umakoti and other religious places can be developed in the form of a proper project for its effective marketing among the interested religious minded tourists.

10.6. Cultural Tourism:

Tripura possessing a multi–ethnic society and diverse culture may effectively utilize the historical monument for attracting the foreign tourist by developing the packages will suited the requirements of the clients. The cultural activities like folk dances of Reings, Garia, Jhum, Maimita, Masan Sumani and Lebang Boomani dances of Tripuri community; Biju dance of Chakmas; Cherew and Welcome dances of Lushai; Hai–hak of Malsum; Wangala of Garo; Sangralana, Chimithang, Padisha and Abhangma dances of Mog; Garia dances of Kalai and Jamatia communities; Gajan, Dhamate Sari and Ravindra dances of Bengali; Basanta Ras and Pung Chalam dances of Manipuris. Each community has its own traditional musical instruments. The important being Khamb (drum), Bamboo Flute, Sarikda, Do–Tara and Khen–Grong etc. can be of great help in providing a homely environment to the tourists who can relax, enjoy and admire the beauties of the nature.

10.7. Adventure Tourism:

The idea combination of hills, valleys and plains of Tripura provide splendid opportunities for developing the product of adventure and sport tourism. With necessary assistance from the Central Government and private sector participation, this specific product can be effectively marketed.

10.8. Heritage Tourism:

The variety of heritage sites like Vijayanta Palace, Neermahal, Matabari, Unakoti etc. can be properly used to develop the package of heritage tourism with adequate blending of heritage festivals organized in the state.

10.9. Highway and Border Tourism:

The national highway no. 44 cutting across the state and passing through beautiful valley and mountains of highway tourism with the facilities of way–side restaurants, hotels, rest houses, boating clubs, swimming pools

etc. The Indo–Bangladesh border also provides good opportunities to the state for attracting the international tourists through the proportion of border tourism.

10.10. Performance of Tourism Sector under the 9th and 10th Five Year Plan :

The Department of Tourism has spent the entire 9th Plan outlay of Rs. 5.77 crore for the creation of eco–tourism infrastructure like tourist lodge, public toilets, cafeteria, way–side amenities etc. in the state. Moreover, several tourist destinations have been revamped by the renovation of the old historical monuments and preservation of historical sites in the state. The state government has also provided Rs. 2.20 crore in the annual plan 2003–04 for giving a fillip to the development of the tourism sector recognizing the future potential and its contribution in the growth of the state economy a major chunk of plan outlay have been earmarked for this sector under the 10th Five Year Plan. The work plan of the ICAT Department under the tenth five year plan has the following broad objectives/ targets :

- To set up 5 Readers Corner, 10 Lokarajan Sakhas, 10 Community Sakhas, C.V. Centres to ensures better dissemination at the grass root level and to help revival of the traditional culture, to set up 4 (four) Dress Banks to encourage the villagers to organize cultural functions, Yatras and drama as well as to inspire the people in general to ensure participation in national building activities and programmes.
- To organize more cinema shows/ Video Shows, group talks, group meetings etc. with special stress in remotest and inaccessible areas of the state to relieve the people of the monotony of their daily life and to make them aware about the different development including welfare activities of the Government.

- To purchase more educative feature/ documentary/ children films for exhibiting the same through different Audio–visual units of the department and to produce feature/ documentary film including Video Cassettes covering different cultural and developmental activities.

- To provide mobile video projector units including jeeps/ projectors/ generators etc. in all the blocks, T.D. Blocks for extensive screening of news reels, documentary etc. in the remote areas. Strengthening of existing Audio–visual and Mechanical Workshop of the Department to cope with the increased volume of Department works.

- To provide at least one colour TV set in each of the information centres.

- To set up full–fledged public relations offices in all the blocks, procurement of lands and construction for office accommodation of district/ Sub–divisions/ Block level.

- To organize exhibition at Block, sub–divisions and state level as well as organization of exhibition in the different fairs and festivals, organization of exhibition outside the state (Inter–state or national level) and strengthening of state and district level–exhibition units. For mobility, 2 (two) vehicles to be procured.

- Erection of hoardings and display boards containing different messages in different areas of the state. Publication of advertisement and special supplement in local–outside newspapers on the plan, programme and achievement of the Government.

- To organize Film Festival (Feature/ documentary/ Children Film) at Block, sub–division and state level.

- To strengthen the existing photography unit and to set up Videography unit and colour laboratory with modern equipment and technical hands and to ensure better coverage of development and effective press coverage.

- To strengthen the publication unit to ensure regular publication of departmental newspapers in Bengali, English, Kakborak, Manipuri and Chakma languages in addition to publication of booklets and stickers etc. for effective dissemination of the Government ideas and decisions with modern equipment. To strengthen the existing News Bureau of the Department to meet the increasing demand of the local and outside press, News Agencies, A.I.R. and T.V.

- To strengthen the existing Research and Reference Library to ensure proper research and evaluation of the activities of the Department as a whole.
- To ensure organization of cultural programmes on well thought–out schemes throughout the state by the Cultural Unit of the Department, 2 vehicles would be procured.

- Financial assistance to voluntary organizations (Lokaranjan, Sakhas, Community Weaving Centres etc.) for improving the conditions of the rural and urban people.

10.11.SWOT ANALYSIS

Strengths :

- Rich bio–diversity with flora, fauna, forests and medicinal plants.

- Immense cultural diversity with multiple traditions.
- Powerful ethnic diversity.
- Varieties of village life.
- Agronomy.
- Water Bodies.
- Mountains, rolling Hills and valleys.

Weaknesses :

- Infrastructural bottlenecks.
- Inadequate flow of investment.
- Lack of suitable tourism marketing strategy.
- Slow progress in the development of the tourism sector due to the absence of suitable professional programme on tourism at the university/ college level.
- Complete absence of private sector participation.

Opportunities :

- Development and growth of international, national and regional integration through the attraction of domestic and international tourists.
- Development and growth of village tourism.
- Expansion of border trade.
- Greater scope for extensive participation in international trade fares/ exhibitions through the development and proper marketing of tourism products and services.
- Generation of additional employment opportunities and absorption of education manpower.
- Scope for group tourism.
- Expansion of hotels, motels, restaurants and resorts.
- Expansion of markets for herbal and medicinal products.
- Growth and expansion of adventure tourism.

Threats :

- Problem of law and order due to insurgency.
- Increased pressure on the carrying capacity of the eco–system in each tourist locality.
- Increased transport and construction leading to large–scale deforestation and change in land–use pattern.
- Increased tourist flow leading to increase in solid–waste dumping as well as depletion of water and fuel resources.
- Flow of tourists to ecologically sensitive areas leading to destruction of rare and endangered flora and fauna due to tampering, killing, destruction of breeding habitat.
- Possibility of aggravation of the problem of infiltration, smuggling and other anti–social activities.

10.12. Issues :

- To evolve the strategy of uninterrupted expansion of the infrastructure sector of the economy for connecting the villages with the urban areas and also the other states of the North–East region for realizing maximum benefit out of the potential of the tourism sector of the state.

- To develop and expand the tourism sector by recognizing its potential from the perspective of an industry and only then it will be subject to the free operation of the market process.

- To evolve the ways and means for connecting the tourism sector of Tripura not only with the other states of the North East region but also with the other countries of North–East like Nepal, Bhutan, Bangladesh, Myanmar and South West Asia.

- To evolve the mechanism of the active participation and involvement of the private sector with adequate dose of investment and technology for

the deciding upon the package of tourism products to be marketed and drawing the structure of optimal manpower planning.

- To evolve the strategy for the development of sustainable eco–tourism.

- To decide the framework of regulation and monitoring for minimizing the adverse effect on the environment.

- Expansion of the publicity department for promoting universal awareness and dissemination of information regarding the wide–range of tourism products and for the restoration of the lost image of the state.

- To contrive a broad based–tourism policy with a holistic approach so as to cover economic, social–political, cultural and religious dimensions.

- Adequate networking of the tourism sector with rest of the state economy through proper computerization.

- To evolve the design of public–sector, private sector partnership and environment–friendly community participation in the process of tourism development.

CHAPTER–XI

Development of STs, SCs and Women

11.1. Introduction

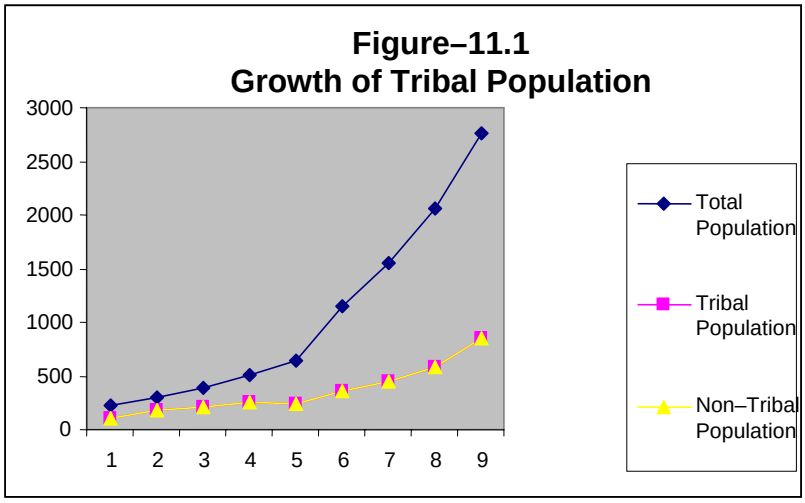
India presents a unique pattern of cultural and ethnic diversity. Indian people differ in their socio–cultural levels as well as in their behavioural patterns. A nation cannot develop properly unless the people of streets and backward areas are adequately empowered and developed. Indian society has been exposed to various socio–economic changes and legal initiatives over the last decade. The Constitutional provision of democratic governance and the policy of positive discrimination have affected the social fabric and economic structure of Indian society. However, Indian society is highly stratified with many glaring inequalities among the social groups. The caste system has segregated the scheduled castes, scheduled tribes and another weaker section (women) from the rest of the society to an extent that they were denied even the basic human rights that they must enjoy in order to ensure their existence. Moreover, absence of choice of occupation, access to education and entrepreneurship development and poor economic status have caused backwardness among the weaker sections of society. The introduction of Special Component Plan, Tribal Sub–Plan, Gender Budgeting and other budgetary components for empowerment and development of SCs, STs and women has, no doubt, positively impacted the socio–economic status of these historically disadvantaged classes. The perspective of social sector development in necessary for understanding the dynamics of socio–economic changes and evolving–out an action plan for empowerment of these weaker sections of Tripura society which is relatively backward in the north–east region.

Tripura was a tribal dominated, princely state when it was incorporated into the Indian Union in 1949. However, successive waves of migration of Bengali, Hindus and Muslims from Bangladesh (then East Pakistan) have reduced tribal population to a minority state. (Table–11.1)

Table 11.1 : Growth of Tribal and Non–Tribal Population

Year	Total Population ('000)	Tribal Population ('000)	Non–Tribal Population ('000)	Growth of Tribal Population (%)	Growth of Non–Tribal Population (%)
1911	230	111	119	18	45
1921	304	172	132	54	12
1931	382	203	179	18	35
1941	513	257	256	26	43
1951	639	238	401	7	59
1961	1142	360	782	51	92
1971	1556	451	1105	25	41
1981	2053	584	1469	30	33
1991	2757	853	1904	46	29

Source: Census of India, Various Publications



Presently, the state of Tripura comprises 31 per cent scheduled tribes population. Earlier, the proportion of scheduled tribes in the total population of the state was reported to be 64 per cent in 1874–75 and 53 per cent in 1901 and 37 per cent in 1951. Thus, there has been successive decline in the ratio of tribal population in the total population of the state. There are 19 tribal communities in the state as per 1991 census. Of which Tripuri (54.08 per cent), Reang (13.08 per cent), Jamatia (7.13 per cent), Chakma (11.26 per cent), Halam (4.28 per cent) and Mog (3.70 per cent), are the major tribal groups. The proportion of tribal population in the total population has been reported highest in Dhalai district (50.78 per cent) followed by South district (40.34 per cent), and West district (25.18 per cent). Even tribal

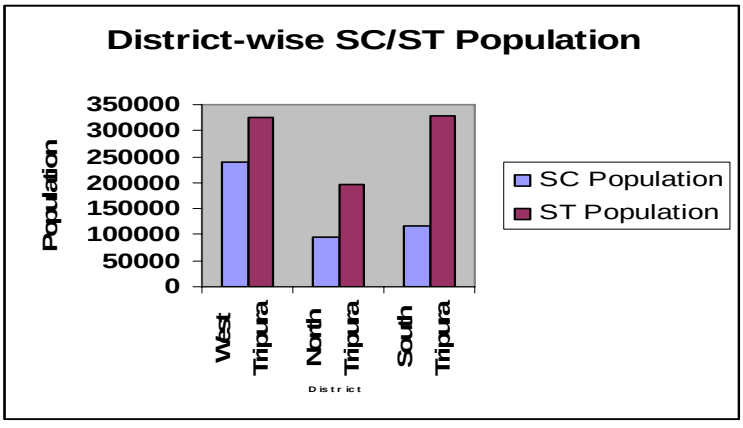
population concentration has been found in Gandachchera (82.24 per cent) and Amarpur (71.64 per cent), development blocks of South Tripura. According to 2001 census, tribal population of the state is 9.93 lakh (31.10 per cent). (Table–11.2)

Table – 2: Scheduled Castes and Scheduled Tribes Population and Its Composition in Population (1991 Census)

District/Block	Scheduled Castes		Scheduled Tribes	
	Population	Percentage	Population	Percentage
West Tripura	240201	18.56	325845	25.18
Sadar	148069	17.49	196452	23.20
Khewai	52268	19.17	109560	40.19
Sonamura	39864	22.83	19833	11.36
North Tripura	93829	13.46	197975	28.39
Dharmnagar	25773	8.59	70623	23.54
Kailashahar	33449	13.16	85201	33.53
Kamalpur	34607	24.46	42151	29.43
South Tripura	117086	16.29	329525	43.02
Udaipur	43287	20.65	51623	24.62
Amarpur	17512	11.09	113101	71.64
Gandachchera	3983	8.14	40227	82.24
Belonia	37049	16.06	61536	26.67
Sabroom	15255	12.84	63038	53.05
Dhalai	–	–	141739	50.78
Total	451116	16.36	853343	30.95

Source: Statistical Abstract of Tripura, 2001

Figure–11.2



According to 1991 census, scheduled castes population of the state is 4.51 lakh constituting 16.36 per cent of the total population of the state. The

proportion of scheduled castes population has been recorded highest in West district (18.56 per cent) and least in North district (13.46 per cent). According to 2001 census, the scheduled caste population of the state is 5.55 lakh which constitute 17.40 of the total population of the state. There are 32 communities which have been recognized as scheduled castes in the state. The OBC population is estimated to be around 3.2 lakh since OBC population constitutes roughly 10 per cent of the total population of the state.

During 1971–81, population grew by 31.92 per cent while growth of population among scheduled castes was recorded much higher i.e. 60.94 per cent while population of scheduled tribes grew by 29.60 per cent. During 1981–91, the growth of population was recorded highest among scheduled castes (45.34 per cent) and Scheduled tribes (46.14 per cent) as compared to the growth among general population. Thus, it is clear that there has been sharp increase of scheduled caste's population since 1951 while population of scheduled tribes' grew at slightly lower rate as compared to growth rate among general population.

Tribal population is mainly concentrated in rural areas and only 1.31 per cent tribals live in urban areas. The striking feature of scheduled caste population of the state is that they live interlinked with other communities in the same village dispersed all over the state. The social status of scheduled castes is relatively better in the state as compared to that of the scheduled castes in other parts of India. The atrocities and crimes against scheduled castes are nominal in the state.

11.2. Education :

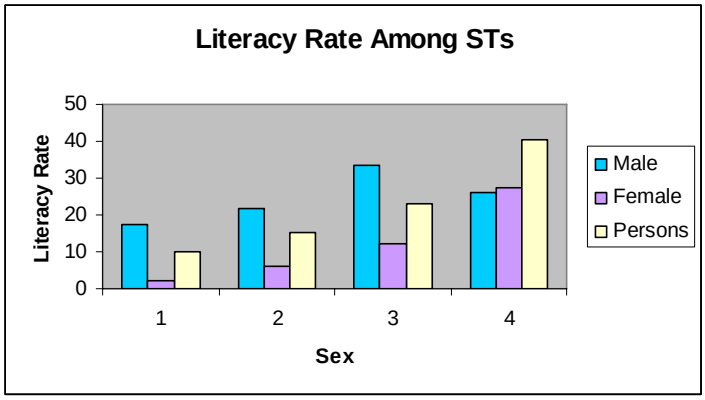
The tribal and scheduled castes population is backward in terms of educational development. During 1991, literacy rate among tribals was reported 40.38 per cent while literacy rate in general was recorded 60.44 per cent. (Table–3)

Table 11.3: Literacy Rates Among Scheduled Tribes (%)

Year	General Literacy			Literacy in Scheduled Tribes		
	Male	Female	Persons	Male	Female	Persons
1961	29.61	10.19	20.24	17.367	2.31	10.01
1971	40.20	21.19	30.98	21.60	6.04	15.03
1981	51.17	32.00	42.12	33.46	12.27	23.07
1991	70.58	49.55	60.44	25.88	27.34	40.38

Source : Draft Tenth Plan (2002–07), Government of Tripura

Figure–11.3



Moreover, there is wide gender disparity in education both in general population and tribal population. Only 27.34 per cent females of tribal communities were found literates or educated against the 49.55 per cent literate per educated females of general castes. Importantly, there has been a sharp increase in literacy rate among the tribal women since 1981. It is because of the fact that government emphasized on educational development of tribal women. The literacy rates among the tribals have been reported low in South Tripura (29.47 per cent) and North Tripura (38.65 per cent). Again, Gandachchara (19.40 per cent), Sabroom (26.15 per cent), Amarpur (28.12 per cent) and Belonia (31.56 per cent), where tribals are mainly concentrated, are educationally backward development blocks. (Table–11.4)

Table–11.4: Division/Sub–Division wise Literacy Rates in Scheduled Tribes (%)

District/Block	Literacy Rate (1991)		
	Male	Female	Persons
West Tripura	66.00	38.56	52.53
Sadar	66.35	38.27	52.56
Khewai	68.50	42.65	55.80
Sonamura	48.39	17.71	33.56

North Tripura	50.95	25.59	38.65
Dharmnagar	56.92	29.50	43.98
Kanchanpur	51.90	26.17	39.44
Kailashahar	52.68	17.06	40.15
Longtharai	44.49	18.71	32.00
Kamalpur	56.33	32.71	44.84
South Tripura	41.15	17.39	29.47
Udaipur	54.05	29.25	41.68
Amarpur	39.67	16.46	28.12
Gandachchera	30.07	8.21	19.40
Belonia	43.74	18.71	31.56
Sabroom	38.27	13.72	26.15
Total	52.88	27.34	40.37

Source: 1991 Census Data

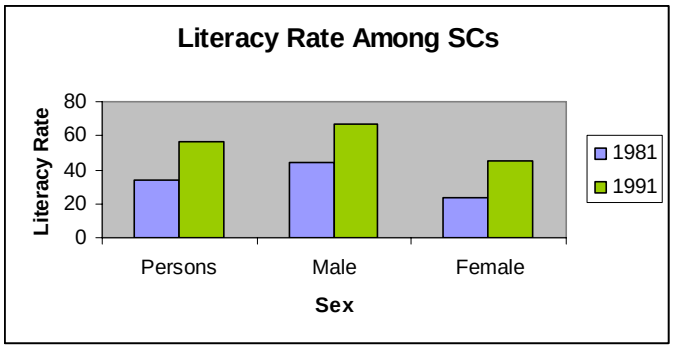
The literacy rate among scheduled castes has been reported 56.66 per cent as per 1991 census. Interestingly, gender disparity in education has been recorded high in case of scheduled castes population. Only 45.45 per cent females were found educated or literates against the literacy rate of 67.25 per cent among their counter–parts. (Table–11.5)

Table 11.5: Literacy Rates Among Scheduled Castes (%)

Particular	1981	1991
Persons	33.89	56.66
Male	43.92	67.25
Female	23.24	45.45

Source: Special Component Plan, Tripura, 2003

Figure–11.4



There has been a significant increase in enrollment of scheduled castes/scheduled tribes students at all levels. (Table–11.6)

Table 6: Educational Levels Among Scheduled Tribes/ Scheduled Castes Students

Level of Education	1999–2000	2000–01	2001–02
Primary/Jr. Basic School	165799	165890	172757
ST	94326	94424	89407
SC			
Middle/Sr. Basic School	40183	40230	45676
ST	30724	30764	34353
SC			
High School			
ST	17883	17913	20079
SC	12640	12667	14484
Higher Secondary School	3106	3144	4066
ST	4745	4761	5096
SC			
Graduation			
ST	1101	1176	1409

SC	2552	2842	2739
Post Graduation			
ST	NR	83	80
SC	–	189	182

Source: Directorate of School Education and Directorate of Higher Education, Tripura, 2003

However, drop out rates are higher in these social categories. Again, there has been high rate of drop–outs among scheduled tribes as compared to other social groups. About 66.58 per cent compared to other social groups. About 66.58 per cent in class I–IVth, 81.54 per cent in class I–VIIIth, and 88.14 per cent in class I to Xth scheduled tribes students drop their education while this rate was reported to be 49.49 per cent, 67.16 per cent and 80.41 per cent, respectively among the scheduled castes students. Thus, drop–out rates among scheduled tribes are higher than drop–out rates among scheduled castes and general population. (Table–11.7)

Table 11.7: School Dropout Rates Among Scheduled Tribes (1998–99)

(in Percentage)

Class/Category	Boys	Girls	Total
Classes I–Vth			
Overall	53.25	52.95	53.11
SC	50.57	42.28	49.49
ST	65.16	68.29	66.58
Classes I–VIIIth			
Overall	68.12	38.62	68.35
SC	65.31	69.22	67.16
ST	80.50	80.77	81.54
Classes I–Xth			
Overall	79.67	80.75	80.17
SC	79.39	81.56	80.41
ST	87.14	89.37	88.14

Source: Draft Tenth Plan (2002–07), Government of Tripura.

Importantly, the drop–out rates at primary education level in TSP area is 63.59 per cent against 50.60 per cent of the state. Though 60 per cent of junior basic schools of the state are located in TSP area, only one degree college exists in TSP area. Due to low level of literacy and education, their

participation in family planning programmes is low and they have large family size.

11.3. Occupational Structure :

The economy of Tripura is predominantly agricultural one. The scheduled castes and scheduled tribes are mainly engaged in the agriculture sector for their sustenance. Importantly, the proportion of workers to total tribal population, both male and female, decreased during 1961–1971. The fall was very heavy from 48.67 per cent to 9.58 per cent in the case of women. This was partly the result of significant changes in the tribal economy. Earlier, in their economy, which was based on shifting cultivation, women's role was very important. But gradually tribals adopted improved methods of cultivation and scope of women's participation in agriculture become limited. (Table–11.8)

Table–11.8: Occupation Classification of Tribal Population

Occupation	1961		1981	
	Male	Female	Male	Female
Cultivators				
Rural	88930	71129	104711	30408
Urban	2	–	32	–
Agricultural Labourers				
Rural	5864	2367	39993	20570
Urban	4	–	37	16
Livestock, Forestry, Fishing, Plantation, Orchards and Allied Activities				
Rural	1159	954	844	2825
Urban	33	1	1750	367
Household Industry				
Rural	437	9303	222	278
Urban	2	1	4	2
Manufacturing other than Household Industry				
Rural	201	208	–	–
Urban	33	18	–	–
Constructions				

Rural	33	14	–	–
Urban	41	–	–	–
Trade & Commerce				
Rural	306	93	–	–
Urban	30	–	–	–
Transport, Storage and Communication				
Rural	95	–	–	–
Urban	71	–	–	–
Other Services				
Rural	3140	727	–	–
Urban	19	79	–	–

Source: Chakravorthy, M. India's North East (ed.) by R.K. Samant, B.R. Publications, Delhi, 2002, pp. 187–190.

It is also to be noted that number of tribal agricultural labourers has been rising. Tribal's participation in occupations like construction work, trade and commerce, transport, storage and communication has been insignificant. However, they have own indigenous system of storage, transport and communication which the census data does not take into account. Importantly, tribal's economy is built from agriculture which is mainly rain–fed and shifting cultivation. The tribal farmers constitute about 30 per cent of the farming communities and control 37 per cent of the agricultural holdings. (Table–11.9)

Table–11.9: Operational Land Holdings of Scheduled Tribes (1990–91)

Particular	North	West	South	State
Owned & Self Operated				
Total No. of holding	18837	38210	25866	82913
Area (in hectare)	24986	42385	27503	94874
Leased in				
Total No. of holdings	3083	7010	11576	21669
Area (in hectare)	297	591	509	1397
Otherwise operated				
Total No. of holdings	6610	18874	28603	54087
Area (in hectare)	4269	17691	19864	41819
Total				
No. of Actual Holdings	22646	50928	43537	117111
Area (in hectare)	29529	60667	47876	138072

Source: Economic Survey, 2001–02, Government of Tripura

However, the agricultural productivity is low due to shifting cultivation, indigenous mode of cultivation, use of less quantity of fertilizers, manures, chemicals etc. The Jhumia tribal families account for about 40 per cent of total tribal families in the state. Apart from the practice of shifting cultivation, the main problem related to agriculture is lack of cultivable land and poor irrigation facilities. The numbers of operational holdings as per 1990–91 Agriculture Census, 36 per cent holdings are of tribals. The average size of land holding has been computed to be 1.18 hectare. It was reported slightly higher in North district (1.30 hectare) followed by West district (1.19 hectare).

During 1981, 64.03 per cent workers of scheduled castes were cultivators as against 43.57 per cent workers of general population were reported to be agricultural labourers during 1981. Thus, it is clear that scheduled caste population is depending mainly on agriculture for their sustenance.

The labour force participation situation in Tripura demonstrates that males are more economically active (78.6 per cent) as compared to females (11.12 per cent). Out of total population, 45.1 per cent were workers in 1999–2000 while it was reported much higher in case of males as compared to females. (Table–11.10)

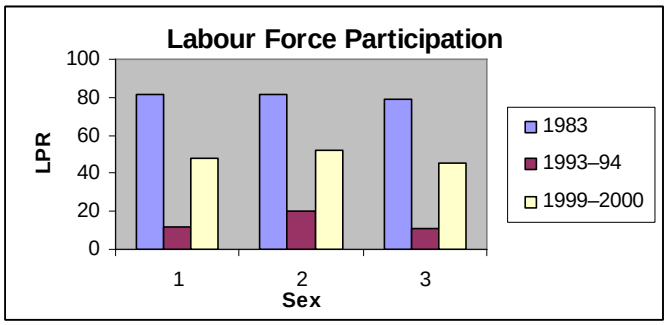
Table–11.10 : Labour Force Participation

(Percentage of Population)

Particulars	1983	1993–94	1999–2000
Males	81.2	81.7	78.6
Females	11.5	20.5	11.2
Persons	47.6	51.9	45.1

Source: Statistical Abstract of Tripura, 2001

Figure–11.5



Relatively speaking, there has been decline in the rate of labour force participation during 1983–1999–2000. There is decline of 0.3 percentage points in the workforce participation rate among the females. There has been sharp decline in the growth of employment during 1993–94 to 1999–2000 as compared to the period of 1983 to 1993–1994. (Table–11.11)

Table 11.11: Growth of Employment

(Percent)

Particulars	Male	Female	Persons
1983 to 1993–94			
Combined	3.3	10.4	4.3
Rural	2.9	10.6	3.9
Urban	5.7	9.4	6.3
1993–94 to 1999–2000			
Combined	2.7	–5.5	1.4
Rural	2.7	5.7	1.4
Urban	2.5	–4.6	1.3

Source: Statistical Abstract of Tripura, 2001

Thus, it is clear from the data that during the reforms period, there is slow growth of employment. Again, there has been high rate of growth in employment among females (10.4 per cent) as compared to the growth rate of employment in their counterparts during 1983 to 1993–1994. However,

during 1993–94 to 1999–2000, there has been negative growth rate of employment among females while growth rate of 2.7 per cent was recorded in case of males.

Out of total persons registered in live registers of employment exchanges, 62.70 per cent are males while 37.30 per cent are females. Again, out of total persons registered on live registers, 16.25 per cent and 15.21 per cent are scheduled tribes and scheduled castes, respectively. Thus, the share of scheduled tribes in registered unemployed youth has been reported low as compared to their share in population. (Table–11.12)

Table 11.12: Persons Registered in Live Registers of Employment Exchanges

Particular	As on 31–3–2002	During 2001–02
Male	229612 (62.70)	19333
Females	136595 (37.30)	9684
Total	366207 (100.00)	29017
Scheduled Tribes	59520 (16.25)	8177
Scheduled Castes	55699 (15.21)	4502

Source: Statistical Abstract of Tripura, 2001

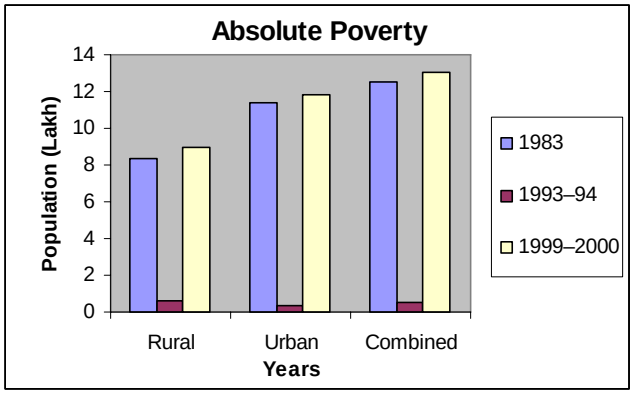
During 1999–2000, 13.02 lakh persons were reported to be living below the poverty line. Thus, more than one third population i.e. 34.44 per cent were living below the poverty line. (Table–11.13)

Table 11.13: Absolute Poverty Levels and Poverty Ratio

Particular	1983	1993–94	1999–2000
Rural			
Persons (Lakh)	8.35	11.41	12.53
Percentage	42.60	45.01	40.04
Urban			
Persons (Lakh)	0.60	0.38	0.49
Percentage	21.73	7.73	7.47
Combined			
Persons (Lakh)	8.95	11.79	13.02
Percentage	40.03	39.01	34.44

Source: Statistical Abstract of Tripura, 2001

Figure–11.6



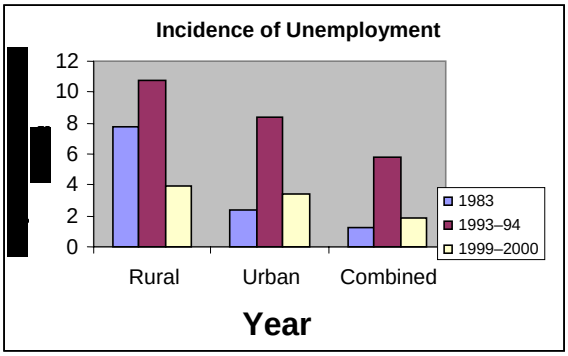
Poverty is more pronounced in rural areas (40.04 per cent) as compared to urban area (7.47 per cent). During 1999–2000, incidence of unemployment was reported 1.9 per cent while it was 3.9 per cent in 1983. Thus, during 1983–1999–2000, the incidence of unemployment has declined sharply. (Table–11.14)

Table 14: Incidence of Unemployment (As proportion to Labour Force)

Year	Male	Female	Persons
1983	2.1	17.7	3.9
1993–94	2.2	8.4	3.4
1999–2000	1.6	4.5	1.9
Rural			
1983	1.4	14.7	7.8
1993–94	1.5	6.4	2.4
1999–2000	0.9	3.6	1.2
Urban			
1983	6.8	29.0	10.8
1993–94	5.9	17.6	8.4
1999–2000	5.3	8.7	5.8

Source: Statistical Abstract of Tripura, 2001

Figure–11.7



Unemployment rate is more pronounced in urban areas (5.8 per cent) as compared to rural areas (1.2 per cent).

11.4. Housing Conditions :

The housing conditions in the state are found to be poor. Most of the houses are *kachcha*, having bamboo–based structure. The sanitation situation in the state is also pathetic, since most of the tribals do not have toilet facility. Again, a wide disparity in toilet facility has been reported in the state in terms of access to toilets facility by SCs and STs and general population. Despite constant efforts of state government, the tribals have poor access to safe drinking water sources and most of the tribal families are dependent on unsafe water sources. Even, most of the tribal households do not have electric facility in their houses. Thus, the housing conditions as shown in table–11.15 indicate a wide disparity and poor access of disadvantaged classes to the basic facilities.

Table 11.15 : Housing Conditions in Tripura (%)

Particular	Combined	SC	ST
Pacca Houses (1993-94)			
Rural	1.80	–	–
Urban	24.30	–	–
Semi–pacca Houses (1993–94)	16.30	–	–
Rural	26.40	–	–
Urban			
Katcha Houses (1993–94)			
Rural	81.90	–	–
Urban	49.30	–	–

Toilet Facility (1991)			
Rural	62.43	72.09	36.02
Urban	96.32	92.31	94.42
Combined	67.93	75.26	37.24
Safe Drinking Water (1991)			
Rural	36.60	35.91	16.83
Urban	71.12	62.80	77.27
Combined	37.18	40.04	18.10
Electricity Facility (1991)			
Rural	28.50	28.63	16.77
Urban	80.43	60.95	88.84
Combined	36.93	33.70	18.27

Source: National Human Development Report, 2001, Planning Commission, Government of India, Delhi.

11.5. Economic Development Scheme :

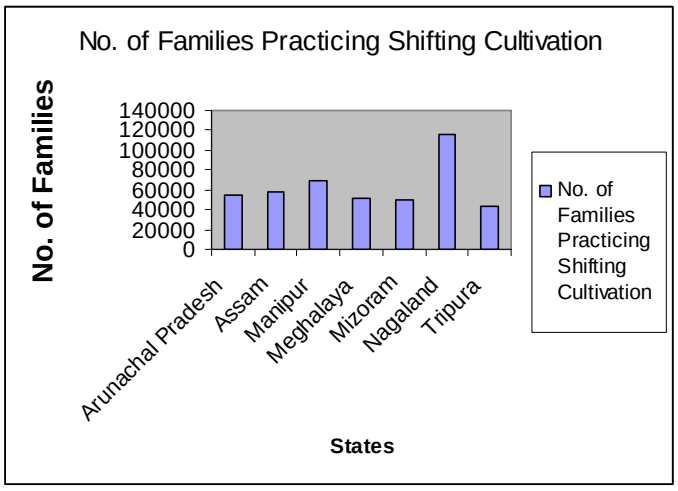
Tripura is a hilly state in the north–eastern region and its economy is predominantly agricultural one. The inhabitants of Tripura are mainly Bengali and tribals (Tripuri, Reang, Jamatia, Noatia, Halam, Chakma, Mog, Kuki, Lushai and others). About 58 per cent of state's land is under forest cover. Only one fourth of the area is under agriculture while tribals mainly practice shifting cultivation which constitute about half of total land area under cultivation. Though, this proportion is said to be declining in favour of settled agriculture. It is estimated that 223 square kilometer area is under shifting cultivation annually while 43,000 tribal families are practicing shifting cultivation. (Table–11.16)

Table–11.16: Shifting Cultivation in North–East Region

State	Annual Plan Under Shifting Cultivation (Sq. Km.)	Fallow Period (in years)	Minimum Area Under Shifting Cultivation One or Other (Sq. Km.)	No. of Families Practicing Shifting Cultivation
Arunachal Pradesh	700	3–10	2.100	54000
Assam	600	2–10	1.392	58000
Manipur	900	4–7	3.600	70000
Meghalaya	530	5–7	2.650	52290
Mizoram	630	3–4	1.890	50000
Nagaland	190	5–8	1.913	116046
Tripura	223	5–9	1.115	43000
Total	3869 (1.5 per cent)	–	14.660 (5.7 per cent)	443336

Source: Task Force on Shifting Cultivation, Ministry of Agriculture, 1983.

Figure–11.8



Interestingly, tribals are allowed to practice 'Jhum cultivation' (shifting cultivation) in the forest area till they are settled or rehabilitated. Special projects have been taken up for rehabilitation of 'Jhumias' inside the preserved forests. It is estimated that 102 lakh acre of forest land is under agricultural use, mainly shifting cultivation. Most of the Jhumias reside in the forest area. The quantum of non–forest land is very insufficient to rehabilitate the Jhumias outside of the forest land.

Jhumia Rehabilitation Programme is one of the important economic development programme of the Department of Tribal Welfare. During 1998–2002, a total of 4529 families have been settled through plantation programmes which amounted Rs. 1140.61 lakh as total investment. Importantly, 195 families have been covered by coffee plantation at Hmunpui and Daschim Hmynpui, Beliang chip, Vanghenun, Thlakshi and Joshmura. The total amount spent on coffee plantation is Rs. 30.88 lakh. Moreover, 652 families with Rs. 119.13 lakh have been provided grants for plantation of horticulture–based rehabilitation programme. Horticultural plantation has been taken up at 11 major locations. Importantly, 469 families have been taken up for rehabilitation through tea plantation programme at a cost of Rs. 172.24 lakh at 18 major locations.

The Block Plantation Approach (BPA) introduced in the state has emerged as a good example of government initiative where the cohesive development of the rubber sector has resulted in the economic empowerment of tribals mainly engaged in shifting cultivation. It is to be noted that growth of natural rubber plantation has been one of the success stories of the state. The state is second largest producer of rubber after Kerala. Currently, rubber plantation is one of the principal sources of sustenance and earnings for tribals in the state. During 1997–98, 43 rubber holdings with 3190 hectares of land and average yield of 354 kg/hectare were reported. (Table–11.17)

Table–11.17: Rubber Production Under TFDPC Ltd. (1997–98)

District	No. of Rubber Holdings	Area Under Production (hectare)	Average Yield (Kg/hec.)	Annual Production (quantity in '000 Rs.)		
				Rubber Sheet	Latex	Scrape
West Tripura	15	1049	970	873.4	–	42.3
North Tripura	11	636	765	404.5	–	82.5
South Tripura	16	1479	740	427.6	426	242.8

Dhalai	1	26	1065	22.2	–	5.5
Total	43	3190	3540	1727.7	426	373.1

Source: www.tripurainfo.com/rubberproject

Rubber plantation is taken up through Rubber Board, Tripura Forest Development Plantation Corporation (TFDPC) and District Administration. Several studies indicate the potential of increasing the area under rubber plantation to about 110 lakh hectare in the state. In view of its potential, Government has initiated programmes to increase the area under rubber plantation with assistance from Central Government, the Rubber Board and World Bank. It is expected that rubber production would improve from current level of about 5000 metric tones per annum to about 20,000 metric tones. The impact of rubber plantation project has been in terms of sustainable livelihood to tribal community, substantial income generation and employment generation to shifting cultivators besides its economic gains to the state. The success of Block plantation in Tripura has encouraged the state to pursue a similar model of development in the plan period.

State government has also reviewed Rs. 500.00 lakh under 'Non–Lapsable Pool' by Planning Commission for rubber plantation, establishing rubber promoting facilities, construction of market stalls and coaching centres for Madhyamik dropout students. Importantly, Jhumia Colonies, small infrastructure activities like culvert, brick–soiling of roads, drinking water, community halls etc are taken up for successful implementation of Jhumia Rehabilitation Programme. During 1998–2002, a total of Rs. 102.14 lakh were spent for these activities. Again, 34 families have also been provided financial support for purchase of land while 138 families have been provided Land Restoration Assistance for a total of Rs. 13.92 lakh during 1998–2002. Landless poor tribals are also provided support for income generation under Broiler scheme. Importantly, under family orientation scheme, 1319 families were financially supported during 1998–2002. 15 special Area–Based Development Projects have been taken up in all the districts for integrated development of the area.

11.6. Tribal Sub–Plan :

A special strategy was adopted during Fifth Plan for accelerated development of the scheduled tribes. This strategy is called Tribal Sub–Plan (TSP). It is a mechanism under which each development department of state Government is required to quantify and set apart an amount of their plan budget provision for implementation of schemes exclusively for the development of scheduled tribes. There is provision of 31 per cent plan outlay earmarking for tribal development under TSP. (Table–11.18)

Table–11.18: Tribal Sub Plan as Percentage of State Plan in Tripura

Plan Period	Percentage
Fifth Plan	20.59
Sixth Plan	31.42
Seventh plan	31.62
1990–91	37.13
1991–92	31.27
1992–93	36.58
1993–94	36.05
1994–95	30.60
1995–96	28.52
1996–97	31.00
1997–98	28.81
1998–99	27.38
1999–00	–
2000–01	31.12

Source: TSP for the 10th Five Year Plan (2002–07)
Govt. of Tripura

In 1995–96, a decision was taken by the State Government to the effect that the fund earmarked as TSP should be looked against the budget demand of the Tribal Welfare Department and the Development Departments would implement schemes and incur expenditure on obtaining administrative approval from the Tribal Welfare Department. The TSP includes schemes for providing common benefits to the scheduled tribes and for individual benefit to Scheduled Tribes families for the improving standards of life. Construction of roads, market sheds, seasonal bandh, barrage, extension of electric line, sinking of tube–well, establishment of school/community hall, minor

irrigation schemes etc. are schemes for providing common benefit while settlement of shifting cultivators through plantation crops such as rubber, tea, coffee, horticulture, agri–based industries, assistance for broiler scheme, assistance for purchase of land, assistance for income generation, family–oriented schemes, etc are being implemented.

There has been constant increase in the allocation of funds under TSP. (Table–11.19)

Table 19: Flow of Funds TSP From State

(Rs. Lakh)

Year	Outlay		Expenditure		Percentage
	Sixth Plan	TSP	State Plan	TSP	
1985–86	8600	2833.18	9375.51	2833.18	30.22
1986–87	10500	3361.63	11506.08	3602.16	31.31
1987–88	12600	4280.74	13546.16	4326.92	33.01
1988–89	14400	4755.85	17009.79	5106.19	30.02
1989–90	16700	5378.26	17263.31	5234.24	30.32
Total 7th Plan	62700	20609.63	68670.85	21102.69	30.73
1990–91	20000	7025.72	19460.67	6172.35	31.72
1991–92	22000	7062.24	22876.79	7035.17	30.75
Annual Plan 1990–92	42800	14089.96	42336.86	13207.52	31.19
1992–93	22000	6600	21793.27	6558.39	30.09
1993–94	21802	7200	22418.20	7159.33	31.93
1994–95	24466	8875.02	25743.43	8125.12	31.56
1995–96	29839	9517.66	30125.25	8620.82	26.61
1996–97	34691	103.27.89	24691.00	10797.87	31.12
Total 8th Plan	132798.60	42320.57	134771.75	41261.53	60.61
1997–98	40718	1259372	40885.71	12547.69	30.69
1998–99	37900	12051.75	39032.05	12691.99	32.52
1999–2000	43700	14564.12	44504.90	14574.46	32.74
2000–2001	42260	15760.93	47342.80	14284.04	30.17
2001–2002	48969.06	15247.18	52267.14	14118.07	27.01
Total 9th	213547.	70217.7	224032.6	68216.2	30.44

Plan	06	0		5	
2002–2003	60011.50	–	58466.75	16155.16	17.03
2003–2004	64938.54	13804.02	–	–	–

Source: Tribal Sub–Plan (2002–07), Government of Tripura

However, there has been declining trend in composition of TSP against total outlay of state plan. Even, fluctuating trends have been noticed during 1985–86 to 2003–04. The share of TSP against outlay of State Plan has been reported highest in 1987–88 (33.01 per cent) while it declined to 27.01 per cent in 2001–02. Overall, the share remained slightly low as compared to population share of tribals. Again, there has been low expenditure under TSP against the allocation of funds. Thus, it is clear that allocated funds are not being utilized timely. There has been substantial central assistance to TSP in the State. However, the unspent balance has grown substantially over the period. Importantly, release of grants under Article 275(1) of Indian Constitution has grown many folds during 1995–96 to 2002–03. It is to be noted that TSP as percentage of State Plan in the State has increased from 20.59 per cent in Fifth Plan to 37.13 per cent in 1990–91 and declined to 21.26 per cent in 2003–04. (Table–11.20 & 11.21)

Table 11.20: Central Assistance to TSP in Tripura

(Rs. Lakh)

Year	Amount Released	Expenditure Reported	Unspent Balance
1995–96	564.97	588.55	23.58
1996–97	594.48	671.32	76.84
1997–98	885.00	835.00	50.00
1998–99	977.77	791.77	186.00
1999–2000	831.57	1067.57	236.00
1995–2000	3964.21	102.61	100.42
2000–01	831.57	–	–
2001–02	1041.83	–	–
2002–03	1041.83	–	–

Source: Tribal Sub–Plan (2002–07), Government of Tripura

Table–11.21: Release of Grants Under Article 275(1) of the Constitution in Tripura

(Rs. Lakh)

Year	Amount Released	Expenditure Reported
1995–96	93.75	93.75
1996–97	93.75	93.75
1997–98	231.25	0.00
1998–99	162.50	331.00
1999–2000	124.74	124.74
1995–2000	705.99	643.24
2000–2001	287.50	–
2001–2002	462.50	–
2002–2003	590.00	–

Source: TSP (2002–07), Government of Tripura

11.7. Tripura Tribal Areas Autonomous District Council :

Under the Sixth Schedule of Indian Constitution, State Government of Tripura has established Tripura Tribal Areas Autonomous District Council in 1982. It has legislative powers on subjects entrusted to it and performs several executive functions. The TTAADC is running 1362 primary schools and 2 regional schools with enrolment of 1.10 lakh students. The social education centres (476) are also run by the TTAADC. It is also in–charge of village roads with length of 1500 km and maintenance of 74 bridges. The population of the District Council is constituted 29 per cent of the total population of the state while the geographical area constituted 76.98 per cent of the land area of the state. The salient feature of the Council is that extends to all the four districts of the state. Overall, 526 villages fall under its jurisdiction while about 6.62 lakh tribals and 0.57 lakh scheduled castes live in the ADC area which mainly practice shifting cultivation. It has 4650 employees while 3833 employees are being deputed from other state departments. It is expected that salary expenditure of its employees during 2004–05 to 2009–10 will be Rs. 33981.74 lakh.

11.8. Special Component Plan :

The Special Component Plan strategy for the welfare of scheduled castes introduced during the Sixth Plan Period is a special device under which various development Departments of the State Government are required to quantify and set apart an amount of their own plan budget provision for various welfare activities of the scheduled castes in socio–economic and cultural spheres. Department of Welfare for Scheduled Castes has been declared as the Nodal Agency and is responsible for coordinating the activities under Special Component Plan. In order to ensure proper utilization of the plan funds, State Government has issued specific directions to various departments regarding allocation and utilization of funds. The State Government has identified 298 villages having scheduled castes population concentration. These villages are being developed under Special Component Plan. During 1997–98 to 2001–02, Rs. 934.07 lakh were released under Special Component Plan and Rs. 882.84 lakh were utilized. The total Special Component Plan outlay of the State for the year 2002–03 was Rs. 65.35 crore as against a total State Plan outlay was earmarked under Special Component Plan. The allocation under Special Component Plan for the year 2003–04 has been reported to be just 7.01 per cent only. (Table–11.22)

Table–11.22: Special Component Plan

(Rs. Lakh)

Year	Released	Utilized
1997–98	106.28	106.50
1998–99	108.72	102.99
1999–2000	159.14	164.87
2000–2001	476.48	476.48
2001–2002	83.45	32.05
Total	934.07	882.84

Source: Special Component Plan, Government of Tripura, 2003–04

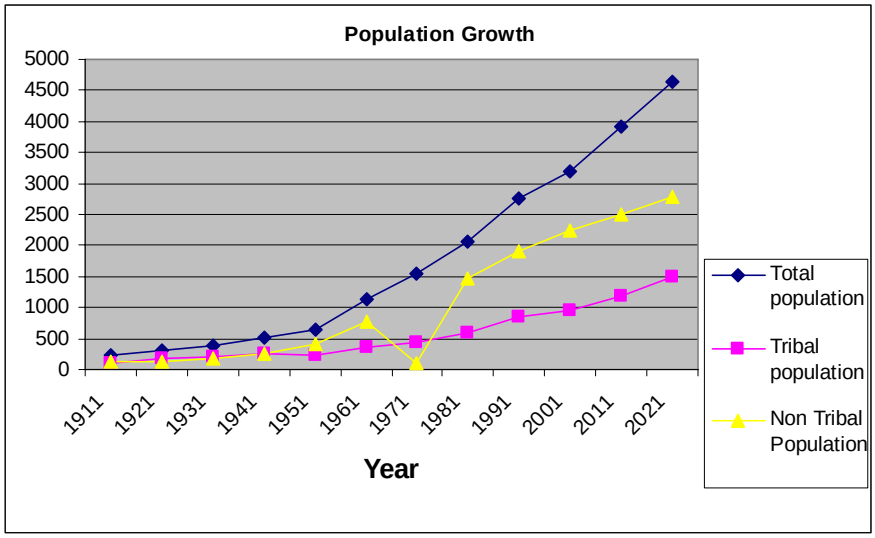
11.9. State Perspective :

An attempt has been made to present state perspective for 2007, 2012 and 2020. However, due to lack of sufficient data and information, the visualization of scenario for the said years could not be properly made. With whatever statistics is available, it has been analyzed systematically. Population is basic criteria for assessing the revenue, expenditure and economic growth. The population growth has been given in table–11.23. It is estimated that by the year 2021, the population of state will be 41.53 lakh while tribal population will account for 10.79 lakh constituting 25.48 per cent in the total population.

Table–11.23 : Growth of Tribal Population in Tripura

Year	Total population (‘000)	Tribal population (‘000)	Non–Tribal Population (‘000)
1911	230	111	119
1921	304	172	132
1931	382	203	179
1941	513	257	256
1951	639	238	401
1961	1142	360	782
1971	1556	451	1105
1981	2053	584	1469
1991	2757	853	1904
2001	3191	880	2311
2011	3679	980	2699
2021	4153	1079	3074

Figure–11.9



A. Educational Development :

Government of Tripura has launched several educational development schemes for scheduled castes, scheduled tribes and other backward class. These schemes mainly include (1) Boarding House Stipend; (2) Pre–Metric Scholarship; (3) Post–metric partnership; (4) Book Bank; (5) Merit Award to meritorious students; (6) Coaching for Madhyamik Pluck Students; (7) Hostel scheme; (8) Coaching and Allied Scheme; (9) Pre–induction Training for recruitment for Army and Paramilitary; (10) vocational training scheme etc. These schemes are mainly sponsored by Central Government while state has also contributed significantly in implementation of the schemes. During last five years i.e. 1997–98 to 2001–02, there has been significant increase in allocation and number of students belonging to scheduled castes and scheduled tribes. However, trends show fluctuation in both allocation and number of students benefited. (Table–11.24, 11.25 and 11.26)

Table–11.24: Educational Development Among Scheduled Tribes

Particular	1998–99	1999–2000	2000–01	2001–02
Boarding House Stipend Scheme Students Amount (Rs. Lakh)	8405 335.58	8100 355.54	8991 396.09	10266 461.95
Pre–metric Scholarship				

Students Total Amount (Rs. Lakh)	54667 233.35	56562 227.58	56409 243.91	64654 229.45
Post–metric Scholarship Scheme Students Amount (Rs. Lakh)	 2187 20.12	 2123 46.55	 1995 29.94	 3208 85.02
Merit Award Students Amount (Rs. Lakh)	 2168 11.03	 2047 14.72	 2239 14.72	 2596 18.52
Free Tax Books Scheme Students Amount (Rs. Lakh)	 164124 121.36	 171392 147.00	 177248 100.18	 178500 180.91
Special Coaching Centre for Madhyamik Failed Students Students Pass (%)	 1309 40	 1423 56	 1813 52	 1031 –
Book Bank Institution Amount (Rs. Lakh)	 4 2.3	 4 2.08	 3 1.02	 3 2.0

Source: Annual Report, MOSJ&E, Government of India, 2002–03

Table–11.25: Educational Development Schemes For Scheduled Castes

Particular	1997–98	1998–99	1999–2000	2000–01	2001–02
Scheme of Hostels (Rs. in Lakh) For SC Boys For SC Girls	20.0 –	10.0 10.0	10.0 10.0	– 22.05	18.58 9.49
Upgradation of Merit For SCs (Rs. Lakh)	1.05	2.10	3.00	1.20	1.20
Coaching and Allied Scheme for SCs (Rs. Lakh)	7.16	–	0.67	–	11.15
Book Bank Scheme (Rs. Lakh)	1.91	3.29	3.30	1.68	1.86
Post–metric Scholarship (Rs. Lakh) Students	 – 4737	 59.34 7240	 136.82 8055	 141.20 9499	 138.71 7122

Pre–metric Scholarship of SC Children					
Rs. Lakh	1.69	2.91	2.02	2.02	2.45
Children	3898	4073	4058	4211	4234

Source: Annual Report, Ministry of Social Justice and Empowerment, Government of India.

Table–11.26: Amount Released Under Girls and Boys Hostels in Tribal Areas of Tripura

Year	Girls Hostel		Boys Hostel		Ashram Schools	
	Amount (Rs. Lakh)	Number	Amount (Rs. Lakh)	Number	Amount (Rs. Lakh)	Number
1995–96	19.44	2	38.38	4	38.38	2
1996–97	34.04	2	31.41	2	93.46	1
1997–98	17.3	–	15.25	1	93.46	1
1998–99	51.64	1	35.86	1	85.44	1
1999–2000	–	–	103.7	5	50	1
2001–02	10	1	40	2	50	1
2002–03	–	–	–	–	–	–

Source: Annual Report, 2002–03, Ministry of Social Justice and Empowerment, Government of Tripura

There are substantial improvements in educational development among tribals due to gradual increase of budgetary allocation and number of beneficiaries. However, potential development demand development of modern education for scheduled castes and scheduled tribes so that tribals and scheduled castes may be educationally developed and join the national mainstream. Again, women–specific programmes need focus of planning while effective and efficient administration of educational schemes and programmes are called for educational development of other backward classes, a number of schemes have been launched by the Ministry of Social Justice and Empowerment, Government of India. These schemes include pre–metric scholarship, post–metric scholarship, hostel facilites, pre–examination coaching facilities, assistance to voluntary organizations for welfare of backward classes, National Backward classes Finance and Development Corporation, etc. In the State of Tripura, Rs. 197.19 lakh were released by the Ministry under Pre–metric scholarship during 1998–99 to

2000–01. Again, Rs. 58.00 lakh were released under post–metric scholarships for backward class students for studies. Only Rs. 10.00 lakh were released to maintain hostel for backward classes boys and girls during 2000–01. The NBCFDC also contribute towards share capital of the State Corporation for the educational and economic development of OBC's. All these schemes are essential and need to be continued with certain improvements and on a larger scale. It is also advisable that State Government too should adopt this vision and approach and structure and the budget accordingly.

Women of Tripura constitute 0.32 per cent of Indian women. However, their relative share in development projects has been found to be low (Table–26). However, STEP, and Stay Home Projects were found more in the state as compared to women's relative share in population. The Government of India as well as State Government has launched a number of projects and programmes for the empowerment of women. These programmes are related to educational development, wealth and nutrition, family welfare, labour and employment, income generation, support services etc. The progress of these programmes in the state is shown in table 27. The main schemes are Swayam Sidha, STEP, ICDS and Creche etc. The proper functioning of these programmes as well as additional resource allocation are needed to be ensured on part of government.

Table 11.27 : Relative Share of Projects on Women Empowerment in Tripura

States	Percentage share of total population	Percentage share of Projects				
		Working women's Hostel	Short Stay Home	Women's EC Programme (NORAD)	STEP	Crèches
Arunachal Pradesh	0.1	1.04	0.58	–	–	0.78
Assam	2.6	1.74	2.65	0.53	–	1.56
Manipur	0.21	1.39	2.65	4.4	5.2	1.92
Meghalay	0.2	0.34	–	–	–	1.37

a						
Mizoram	0.08	0.34	–	–	–	1.14
Nagaland	0.14	1.04	0.88	0.26	3.12	0.3
Tripura	0.32	0.23	1.17	0.08	3.12	1.33

Source: Working Group on Empowerment of Women Report, Planning Commission, Government of India, Delhi, 2001

Table–11.28 : Women Empowerment Programme inTripura

Particular	**No./Amount**
Swayam Sidha Scheme Grants Released (2000–04) (Rs. Lakh)	22.41
No. of Blocks Allocated	3
No. of SHG's formed	267
STEP scheme	
No. of Projects (2001–04)	1
No. of Beneficiaries	840
Grants Released (Rs. In lakh) (2001–02 to 2003–04)	160.71
No. of Hostels (2004)	1
Total working women living in hostel	50
No. of ICDS Projects operational	39
Aganwadi Centres	
Sanctioned	3786
Operational	3692
No. of KSY Blocks Sanctioned	16
No. of crèches sanctioned	174
No. of Beneficiaries under the scheme	4350

Source: Annual Report, 2003–04, Department of Women & Child Development, Ministry of Human Resource Development, Government of India, Delhi.

B. Economic Development :

Government of Tripura has launched several schemes and programmes for economic development of tribals and scheduled castes and OBCs. These programmes and schemes mainly include (1) rehabilitation of Jhumia's through horticulture, plantation crops such as rubber, tea, coffee; (2) land purchase scheme; (3) Restoration Assistance; (4) Broiler/Layer Scheme; (5) Family oriented Programme; (6) Share Capital; (7) Income Generating Schemes\ on non–rubber through Development units of World Bank aided Rubber Project; (8) Block Planting of Rubber through Rubber Board; (9) Creation and Maintenance of old Rubber Plantation through

TRPC/TFDPC Limited; (10) development of primitive tribal group; (11) Aid to NGOs; (12) financial assistance to surrendered extremists etc. Besides, employment generation schemes such as JGSY, EAS, SGSY etc have been implemented for poverty alleviation. These schemes also provide benefits to tribals and scheduled castes.

During 1997–98 to 2001–02, there has been significant increase in allocation of fund and creation of man–days under JGSY. The proportion of women has been reported to about 30 per cent while about 50 per cent share goes to scheduled tribes and scheduled castes constituted 21 per cent share in number of man–days. (Table–11.29)

Table–11.29: Employment Generation Through JGSY

Year/District	Allocation of Fund (Lakh)	Man–days of Employment Generated (in Lakh)				
		SC	ST	Other	Total	Women
1997–98	356.27	1.76	3.19	2.34	7.31	2.19
1998–99	2283.88	8.75	17.01	8.96	34.72	9.90
1999–2000	769.33	3.03	7.34	3.61	13.94	–
2000–2001	1916.02	4.80	14.30	5.38	24.48	–
2001–02	2628.74	6.37	14.95	8.73	30.06	–
2001–02 West District	853.94	2.20	3.98	3.4	9.60	–
South District	748.09	1.25	3.05	1.04	5.34	–
North District	484.57	1.87	4.44	2.41	8.73	–
Dhalai District	542.14	1.05	3.48	1.86	6.39	–

Source: State Abstract of Tripura, 2001

Again, the employment generation under the scheme has grown by 4.11 times during 1997–98 to 2001–02. (Table–11.30)

Table–11.30: Performance of Employment Assurance Scheme in Tripura

Year/District	Fund	Man–days of Employment Generated (in Lakh)

	Available (Rs. Lakh)	SC	ST	Other	Total	Landless	Women
1997–98	2401.08	11.44	24.05	18.97	54.46	3.80	16.33
1998–99	1980.00	9.12	20.80	10.94	40.87	20.37	12.39
1999–2000	1367.75	3.77	8.82	5.33	17.91	8.58	–
2000–2001	1616.29	4.47	10.33	4.72	19.53	8.23	–
2001–02	2426.17	9.23	20.71	13.58	43.52	13.64	–
West District	828.67	4.02	9.04	7.04	20.10	8.04	–
South District	717.31	2.02	5.29	4.17	11.47	3.26	–
North District	460.97	1.54	3.59	1.28	6.41	0.70	–
Dhalai District	419.22	1.65	2.49	1.09	5.53	1.63	–

Source: State Abstract of Tripura, 2001

However, there has been sharp decline in employment generation under the Employment Assurance Scheme over the period. Though, there has been increase in allocation of funds under the scheme. Performance of SJGSY during 2001–02 shows that the share of scheduled tribes against the number of beneficiaries (28.72 per cent), amount of loan disbursed (3.6.34 per cent) and amount of subsidy received (45.0 per cent) has been higher than their share in total population while scheduled castes share against number of Swarojgaries benefited and amount of loan disbursed has been 18.53 per cent and 16.49 per cent, respectively. (Table–11.31 & 11.32)

Table–11.31: Performance of Swarnajayanti Gram Swarojagar Yojana During 2001–02

Particulars	West District	North District	South District	Dhalai	Total
No. of Swarojagaries Benefited Total ST SC Women Handicapped	5001 1680 993 2061 17	3323 1097 479 654 –	4126 1646 787 1087 11	2374 1317 488 566 3	14824 5740 2747 4368 31
Amount of Loan Disbursed Credit (Rs. Lakh) Total ST SC Women Handicapped	359.31 91.88 54.296 147.54 0.754	227.75 110.55 29.87 76.77 –	479.44 152.15 81.66 113.31 1.80	234.19 118.10 48.75 38.41 0.63	1300.70 472.68 214.68 376.02 3.18
Amount of Subsidies (Rs. Lakh) Total ST SC Women Handicapped	246.50 91.88 54.30 101.53 0.75	153.383 71.370 27.44 38.65 –	247.02 103.80 51.98 62.08 0.89	155.52 94.08 34.37 29.67 0.30	802.42 361.13 168.08 231.93 1.94

Source: State Abstract of Tripura, 2001

Table–11.32: Performance of Self Employment Schemes Among Scheduled Tribes (2001–02)

Year/Particular	Total	West District	South District	North District	Dhalai District
JGSY Scheme Man–days of Employment	14.95	3.98	3.95	4.44	3.48

Generated (Lakh)					
EAS Scheme Man–days of Employment Generated (Lakh)	20.71	9.04	5.27	3.59	2.79
SGSY					
No. of Swarojgaris	5740	1646	1097	1097	1317
Amount of Loan Disbursed	472.68	15215	110.55	110.55	118.10
Credit (Rs. Lakh)	361.13	103.88	71.37	71.370	94.08
Amount of Subsidy (Rs. Lakh)					

Source: Basic Statistics of Tripura, 2002

Again, share of women has been reported to be 29.47 per cent and 28.90 per cent in number of beneficiaries and amount of loan disbursed. Scheduled Tribes also get more benefits under JGSY and EAS scheme during 2001–02 since their share in employment generation has been reported to be high. (Table–11.33 & 11.34)

Table–11.33 : Employment Assurance Scheme in 2001–02

(Number of Man–days (Lakh))

Particular	North Tripura	Dhalai	South Tripura	West Tripura	Total
Scheduled Castes	1.54	1.65	2.02	4.02	9.23
Scheduled Tribes	3.59	2.79	5.27	9.04	20.69
Total	6.41	5.53	11.47	20.10	43.51

Source: Statistical Abstract of Tripura, 2001

Table–11.34: Employment Through Swarnjayanti Rojgar Yojana During 2001–02

(Lakh)

Particular	North Tripura	Dhalai	South Tripura	West Tripura	Total
Scheduled Castes	1.87	1.05	1.25	2.20	6.37

Scheduled Tribes	4.44	3.48	3.05	3.98	14.95
Others	2.41	1.86	1.04	3.42	8.73
Landless	2.09	2.55	2.34	2.84	9.82
Total	8.73	6.39	9.60	12.44	39.87

Source: Statistical Abstract, Government of Tripura, 2001.

Importantly, women constituted larger share in SHGs formed (80.33 per cent) while more than half of the SHGs are tribal groups. Even the number of Swarojgaris belonging to scheduled tribes and particularly women are higher in state which shows gender sensitization of poverty alleviation programmes. (Table–11.35)

Table–11.35: Swarojgaris Distribution

Particular	West Tripura	North Tripura	South Tripura	Dhalai	Total
Scheduled Tribes	1680	1097	1646	1317	5740
Scheduled Castes	993	479	787	488	2747
Women	2061	654	1087	566	4368
Handicapped	17	–	11	3	31
Total	**5001**	**3323**	**4126**	**2374**	**14824**
SHGs Forming Target	350	210	270	170	1000
SHGs Formed	351	170	174	114	839
Scheduled Tribes	179	69	89	96	433 (51.61)
Scheduled Castes	42	23	33	7	105 (12.51)
Women	299	108	130	137	674 (80.33)
Total	**299**	**108**	**130**	**137**	**674**

Source: Statistical Abstract of Tripura, 2001

The economic package of rehabilitation and economic development of OBCs include credit, micro–infrastructure, organizational, financial and marketing skills for economic schemes identified by National Backward Classes Finance and Development Corporation that should be undertaken under the state Plan as part of a holistic package consisting of economic, educational and non–economic assistance. Reservation of scheduled castes, scheduled tribes and OBCs in employment under the State Government is

strictly followed. The State Government has enacted a special law i.e. The Tripura Scheduled Castes and Scheduled Tribes (Reservation of vacancies in services and posts) Act, 1991 to prevent violation of the principle of reservation in services. Reservation for scheduled castes, scheduled tribes and OBCs in admission to education institutes is also being implemented. As per information available January 2002, scheduled castes representation in government jobs and services has been reported to be 17.98 per cent, 16.69 per cent, 14.04 per cent and 18.09 per cent in Group A, Group B, Group C and Group D posts, respectively. As compared to scheduled caste representation of scheduled tribes in government jobs and services has been reported to be higher due to their larger phase in population, however, their representation in government posts is far behind their due share in population. Scheduled tribes representation in government posts has been recorded to be 20.82 per cent, 25.95 per cent, 21.77 per cent and 27.51 per cent in Group A, Group B, Group C and Group D respectively. Thus, it is clear from the data that tribal's representation in government services is low despite reservation provisions. (Table–11.36)

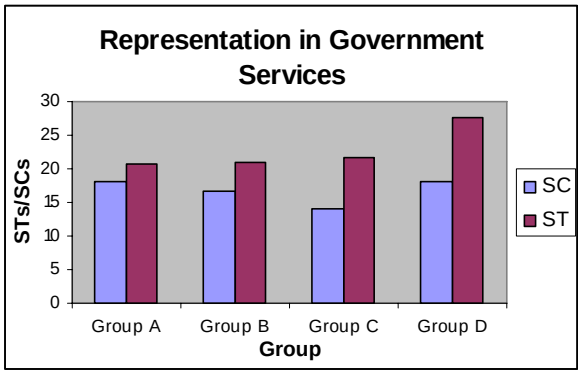
Table–11.36 : Representation in Government Services

(Percentage)

Group	Scheduled Castes	Scheduled Tribes
Group A	17.98	20.82
Group B	16.69	20.95
Group C	14.04	21.77
Group D	18.09	27.51

Source: Special Component Plan, Government of Tripura, 2003–04

Figure–11.10



Importantly, tribal's representation in Panchayats which ensure participatory rural development and decentralized governance is also quite low i.e. 5.03 per cent. It was recorded slightly higher in case of village panchayats and low in Zila Parishads. Again, scheduled caste's representation in elected members of Panchayats has been recorded quite significant and has much higher than their share in population. (Table–11.37)

Table–11.37 : Elected Members of Panchayats (1999)

Particulars	West Tripura	North Tripura	South Tripura	Dhalai	Total
Village Panchayats					
Number	248	103	155	34	538
SC	752	179	430	129	1490
ST	120	28	104	34	(26.20)
Others	1807	894	1008	200	286 (5.03) 3909 (68.76)
Total	2679	1101	1542	363	5685 (100.00)
Panchayat Samiti					
Number	246	103	155	34	538
SC	38	8	24	8	78
ST	6	2	5	2	(26.04)
Others	90	46	56	14	15 (5.01) 206 (68.89)
Total	134	56	85	24	299 (100.00)

Zilla Parishad Number of Gram Panchayats SC ST Others	248 10 2 23	103 3 – 14	155 6 1 14	34 3 1 5	538 22 (26.83) 4 (4.88) 56 (68.24)
Total	35	17	21	9	82 (100.00)

Source: Statistical Abstract of Tripura, 2001

It is not possible to conceive of the development and empowerment of OBCs without reservation in employment, though by itself it is not a plan scheme. While considering the planned development and empowerment of OBCs, the position of reservation has to be taken into account the gaps, lacunae and weaknesses identified for rectification. The reservation should be brought under the purview of Statute by enacting an Act to be name as Backward Classes Reservation of Recruitments or Posts in services and of admissions in Educational Institutions Act, 2001, after expeditiously extending reservation for OBCs to seats in educational institutions and hostels and to tracking posts in colleges and universities.

C. Physical Targets :

Targets set for some key activities for next 10 years for tribal development in the state as per perspective Plan of the Department :

- 1.30 lakh students will be provided boarding house stipend.
- 9.12 lakh students will be provided pre–metric scholarship.
- 3.49 lakh students will be provided additive to Government of India post–metric scholarship.
- 2575 trainers will be provided stipend to trainers at ITI/GNM.
- 275 students will be provided Book Grant allowance.
- 1423 students will be provided Grants to sponsor outside students.

- 30407 students will be provided merit award.
- 15.22 lakh students will be provided with text books on free of cost.
- 1825 candidates will be trained under coaching and allied scheme.
- 0.15 lakh students will be provided coaching under special coaching in core subject.
- 5 new ashram schools, 5 new boys' hostels, 5 new girls hostels and one college hostel are proposed to be constructed.
- 0.23 lakh students will be provided coaching under Madhyamik dropout.
- 500 families will be benefited under land purchase scheme with plan and Special Component Plan fund.
- Immunization of all eligible children.
- Raising literacy rate upto at least 80 per cent.
- Restoration of alienated land and providing alternative land to families where restoration of alienated land is not possible.
- Formation of SHGs in large numbers and providing working capital to engage in gainful economic activities – 2000 numbers.
- Providing market stall and working capital (one time) to unemployed youth for small business – 1500.
- Pig farming and goat rearing – 2000.
- Settlement of Jhumia families through rubber plantation – 3000 families under SCA fund.
- Establishment of Grain Banks and their operation through established SHGs – 50.
- The financial target fixed for TTAADC will be utilized for implementation of the schemes of TTAADC.

The estimated revenue expenditure on welfare of STs, SCs and OBCs in the Tripura is shown in table–11.38. During 2006–2007, the expected revenue expenditure on the welfare of SCs, STs and OBCs would be Rs. 11512 lakh while this figure is expected to increase up to Rs. 17917 lakh is 2010–2011 and further to Rs. 31183 lakh in 2019–2020. However, the relative share of state revenue expenditure is expected to be 3.77 per cent in

2007, 3.74 per cent in 2011 and 4.20 per cent in 2020. Considering the overall backwardness of disadvantages classes in the states, the relative share of revenue expenditure on their welfare is very low that may be increased to the greater extent.

Table 37 : Estimated Revenue Expenditure on Welfare of STs/SCs/OBCs in Tripura

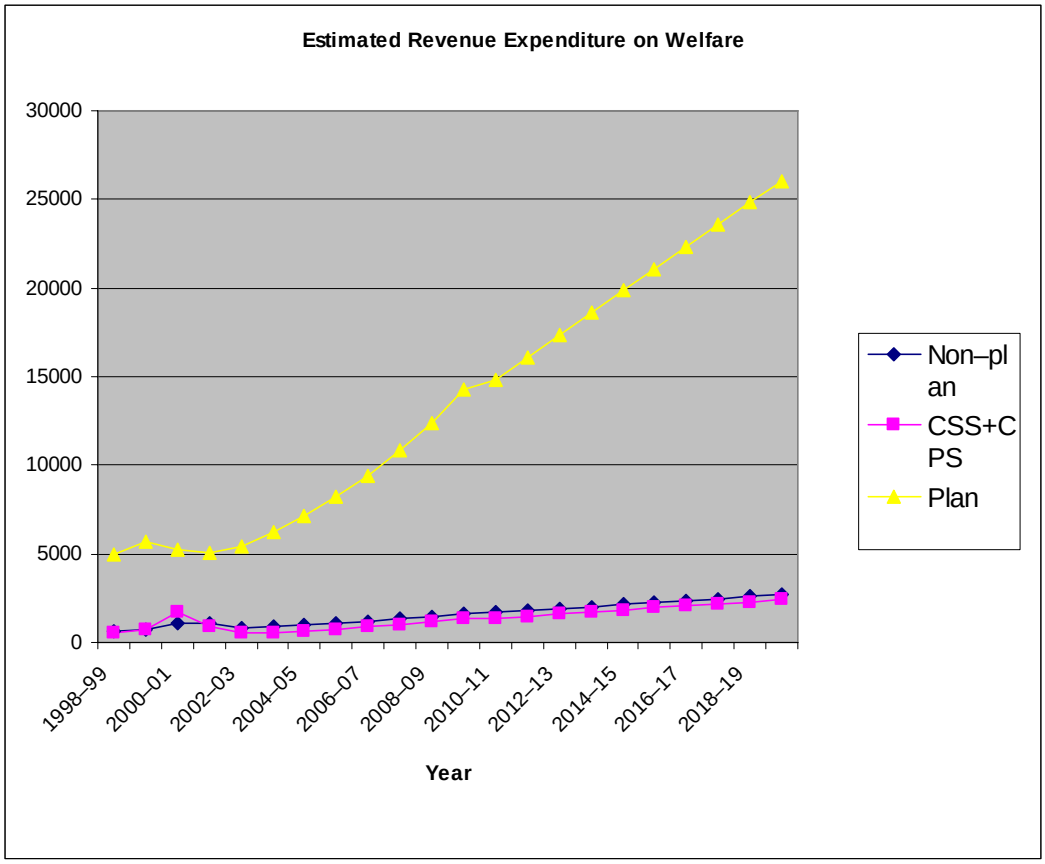
(Rs. Lakh)

Year	Non–Plan	Plan	CSS+CPS	Sub total	Total revenue expenditure in State
1998–99	629	5003	501	6133	117562
1999–2000	694	5721	719	7134	146107
2000–01	1090	5250	1699	8039	173404
2001–02	1123	5040	878	7041	181291
2002–03	819	5456	498	6773	196072
2003–04	903	6256	569	7755	218906
2004–05	995	7174	654	8823	244496
2005–06	1096	8228	753	10077	273208
2006–07	1208	9438	866	11512	305425
2007–08	1331	10826	995	13152	341596
2008–09	1466	12421	1145	15032	382223
2009–10	1616	14251	1316	17183	427879
2010–11	1689	14857	1371	17917	446730
2011–12	1802	16101	1487	19370	479620
2012–13	1915	17346	1603	20864	512509
2013–14	2028	18591	1719	22338	545399
2014–15	2142	19836	1835	23813	578289
2015–16	2255	21080	1952	25287	611179
2016–17	2368	22325	2068	26761	644069
2017–18	2482	23570	2184	28236	676959
2018–19	2595	24814	2299	29708	709849
2019–20	2708	26059	2416	31183	742739

* CSS denotes Centrally Sponsored Schemes
* CPS denotes Centrally Planned Schemes

Source: Projected on the basis of data available from Finance Department, Government of Tripura, 2002

Figure–11.11



11.10. SWOT Analysis

Strengths :

- State has adopted the Maharastrian Model of TSP in the state as recommended by Ministry of Tribal Affairs, Government of India.
- Implementation of 25–point programme has been done.
- Tribals are adaptive and they play active role in development process.
- Emphasis has been laid on plantation–based settlement schemes, especially rubber plantation and other income–generating schemes.
- Availability of vocational training centres.
- Effective implementation of state–managed merit upgradation – coaching scheme for Madhyamik drop out students has been done.
- The effective monitoring of the progress in TSP area has been ensured through review meetings etc.

- Effective implementation of reservation policy for SCs/STs by all departments has been ensured through Tripura Scheduled Castes and Scheduled Tribes (Reservation of vacancies in services and posts) Act, 1991.
- Involvement of District Administration at the District and Sub–Divisional level in the implementation of schemes and projects specially designed for SCs and STs.
- Fairly substantial amount of funds are available from state budget, Special Component Plan, Tribal Sub–Plan, Central Pool of Resources and other international funding agencies.
- Active involvement of NGOs and other community–based organizations in the implementation of development projects.
- Rehabilitation of Jhumias had been well–accepted in the tribal areas. Even tribals are mentally prepared and actively engaged in changing their occupation from shifting cultivation to settled agriculture.
- People–centred policy relating to social mobilization and empowerment of disadvantaged classes has impacted positively the living standards of the SCs, STs and women.

Weaknesses :

- Shortage of trained manpower for implementation of development projects and programmes.
- Poor social and economic infrastructure in backward and tribal areas, particularly in respect of roads, electricity, irrigation facilities, drinking water and health institution.
- Lack of marketing facilities for forest and horticulture produce.
- Poor literacy and educational standards among tribals.
- High proportion of families is below poverty line.
- Non–availability of adequate Government support in terms of entrepreneurship development, skill upgradation, market linkages and financial assistance for poor, women and other disadvantaged classes.

- Lack of institutional support for catering training needs of officials and staff as well as representatives of people's organizations.

11.11. Observations and Issues :

- Primitive tribes remained with inadequate access to both education and health care. Even, health culture – socio–cultural value system, ecology, environment, eco–system etc has direct bearing on health status and health seeking behaviour of tribals, scheduled castes and other weaker sections of the society.

- Nutritional deficiencies and diseases among the backward and tribal areas are leading towards high rate of mortality and morbidity rates.

- Shifting cultivation is still being practiced by a high number of tribal families and the agricultural productivity is very low in tribal areas.

- Inadequate water resources create problems for tribals and other weaker sections in accessing safe drinking water sources and availing irrigation facilities.

- Low agricultural productivity, erosion of natural resource base, lack of employment opportunities and increased restrictions on rights over forest produce have forced the tribal population to migrate to other areas in search of wage employment.

- Cent percent coverage of the services under Integrated Child Development Scheme (ICDS) comprising of health care, immunization, supplementary nutrition, non–formal pre–school education and health and nutrition education should be ensured and extended to remote areas.

- The complex socio–cultural determinants of women's health have cumulative effects over life time. Discriminating child care, under–nutrition and micro–nutrient deficiency in early adolescence is

compounded by early child bearing and consequential serious pregnancy–related complexities.

- The vocationalization of secondary education and vocational training for women is another priority area, which would require greater attention.

- Women, particularly living in the urban slums, are of the worst sufferers of low sanitation coverage since their privacy is a delicate issue. The low cost sanitation scheme for the liberation of the scavengers need resourced mobilization and social commitment of government.

- Traditionally women have been discriminated in her access to the productive resources and their management. Major interventions at the micro economic and social policy levels are required to eliminate these age–old discriminations against women.

- SHGs and micro–credit approach will need government priority, commitment and social policy for their strengthening and promotion.

- There is a dire need for introducing social security system for women in the unorganized sector which employ maximum number of women but do not provide them protection or safety network.

- A wide capacity–building programme is needed for making capable women to participate actively in the process of democratic decentralization and governance.

CHAPTER–XII
SCIENCE AND TECHNOLOGY

12.1. PRESENT STATUS OF SCIENCE & TECHNOLGY IN TRIPURA:

Science is often associated solely or primarily with the hard sciences, such as physics, chemistry or biology. Science is derived from *scientia* (Latin) meaning knowledge. Thus, in this context, science is the knowledge of all kinds – embodied in the natural sciences, the social sciences, arts and the humanities. Technology is the underlying know–how to produce, utilize and evaluate products or solutions to problems. Verily, Science & Technology capacity is the ability to adopt, adapt, apply, create, and disseminate knowledge.

The development as well as growth of Science & Technology in Tripura was severely hamstrung by historical factors and the earlier geographical limitations. A panoramic view of S&T in Tripura vis-à-vis the Nation is tabulated hereunder:

Table–12.1:

Sl. No.	Generic Heading for comparison	All India figures	Actual figures for Tripura
1.	Total outlay for S&T sector		10^{th} plan propsed outlay - Rs. 1872.35 lakh at 2001-02 prices
2.	R & D expenditure	Rs. 57 billion (approx.) during 1993-94	
3.	R & D bodies in the Industrial sector	1350	--
4.	Universities	176	01
5.	Engineering Colleges		01
6.	Outturn of S &T personnel from Universities	Around 2,30,000 per year	

Despite the limitations, the progress of S&T in Tripura has been remarkable and is delineated below, department-wise:

12.2. Tripura State Council for Science & Technology

For co-ordinating the activities under scientific research, Tripura Government have constituted 'Tripura State Council for Science & Technology' as a registered society with a professional secretariat as an integral part of the council. The main activities of the Council have been in the following fields-

A. Science Popularisation- for popularizing science

- sub-divisional and state level science fairs, student seminars, children science congress are organized every year;

- celebration of National Science Day, Hiroshima Day, Mathematics Day, Engineer's Day in different Nagar Panchayats & wards of Agartala Municipal Council to generate awareness of these days;

- Resource persons have been developed in different field of science communication viz. origami, model rocketry, low cost teaching aids, science behind miracles, and science journalism;

- Ten groups of science communicators have been developed to communicate science through Glove Puppetry;

- Seminars held to create awareness & build public resource for balanced regional development of North East.

B. Science Promotion-

- setting up of a Rural Technology Park at Kalacharra (S. Tripura);
- a medicinal plant garden has been developed at Kalacharra;

- a State remote sensing centre to provide facilities for analyzing remote sensing data for exploitation of natural resources has been set up at Vigyan Bhawan, Agartala;
- introduction of vermiculture technology & and through this venture development of women micro-enterprises;
- cultivation of white button mushroom via spawn production & community compiosting center.

C. Sukanta Academy

Tripura is the only state in India where the State Government have taken initiative to set up a Science, Arts & Cultural Complex to inculcate the spirit of inquiry and popularization of science especially amongst the students. The center was opened in February 1997 with a few exhibits that have expanded to include-

- **Energy Park** – through the demonstration of working models of various renewable energy devices and dissemination information about the principles of renewable energy, the student as well as the public is educated and familiarized about renewable energy sources;

- **Aquarium** – houses piranha, angel, tiger shark, prawn, tiger barb, goldfish, crocodile fish, blue gorami etc.;

- **Railway Gallery** – working models of railway engines procured from the National Railway Museum, New Delhi for affording familiarization with railway engines;

- **Information & Sales Counter** – for providing information about science popularization activities, as well as to sell scientific games, quizzes, models, books, etc. ;

- **Pet Counter** – set up to encourage love for animals amongst students;

- **Science Park** – has been set up in the front side of the Sukanta Academy. While the necessary plantation, lawns, and hedge fencing have already been completed, further work is envisaged in the forthcoming years;

- **Fun Science Galleries –** these provide the students 'hands –on' experience on exhibits regarding gravity, mathematics, pendulum, sound, colour, light, magnetism, optical illusion etc.

- **Computer & Internet section** – affords students grasping basic knowledge of computers and internet. Facilities for quiz games regarding solar energy, energy in daily life, nuclear energy, and astronomy too are available.

12.3. Tripura Renewal Energy Development Authority:

With financial assistance from Central Government, the Agency was set up in 1997 to implement the Non Conventional Energy programme as well as act as the state nodal agency for renewable energy programme in Tripura. The programmes are envisaged to minimize damage to the environment while providing a whole range of socio-economic benefits to the rural population. The programmes implemented by the Department are multi-dimensional as they not only provide energy at the local level but also have a direct relevance to afforestation, energy conservation, employment generation, improving the environmnent, upgrading health & hygiene, social & women welfare, irrigation, agriculture, provision of drinking water, and bio-fertiliser production.

The physical achievements in different sectors upto 30.11.2001 are as hereunder:

Table–12.2:

S.No.	Name of the programme	Physical achievement

1.	Solar lantern	15,905 nos.
2.	Solar domestic lighting system	1788 nos.
3.	Solar street lighting system	460 nos.
4.	Improved chulha	56313 nos.
5.	Bio Gas plant	1040 nos.
6.	Solar cooker	213 nos.
7.	Solar Distillation plant	52 nos.
8.	Solar Hot water plant	8300 LPD
9.	Solar pump	121 nos.
10.	4*250 KwBiomass power plant	01 no.

Schemes at a glance-

- Kshetrichhera bio mass power plant – is the country's biggest bio mass gassifier power plant (4 * 250 KW) set up for electrification of some remote villages in Chawmanu areas to be run by the Chawmanu Rural Co-operative Society Limited. Surplus power would be fed to the existing grid for earning revenue as well as stabilizing power supply in Chawmanu area. For the plant woody bio mass would be supplied by the Forest Department and the bio mass : diesel ratio would be 70:30 at full load

- For promoting awareness of non conventional energy, a mobile exhibition van is made use of by TREDA. In addition, a solar shop by the name of Aditya Solar Shop has been set up in Umakanta Academy Sports Complex at Agartala not only for generating awareness but also to extend servicing of different gadgets.

- Similarly, for generating awareness, educating on the application & usefulness of Non Conventional Energy, one Rural Renewable Energy Complex has been set up in Kalacherra, and various renewable energy education parks have been set up in different parts of the state with financial assistance of Ministry of Non Conventional Energy Sources;

12.4. Tripura State Pollution Control Board;

The Tripura State Pollution Control Board was constituted in 1988 under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981. As is expected of State Pollution Control Boards, TSPCB too deals with almost all aspects of pollution – water, air, vehicular emission control through Transport Department, chemicals safety through factories Inspectorate, municipal waste management through civic authorities. The main activities of TSPCB are grouped as hereunder:

A. Consent Management

The Board issues consent certificate to an industry, unit or process prior to its setting up. As on 01.02.2002, 1364 nos. of Consent to establish and 907 nos. of renewals had been issued. The Board also looks into public complaints on environment issues;

B. Environment Planning

Tripura is the first State in the country to complete zoning atlas for siting of industries throughout the State and based on its performance the Ministry of Environment & Forests and Central Pollution Control Board have selected it as one of the four states for creating Centre for Excellence for Spatial Environment Planning, the other three being- Andhra Pradesh, Kerala, and West Bengal;

C. Water, Air, and Noise Pollution

Water, Air, and Noise Pollution are monitored through the stations set up for the purpose (25 stations monitor ground water quality and 27 stations monitor surface water quality throughout the State, air pollution levels are monitored at all sub division headquarters for SPM, Sox and Knox, and noise levels surveyed at the 41 stations throughout the State);

D. Plastic Pollution

The Board has banned plastic carry bags with a thickness less than 20 micron;

E. Awareness

Mass awareness is carried out by co-opting local bodies, NGOs, voluntary organizations, educational institutions to control pollution and maintain ecological balance;

F. Projects

Projects on Management of Hazardous Wastes, Management of Bio-Medical Wastes to identify disposal sites, set up facilties for proper disposal are underway. Tripura State Pollution Control Board has also set up a laboratory for analysis of water, air, noise, etc.

12.5. Directorate of Bio-Technology

After information technology, bio technology is perceived to be the new frontier of scientific knowledge that has been predicted to impart a quantum leap to human progress. Bio technology entails use of living organisms or their parts to make or modify products, or improve plant or animal productivity, or to develop micro-organisms for specific use. While a high power committee on bio-technology from Govt. of India has visited Tripura and a number of useful Bio-technology projects have been identified that are under preparation. A few such projects are as hereunder:

- Tissue culture facility;

- Production of bio-fertiliser (rhizobial) and bio-control agents;
- Gene conservatory of agri-horti-forestery species;
- PCR based markers for diagnostics of malaria;
- PCR based detection methods for salmonella, swine fever, rota virus;
- Immuno-modulatory properties of pineapple juice;
- Conservation of fresh water turtle, cat fish;
- Semi-intensive prawn culture.

Animal Resource Department of the State is using artificial insemination for livestock improvement. The department has also brought a few 'Boer' breed of goats which has a high twining in the reproductive cycle, in Kerela this breed has been seen to attain 35 to 40 kgs. weight in 09 months and yields 2 to 3 liters milk per day with a fat content of 7%.

12.6. RESOURCES ASSESSMENT

Table–12.3: PROJECTED OUTLAY ON "SCIENCE TECHNOLOGY & ENVIRONMENT" FOR TENTH PLAN (2002-07)
(figures in Rs. Lakh)

Name of the State	Scientific Research (incl/ S&T)	Ecology & Environment	Total
Arunachal Pradesh	420	42	462
Assam	750	65	815
Manipur	1227	495	1722
Meghalaya	515	275	790
Mizoram	513	19	532
Nagaland	350	100	450
Tripura	904	446	1350

(Source: Planning Commission)

Among the states of the North East, Tripura as been allocated the second highest outlay for science technology & environment.

12.7. SWOT ANALYSIS

Strengths:

- There is immense potential for tapping bio-fuel through Jatropha plantation;

- The State is endowed with forest wealth, pure water, pollution free environment, bio-diversity and a rich gene pool that can be tapped in the field of bananas, bamboos, prawns, fishes;

- Tapping the huge reserves of natural gas can help in providing an assured supply of power for the industry;

- Many innovative and important development projects funded by the Govt. of India have been implemented;

- The road density of Tripura is one of the highest in the country;

- There's a high degree of growth consciousness among the people, bureaucracy, and governing bodies. This would enable efficacious take-off of e-governance projects.

Weaknesses:

- The high literacy rate is confined to school level of education. The proportion of children proceeding for higher education is quite low. And for reaping the advantages in Science & Technology, there is an acute need of high quality knowledge workers in software, biotechnology and related areas;

- Paucity of skilled manpower in hi-tech fields of bio-technology, Information technology. Majority of the population is employed in the primary sectors;

- Due to a poor resource base the Department is unable to establish identifiable growth centers in such hi-tech fields;

- Absence of support from National level R&D institutions, and absence of R&D institutions in the State;

- Even though the road density is one of the highest, length of pucca roads is very less. The overwhelming road length is of kuccha roads. Pucca roads are barely 24% of the total road length in Tripura (pucca roads length- 3762 kms. and kuccha roads length – 11762 kms.);

- Poor road, rail, and even air connectivity to other parts of the country;

Opportunities:

Tremendous scope for tapping the potential as well as augmenting output exists in the fields of

- Bio-technology;
- Bio-energy; Bio-fuels, bio-village development;
- Bio-fuel from Jatropha plantation;
- Tapping the latent potential of natural gas reserves;
- Pollution control for example- Installation/distribution of fuel efficient chulhas to reduce wastage of wood fuel; development of appropriate technology for value addition to Non-Timber Forest Products for use by rural poor, primarily forest fringe dwellers; development of alternative technology for use of alternative fuel for use in rural areas;
- Technology management;
- Intellectual Property rights;
- Technology Business Incubation Promotion;
- Science Popularisation.

Threats:

- Tripura - a landlocked state, a distant geographical location and difficult terrain;
- Leaching of resources, physical, or human to more favorable climes;
- Assimilation of tribals in the development process, biotic pressure, loss of natural forest are threatening crop diversity and genetic resources of Tripura;
- Fear of the insurgency movement;
- Location in a seismic zone.

12.8. OBSERVATIONS, CRITICAL ISSUES & NEWLY EMERGING AREAS

Information Technology is the more recognized face of knowledge society, which has two components viz., society transformation and wealth generation. Societal transformation through the medium of education, health care, agriculture, and governance would lead to employment generation, high productivity, and rural prosperity. The core sectors, identified by the Task Force constituted by the Planning Commission, for society transformation and wealth generation are information technology, tele-medicine, tele-education, biotechnology, weather forecasting and disaster management.

A. Information Technology:

i. There is a need to create infrastructure and develop competent manpower in the field of IT maintaining linkage with national institutions and industry for employment.

ii. **IT education in schools –** NEC has been implementing computer school education programme from 1994-95 onwards in order to promote computer education at secondary and higher secondary levels. NEC provides a set of 5 to 10 PCs to select schools based on the strength of the students, level of education, category of town and population. NEC also provides adequate furniture for computer room, funds for renovation of computer class rooms (including for purchase of computer books and almirahs). A six months training to teachers is also being provided. With compulsory IT education in schools, there is a need to set up a teachers' training college in Tripura.

iii. **IT education for colleges/Universities/ engineering colleges/ polytechnics -** Owing to the exponential growth of IT sector, there is an acute need of high quality knowledge workers in software and related areas. The strength of English speaking and cost effective manpower is India's asset. By the year 2008 an export turnover of nearly US$ 50 billion is expected in software sector (Table 1). As per the projections of NASSCOM-Mckinsey report, India needs 22 lakh IT workforce by 2008 (Table 2). As per the report of the 10th Plan study team on HRD, the total manpower supply for IT sector currently is 73,214, which is the sum of manpower supplied from IT course students intake plus IITs, IIMs, and IISC (Table 3). The lone engineering college in Tripura i.e. Tripura Engineering College was established in 1965 with the three traditional branches of Civil, Electrical and Mechanical Engineering. From the 1999-2000 academic sessions, a new four-year degree level course in Computer Science & Engineering has been started. With a total intake of 160 in the four branches of study, the future availability of IT trained manpower in

Tripura is quite miniscule (even accounting for the fact that the non IT stream graduates drift to the IT sector). Moreover, Tripura University too has only a 6 month certificate course in Computer Applications. (Source: websites of Tripura Engineering College and of Tripura University respectively).

iv. Ultimately, the bottomline of any project is generation of employment and revenue realization. As stated *supra*. by the year 2008 an export turnover of nearly US$ 50 billion is expected in software sector. To provide support to export of software STPs or Software Technology Parks act as a single window solution provider for organizations engaged in export of IT software and IT services. It provides infrastructural facilities including high speed data communications services required by the IT industry. Moreover, STPIs also provide incubating infrastructure required by start up operations and small & medium entrepreneurs to enable them commence their operations without any gestation period.

v. The manpower trained for the IT sector would find opportunities for entrepreneurship and therefore the STP project has to be dovetailed with the IT manpower projections.

B. Telemedicine Network:

Owing to the geographical location of Tripura and the difficult terrain, IT enabled service or telemedicine is an alternate health care infrastructure, which is quite cost effective and does not require investment in hospitals and super specialist manpower.

High speed data lines, advanced data compression technologies, computerization of patient records/clinical outcomes/physician practices have resulted in rendering medical treatment by physicians to patients who are living in remote, hilly areas like in Tripura. The district hospitals or medical institutes would be connected to a specialist hospital outside the North East

region using ISDN / VSAT / VPN connectivity and relevant telemedicine software. The project has been approved for the 10th Five year plan of NEC. Super specialist hospitals like, Asia Heart Foundation, Bangalore, All India Institute of Medical Sciences, New Delhi, Amrita Institute of Medical Science, Cochin, Sanjay Gandhi Institute of Medical Sciences, Lucknow. Uttar Pradesh Government has already intiated a project for setting up a School of Telemedicine in SGPGI, Lucknow to cater to the need of the potential of trained manpower in the future.

C. Bio-Technology:

It is true that information technology has contributed much to India's economic strength in the 1990s, but if the country is to get its due place in the comity of nations it has to create another market. This is why the Tenth Plan stresses biotechnology-based national development. Scientifically, the biotech industry has reached a watershed: The human genome has been sequenced, as also that of some microbes and animals. Everyday, scientists learn more about the intricate molecular dance of life.

i. Tripura having bypassed the gains of Green Revolution, it is expected that the benefits of Bio-technology would usher in that revolution for Tripura's agri community which could not reach earlier. The foremost need to reap the benefits of bio technology is to have a trained manpower. Other than the course of M.Sc. in Life Sciences available in Tripura University there is no course in the field of Bio-technology to educate, develop and train manpower in this new frontier of science. Potential exists in fields like, tissue culture (tapping potential of Sabri Banana variety. In floriculture potential exists in anthuriums, gladiolus, orchids. In forestry there's promise in bamboos, jatropha); Bio fertilizers and bio control agents; Livestock Improvement (artificial insemination, embryo transfer, recombinant DNA technology, cloning); pig rearing; fish technology; captive breeding of turtles, etc.).

ii. While Tripura is rich in bio-resources, there is no Bio-technology park in Tripura.. The variety of geographical terrain in the State provides tremendous bio-diversity rarely seen in any other single State. The forest, agricultural and plant resource base of the State are both large and diverse and represent great market opportunity for biotechnology products.

D. Potential of Technology Business Incubators-

Technological progress and entrepreneurship are dramatically changing the global economic landscape. These forces operate in the framework of open markets, government deregulation and privatization, together with fresh concerns for the human condition, good governance, environment preservation, gender balance, and growth with equity.

A torrent of technology-based goods, services and processes hits the market every week, improving the quality of lives in some ways while also creating complexity and dislocation. The pace of progress in information and communication technologies (ICT), microelectronics, biomedical sciences, nano-technology, robotics, new materials, space and other advanced fields continues to quicken, and in turn, to change the way we live and work. The inflation-adjusted cost of computing power, for instance, has been falling by about one third per year for the last two decades while the declining cost of communications is breaking down the natural barriers of time and space that separate markets. The number of Internet users has risen from 20 million in 1995 to 400 million in 2000, while websites have grown from 10 thousand to 20 million in the same period. Despite this – and partly because of it – the digital divide between information-haves and have-nots is widening. The world awaits the transformation from the Information Age towards one of knowledge and wisdom.

In facilitating the complex transformations from the 20th century corporate style towards the New Economy culture, the entrepreneurial venture is now playing a catalytic role. The earlier model of government-operated and subsidized small enterprise support services is giving way to

more market-led approaches, designed with the perspective of high levels of cost-recovery on maturity. Technology Business Incubators are seminal entrepreneurial ventures.

Business incubation has evolved in the last 30 years from experiences with the earlier industrial estates and small enterprise service centers. The ‘first generation’ incubators in the 1980s were essentially offering affordable space and shared facilities to carefully selected entrepreneurial groups. In the 1990s the need was recognized for supplementing the work space with counseling, skills enhancement and networking services to access professional support and seed capital, for tenants within the facility and affiliates outside. This led to the ‘second generation’ incubator. Today the ‘third generation’ model is more like a international enterprise center, providing a platform for convergence of equity capital and management consulting services, with the added dimension of looking outwards. Interestingly, the majority in developing nations are Technology Business Incubators (TBIs), with ‘technology’ broadly defined. The incubation process calls for prepared inputs in order to achieve required outputs.

Inputs – these mainly consist of the inputs made by stakeholders (e.g. providing finance), management resources, and projects put forward by entrepreneurs;

Processes – the various inputs are brought together in the business incubation process through the provision of incubator space and a variety of value-adding services to companies;

Outputs – successful companies graduate with positive job and wealth creation impacts.

Seven Services typically provided at the incubator can be represented as a pyramid, the ones most often used being at the base. Management must make efforts to move up the pyramid towards higher value-adding services:

- Services on legal , security, IP issues
- Seed equity capital, technology sourcing
- Skills development, mentoring and counseling
- Support on information & international networking
- Synergy among clients through exchange of experiences
- Shared office facilities, equipment, pre- & post-incubation
- Smart space that is functional, affordable and on flexible terms
- Counseling, skills development, provision of workspace and networking (internally between tenants and externally with other organisations, e.g. universities, large companies) constitute basic features of the 'package'. Assistance is for a limited duration with exit criteria typically specifying that firms should 'graduate' (e.g. in say three years). Contact may be retained with 'graduate' companies for after-care services.

Sponsors and goals: In simple terms, the traditional business incubator is a micro-environment with a small management team that provides physical work-space, shared office facilities, counseling, information, training and access to finance and professional services in one affordable package. Incubators vary widely in their sponsors (state, economic development group, university, business, venture capital), objectives (from empowerment to technology commercialization), location (urban, suburban, rural, and international), sectoral focus (technology and mixed, now including kitchen and arts incubators) and business model (not-for-profit or for-profit). While these can serve a variety of businesses, in the developing countries the main focus has been on technology incubators for commercializing innovations

Incubator benefits: For a well-managed incubator the benefits can be many-fold:

For tenants, it enhances the chances of survival by three- or four-fold as compared to a start-up outside the incubator, raises credibility, helps improve skills, creates synergy among client-firms, facilitates access to mentors, information, technology and seed capital,

For governments, the incubator helps overcome market failures, generates jobs, incomes and taxes, and becomes a demonstration of the political commitment to small businesses,

For research institutes and universities the BIC helps strengthen interactions between university-research-industry, promotes research commercialization, and gives opportunities for faculty/graduate students to better utilize their capabilities,

For business: the BIC can develop opportunities for acquiring innovations, supply chain management and spin-offs, and helps them meet their social responsibilities,

For the local community: creates self-esteem and an entrepreneurial culture, together with local incomes as a majority of graduating businesses stay within the area.

For the international community: it generates opportunities of trade and technology transfer between client companies and their host incubators, a better understanding of business culture, and facilitated exchanges of experience through associations and alliances.

These are the desired outcomes, often not achieved due to poor management and other factors. Incubators nurture entrepreneurs, who create enterprises, of which some would after leaving the incubator create direct and indirect employment, with incomes and assets that in turn contribute to sustainable economic growth. Often the start-up entrepreneurs' task may be to create jobs for themselves and conserve their limited funds. It is only when they graduate and leave the incubator

that some may grow exponentially creating employment, incomes and taxes.

There is significant potential for synergies between a technology-based incubator, an affiliated technical university, both sited in proximity to a technology park, provided that this is planned from the start, all players are induced to buy-in to this potential, and the administration proactively pursues it.

Linkages to technical universities: There can be conflicts as the purpose of the incubator and park is to support rapid enterprise-creation while the culture of the university is to provide learning, within its longer cycles of the academic calendar, student graduation and faculty sabbaticals. Today, nevertheless, some of the most successful U.S. incubators are linked to universities. There is also a growing convergence between what might be called the “Entrepreneurial University” and the “Learning Enterprise”, with one taking on some of the functions of the other.

The TBI could be university-related but not university administered or controlled. The outlook of university administrators is often technical, bureaucratic or political, seldom entrepreneurial. When the university is willing to provide a vacant space for the incubator and cover some of its costs, it is not easy for the incubator board and manager to fend off attempts at interference in operations. The professors may see the incubator tenants as sources of consulting income and business experience as well as opportunities for graduate students to write dissertations and earn some money. The incubator tenants may not be fully aware of the faculty’s strengths or potential for technology transfer.

Advantages to the TBI of linkage with a reputed technical university is the prestige that this institution brings as well as the ferment through creative minds and the rigor of academic analyses. The incubator can benefit by synergies through use of computer systems, libraries, data

bases, special scientific equipment, expertise of faculty, internships and part-time employment by senior students. In turn, the university benefits by the practical demonstrations of technology transfer as well by using the TBI as a 'living laboratory' for students and faculty. The challenge is to mobilize the reputation (and resources) of the university while maintaining the autonomy (and mission) of incubator management. When the ethical and conflict-of-interest guidelines are clearly drawn, the interactions between faculty and business can be fruitful.

The 18 Software Technology Parks (STPs) to promote IT applications and 15 Science & Technology Entrepreneurs Parks (STEPs) linked to universities are similar in some respects to technology incubators while lacking a few of the distinguishing features. In addition, full-fledged incubators are being established at the Indian Institute of Technology in New Delhi and in Mumbai, an Advanced Materials Technology Incubator in Hyderabad, and other locations. Being a late comer to the incubation business, India has the possibility of moving rapidly based on experiences elsewhere.

Among developing countries, India had an early start on building small business support, entrepreneurship and scientific research capabilities. For instance, the Entrepreneurship Development Institute - India, Ahmedabad is world-class and the network of laboratories of the Council for Scientific and Industrial Research with 10,000 researchers, is among the world's largest. With economic liberalization since 1991, India is pursuing the IT industry as a major thrust area, for export and domestic markets.

Today some one-third of the Fortune-500 companies out-source their software requirements from India. India's software industry employs 200,000 people and produced over US$ 10 billion in 2000, a 10-fold increase in less than a decade. Exports have reached $ 6 billion, about 15 % of total exports, mostly to the U.S. and mainly as end-user application

products and services. Despite the down-turn in the global economy, exports are expected to rise higher, IT-enabled services to reach $ 17 billion, and employing a million persons by 2008. Main current constraints are skilled personnel and finance. **Thus, there is a phenomenal potential waiting to be tapped.**

E. Utilisation of natural gas:

Natural gas is becoming the most popular fuel for use in cooking, transport, fertilisers and power generation. This is because of two reasons. First like coal and oil, burning of gas does not produce harmful and toxic gas oxides. Second, import of gas is cheaper than import of oil to develop a given amount of energy. If gas reserves are explored and developed within the country, the economic benefits are still higher. Therefore, the recent discoveries of gas in India and revival and resurgence of hydropower augur well for a great economic renaissance.

i. Prospecting Gas Demand:

Before recent discoveries, the Govt of India had a limited vision of gas usage in India. This was because of two reasons:

- Import of natural gas by sea by first converting it into LNG followed by regasification is not very economical as compared to import of oil.
- Bangladesh is not allowing laying of a pipeline from Agartala to Kolkata for transportation of gas from reserves in Tripura. Bangladesh is also not selling its huge reserves of gas to India or to any other country because of some irrational reasons.

Natural gas can be used copiously for five purposes. i.e power generation, domestic supplies (cooking) industry (captive power generator and heating of boilers), transport and fertiliser plants. These five uses can

use any amount of gas provided. There is no limit to its supplies. Present discoveries indicate a gas reserve of 1800 BCM (Billion Cubic Meter) and 1000 BCM of coal bed methane (CBM) only. Present consumption of gas from existing resources (new discoveries have not been used so far) within the country is 80 MMS CMD (million standard cubic meter per day). Import of gas has started from January this year only. The indigenous resources (200 BCM) can run for 40 years @ 200 MMS CMD or @ 400 MMSCMD for 20 years. In fact the present consumption is also severely limited by the lack of distribution infrastructure from gas reserves to different parts of the country. PETRONET LNG Limited (a joint venture of public sector oil companies) has also purchased gas from Qatar (25 MMSCMD) and 9 MMSCMD supply will start this year (January, 2004) from Dahej terminal. Petro-dyine is also importing 9 MMSCMD gas from Holland to bring it to Hazira terminal. Gas Authority of India has been given the selling right of 70% of the PETRONET supplies and it is becoming difficult for GAIL to find customers.

ii. Self Sufficiency:

India is consuming only 80 MMSCMD of gas. The recent gas discoveries are no doubt heartening but fresh discoveries do not indicate huge reserves (2800 BCM only) as in the Arab countries or in Bangladesh we can at best consume 300 MMSCMD of gas for next 30 years which is four times the present level of consumption. But 80 MMSCMD rate is hardly significant because it serves a limited population of 10% to meet cooking and vehicular requirement of fuel. The government has not precisely calculated so far the rate of gas consumption required to meet cooking and vehicular needs in total. Because of limited reserves, gas should be exclusively used for catering to the cooking and vehicular needs and not for generation of power. Power can be generated more cheaply from coal and hydropower projects. Assuming that national grid is ready by 2008 simultaneously with secondary distribution lines in towns, the level of gas consumption at the rate of 400 MMSCMD (300 MMSCMD from domestic supplies and 100 MMSCMD from imports) will be fairly close to self-sufficiency level during 30-40 years.

But real self-sufficiency will come when Bangladesh allows transportation of gas from Tripura to West Bengal through its territory and starts selling gas to India from its own huge reserves in Indian currency.

This is because the gas coming from Bangladesh will be utilised right in the adjoining states and liquification (followed by regasification) will not be needed.

iii. Availability

Tripura has vast reserves of natural gas in non-associate form. The gas is of high quality, with high methane content of upto 97%. ONGC has been actively engaged in exploration activities in the State since 1972. Based on the exploration work so far, ONGC has estimated the total Gas Reserves as under:

Prognosticated Reserves	:	400 BCM
In Place (GIIP) Reserves	:	44.84 BCM
Balance Recoverable Reserves	:	23.73 BCM
Present Production Potential	:	4.03 MMSCMD

The Exploration activities are being stepped up by ONGC. Not only that, one Bid Block of Tripura has also been included in third round of bidding under NELP of the Ministry of Petroleum & Natural Gas. With these ongoing efforts, the availability of natural gas in Tripura is expected to significantly go up in near future.

iv. Utilisation

Presently, natural gas is being utilised mainly for the Power Projects of the State Government/ NEEPCO (a Central Government Undertaking). The

present utilisation of natural gas is about 1.20 MMSCMD. A small quantity of gas is also being used for gas supply to domestic/ commercial/ small industrial consumers. Thus, the balance about 2.80 MMSCMD gas is presently available for setting up industrial projects, using natural gas as feedstock.

F. Establishment of Rural Technology Parks:

In order to make science & technology visible and accessible to rural population through demonstration and application of knowledge in a form which a common villager can apply in his day to day activities, is the professed objective a rural technology parks. Technological empowerment and skill training of people, convergence of income generating activities and creation of sustainable livelihoods through this structure are important and critical components of such parks.

G. Pollution Control:

The enhanced pace of developmental activities and rapid urbanization have resulted in stress on natural resources and quality of life. The trend of increasing pollution in various environmental media is evident from the deteriorating air and water quality, higher noise levels, increasing vehicular emission etc. The conventional pollution control approach by treatment at the end of the pipe is not delivering the desired benefits in terms of resource conservation. There is a need for a multi pronged approach whereby several mechanisms in the form of regulations, legislation, agreements, fiscal incentives and other measures should be adopted to prevent and abate pollution. The thrust should be to shift to pollution prevention and control through promotion of clean and low waste technology, re-use and recycling, natural resource accounting, Environmental Audit and Institutional and Human Resource Development.

H. Development of Human Resources:

In any sector, or any organization the human resource is the weakest link in the chain, which is as strong as its weakest link. Unless the personnel are motivated and trained for the constantly changing skills in high trn-over sectors like, IT and bio-technology there would be a likelihood of stagnation. Measures need to be incorporated for upgradation of skills of staff through intensive and extensive training. While this could be of a more general nature in sundry fields, there has to be stress on vocational training courses focused on IT and Bio-technology sectors.

I. Disaster Management:

Disasters wipe out years of development in a matter of hours. It destroys farmland, animals, livelihoods and the future making the people poorer and more hungry. What do we do then? The experiences have shown that the people, the community, the society, the government can reduce the risk by preparedness. But it is not enough. Preparedness is only a part of the broader risk reduction agenda. And **reducing the risk posed by disasters is not an optional extra- it is central to the very success of development itself.** North East India is vulnerable to number of disasters. It is in highest Seismic Zone, Brahmaputra valley is prone to flood, and landslide/flashflood is common to the whole region.

CHAPTER–XIII
INFRASTRUCTURAL DEVELOPMENT

13.1. Physical Profile

Tripura is one of the small states in the north–eastern part of India located in a typical geographical condition of which three sides in the north, west and south are surrounded by a long boundary with a length of 850 km with Bangladesh whereas in the east it has a common boundary with neighbouring states of Assam and Mizoram. The state was merged with Indian Union on Oct 15, 1949. It became a Union Territory without legislature with effect from November 1, 1956 and a popular ministry was installed in Tripura on July 1, 1963. On January 21, 1972 Tripura attained statehood.

The economy of the region is mainly agricultural with a very weak industrial sector along with an inflated service sector. Due to low economic activity, the states of the region are resource deficit. But a large portion of these limited resources is spent mainly to maintain the service sector.The State has 4 districts - namely Dhalai, North Tripura, South Tripura, West Tripura, 15 sub division, 38 development blocks and one autonomous council. The distribution of population is highly uneven. West Tripura is by far the most populated district of the state. More than 45 % of the population of the state has been concentrated in this district. The eastern part of Tripura (Dhalai district) is hillier and heavily forested and contains only 10 % of the total population of the state. The density of population is 304 per sq km as per 2001 census provisional figures as against the national average of 324 per sq. km. About 84.70% of the total population is living in rural areas and the remaining 15.30 % are habitants of urban cities.

12.2. Role of Infrastructure in the development of State Economy

In India, the states are in serious financial crisis and there is an urgent need to undertake major invesments in social sectors and rural infrastructure. The ability of most of the states (barring a few) to undertake such investments have either stagnated or declined. The government of India, therefore, accords high priority for development of various infrastructure services both at national, regional and state levels especially since the initiation of SAP, 1991. These not only include economic and but institutional and social infrastructure as well. The social variables of infrastructure include the fundamental role of human capabilities and their dependence on basic education, health services, water supply, housing, ownership pattern, social stratification, gender relations and opportunities of social co-operation as well as political protest and opposition. Similarly, the institutional infrastructure highlights the importance of institutions of governance and regulation as well as other agencies which facilitate the flow of information and investible resources.

The importances of administrative system, legal mechanism, public safety have long been recognized as significant parameters of infrastructure development. Besides this, financial institutions, banks, insurance agencies etc play a key role in mobilising and maintaining an optimum flow of capital but also in helping and reducing risks by assisting information regarding a number of economic activities. And above all, availability of adequate physical infrastructure such as transport facilities, power and telecommunications are also seen as an essential precondition for attracting foreign or private investment. Keeping in view these aspects and for making an optimum flow of private and foreign investment, the Government has now moved away from its traditional role as a ‘provider of services’ to that of ‘facilitator’ and ‘regulator’.It is now being realised that the dynamic foundation of an intense structural transformation at an optimum level can only be laid down by creating adequate and gradual development of economic, social and institutional infrastructure both at urban and rural levels.

A. Infrastructure Index of Tripura

The infrastructural facilities in Tripura are less than adequate both in terms of quantity and quality. One of the main reasons for the backwardness of the state compared to other parts of India in general and NE in particular is the geographical isolation which occurred after partition of India in 1947 and till now the state could not have multi-link facilities with other parts of the country. In fact National Highway is the only Link road connecting Tripura with the rest of the country. Road Transport is not only the most dependable means of transport but also the lifeline of the state through its extremely hostile hilly terrain.

The infrastructural backwardness of the state is also evident from the infrastructure Indices (based on the availability of power, Irrigation, Road, Railways, Post Office, Education, Health, and Banking) devised by the Eleventh Commission for 1999 ranked Tripura as the third most backward state in the country (after Arunachal Pradesh and Jammu and Kashmir) and the second most backward state in the North–eastern Region (after Arunachal Pradesh). It is indeed disturbing to observe that the infrastructural availability in the state has worsened over the years. The Tenth Finance Commission placed Tripura in the first position (among the NE States) in terms of infrastructure index while the recent Twelfth Finance Commission report ranks Tripura as the most backward state among its North Eastern sisters (Table–13.1).

Table–13.1: **Infrastructure Indices for the North–eastern States**

State	Tenth Finance Commission	Eleventh Finance Commission
Arunachal Pradesh	49	69.71
Assam	82	77.72
Manipur	70	75.39
Meghalaya	74	75.49
Mizoram	63	82.13
Nagaland	71	76.14

Tripura	84	74.87
All India	100	100

Source: Ninth and Tenth Year Five Year Plans -1997-2002 and 2002-07.

It is worth mentioning here that during 1994-99 , the Infrastructure Indices for Tripura declined further from 84 points to 74.87 points while that for Mizoram for the same period increased from 63 to 82.13 points. In other words, Tripura's position fell from being the best placed state in terms of infrastructure availability among the north–eastern states to the second most backward state of the region indicating the worsening availability of infrastructure in the state while Mizoram's position improved substantially from being the sixth most backward state to the most developed state of the region in terms of infrastructural endowments.

B. General Profile of Infrastructure in Tripura

Infrastructural Facilities in Tripura can be divided into (a) Economic Infrastructure and (b) Social Infrastructure. Table 13.2 below clearly portrays the profile of infrastructure both economic and social.

Table 13.2 : General Profile of Infrastructural Facilities in Tripura

ECONOMIC INFRASTRUCTURE

(I) TRANSPORT (2002-03)

Total Road Length	15,524 km
National Highways	333 km
Railways	44.72 km rail network
Airport	1 Usha Bazar (Agartala)

(II) TELECOMMUNICATIONS(2002-03)

No of Telephone Exchanges	–79
No of Telephone connections	79,026
No of STD booths	1,608
No of Telegraph Offices	35
Percentage of households having Telephone	5.2
Population per Post Office (2001 census)	4482
Area served by a Post office (in sq km)	14.60

(III) POWER AND ENERGY (2001-02)

Power Availability	140.00 MW
Peak Power Demand	153.50 MW
Power Shortage	13.50 MW
Energy demand	670.33 MU
Available Energy	612.01 MU
Energy shortage	58.32 MU
Total Installed Capacity	128.60 MW
(a)Hydro	16 MW
(b)Gas	0
(c)Thermal	106.50 MW
(d)Diesel	6.10 MW
Per capita consumption of electricity (1998-99)	110 KWH
Percentage of Urban Households electrified	100
Percentage of Rural Households electrified	95.09
Distribution and Transmission Losses (in %)	29.50

(IV) BANKING AND INSURANCE (2002-03)

Total No of Banks	220
(a) No of State Bank Branches	33
(b) No of Commercial Banks	59
(c) No of Regional Rural Banks	86
(d) Co-operative Urban Bank	1
(e) Co-operative Land Development Bank	5
Avg Population served per bank	14505 persons
Branch (Total)	
(i) Rural	19329 persons
(ii) Urban	6543 persons
Percentage of households availing	26

C. Present Status of Infrastructure in Tripura

i. Economic Infrastructure

The economic infrastructure services such as power, telecommunications, roads, railways, air links, banking institutions etc are the pre-conditions for development and growth of an economy. The economic infrastructure basically supports the economic activities of any state or region and hence it augments the economic development of as well as growth prospects of a state's economy.

a. Transport

The basic means of transport in the state include Roads and Railways. Besides this, the state has one airport at Agartala which runs frequent flights to Kolkata and Guwahati.

1. ROAD TRANSPORT

In the absence of any significant railway link, roads provide the primary mode of communication in Tripura with the rest of the country. It is the main mechanized means of transport in hilly and rural areas, as Tripura is narrowly connected by a meter gauge railway link of 45 km from Kumarghat, North District via Dharmanagar to Badarpur and Lamding in Assam by metre gauge.Before independence Tripura had no road –network worth mentioning. There was only a small corridor of a 10 km long road from Agartala to the nearest railway station Akhaura, now in Bangladesh. After merger with India in 1949 the Public Works Department (PWD) had to undertake the construction work of lifeline i.e. Assam- Agartala road to connect Tripura with the rest of India and this road is now known as the National Highway-44. After extension of National Highway from Agartala to Sabroom, easier communication has been made available for South Tripura District. Keeping in view, the very limited railway link network, the State Government has imposed top priority on the development of good road network to ensure all weather road connectivity to at least all the Block

Headquarters. The latest position in terms of category and length of surface roads in Tripura is shown in Tables 13.3 and 13.4.

Table 3 : Position of Roads (As on 31st March , 2003)

Category of Road	Length (In Km.)
1. National Highway	333
2. State Highway	NIL
3. Major District Road	454
4. Other District Roads	1543
5. Village Roads (RD/ADC)	7912
6. Village Roads(PWD)	4700
7. IBB Roads(BRO)	582
TOTAL	**15,524**

Source : Draft Report of the Sub–Committee of State Planning Board on Infrastructure, Industries, trade and commerce

The total road length of Tripura is only 15,524 km of which 12612 km comprises of Village roads, 1543 km of other District roads and 33 km is covered by the National Highway. However it is clear that the present road length of Tripura is not sufficient for an optimum connectivity of rural areas with that of urban areas as a result of which the rural sector continued to be grossly under- developed. The following table gives us an account of the length of surfaced roads in Tripura.

Table 13.4 : Types of Roads and Respective Lengths

Types Of Road (According to surface)	Length (In Km)
1. BLACK TOPPED	3762
2. BRICK SOLED	2857
3. EARTHEN	8905

Source : Ibid

It may be observed from Table 4 that more than 55% of the roads are earthen and since the state experiences heavy rainfall and floods all through out the year, frequent maintenance of the roads becomes essential to ensure basic connectivity in the state. Unfortunately, lack of funds coupled with growing urbanization has added to the already dismal condition of road

transport in the state. Lack of adequate public transport facilities has fuelled the growth of private vehicles and added to the growing congestion in the state so much so that this state experiences the highest number of accidents among the north–eastern states. It is evident from Table 13.3 that although the village roads have a greater share in the total road length, but it is still inadequate according to the needs of the state.

Table–13.5 : Statewise -Road Connectivity at Village Level

State	Population less than 1000			Population Between 1000 and 1500			Population above 1500		
	1991-92	1994-95	1996-97	1991-92	1994-95	1996-97	1991-92	1994-95	1996-97
Arunachal Pradesh	19.27	20.09	39.06	73.47	89.80	86.54	96.88	96.88	85.94
Assam	60.51	64.22	69.80	100	100	97.08	100	100	99.72
Manipur	39.49	40.23	39.26	86.36	91.82	65.83	98.80	98.80	89.82
Meghalaya	46.76	49.49	44.51	100	100	86.49	100	100	64.29
Mizoram	72.66	74.68	80.82	100	100	100	100	100	100
Nagaland	84.19	87.37	85.08	87.88	96.97	100	100	100	100
Sikkim	63.07	69	73.90	83.33	87.50	93.22	100	104.76	100
Tripura	74.59	79.61	48.13	72.34	85.11	100	100	100	100
All India	36.52	37.45	49.18	72.32	76.54	74.58	89.82	91.72	78.04

Source : National Human Development Report,2001

In fact if we look at the Road Connectivity of Villages in Tripura with population less than 1000 (Table 5), we find that only 48.13 % of its rural villages were well connected by road in the year 1996-97 and since 80 % of the population in Tripura lives in rural areas, a very small percent of its population is actually well connected to the main city.

Table 13.6 : Statewise Road Density In The North–Eastern Region (Road Length per '000 sq Km of Area)

States	1971-72	1981-82	1991-92	1996-97
1. Assam	383	760	836	872
2. Arunachal Pradesh	125	152	131	168
3. Manipur	392	239	314	490
4. Meghalaya	303	233	291	379
5. Mizoram	43	119	179	229
6. Nagaland	284	379	901	1107

7. Sikkim	329*	156	227	258
8. Tripura	386	759	1341	1405
9. All India	344	466	615	749

Note: * Refers to data for 1975-76. Figures not available for 1971-72
Source : Compiled from Tenth Five Year Plan, 2002-07.
Data from basic road statistics ministry of surface transport.

As reflected from Table 13.6, it is clear that Tripura, being the smallest state in the North–eastern Region, has a high road density so much so that it surpasses all the north –eastern states. Its road density has grown almost three and a half times over the period 1971-72 to 1996-97 and was almost double the All India average in 1996-97. But the very fact, that it is the second most populous state of the region with a density of around 340 persons per sq km explains the extent of congestion and shortage of infrastructural facility in the state.

✓ **Some Ongoing Urban Development Projects of the Transport Department**

- **Construction of ISBT at Chandrapur**

To cater to the needs of increased volume of the transportation vehicle and considering the urgency and need for development of civic amenities in the city area, construction of city terminals have become urgent. Keeping this in view, it has been decided to construct an Inter-State Bus Terminus (ISBT) at Chandrapur in the eastern part of the city Core on NH–44.

- **Construction of Transport- Nagar (Truck Terminus) between Khaverpur and Dukli**

There is no parking space for incoming and outgoing truck for the largest wholesale market of the state, Agartala. Keeping this in view, the Government of India has already approved the proposal for re- alignment of the NH-44 by passing through Agartala City between Khayerpur and Amtali via Dukli.

- **Construction of International Bus Terminus at TRTC Complex, Krishnagar, Agartala**

A Draft Agreement and Draft Protocol was finalised for operation of the Bus Services between Dhaka and Agartala.The proposed site, beside the existing TRTC, has major roads on two sides and provides unique scope for construction of International Bus Terminus with all related facilities.

- **Construction of Bus Terminal Complex at Nagarjala, Agartala**

The Bus Terminal is to be constructed at Nagarjala as a part of the proposed integrated traffic circulation system for future development and is aimed at shifting the existing terminal at Battala, in its own land, to decongest the busy traffic generating point. Earth filling work of the Nagarjala Bus Stand has been completed by the Agartala Municipal Council.

- **Construction of Radhanagar Motor Stand, Agartala**

To cater to the need of increased volume of the Transport Vehicles and considering the urgency and need for development of civic amenities in the city area, Radhanagar Motor Stand has been constructed specially for the north bound transport vehicles.

- **Construction of Motor Stand at Sabroom Town, South Tripura District**

With a view to construct a Motor Stand at Sabroom Town, an amount of Rs 6 Lacs has been allotted to Sabroom Nagar Panchayat during the year 2003-04. Motor Stands at the following places have also been proposed- Bishalgarh, Bishramganj, G.B, Ambassa and Kanchanpur.

- **Construction of Parking Laybyes along National Highway**

A proposal had been initiated to the Government of India, Ministry of Surface Transport on 27.2.1999 for construction of Laybyes in 17 places.

✓ **DEVELOPMENT PROJECTS :**

Various efforts are being made to boost the road network system in the state. To assess the actual requirement of link roads for block and district

rural connectivity, the State Government had conducted the Habitation-wise survey for the preparation of Block and District Rural connectivity during 1995-96. According to this survey, 2712 habitations are still not connected by any roads for which 6644 kms of new roads were to be constructed. The physical position of some of these projects undertaken in various districts during 1998-99 to 2001-02 are stated below :

✓ **Bridges and Culverts**

There were 1284 nos. of bridges / culverts in the state as on 31st March, 2003 of which 30 nos. were major RCC bridges, 393 nos. were minor RCC bridges / box/ slab culverts, 178 nos. were steel bailey bridges, 5 were steel truss bridges and 678 nos. were semi–permanent timber bridges. The details are given in the following table.

Table–13.7 : Status of Bridges / Culverts as on 31st March, 2003

Classification of Bridges/ Culverts	Number
1. Major RCC Bridges	30
2. Minor RCC bridges /box/ Slab Culverts	393
3. Steel Bailey Bridges	178
4. Steel Truss Bridges	5
5. Semi Permanent Timber (SPT) Bridges	678

Source : ibid

It is clear from the above table that a very high percentage of the total bridges in the state are semi-permanent in nature (timber based) and are exposed to heavy rainfall and frequent floods all the year around as a result of which, they wear out and require frequent maintenance, especially during the rainy season. Conversion of these semi-permanent bridges to permanent ones has been taken up on a priority basis by the State Government but this process should be expedited in order to minimize the inconvenience to its citizens. In addition to this, the State Government has also undertaken projects for construction of Bailey Bridges in the state. The following table

provides a detailed account of some of the Bailey bridges completed during 1998-2002

✓ **Physical Progress During Ninth Five Year Plan**

In view of the hilly terrain of the state and the heavy rainfall it experiences, it becomes important to undertake works for the improvement of roads from time to time. The physical target and progress for road improvement during the Ninth Five Year Plan is as follows.

Table 10 : Physical Progress During Ninth Five Year Plan (1997-2002)

Project	Target	Achievement	Gap
Improvement of Roads	1647 km	500.72 kms	1146.28 kms
Bridges and Culverts	250 nos.	314 nos.	Target more than fulfilled

During the Ninth Five Year Plan, the target for road improvement was 1647 kms while the actual achievement was only 500.72 kms. Although the PWD department managed to fulfill and even surpass the target for construction of Bridges and Culverts, it could meet only 30 % of its target of road improvement. The already acute shortage of infrastructural facilities in Tripura coupled with the inability of the PWD department of the state to meet targets, may lead to a collapse of communication system of the state unless adequate measures are taken to ensure frequent and timely completion of road development projects.

2. Railways

Before Independence, Tripura was part of the erstwhile East Pakistan and the railway network, now present in Bangladesh, was used for transport and communication. Most of the important towns of Tripura, including the State capital Agartala, are situated adjacent to the rail stations in Bangladesh. Following partition, the entire railway network remained within

Bangladesh and Tripura became a geographically isolated pocket, surrounded by foreign countries on almost all sides.

The railway networking in Tripura is extremely limited. Tripura is narrowly connected by a railway link of 45 km from Kumarghat, North District via Dharamnagar to Badarpur and Lamding in Assam by meter Gauge. The work for extension of broad gauge railway line from Kumarghat to Agartala, capital of the State has been undertaken recently. The two nearest railway Stations are Kumarghat (160 kms) and Dharmanagar (200 kms). Both the stations are in the North–East Frontier Railway and are connected with Kolkata and other major stations in India. In fact, in terms of railway connectivity, the entire north–eastern region is neglected except Assam, which seems to have a good concentration of railway lines. As evident from Table–13.9 among other states only Tripura seems to have a fair share of railway lines, though the railway density is very low.

Table 13.9 : State–wise Routes Per Lac of Population and Route Kms per 1000 Sq Kms as on 31.3.2001

States	Route (Kms per lac of population)	Route (kms per 1000 sq kms)
1. Assam	9.45	32.08
2. Arunachal Pradesh	0.12	0.02
3. Manipur	0.06	0.06
4. Meghalaya	0	0
5. Mizoram	0.17	0.07
6. Nagaland	0.65	0.78
7. Sikkim	0	0
8. Tripura	1.40	4.26
9. All India	NA	NA

Source : 1. Compiled from Tenth Five Year Plan,2002-07
2. Data book 2002-03, Railway Budget, 26th Feb,2002

✓ **Railway Development Projects**

Development of railway network in terms of linking Agartala, the state capital with the country's main railway network has been considered essential for quite some time, for overcoming the problem of geographical isolation. However, on account of various factors, actual progress for

extension of railway line has remained very slow. During the last fifty years, North–East Frontier Railways has been able to make only a token presence of about 45 km meter gauge railway line in Tripura, connecting Kumarghat in North Tripura district via Dharmanagar to Badarpur and Lamding in Assam. At present, movement of goods and passengers by railways to the state is being affected very adversely as goods have to be trans-shipped twice, from broad gauge to meter gauge at Lamding and from railways to road at Kumarghat for reaching the state capital, Agartala. In December 1994, the locational survey of Kumarghat- Agartala Railway project was completed. As per preliminary estimates, the proposed railway line is 119.789 kms long and total financial involvement of the project is about Rs 575.10 crore. The proposed railway line will have stations at Nalkata, Manu, Sindhu Kumar Para, Ambassa, Mungiabari, Teliamura, Jirani, Malaynagar and Agartala. The State Government was grateful to the Prime Minister for laying the foundation stone for extension of Kumarghat – Agartala railway line on 23.10.96 and assuring to provide adequate funds in each year of the Ninth Five Year Plan so as to complete the entire project within five years. The following are the important ongoing railway line projects of Tripura:

- Extension of Railway Line from Kumarghat to Agartala; and
- Extension of Railway line upto Sabroom

In addition to this, proposal for linking Akhaura and Agartala has been made. In the Trade Review talks of December, 1998 between India and Bangladesh held at Dhaka, the necessity of linking of Akhaura and Agartala Rail Road was discussed. Accordingly, the Railway Board has communicated the sanction of the Board for undertaking the preliminary Engineering-cum-traffic survey for the construction of the proposed new Rail Line between Agartala and Akhaura. The length of the section is approximately 13 kms of which 5.4 km falls in Indian territory and the rest falls in Bangladesh.

3. Civil Aviation

The Civil aviation links in the state are quite weak. The state has one airport at Agartala that is connected to Kolkata (11 flights a week) and to Guwahati (2 flights in a week) via flights operated by Indian Airlines. In spite of the importance of Agartala Airport in providing transportation links to the State, existing facilities at the Airport are fairly primitive. Till late, the existing runaway (North/ South) was only 6000 feet long which was less than the minimum required runway length of 7500 feet for Airbus A–320.Moreover it did not have night landing facilities. After his visit to the North–Eastern State in October 1996, the Prime Minister announced a package of Rs 34 crore for upgradation of facilities at the Agartala Airport. Extension of the runway at Agartala Airport was taken up some time back. The runaway has been extended and night landing facilities have also been made available. Besides, the airport at Khowai is also required to be developed. There is a pressing need for augmenting flights and establishing better air links with other states. NEPC has recently introduced a few flights in these sectors.

The people of Tripura are almost dependent on air services for reaching Kolkata and other onward destinations as there is a token rail line existing in Tripura which often gets disrupted due to natural calamities like floods and landslides and it takes at least four days by road and rail to reach Kolkata from Agartala. As a result, there is considerable pressure of traffic on the flights and often requests have to be made by the State Government for special flights to move serious patients, students and Government officials and for meeting holiday rushes. Earlier there were 12 flights in a week operating in the Kolkata- Agartala sector of which 7 were Airbus-320 and 5 Boeing-737. From 1st April, 2003, only 2 Airbus-320, 8 Boeing-737 and 9 ATR flights and since June there is no 15 kgs in the ATR flights, causing immense hardship to the passengers. At present, 1- Boeing-737 and 6 ATR flights are operating in Agartala–Guwahati sector. There is also a Central Government decision that all state headquarters shall be directly connected to Delhi by Air Services. Agartala happens to be one of the few state capitals in the country

which is not connected with Delhi via direct flights. Direct flights to Delhi existed in 1992 but were withdrawn suddenly. These are required to be re-introduced. A flight between Agartala and Dhaka also needs to be re-introduced.In the absence of adequate communication facilities by road and rail, Air transport inspite of being expensive, appear to be the only dependable system of transport in Tripura. Common people, particularly students and patients could be affected because of the high air fare. Adequate subsidy is required to be provided to make the air fare reasonable and affordable. Austerity flights, as available earlier, are required to be re-introduced.

b. Telecommunications :

Allied to the transport is the communication system. The communication system comprises of postal services, telegraph services, telephone services etc. Communication facilities in the state have been growing steadily in recent years, one reason for that may be due to innovation in communication technology. In Tripura there were 79 telephone exchanges, 1,608 STD booths, 777 post offices and 35 telegraph offices in 2003-04. Although the Postal and telecommunication facility in the state has expanded considerably over the years and has even spread to the remotest sub-divisions of Gandachera, Kanchanpur, but in terms of its burgeoning population and the extreme geographical isolation of the state, these still seem inadequate. According to census 2001, only 5.2 % of the households in Tripura had telephone connections. This indeed is a miniscule percentage by all measures.

Table 13.10 : State–wise Number of Post Offices , Avg. Population Served and Area Served per Post Office (as on 31.03.2000)

State	Number of post Office	Population Served	Area served by a post office

	Total	Rural	Urban	per Post office (2001)	(in sq km)
A.P.	301	287	14	3625	278.07
Assam	3911	3627	284	6811	20.04
Manipur	691	680	11	3457	32.27
Meghalaya	487	453	34	4735	45.99
Mizoram	400	358	42	2228	52.74
Nagland	322	298	24	6176	51.24
Tripura	712	661	51	4482	14.60
All India	154551	138149	16402	6645.15	21.26

Source : Basic Statistics of NER, 2002.

If we compare the telecommunication facilities in Tripura (given in table 13.10) vis–a–vis the other north–eastern states, Tripura fares comparatively well. It has the second highest number of post offices in the region after Assam, most of which are located in rural areas. However in terms of average population served per post office, it serves the fourth largest population after Assam, Nagaland and Meghalaya.

Table 13.11 : District–Wise No of Telephone Exchanges, Telephone Connections, Public Telephone Offices and Telegraph Offices in the State (2000-01)

District	Total no of telephone Exchanges	Total no of telephone connections	No of public telephone office	No of telegraph Offices
West Tripura	24	41,217	654	12
South Tripura	20	8,121	140	10
North Tripura	11	8,185	133	07
Dhalai	08	1,494	25	06
Grand Total	63	59,017	952	35

Source: Economic Review of Tripura, 2001-02.

A district–wise analysis of the telecommunication facilities available in the state during 2000-01 reveals that most of the telephone exchanges,

telegraph offices and public telephone offices seem to be concentrated in West and South Tripura as compared to North and Dhalai region. The Dhalai region of Tripura is very poorly developed and lack of adequate transport and telecommunication facilities in the region have perpetuated the economic backwardness of the State.

C. Power and Energy

Power is a core component of infrastructure and is the propellant of growth for industries in particular and agricultural and commercial sectors of the economy in general. The power generation, transmission and distribution in the state of Tripura is entrusted to the Electricity department of Tripura. Compared to other states in India, the requirement of power in the State of Tripura is low on account of its small size, less population and more importantly low level of industrialization. There are three generating stations in the state operated on state grid namely Gumti Hydro Electric Power, Baramura Gas Thermal Project and Rokhia Gas Thermal Project having installed capacity of 15 MW, 21 MW, 69 MW respectively and effective generation capacity of 10 MW, 20MW, 40MW respectively so the total capacity is 105 MW. Source of fuel is Hydro in Gumti, Natural Gas in Baramura and Rokhia. Under the Central Sector, NEEPCO has commissioned the 84 MW Agartala Gas Turbine project.

1. Present Power Scenario in the State

The actual power supply position during 2001-02 in North–Eastern Region is given as below. The maximum load demand requirement for the entire region is 1085 MW; its availability is 1043 MW with a shortfall of 42 MW. Again, the energy demand for the entire region calculates around 5813.65 MW, its supply is 5641.94 MW leaving a gap of 161.26 MW.

Table 13.12 : State–wise Actual Power Supply Position (2001-02)

States	Maximum load demand (MW)	Maximum load demand (MW)	Maximum load demand (MW)	Energy Demand (MU)	Energy Demand (MU)	Energy Demand (MU)
	Requirement	Availability	Shortfall	Requirement	Availability	Shortfall
A. Pradesh	26.5	26.5	Nil	115.54	112.91	2.63
Assam	646.51	618.01	28.50	3338.75	3269.77	68.48
Manipur	94.00	91.00	3.00	456.13	436.53	19.65
Meghalaya	159.80	159.80	Nil	703.36	703.36	0.00
Mizoram	54.50	54.50	Nil	273.16	264.57	8.59
Nagaland	55.00	55.00	Nil	256.38	252.79	3.59
Tripura	153.50	140.00	13.50	670.33	612.01	58.32
Total	1085.00	1043.00	42.00	5813.65	5641.94	161.26

The present peak demand of power in Tripura is around 160 MW. The state's own generation is 70 MW and 40 MW is being imported from NE Grid. There remains a shortfall of 50 MW during peak load period. This shortfall is covered by making load shedding of one and quarter hours during peak load period. The energy requirement within the state during 2004-05 is estimated at 680 million units. The own net generation is estimated 525 million units .The import from Central Sector Power Station is estimated at 235 million units. The Power supply position during the eighth and the ninth Plan are given below along with the projected values for the tenth plan.

Table 13.13 : Power Supply Position in Tripura

(1996-97 to 2002-03)

Year	Power Surplus/ Deficit		Energy Surplus/ Deficit	
	(MW)	(%)	(MW)	(%)
1996-97 (End of 8th Plan)	(-) 20	22.7	(-) 114.9	23.8
1997-98 (Beginning of 9th Plan)	(-) 4	3.6	(-) 72.3	14.1
2001-02 (At the End of 9th Plan)	(-) 25	21.7	(-) 31.6	5.4
2002-03 (Beginning	(-) 26	14.3	(-)	5.1

of 10th Plan)			36.0	
2006-07 (Anticipated– at the End of Tenth Plan)	(-) 64	25.3	(+) 19.0	1.9

Source : Background Note of the Planning Commission Report on Tripura – April, 2003

It is evident from the above table that the power shortage in the state is expected to worsen in the coming years. At present the per unit cost of electricity in the state is high at approximately Rs 2.82 (2003-04). This may escalate in the coming years. The high cost of electricity is on account of the high cost of fuel, higher operation and maintenance and administrative costs and higher transmission and distribution losses in the power system. The O & M cost and administrative cost per unit of sale in the state is estimated to be 26 paisa and 150 paisa (2003-04) respectively, which is high as compared to All India figure of 10 paisa and 43 paisa respectively. The average tariff on the other hand was Rs 1.50 per unit during 2003-04 as compared to Rs 1.46 per unit during 2002-03. Because of the large gap between the average tariff and cost of supply per unit, the net operating deficit of the state government runs high and was to the tune of Rs 81.60 crore in 2002-03.

2. Power Sector Potential in Tripura

The total energy demand for various categories of consumers, estimated for the years 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12 is 935 MU, 1070 MU, 1209 MU, 1377 MU and 1551 MU respectively. As per the 16th load survey prepared by Central Electricity Authority, the peak demand is estimated to be 253 MW during 2006-07. The power demand during 2011-2012 is estimated to be 396 MW. In transmission and distribution network, more lines and substations are, therefore, required to be constructed for supply of steady and uninterrupted power to the consumer. The power potential of NER in hydro electric power is 34,920 MW accounting for 41.5% of all India potential. Natural Gas 151.68 billion which

is capable of generating 7500 MW for 10 yrs. Coal is 864.78 million tones against 186 billion tones of reserves in the country.

At present the total installed capacity of the NER alone is 1035.06 MW. The following table gives a comparative picture of the total power in installed capacity in the north eastern states of India.

Table 13.14 : State–wise Total Installed Capacity – Hydro, Gas,Thermal and Diesel

	Installed capacity Hydro (MW)	Installed capacity Gas (MW)	Installed capacity Thermal (MW)	Installed capacity Diesel (MW)	Total installed capacity (MW)
Arunachal Pradesh	23.60	0.00	0.00	15.80	39.40
Assam	2.00	300.00	300.00	20.70	622.70
Manipur	2.80	0.00	0.00	9.30	12.10
Meghalaya	185.20	0.00	0.00	0.00	185.20
Mizoram	5.40	0.00	0.00	19.10	24.50
Nagaland	19.30	0.00	0.00	3.26	22.56
Tripura	16.0	0.00	106.50	6.10	128.60
Central sector					
Doyang	75.00	0.00	0.00	0.00	75.00
Loktak	105.00	0.00	0.00	0.00	105.00
Ranganandi	405.00	0.00	0.00	0.0	405.00
Khangdong	50.00	0.00	0.00	0.00	50.00
Kopili	200.00	0.00	0.00	0.00	200.00
Kathalguri	0.00	0.00	294.66	0.00	294.00
AGTPP	0.00	0.00	84.00	0.00	84.00
Total	1089.00	300.00	785.16	74.26	2248.72

The total installed capacity in Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura is 39.40 MW, 622.70 MW, 12.10 MW, 185.20 MW, 24.50 MW and 22.56 MW respectively while the installed capacity in Central Sector project is 1213.00 MW, so the total installed capacity in the North–Eastern Region is 2248.72 MW.

Tripura's share in Central sector power stations located in the North–Eastern Region during 2002-03 is detailed below :

Table – 13.15 : Tripura's Share in Central Power Stations (2002-03)

Hydro Stations	Tripura's Share

	MW	Percentage
Loktak HEP(3X35 MW)- NHPC	12.1	11.52
Kopili HEP(2X25+2X50 MW) - NEEPCO	8.0	5.33
Kopili Extn HEP(2X50 MW) - NEEPCO	6.0	6.00
Doyang HEP(3X375 MW)- NEEPCO	5.0	6.13
Ranganadi HEP (3X135 MW) - NEEPCO	29.0	7.16
Thermal Stations		
Kathalguri CCGT (291 MW) – NEEPCO (6X33.5 MW GT +3X30 MW ST)	19.0	6.55
Agartala GT (4X21 MW)	14.0	17
TOTAL	93.1	

Source : Background Note of the Planning Commission Report on Tripura – April, 2003

It is important for Tripura to undertake more power generation projects as the per capita consumption of electricity in the state is growing. Table–17 provides a state–wise account of growth of per capita consumption of electricity in the NE Region.

Table 13.16 : Per Capita Consumption of Electricity in NER (1992-99)

S.No	State	1992	1993-94	1994-95	1995-96	1998-99
		(KWH)	(KWH)	(KWH)	(KWH)	(KWH)
1	Arunachal Pradesh	54.00	67.00	66.00	78.00	87.00
2	Assam	97.00	95.00	98.00	100.00	123.00
3	Manipur	104.00	111.00	107.00	118.00	75.00
4	Meghalaya	129.00	110.00	140.00	143.00	150.00
5	Mizoram	91.00	101.00	112.00	128.00	114.00
6	Nagaland	73.00	68.00	59.00	79.00	81.00
7	Tripura	59.00	60.00	66.00	73.00	110.00
8	All India	330.60	298.96	320.10	335.42	360.00

Among the north–eastern states, Meghalaya has the highest per capita consumption of electricity followed by Assam, Mizoram and Tripura. It is significant to note here that although states like Mizoram experienced significant growth in per capita consumption of power i.e. 114 KWH, the north–eastern states continued to have the lowest per capita consumption figure in the country. The prime reason behind it is the low industrial activity

in the reason which is largely responsible for the low economic growth of this region. It is not surprising that most of these states experience a shortfall in electricity, as a relatively high percentage of electricity is lost in transformation, transmission and distribution. Tripura alone loses 35- 40 % of electricity in this way which if effectively utilized can significantly reduce the power shortage in the state.

The transmission and distribution losses in Tripura from the 8th plan onwards are given below.

Table – 13.17 : Transmission and Distribution Losses in Tripura
(1991-92 to 2002-2003)

(In Percent)

	T & D Losses	
	Tripura	All India
At the beginning of 8th Plan (91-92)	31.00	22.83
At the end of 8th Plan (96-97)	30.00	24.53
At the end of 1997-98	29.33	24.79
At the end of1998-99	28.50	26.45
At the end of 1999-00	28.49	30.80
At the end of 2000-01	44.97	29.90
At the end of 2001-02	40.00	31.50
At the end of 2002-03 (RE)	37.60	29.30

Source : Background Note of the Planning Commission Report on Tripura – April, 2003

3. Power Projects

With a view to end the power shortage in the state of Tripura, 3 units each of 21 MW Gas turbines have been proposed during 10th plan period for installation in the state at an estimated cost of Rs 240.00 crore. The long term planning includes installation of 4 units each of 21 MW Gas Turbine in the state to make the total capacity to 252 MW at the end of 2011-12 against the demand of 396 MW.

NEEPCO has also planned to set up 500 MW gas based power generation at Monarchak near Sonamura during the 10th Plan period. Private

participation for power generation has also been approved by the government. A 400 KV transmission line will also be required to be constructed from Monarchak upto MISA, Assam .The length of the line will be around 600 km. A scheme for construction of 132 KV lines and substations has been prepared at a cost of Rs 57.92 crore. To meet the demands of the state up to 10th plan period. The scheme comprises of 110 km 132 kv single circuit line, 50 km 132 kv double circuit line and 132 substation of 110 MVA capacity with augmentation of existing substation by 25 MVA. To improve voltage profile and to supply power to the rural villages, distribution line to the tune of 6000 km will be required to be constructed during the next 10 year period. The department has also planned to electrify 2158 habited localities by end of 2012 for which Rs.135 crore will be required during the period. A Programme has also been undertaken to extend power lines to 4,00,000 families during 10 year period i.e. by 2012.The cost involvement for such power line connection will be around Rs. 80.00 crore. Power for the Poor - Special Emphasis to Tribal and Underdeveloped area. There are a few project in the pipeline like Baramura Gas Thermal Extension project, Rokhia Gas Thermal Project and Micro Hydel project.

4. Status of Ongoing Projects

- **Rokhia GT Extension (1 X 21 MW)**

At Rokhia, the 7th unit of 21 MW has been commissioned in September, 2002 with funding from Non-Lapsable Central Pool of Resources. Government of Tripura as the executing agency.

- **Baramura GT Extension (4th UNIT – 1X21 MW)**

The 4th unit of Baramura has been commissioned since November, 2002 under NEC agency. Government of Tripura is the executing agency.

5. New Schemes

- Tripura Gas Turbine Project (500 MW) to be commissioned during the 10th Plan period.

- Baramura GT extn (5th UNIT -1X21 MW).

The proposal for setting up of Baramura G.T extension has been submitted by the NEC for inclusion in the 10th plan. During the Working Group Meeting on power it was observed that a 500 MW Gas Based Combined Cycle Thermal Power Project in Tripura is under implementation by NEEPCO in the Central Sector to utilize the natural gas available in Tripura as such there is no need for taking up 21 MW project in NEC plan and therefore no outlay was recommended for Annual Plan 2002-03 as well as for 10th plan.

- The first phase of 280 MW GT Project at Monarchak is expected to come up in 3 yrs ie by 2007.

- In addition 3 MOUs have been signed with private agency for power generation in the state.
  - Suma Power Gen Pvt . Ltd., Andhra Pradesh = 325 MW
  - Surya Power Gen Pvt. Ltd., Andhra Pradesh = 120 MW
  - Sri Rayalaseema Hi- Strength Hypo Ltd., (TGB Group, Hyderabad)= 441 MW

Works of 35 MW of Suma Power Gen Pvt Ltd. will be started soon.

Recently, the announcement made by Prime Minister for construction of Loktak Down Stream Hydro Electric Project in Manipur and Turial H.E. project in Mizoram will be great help for Tripura. It is expected that these project shall be constructed in the central sector with Central assistance

outside the NEC plan and all the constituent states of the region shall have their share.

d. Banking and Insurance

Banking is one of the important financial instruments for economic development. A well developed banking infrastructure lays the base for sound industrial development and speedier economic growth. The banking and credit infrastructure has improved considerably over the years. Banks have expanded their network particularly during the last two to three decades. In 1969, there were 5 Commercial Bank Branches in Tripura that served an average population of 2,76,000 per Bank branch. At present, there are a total of 222 Bank branches (including Scheduled Commercial Banks, Co-operative Banks and Regional Rural Banks) serving an average population of 14,375 per Bank branch. Till March 2002, there were 180–Scheduled Commercial Bank Branches (including Tripura Gramin Bank), 33–branches of State Bank of India and 36- branches of Tripura State Cooperative bank, 5-Branches of Tripura Cooperative Land Development Bank and 1- branch of Agartala Co-operative Urban Bank

A comparative analysis of Banking and Insurance sectors of the north–eastern States reveal high inter-state disparities. The maximum number of bank branches were found in Assam -1289 distantly followed by Meghalaya with 223 Branches and Tripura with 222 branches. The states of Mizoram, Manipur and Nagaland had approximately 90 branches in all.

Table 13.18 : State–wise Number of Banks and Avg. Population Served Per Bank Branch (2002)

Particulars	A.P	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura	Total
I. Tot no of bank branches	99	1289	91	223	90	92	222	2106
a. Commercial	49	825	47	131	26	64	92	1234
b. RRB	19	396	29	53	54	8	85	644
c. Co-operative banks	31	68	15	39	10	20	45	228
II. Avg pop served per bank branch	11,022	20,666	26,249	10,341	9,900	21,616	14,375	18,279

Source : Basic Statistics of NER, 2002.

The total numbers of bank branches in the state, however, do not give us a fair idea of the banking and credit infrastructural facilities in the region unless one knows about the average population served per bank branch in the respective states. The average population served per bank branch was highest in Manipur i.e.26,249 persons followed by Mizoram with 21,616 persons, which shows the inadequacy of banking infrastructure in these states. The average population served per bank branch in Tripura was 14,375 persons which was better than the north–eastern average at 18,279 persons. The condition of Banking facilities are better in Mizoram and Meghalaya where the average population served per bank branch was 9,900 persons and 10,341 persons, respectively.

✓ **Distribution of Bank Branches In Tripura**

The following table depicts the locality–wise branches of these banks in March, 2002.

Table 13.19 : Distribution of Bank Branches-Rural and Urban and Average Persons Served Per Bank Branch (March 2002)

	Distribution of bank Branches			Avg pop served per Bank branch	
	Rural	Urban	Total	Rural	Urban
A. State bank of india	17	16	33	26,8074	33944
B. Commercialbank/ nationalized bank	32	28	60	82,752	19396
C. Regional rural bank	71	16	87	-	33944
D. Agartala co-operative urban bank	-	1	1	-	5,43,094
D. Tripura co-operative Land development Bank	-	5	5	-	1,08,619
F. Tripura state co-operative bank	18	18	36	147115	30172
Total	138	84	222	19,189	6466

Source : Economic Review of Tripura, 2001-02.

It is evident from Table 24, that due regard has been paid to the rural sector while developing the bank branches. Out of 222 bank branches in Tripura, 138 were located in rural areas. But since 80% of its population lives in rural areas, the average population served per bank branch is very high i.e. 19,189 persons as compared to 6,466 per bank branch in urban areas.

Table 13.20 : District–wise Breakup of Public Sector Banks (March 2002)

Sl No	Name of Districts	No of offices	Avg no of persons Served per bank branch
1.	West Tripura	87	17,592
2.	South Tripura	45	16,946
3.	North Tripura	32	18,458
4.	Dhalai	16	19,241
	Total	180	17,729

Source: Economic Review of Tripura, 2001-02.

A district–wise analysis of all Public Sector Banks and Regional Rural Banks reveals high regional disparities in Tripura. There seems to be a concentration of Bank Branches in West Tripura and Agartala District while

North Tripura and Dhalai Regions have been fairly ignored in the bargain. West and South Tripura alone account for 73 % of Public Sector Banks and RRBs in the state while North and Dhalai District account for the remaining 27%. It may be observed from the above table that the average number of persons served per bank branch (Public + RRBs) in the state are lowest in the South District (16,946 persons) and highest in the Dhalai region (19, 241 persons per bank branch).

e. Irrigation and Flood Control :

Irrigation and management of flood control are the two essential components for optimum utilization of water resources and for the minimization of the incidence of natural calamities. Physical infrastructure for irrigation and flood control is essential for a state like Tripura where 70 % of population directly or indirectly depends on agriculture for their livelihood. Assured irrigation facilities and proper protection from devastation by floods, therefore, directly helps in achieving self sufficiency in food production and simultaneously in increasing income and employment.

The irrigation facilities in Tripura are far from adequate. At present, there are ten perennial rivers flowing in Tripura. Though all the ten perennial rivers i.e. Feni, Muhari, Gumati, Howrah, Khowai, Dhalai, Manu, Deo Juri and Langui as well as a large number of streams are the potential resources for irrigation yet they are equally a contributing factor for excessive bank erosion from hill to plain as all the rivers originate from the hills of Tripura and flow to Bangladesh. Thus 70 % catchments are of rivers in hilly terrain, stepped bed and high velocity of flow cause severe bank erosion leading to the problem of flood in the state. In addition to this, floods in these plains are excessive due to construction of embankments by Bangladesh on both sides of the river. Thus in the spheres of irrigation and flood control, the Government of Tripura is at present facing the twin problems of (i) the extension of assured irrigation facilities to 1,17,000 hectares of land with full utilization of surface water and ground water resources according to their

feasibility in a particular area so as to raise cropping intensity to about 200 % and (ii) an effective plan of action for controlling excessive bank erosion from hill to plain as well as bank revertment for anti erosion works so as to protect most of the towns, educational institutions, Government structures etc which are on river banks.

Realizing the importance of irrigation and the necessity of flood protection measure, the Government of Tripura had constituted Water Resources Department under the PWD in the early 1978 for executing the major schemes in these two areas. The department looks after the work of Minor Irrigation, Medium Irrigation and Flood Control Works. Besides Water Resources (PWD) Department, the other agencies in the state which implement various irrigation related schemes are Rural Development Department, Department of Agriculture and Tripura Tribal Areas Autonomous District Council (TTAADC). These four agencies are jointly engaged to improve the irrigation facilities in Tripura. The ultimate aim is to provide assured irrigation to the entire command area by 2010 so that Tripura can become self sufficient in food. This will require an increase in the levels of food production by about 5 lakh MT in the coming 10 years ie from 5.93 lakh MT (1999-2000) to about 11 lakh MT in 2010.

- ✓ **Present Status of Irrigation**

Tripura is basically a hilly state. It has narrow valleys and limited cultivable land. About 60 % of the geographical area is covered with reserve forest and total cultivable land is limited to 2, 80,000 hectares for agricultural activities. About 23,000 Ha of land is under Jhum cultivation (shifting cultivation) which causes serious problems of land erosion, degradation of land etc.The Irrigation potential of the state has been estimated to a maximum area of only 1,17,000 hectares of which 79,000 hectares of land is being covered from surface water and 38,000 hectares from ground water.

- ✓ **Water Resources**

There are 10 nos. of perennial rivers and a large number of streams. The average rainfall in Tripura is 2100 mm in a year and rain starts in the month of April and lasts up to September/ October. The surface water, therefore, plays a major role in the irrigation system in Tripura. The total surface water resources have been assessed as 7,999 million as monsoon flow. The ground water availability is also fairly satisfactory. The gross recharge of ground water strata in the state is around 840 million cubic meters. Considering 70 % of the gross recharge as usable, the utilizable ground water potential therefore is 588 MCM. Hence it is seen that the state has sufficient quantum of surface and ground water sources which can be effectively utilized for irrigation–by way of river lift irrigation system, drinking water for domestic and industrial uses.

- ✓ **Irrigation Potential and Achievements**

As per the preliminary assessment about 1, 17,000 Ha of land may be brought under assured irrigation. The state has only 3 on going Medium Irrigation Projects viz. Gumti, Khowai and Manu. Total potential from 3 projects is estimated to be 13,199 Ha. The rest potential is to be covered through Minor Irrigation Schemes. There is no possibility of any Medium or Major Irrigation Project in the state. The cumulative achievement in irrigation in Tripura up to 31.03.2003 is only 72,284 ha (WR, RD, Agriculture, TTAADC) which is 26.81 % of the total cultivable area which is far below the average Indian standard. Irrigation potential created by different executing departments up to March 2002-03 is as follows :

Table 13.21 : Irrigation Potential in Tripura

Irrigable Land	1,17,000 HA
Potential Created Up 31.03.2003 (a) PWD (W R) (b) R.D. Deptt (c) Agriculture (d) TTAADC	72,284 HA 44,646 HA 25,5381, 755 HA 345 H

The minor irrigation schemes which were executed by PWD were 172 nos. of river lift irrigation, 10 nos. of diversion schemes and 15 nos. of deep tube well scheme during 1998-2002.The details are given in the following table:

Table 13.22 : Minor Irrigation Schemes at A Glance (1998-2002)

Type of Scheme	Year	no of schemes	Potential Created (ha)
1.Medium Irrigation	2000-01	1 commissioned	200
2. Lift Irrigation	1998-99 1999-00 2000-01 2001-02	60 105 115 163	2445 2839 2661 2942
3. Deep Tube Well	1998-99 1999-00 2000-01 2001-02	3 8 2 2	60 170 40 40
4. Diversion Schemes	completed work in progress work order issued	1 6 4	50 - -
5. Medium Irrigation (a) Ongoing (b) Started Total	2000-01 2001-02 2001-02	 1	150 400 11997

Source : PWD, Tripura, Achievement during the Period From 1998-99 To 2001-02.

✓ **Physical Target and Achievements Under the Plans**

So far as the physical target and achievement for minor irrigation schemes during the Ninth Plan (1997-2002) is concerned, the target was fixed at 16000 ha, while the actual achievement was higher at 26942 ha. The actual expenditure during the period was Rs 75.38 crore as against the anticipated expenditure of Rs 105.36 crore. That is to say, the progress for minor Irrigation programme was more than satisfactory. Moreover, it was executed in a cost effective manner which considerably reduced the financial burden for the fund starved State Government.

Table 13.23: Physical Target and Achievement for Minor Irrigation and Flood Control During Ninth (1997-2002) and Tenth Five Year Plan (2002-07)

Item	Ninth plan				Tenth plan		Annual plan 2002-03			Annual plan 2003-04		
	Phy		Fin (rs cr)		phy	Fin (Rs Cr)	Phy		Fin (Rs cr)	Physical		Fin (Rs cr)
	T	A	App	A.E	T	App	T	A	App	T	A	App
Minor irrigation	16000	26942	105.36	75.38	32400	219.25	7300	7300	32.93	886	6050	37.86
Flood control	44.50 kms	48.49 Kms	28.00	26.22	71 Kms	96.57	11.4 Km	11.40 Kms	4.05	3.45 Kms	3.45 Kms	4.66
(a) construction	19.50	2.74			12.00		2.40	2.40		0.55	0.55	
Of embankments	20.00	23.70			18.00		2.00	2.00		0.70	0.70	
(b) improvements	5.00	22.05			26.00		4.00	4.00		1.30	1.30	
Of existing	Nil	Nil			15.00		3.00	3.00		0.90	0.90	
Embankments												

(c) anti-erosion Works												
(d) improvement Of anti erosion Works												

Phys- physical, fin- financial, t- target, a –achievement, app- approved outlay, ae – actual expenditure.
Source : Background note of the Planning Commission Report on Tripura – april, 2003, Draft Annual Plans (2003-04 & 2004-05), Flood Management Works in Tripura, P.W.D.(W.R), Govt of Tripura.

For flood control, the target was more than fulfilled under the Ninth Plan as against the target of 44.50 Km, the actual achievement was 48.49 kms but that was mainly on account of rigorous anti erosion works and improvement of existing embankments. Little progress was made as far as construction of new embankments is concerned. The Tenth Plan target for minor Irrigation and flood control has been fixed at 32,400 ha and 71 km with a financial outlay of Rs 219.25 Cr and Rs 96.57 Cr respectively. So far the progress seems satisfactory, with the successful meeting of targets – both for Irrigation and Flood Control in 2002-03 and 2003-04 annual plans, but it is important to keep up the pace in order to achieve its target of self sufficiency in food by 2010.

- ✓ **Flood Control Measures**

For flood control works in Tripura, there are three sponsored scheme viz (i) State sponsored schemes (ii) Centrally sponsored schemes and (iii) externally aided projects for flood control works. The main objective of these schemes is to control excessive bank erosion from hill to plain and bank revertment for anti erosion for protecting the districts, sub divisional towns, schools and Government establishment which are mostly situated on the bank of the rivers. For meeting these two inter-related problem of flood control, Water Resources Department (PWD) has constituted four major

schemes namely (i) construction of embankment (ii) improvement of existing embankment (iii) anti erosion works and (iv) improvement of existing anti erosion works. So far the flood control measures are concerned, the major achievements of the Department of Water Resources (PWD) are as follows

Table 13.24 : Major Achievements of the Department Of Water Resources (PWD)

Flood Prone Area	75,000 HA
Potential for Protection	45000 HA
Area under Protection	25,000 HA
Length of Existing Embankment	133 KM
Length of Anti Erosion work	40.20 KM

It is evident that there is scope for bringing about 44,716 hectares additional area under irrigation (1, 17,000–72,284 ha) as well as potential for protection of flood control to additional 20,000 ha. One of the reasons for the slow progress in these areas has been inadequate availability of fund under the state plan. The State government should therefore ensure timely and assured financial assistance for an optimum development of flood protection works in the state. Since 1999-2000, Accelerated Irrigation Benefit funds have been made available for Minor Irrigation Schemes in NE states as a special case. This has solved the problem of funds to a great extent. It is for this reason that more agencies besides the Water Resource Department have been involved for bringing potential areas under irrigation within a short span of time. The State Govt has also set up a Committee headed by Principal Secretary, Forest to identify the critical components for early completion of irrigation projects in Tripura.

ii. Social Infrastructure

Social infrastructure plays an important role in augmenting the human capital resources of the state. The success of development programmes

cannot be judged merely in terms of their economic effects on income and employment but how far they have been successful in augmenting social opportunities for its people. Social opportunities which basically include provision of public education, proper housing facility, basic health facilities, and other basic amenities like safe drinking water etc not only lead to diverse achievements in quality of life but also influence economic performance.

a. Educational Institutions

Education has an important instrumental value in augmenting economic growth and progress. A well developed educational and institutional infrastructure spurts economic growth and has a direct multiplier effect on other social factors like health, child and women development, employment, labour force etc.

b. Housing

The provision of proper housing and dwelling forms a very basic need of the people. For every citizen a house provides significant economic security and status in society. For a person who is homeless is lacking in both. There is a direct connection between poverty and housing. Since approximately 83% of its population lives in villages of which 66.81% live below poverty line, it is easy to gauge the magnitude of housing problem in the state.

c. Health Infrastructure

Human resources, being the major strength of State, provision of a dependable and reliable health care system is considered to be of paramount importance. Due to reasons specific to the region, private investment in development of this sector has not been very forthcoming. The state government has therefore played a major role in developing the required infrastructure and for providing medical and health facilities with particular emphasis on the poor and the under- privileged.

d. Basic Amenities

Before providing health and educational facilities to the people, it is necessary to ensure that its citizens have access to Basic amenities like Safe Drinking water and clean toilets. As far as basic amenities to households are concerned, provision of safe drinking water and decent toilet facilities seems to be major problem in the state. Approximately 80% of its population resides in villages of which less than 50 % have access to safe drinking water and access to toilet facilities.

The general profile, present status and the potential for growth of social infrastructure in the state have been discussed in the chapter on Human Resource Development.

D. Plan Outlay For Infrastructural Development

If we examine the sectoral composition of plan outlays over the years, we find that the State government has been giving more emphasis on the provision of social infrastructure to its people at the cost of economic infrastructure in the state.

Table 13.25 : Sectoral Composition of Plan Outlays (In %)

Sector	Sixth plan (1980-85)	Seventh plan (1985-90)	Eighth plan (1992-97)	Ninth plan (1997-2002)	Tenth plan (2002-07) (projected)
1.Irrigation & flood Control	12.32	8.37	5.08	6.06	8.00
2. Power	12.55	11.63	11.90	5.27	5.00
3.Transport & Communication	12.37	11.08	9.35	10.39	11.2
4. General Economic services	0.15	0.43	0.56	0.45	1.50
5. Social Services	31.11	31.34	38.34	48.86	40.50
6.General services	1.14	1.36	0.98	1.18	1.50

Source : (1) Basic Statistics of Tripura, 2002,
(2) Ninth Five Year Plan, 1997-2002

(3) Tenth Five Year Plan, 2002-07

Public expenditure on social services like Education, Public health, Water Supply & Sanitation, Housing, Nutrition has been continuously increasing from 31.11 % in the 6th plan to 38.34 % in the 8th plan and to 48.86 % in the 9th plan. Most of the public expenditure on social services is being incurred on provision of primary education and housing facilities in the state. Public expenditure on Economic infrastructure like Power, Irrigation and Flood control and General economic services on the other hand have been declining from 25.02 % in the 6th plan to 17.54 % in the 8th plan and to 11.78 % in the 9th plan. Transport and communication sector of the state which is already in dire state has been receiving a minimal of 10-12 % of the total plan outlay.

Although it is important for a government to provide social security to its people, it is equally important to ensure the development of the economic infrastructure in the state as it is the economic infrastructure which supports the basic economic activities of the state and without which the state has little chance of attaining economic prosperity

E. State Perspective Plan

In order to improve the basic infrastructural facility in the state the following state perspective plan has been prepared for Road, Power sector, Irrigation and Flood control.

i. Perspective Plan For Road Improvements

The state has a road length of 15,564 Kms, of which 28.2% is surface road. The State government needs to improve the surface category of roads at least to the All India level of about 57 %. In order to achieve this goal and ensure better connectivity of urban and rural areas, the following state perspective plan has been prepared.

Table 13.26 : Action Plan For Road Improvement – Physical Improvements and Projected Outlay (2003-08) (Rs. In lakhs)

Sl. No.	Schemes	Project Cost	Requirement of funds				
			2003–04	2004–05	2005–06	2006–07	2007–08
1.	Improvement of road from Khayerpur to Bodhjungnagar by double lane	260.00	39.00	39.00	52.00	65.00	65.00
2.	Conversion of all existing semi permanent timber (SPT) bridges in Tripura– 18000 meters	27000.0	4050.00	4050.00	5400.00	6750.00	6750.00
3.	Planning of NH–44 from Churaibari to sabroom by March/08– 333 km	49950.0	7492.50	7492.50	9990.00	12487.5	12487.5
4.	Double laning of NH–44 A– 133 Km	15960.0	2394.00	2394.00	3192.00	3990.00	3990.00
5.	Up gradation of 430 km Major District Roads to state High was (double lane standard)	43000.0	6450.00	6450.00	8600.00	10750.0	10750.0
6.	Single connectivity to all paras/habitations having population upto 250	36050.0	5407.50	5407.50	7210.00	9012.50	9012.50
7.	Improvement and development Other district	37500.0	5625.00	5625.00	7500.00	9375.00	9375.00

	roads to intermediate lane standards for a length of 750 km.						
8.	Improvement of the existing bus terminus with modern planning of bus stop truck terminals, shopping complex, parking lots etc.	35000.0	5250.00	5250.00	7000.00	8750.00	8750.00
9.	Development of New capital complex area by shopping complex, parks shopping complex etc.	800.00	120.00	120.00	160.00	200.00	200.00
10.	Alternate airport road via capital complex to Budhjung nagar–19 km	2280.00	342.00	342.00	456.00	570.00	570.00
11.	Improvement of existing Agartala–Airport Road to 4 lane–10 km	600.00	90.00	90.00	120.00	150.00	150.00
12.	Improvement of road from Indranagar to NH–44–18 km	1800.00	270.00	270.00	360.00	450.00	450.00
13.	Construction of road from Bodhjugnagar to Tripura	6000.00	900.00	900.00	1200.00	1500.00	1500.00

	Engineering College and linkage to NH–44 a Jirania–30 km						
Total		256200	38430.00	38430.00	51240.0	64050.0	64050.0

Source : Draft Report of the Sub-Committee of State Planning Board on Infrastructure, Industries, Trade and commerce

The total project cost is expected to be Rs 2,56,200 lacs .The State Government urgently needs to improve the road network of the state for an efficient transport network system is an essential precondition for ensuring industrial and economic prosperity in the state.

ii. Perspective Plan for Power

With the objective of removing the shortage of power in the state and ensuring 100 % electrification of all the villages-rural and urban in Tripura, the following action plan has been prepared uptil 2007-2008.

Table 13.27 : Physical and Financial Action Plan for the Power Sector

Name of scheme/ works	Physical programme	Outlay (Rs in lakh)
I. Generation		
A. Renovation of existing Units at Gumti and Maharani	Capacity upgradation	17 Cr.
B. Renovation of Gas Thermal Units at Rokhia	Capacity Upgradation	35 Cr.
C. Installation of 4 x 21 MW set at Rokhia and Baramura	Capacity Upgradation	324 Cr.
II. Transmission and Distribution		
A. Transmission Line	132 KV S/C line = 158 Km, D/C line = 50 km, renovation = 180 km and 66kv line = 16 km	52.60 Cr.
B. Sub- station	132 KV S/S Capacity = 60 MVA, Augmentation = 52.5 MVA, 66 KV = 15 MVA, Augmentation = 6.3 MVA	15.64 Cr.
C. Distribution works	33 kv line = 89 km, augmentation = 15 km, 33 kv s/s capacity = 17.6 mva , augmentation = 30 mva, 11 kv, ug cable = 60 km, lt line = 60 km, 11/ .43kv s/s = 9.78 mva, 5 plcc links	21.36 Cr.
III. General	Construction of office building at 10 places	3.75
IV. Rural Electrification Works	Electrification of virgin habitation = 420 nos, extension of lt line = 1400 km, renovation = 600 km, si at nagar panchayat, 11 kv line = 60 km, lt line = 100 km, 11/0.43 kv s/s = 4.89 mva	51.50
TOTAL		520.85

Source : Draft Report of the Sub-Committee of State Planning Board on Infrastructure, Industries, Trade and Commerce

It is evident that the perspective plan that has been prepared to reduce the power shortage in the state requires a massive dose of investment to the tune of Rs 520.85 crores. Since the state government is already fund starved, it is imperative for the Central government of pool in the requisite financial assistance to make Tripura a power surplus state by 2012.

iii. Perspective Plan For Irrigation

With the aim of making Tripura self sufficient in food by 2010 the following action plan is being proposed:

1. Physical Action Plan (2003-04 to 2007-08)

For Tripura to become self sufficient in food production, it is important to bring the balance land under assured irrigation and providing necessary inputs to the cultivators in time. The balance land can be brought under assured irrigation through joint efforts of WR Department, RDD, Agriculture Department and TTAADC.

Table 13.28 : Physical Action Plan for Irrigation (Area in HA)

Year	Water Resources	TTAADC	Agriculture	R.D.D	Total
2003-04	3555	478	1025	2000	7055
2004-05	3500	470	1000	1500	6470
2005-06	3000	425	1000	1500	5925
2006-07	3000	400	750	1500	5650
2007-08	3000	400	900	1500	5800
TOTAL	16,055	2,170	4,675	8,000	30,900

Source : Draft Report of the Sub-committee of State Planning Board on Infrastructure, Industries, Trade and Commerce

The total potential expected to be created by 2007-08 is 30,900 ha out of which 16,055 ha will be covered by Water Resources Department, 2170 ha by Tripura Tribal Areas Autonomous District Council, 4675 ha by Agriculture Department and 8000 ha by Rural Development Department.

2. Financial Action Plan

The year wise financial outlay up to 2007–08 is expected to be as follows.

Table 13.29 : Yearwise Financial Action Plan (Rs in Lacs)

Item of work	2003-04	2004-05	2005-06	2006-07	2007-08
1. Direction and Admn.	80	85	90	95	100
2. Construction of Office Building	20	20	15	15	10
3. Survey and Investigation	20	25	25	30	30
4. Lift Irrigation (AIBP) (a) Continuing Scheme (b) New Scheme	 2050 0	 3000 300	 2600 150	 2600 300	 2700 350
5. Diversion Scheme (a) Continuing scheme (b) New scheme	 400 0	 500 100	 600 250	 725 200	 600 250
6. D.T Well Scheme	25	30	35	40	45
7. Artisen, Shallow Tube well, small pumps	-	20	25	30	35
8. Improvement of Existing L.I Scheme	25	30	30	35	40
9. Improvement o f Existing Diversion Scheme	5	10	10	10	15
10. Command area development (CAD)	-	50	50	100	125
11. Kalashi Irrigation Project (NABARD)	500	700	1500	500	700
12. Recharging of Ground water	-	70	100	125	125
13. Gully Erosion Structures	-	125	150	200	250
14. Afforestation in the Catchments Areas	-	10	15	17	20
15. Construction of Storage Reservoir like Juri, Chailengta, Kukucherra	-	15	25	500	700
16. Construction of D.T.W and Shallow Tube Well for Irrigation (loan)		50	150	200	300
TOTAL	3125	4843	6120	5802	6395

Source : Draft Report of the Sub-Committee of State Planning Board on Infrastructure, Industries, Trade and Commerce

The required fund under the State perspective plan for Irrigation for the years 2003-04, 2004-05, 2005-06, 2006-07 and 2007-08 is Rs 3125 Lacs, Rs 4843 Lacs, Rs 6120 Lacs, Rs 5802 Lacs and Rs 6395 Lacs respectively. Since Tripura receives ample rainfall to the tune of 2100 mm per year, water shortage is definitely not a problem in the state. Infact the focus should be on creation of additional storage facilities for rain water like water sheds etc rather than on further exploitation of ground water resources which is fast depleting in the state.

Action Plan for Flood Control

The capital city of Agartala, district town of Kailashahar and the Sub Divisional towns are situated on the bank of rivers. All these towns are in flood prone areas and there have been severe flood damages in all sub–divisional towns. In the state about 75000 ha land is flood prone. This 45,000 ha is protectable from floods. Nearly 200 Km length of embankment is required to protect this land

To protect the town of Agartala and other areas the following action plan has been prepared along with the required financial outlay.

Table 13.30 : Financial Action Plan for Flood Control (2003-08)
(Rs. In Lakhs)

Nature of scheme	2003-04	2004-05	2005-06	2006-07	2007-08
1.State Plan a. construction of embankment b. improvement of existing embankment c. anti erosion d. improvement of existing anti-erosion	150.00	400.00	450.00	450.00	475.00
2. Additional central Assistance a. construction of embankment b. improvement of existing embankment	400.00	700.00	800.00	850.00	
3.border area development a. construction of embankment b. improvement of existing embankment c. anti erosion d. improvement of existing anti-erosion	226.00	250.00	300.00	300.00	325.00
4. Special central assistance for protection of border town	Nil	500.00	700.00	1000.00	1200.00
TOTAL	776.00	1850.00	2250.00	2550.00	2850.00
Establishment	90.00	95.00	100	110	120
Grand Total	886.00	1945.00	2350.00	2660.00	2970.00

Source : Draft Report of The Sub-Committee of State Planning Board on Infrastructure, Industries, Trade And Commerce

It is estimated that a minimum of 50 kms of new embankment and a 125 km length of new erosion works will be required to give protection to lands and towns in border areas. It has been observed that most of the expenditure under the plans is being incurred on improvement of existing embankments and anti erosion work in the state. This may be on account of frequent floods and heavy rainfall that this state experiences. Efforts to

construct new embankments should also therefore be stepped up to protect the existing 45000 ha of protectable flood prone area in the state.

13.3. SWOT Analysis

It is evident that inadequate economic and social infrastructure in the state go a long way in hampering further economic growth and progress of the state. In order to gain a better view of the infrastructural development position of the state, it is important to provide a SWOT analysis of the infrastructural sector.

Strengths

- Abundance of Natural Gas to meet the growing demand of power in the state.
- Immense potential for the development of gas based industries like chemical and fertilizer plants.
- Commitment of the state government to implement the power sector reforms in the state, *inter alia*, under the APDRP of Government of India.
- Growing interest of Private investors in the field of hydel–power generation.
- Good networks of banks and emergence of private insurance companies.
- Good availability of bamboo and limestone in the state.
- Good primary health facilities in the state.
- Wide network of primary, upper primary, high and higher secondary schools in the state.

Weaknesses

✓ **Economic Infrastructure**

- Extremely poor level of transport and communication due to its locational disadvantage and frequent wear and tear of roads due to heavy rainfall and growing vehicular congestion.

- Poor road connectivity with other NE states excepting one National Highway No-44 connecting the state with Shillong and Guwahati.

- Grossly weak railway link with the rest of the country (the only link being from Manu of Dhalai District via Dharmanagar to Badarpur and Lamding in Assam by metre –gauge) adversely affecting the growth performance of the state depriving it from getting the benefits of economies of large scale production.

- Persisting operating losses of the State Road Transport Corporation despite considerable hike in passenger fares and freight fares.

- Pronounced imbalance in terms of inter-regional infrastructural development.

- Poor air links–only the state capital of Agartala is connected with Kolkata and Assam through air links.

- Growing demand for power in the state and lack of power evacuation facilities.
- High per unit cost of power in the state. The main problems faced by the power sector department are power shortages resulting in frequent power cuts, inadequate power development infrastructural support , hilly terrain and low private investment.

- Massive investment required for infrastructural development. The power sector and the general infrastructure are in considerable disarray in the state and would require considerable investment to bring it on par with some of the better states in India or even a few NE states.

- The spread of insurgency in the state. This may deter some of the foreign investment that could otherwise be attracted in the state either directly or through the route of multilateral investment.

- Remote location of the State making it difficult for it to keep abreast with the latest developments. The state, being somewhat remote from the Indian mainland, would have to make extra efforts to keep in touch with the latest developments requiring the application of sophisticated technology.

- Banking :

  Regional bias in development of bank branches.

  - Low credit disbursement to priority sectors/ areas

- Irrigation and flood control :
  - Low coverage under irrigation
  - Rivers and streams are rain–fed and drain into Bangladesh
  - Lack of proper maintenance of Irrigation projects
  - Lack of adequate and timely availability of funds
  - Time consuming process for procuring PVC pipes, pumps and service valve from outside the state.
  - Inadequate Flood control measures and Rain Water Harvesting.

✓ **Social Infrastructure**

- Education
  - Inadequate number of higher educational and research institutes with super specialities.
  - Inadequate infrastructural facilities in schools like libraries, laboratories etc.

- Housing :
  - Inadequate housing facilities due to high incidence of poverty and unemployment in the state.
  - Large tribal population of Jhumias or shifting cultivators.

- Health :
  - Infrastructural bottlenecks like inadequate number of PHCs, sub centres and community health centres compounded by the hilly terrain of the state.
  - Shortage of health personnels
  - Low private investment

- ❖ Lack of advanced medical and emergency facilities.

➢ Basic Amenities- Clean drinking water, sanitation etc .

- ❖ Ground water of the state has high iron content even up to 15 ppm concentrations.
- ❖ Low water pressure due to unique undulating terrain of the state.
- ❖ Insurgency problem creating trouble for the execution of developmental works in remote areas.

It is clear that the main cause of industrial and economic backwardness of the state may be attributed to the geographical isolation and the inadequate economic and social infrastructure in the state. The state is otherwise endowed with abundant natural resources and reserves which can pave the way for sound industrial development but provided infrastructural facilities are made available.

The main **Opportunities** for this sector are :

- Extension of Railway line from Manu to Agartala by meter gauge would enhance the scope of border trade and industrial development.

- More infrastructural projects to be brought under the preview of Critical Infrastructure Balance Scheme.

- Effective utilization of the gas based potential of the state for an industrially vibrant economy via increased private sector participation.

- Tremendous scope for attracting large private investment including FDI.

- World Bank aid for Project Co-ordination Consultancy services for the State Road Infrastructure development.

- Vast resources of Natural gas in the state to meet the power demand of the state, and also for setting up of chemical and fertilizer plants.

- Surplus power generation for inter–regional power trade The proximity of the state to foreign countries which are deficient in power generation could spur inter–regional power trade, which may render Tripura to emerge as a major power generating centre.

- Promotion of Tourism industry
- Promotion of Border Trade

However, before exploiting these resources of the state it is important to gear up the economy to meet some of the challenges that the state is facing. These **threats** are**:**

- It is the second populous state of North–east after Assam requiring large scale infrastructural development.

- The absence of a satisfactory level of transport and communication infrastructure development coupled with insurgency may negate the growth impulses and prospects.

- The state would have to ensure that while the power sector reforms are underway and market driven measures are being introduced, the cost of the power to the common man does not increase beyond a limit.

- The public perception about any power reforms programme is important. The power reform programme of the Government of Tripura could get derailed if there is no public support for the programme.

- Problems of insurgency and cross border economic offences plague the state.

- Environmental predicaments may be detrimental.

- Depletion of ground water resources resulting from its excessive exploitation in some areas may prove fatal.

- Regional imbalances in terms of infrastructural facilities–both at inter-district and inter–state level may hamper the growth prospects.

13.4. Emerging Issues and Thrust Areas

The main Issues deserving special mention are :

- Strengthening of Road and Railway links
- Establishing air links between Agartala –Delhi and other State capitals of North–east.
- Extension of power lines to remote villages and emphasis on non conventional energy sources especially solar energy.
- Computerization of meter reading and billing.
- Corporatization of power department with the help of the consultants.
- Improvement in power distribution and transmission systems and exploring the possibility of larger external assistance.
- Efficient natural gas management preferably through the installation of SCADA system.
- Infrastructure development for expansion of higher education especially Research Institutes in the state.
- Attracting private investment including foreign direct investment for infrastructural development.

The Thrust **areas** that have been identified for development are

- Rural Electrification
- Development of Transport and communication
- Utilisation and enhancement of Irrigation potential
- Drinking water and Housing

CHAPTER–XIV
STRATEGIES FOR DEVELOPMENT

ECONOMIC GROWTH, STRUCTURAL CHANGE AND WORK-FORCE PARTICIPATION

The long run objective of the State of Tripura should be to sustain high growth, developing industrial base, mitigating poverty, lowering unemployment and narrowing gender disparities. This requires strategy combination of rationalizing public investment and encouraging private investment along the following lines:

- The asymmetric distribution of public expenditure has eroded states' potential to generate its own resources which is causing hindrance in raising public investment. In Tripura, total revenue expenditure on general and social services (like police, pension, interest payments and education) on one hand and economic activities on the other hand and is distributed in the ratio of 80:20 while the non-tax revenue generated from activities is just reciprocal of the expenditure ratio. There is a need to slowly this expenditure ratio to 60:40 by 2011-12 and to 40:60 by 2021 so that state could generate larger resource for its own development.
- Investment in economic activities should focus on timely availability of critical raw material at competitive rates to the agriculture and manufacturing sectors. The critical raw material for manufacturing sector differs from enterprise to enterprise but for agricultural sector it includes fertilizers, irrigation facility, and electricity and quality seeds. It will go a long way in raising land and labour productivity which is so essential for lowering the incidence of poverty in Tripura.
- No country or state can sustain high growth if private investment is low in the economy. Increase in private investment is mainly guided by the availability of a major resource endowment like 'Gas-Stock' in Tripura or

through a large swing in the optimism of the investor which require not only economic incentives (Tax-Holidays for 10 years etc.) but also sufficient infrastructural facilities (like rail and road network) along with a sense of security to the investors by eliminating insurgency not only in the state of Tripura but in the entire north-eastern region.

- In order to reduce unemployment and mitigate gender disparities there is a need to stimulate investment in agriculture and allied activities like tea plantation, local handicrafts and ensuring marketing facility for larger employment opportunities to females and will definitely facilitate to lower gender-disparities and mitigate problem of unemployment.

HUMAN RESOURCE DEVELOPMENT

The following approach is submitted increasing the employment potential in the knowledge economy of Tripura:

- Establishment and promotion of knowledge base service industries in which Tripura has competitive advantage.

- Establishment the network of branding, packaging and marketing the ancient scriptures and traditional knowledge particularly in medicine.

- Development of structures both for promotion and application in the fields of bio–technology, bio–fuel and getropha must created and supported by the Government.

- Capacity building in human resource development, R&D capabilities and application of technologies resulting from innovations must become the single most important mission programme of the Government.

- The state Government in close coordination with ICICI bank, SBI etc. can think of establishing an Education Development Finance Corporation and in this context a new comprehensive educational loan scheme can be launched by the Government to provide financial assistance to the economically oppressed but meritorious students.

- Despite economic backwardness and shortage of modern health care facilities, the state of Tripura has performed comparatively better in the field of health and medical facilities. Birth rate and death rate in the state are well below the national level. The infant mortality rate in the state than the country as a whole. Major health problems in the state are diarrhea disease, malaria, respiratory tract infections, cardiovascular diseases and diabetes etc. The incidence of cancer is also growing the state. It seems that larger proportion of the women of Tripura state suffer from nutritional deficiency of iron, folate, vitamin–12 etc. causing higher incidence of anemia. The percentage of women with any anemia is 59 percent in the state of Tripura as compared to 52 percent in India and between 29 to 48 percent in the states of Manipur, Nagaland and Mizoram. The percentage of children chronically under nourished is higher in the state of Tripura (40 per cent) as compared to other north–eastern states such as Arunachal Pradesh (27 percent), Manipur (31 per cent), Mizoram (35 percent) and Nagaland (33 percent). Large number of people in the state are living under poor housing conditions, which can prevalence of different diseases.

- With a view to providing adequate and qualitative health care, the state of Tripura has presently 6 state hospitals (including allopathic, Ayurvedic and homeopathic hospitals), two district level hospitals and 11 sub–divisional hospitals. The state has a good network of health institutions for primary health care in the rural areas. These institutions include 9 CHCs. 72 PHCs, 539 health sub–centres, 75 homeopathic dispensaries and 38 Ayurvedic dispensaries. In these institutions various preventive, promotive and curative health services along with family planning and MCH services are available. Major problems in providing efficient health services to larger proportion of state's population are: geographical isolation of the state, limited resources, infrastructural bottlenecks and vacant posts of health functionaries etc.

- The primary focus of reproductive child health services should be on the promotion of spacing method among young couples to reduce teenage fertility and efforts must be made to emphasize early acceptance of spacing methods and sterilization after two children regardless of the sex composition of the family by that time.

- Every possible effort should be made for improving the coverage and utilization of antenatal services and promotion of deliveries attended by health professionals.

- The private sector and NGOs of the state must be encouraged to strengthen the extension activities and services for projecting the positive image of a girl child and thereby discouraging sex selecting abortion.

- The state administration must seriously laws relating to age of marriage of girls, early marriages, dowry and social exploitation so that a healthy environment can be created for the girl child who can have an easy access to education and employment.

- The system of rural health system of the state must be strengthen so as to enhance its capacity to deal with the crucial curative aspects of health care without compromising with the primary thrust of immunization and reproductive health coverage. Adequate financial allocation from the private sector may help the Government to enhance the efficiency of the rural health care infrastructure.

- With a view to avoiding congestion and overcrowding resulting from the high density of population in the state, stringent measures must be adopted by the state government to reduce its population growth rate. The motivation and IEC activities for popularizing small family norm and family planning should be intensified. In order to spread the awareness campaign to tribal, remote and inaccessible areas, sub–centres should be established in each panchayat.

- The community need assessment approach must be adopted while planning family welfare and RCH activities. The Gram Panchayat can play a significant role in this regard by monitoring and managing the family welfare and RCH programmes. Special programmes should therefore be introduced to provide the requisite training to the Panchayat members to monitor population control programmes.

- In order to bring about cent per cent literacy in the state, greater investment in primary education is needed. Adequate infrastructural facilities like laboratories, libraries and sanitation facilities must be ensured in all primary and secondary schools. Since large number of habitations do not have a primary school (in the habitation itself), all habitations should be brought under the proposed Education Guarantee Scheme (EGS) of the Government of India.

- Intensive efforts should be made to reduce high drop–out rates at the primary, high school and secondary levels. Alternative and Innovative Education (AIE) should be introduced in a big way for those children who have dropped out education system.

- With the view to boosting higher education in the state, centres of research oriented higher learning offering relevant courses in power engineering, oil and gas engineering, industrial engineering, environmental and pollution control and tribal research should be established. High standards should be set / maintained by Tripura Engineering College so that they could function as Centre of Excellence in the field of higher education. Greater university–industry collaboration should also be encouraged through increased private sector participation and foreign funding.

- Diploma Engineering courses in computer science and technology, food processing technology, modern office practices, automobile engineering and environmental engineering in polytechnic institutes should be started.

New courses like drawing and painting, graphic design art and modeling and sculpture should be introduced along with introduction of computing system in Applied Art.

- With the view to improving the health status of the people of Tripura, immediate steps should be taken with respect to : removal of infrastructural bottlenecks, filling the vacant posts in different *hospitals*/ health centres and through general socio–economic development in terms of provision of better housing conditions, safe drinking water and improved sanitary facilities. An effective health awareness campaign should be launched through suitable audio–visual or print media for overall improvement of the health scenario of the state.

- Considering the fact that large proportion of women and children suffer from nutritional deficiencies, stringent measures should be undertaken to enhance their nutritional status. Maternal mortality rate should be reduced by encouraging larger institutional deliveries and through the effective implementation of the reproductive and child health programme. Cent percent coverage of primary health care and hundred per cent immunization should form an integral part of the Health Action Plan.

- In order to reduce dependence on outside hospitals, especially for advanced treatment, skill upgradation of medical officers, paramedical staff and other health functionaries should be undertaken from time to time through training interventions and encouragement for higher studies.

FISCAL PLANNING AND MANAGEMENT

- Tax base of the state may be widened by better exploitation of land base taxes, better administration of property taxes and professional taxes, with increased rates on the last two items.

- With the introduction of state VAT, the government should adopt a destination based consumption VAT which seeks to eliminate the distinction between raw material and capital goods in allowing VAT credit. The base of the consumption type VAT should be as wide as possible and must include manufacturers and dealers of all goods reflected in the sales tax schedule. All concessions to state VAT coverage must be eliminated, except that under special circumstances budget based subsidies may be provided to the genuine claimants. The state should prepare a list of exemptions from state VAT on commodities/articles of social importance like, life saving drugs.

- The state VAT structure should have two floor rates in addition to the zero rate, one for essential commodities and the other for all other items. However, the local VAT rates should be close so that they are uniform across the state. The state government should attempt at implementing VAT which is revenue–neutral in the short run and revenue–generality (with respect to GSDP) in the long run.

- With a view to increasing the share of the state's own non–tax revenue to its own revenue receipts [from 39.75 per cent in 2003–04 (BE)], fees for a variety of general administrative services and various user charges and state provided services must be brought under the regime of reforms. In this context, fees and user charges should be essentially linked to input cost particularly current cost for which department/service wise–estimates should be separately prepared and norms should be decided on a case to cave basis for services. For the purpose of raising non–tax revenue and

reducing the real growth of budgetary support to non–departmental institutions, user charges levied on public services in relation to current cost must be raised significantly from the historical levels. In this context, utmost care should be taken for the removal of inefficiency that tends to raise costs, and for that improvement in the quality of services rendered. It is with better quality of services that the government can easily convince the users to pay higher user charges. Most user charges require legislative/departmental clearance for their upward revisions. Adequate provisions be made for automatic upward revision of user charges linked to an index of costs which would require to be prepared separately for different services. State government should set up a high level committee to determine principles and norms for linking user charges to costs, encompassing general, social and economic services.

- The state government should take adequate care in analyzing the profile of user charges in the critical areas of agriculture, irrigation, power, transport and health. The government should set up separate autonomous commissions for each area which would be responsible for determining the principles according to which user charges should be linked to cost and protecting the interest of consumers by monitoring quality of services and suggesting remedial actions for reducing inefficiencies in the governmental provisions of private goods/services. In the first instance, the individual commission would be required to tabulate the existing rates of user charges for variety of services in different sectors like roads, bridges, health, education etc. Subsequently, the existing recovery rates should also be estimated and correspondingly cost indices should be developed.

- User charges for general services should be linked up with cost need so as to improve recovery. The state must make every possible effort to improve the recovery of user charges in social services like education, health and water supply at least by 30% of current cost.

- With a view to forestalling the burgeoning growth of wage–bill, the existing vacant posts of non–specialized nature be abolished and contract appointment for filling the technical positions be initiated. The department of redeployment should be set up for identifying the surplus staff in consultation with the concerned Ministry/department and such staff be attached with the department of redeployment which would be maintaining elaborate record of the staff. All fresh appointments be made with reference to the department of redeployment and all the posts in the 10^{th} Plan should be filled up with such redeployable staff. Moreover, vacancies arising out of retirement of staff from non–plan or continuing plan scheme should be filled from this pool. Adequate retraining facilities be also provided to this staff for increasing their redeployability.

- It has been already observed that the expenditure on pension payments has increased by more than 25 per cent per annum during the first three years of Eleventh Finance Commission award period. While Eleventh Finance Commission assumed that pension liabilities would grow only at 10 per cent per annum, the projected pension liabilities from the period 2004–05 to 2009–10 is expected to be in the order of Rs. 2622.24 crore which really would be an exploding fiscal liability for the state government calling for immediate pension reforms initiative for maintaining the state's budgetary costs under control.

- The State Government should manage the pension funds through the contribution of the employees themselves so that the resource–starved state government is not required to bear the burden on this council. Moreover, the formula for commutation of a pension entitlement should be revised by taking into account the change in the interest rate from the period when the formula was originally worked out. In this context, the feasibility of keeping a separate public provident fund account leading to greater transparency be examined.

- As per the present arrangement the state is required to contribute 25 per cent of the Calamities Relief Fund (CRF) with the balance 75 per cent coming from the centre. It is recommended that the special category states like Tripura may be given 100 per cent grants from the centre under CRF, in the beginning of the financial year, and the same should be earmarked.

- The system of financial administration can be qualitatively improved through the introduction of performance budgeting and zero–base budgeting in the government departments on an experimental basis. There is a dire need of close coordination between the planning department and the finance department in their respective areas of planning, programming and budgeting.

The state government should computerize the budgeting methodology and procedures and the accounts of the government. This will facilitate in announcement of and monitoring of quarterly flows of receipts and expenditure and performance accounting and auditing.

FORESTRY

STRATEGY (FORESTS)

(A) Creating environmental awareness, promoting eco-friendly

- Eco- tourism be promoted covering flora, fauna, scenery, local communities, crafts and culture.
- Increasing stress on Non-Wood Forest Produce (NWFP) such as bamboo since it not only provides subsistence and livelihood security to tribals but also fits in the socio-economic milieu of tribal culture in the State.

(B) Demand on forests and degradation of environment and biodiversity

- Arresting growth of human population in the State, particularly immigrant (from across

international border with Bangladesh) as natural growth rate of population in this State is less than all India average. Since Forest Department cannot exercise any control in this regard, the initiative rests with the State Government and Government of India.

- Increasing the productivity of forests by raising plantations of suitable species (in tune with eco-floristic characteristics of the region).

(C) Protection of threatened species and unique habitats

- At times, local population is vehemently opposed to creation of sanctuaries / extension of existing sanctuaries apprehending that they might be uprooted and might not be able to earn their livelihood. The only feasible solution at present appears to relocate the families living inside the proposed sanctuaries outside, either on the fringe of such areas or at other suitable locations. These families which are mostly tribals, shall have to be rehabilitated properly and made self-reliant. Central assistance or funding from donor agencies is needed for relocation and rehabilitation of tribal population, since the amount required is substantial and cannot be met through the resources of the State.

(D) Shifting cultivation

- Integrated project for rehabilitation of jhumias be prepared involving all development departments. The activities under the project will include: raising of plantations of forest species; raising of orchards; animal husbandry; fishery; primary education; adult literacy medical facilities; etc.
- The time frame may be 20-25 years considering the number of families and gestation period of plantations etc.
- Directorate for Rehabilitation of Jhumias under the Forest Department needs to be created.

(E) Increasing Forest Productivity

- Development of management techniques for multilayered forests

  The forest management strategy would be to look beyond traditional sivlicultural systems, which focus attention on certain species of

commercial timber only, to ensure a wide perspective of forest productivity. Emphasis should be on ecologically supportive management practices such as keeping intervening strips of natural forests in between plantation blocks of managed forests, maintenance of gaps and fire lines, varying age structure and size distribution in blocks, cessation of predetermined interventions and follow need based interventions depending on condition of the forests crop, forest floor management through controlled or reduction of grazing, encouraging humus, litter fall & legume cultivation.

- Under social forestry schemes, appropriate Fuelwood and fodder species be raised and local elected bodies like Panchavats be involved in this process. A massive project to afforest 25000 ha of waste land outside forest areas with fuel / fodder species must be prepared.
- Since the time required to afforest the entire area would be about 10 years and extensive sums of money would be required, the GOI / donor agencies will have to be approached for funding.

(F) Development of Non-timber Forest Produce (NTFP)- Bamboo

Maximum area of bamboo under plantation programme, preferably with superior species having wider uses; protection against fire and grazing to ensure establishment of profuse regeneration which follows such flowering; harvesting, removal of flowered culms up to 70% to reduce fire hazards; documentation and cohort mapping including ex-situ conservation of different cohorts; and rodent pest management in affected areas.

(G) Attitude of forest personnel and people for JFM / PFM.

- Participatory management is going to be the dominant theme in Forest Management in coming years. The change in attitudes cannot be brought about overnight. It will require sustained efforts over a long period of time, which may be 10-15 years to obtain significant results.
- Concept of Joint participatory forest management should be used for management of degraded forests and micro-plans prepared for these areas should be incorporated in working plans. Suitable prescriptions for tribal development should be included. Cultivation of medicinal

plants may be given due attention.

- The Forest Department needs to train the few NGOs in the State devoted to the cause of environment and forestry on the issues described above in order to enable them to get fund from GOI/other agencies and to get increasingly involved in motivation, awareness generation and organizational works relating to participatory forest management

(H) Smuggling of forest produce

- Government of India be requested to set up border outposts/check posts of Border Security Force at appropriate points with the provision that each post should have two forest officials also for looking into technical aspects of seizure etc of forest produce (depending on acceptability of BSF for the same).
- A State Level Joint Task force has also been constituted involving senior officers from Forest, Police, BSF, BRa and other State and Central Government Departments to co-ordinate functions and issues relating to management of border including control of illegal cross-border activities. Such Joint Task force would also be constituted at field level for controlling smuggling of timber and other forest produce.

(I) Strengthening Of Policy And Institutional Framework

- Empowerment of forest officials to check frequent violations of the provisions of Acts has been reviewed by the State Government in pursuance of orders of Hon'ble Supreme Court in this regard, and details of powers required to be delegated to forest officers to check such violations have been finalized and is in the process being approved/delegated to the Forest Officers.
- Following amendment in the Forest Conservation Act, 1980 are suggested for consideration of the Government of India:-
  - i) Raising of cash crops like coffee, etc.. under plantations maybe allowed (multiple use forestry) without necessitating felling of trees.
  - ii) Raising of rubber plantations by the forest department in PF

land may be allowed for economic rehabilitation of tribals and control jhuming.

- An integrated approach for environmental conservation, watershed management, habitat management etc. should be adopted to effectively utilize the management potentials.

(J) Forestry research, database and linkages with ICFRE its regional institute Universities etc

- An immediate need to create a full fledged forest research institute in this State to upgrade the level and scope of research activities.
- within a span of 4-5 years a comprehensive database would be built up. The information, which would be generated continuously during this period, would make very useful foundation for identifying target species and thrust areas for conservation and for evolving effective management strategies.
- Involve universities and other institutions in various research programmes designed to address specific issues pertaining to this State.

(K) JATROPHA

- Since there are enormous possibility for selecting and breeding crops with higher yields, data must be collected to get realistic figures on the yield pattern and oil content/ quality. Presently, most of such figures are just based on preliminary studies and there are no pilot projects to support the data.
- Biotechnology tools can be applied for producing high quality elite planting material. Tissue culture technologies help in mass-producing the elite clones. Techniques of genetic engineering also offer a possibility;
- educate the rural folk regarding the judicial use of bio-fuel, nursery and plantation techniques of Jatropha plantation and how it can change the life of the villages.
    - Publication of literature on energy plantation in vernacular languages

- Distribution of brochure / pamphlets in vernacular languages to the villagers
- Making of video films on various aspects of energy plantation
- Organization of training for farmers, ladies, teachers, students, state forest departments (SFDs)
- and NGOs at field and Institute

- Owing to its multiple uses and its role in uplifting of economic condition of rural folks and self-reliance of our country in the oil sector, it is essential that proper scientific tools should be employed to increase its present production of oil. In the direction, genetic improvement of crop coupled with appropriate agro-techniques can give proper acceleration to the Jatropha programme. To make this programme a success story, rural masses, farmers, NGOs, SFDs, etc should be adequately educated though proper training and demonstration programmes.

(L) MEDICINAL PLANTS

- Through adequate scientific input in cultivation, harvesting, post harvest processing and value addition this valuable resource base can be increased. This will not only boost the production but also generate huge employment opportunity for the rural as well as educated-unemployed youths of the state.
- Cultivation of economically important medicinal plant species should be intensified to reduce the burden on natural habitat.

The State Government should undertake the exercise of preparing an annual “Green Book” representing availability, utilization, and future requirements of forest resources. In the course of time this exercise may be integrated with the State Income Accounting System

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

Agriculture and Horticulture :

- The Central Government must provide adequate financial assistance to the state for the extensive development of horticulture and vegetable gardening programme which would include plant breeding, tissue culture propagation, demonstration, training of manpower, post harvest technology, marketing, cold storage, processing and pricing.

- A synergy must be developed between food parks and agricultural export zones so as to ensure a mutually beneficially existence. Value added centres must be set up in all food parks as well as in areas of concentration of horticultural/ agricultural produce with road connections that are proposed; exist under Prime Ministers Gram Sadak Yojana (PMGSY).

- The agricultural mundies need to be strengthened to enhance
    - Transparency
    - Trading in varieties more appropriate for processing
    - Trading in graded varieties of raw materials
    - Incentives for production of raw materials suitable for processing

- Quality testing/ certification laboratory must be set up to bring the food products at par conforming to international safety and quality standards. The harmonized standards of good food hygiene and quality as stipulated under the food product order must be enforced.

- There should be empowerment of women by way of increasing women's access to productive land. There ought to be regularization of leasing and share cropping of uncultivable agricultural land by women groups. Leasing rights should invariably be in favour of female members of the family.

Waste land should be brought under cultivation and incentives be extended to women in low input subsistence agriculture.

- The Government of Tripura should examine the possibilities of generating additional employment opportunities from the following programmes and schemes as suggested by the Ministry of Agriculture :

    - Additional areas under cultivation to be brought under oil seeds and pulses;
    - On –farm management,
    - agri–clinic and seed production,
    - horticulture
    - Water shed development projects for rain–fed areas
    - Forestry and agro–forestry
    - Medicinal plants
    - Bamboo development
    - Energy plantation.

Irrigation :

- Thrust should be on minor irrigation and water shed development owing to its tangible impact on improving productivity, increasing rural income and removing poverty.

- For conservation of water and saving energy, there should be a stress on drip irrigation for horticultural crops and also widespread use of sprinkler irrigation and surface irrigation technology.

Animal Husbandry/ Poultry/ Fishery :

- The Central Government should be approached with the projects for encouraging household rearing with a view to achieve self sufficiency beyond 2012. The said project proposal should explicitly delineate the district wise target of families and project the estimated cost of the

proposal so that necessary financial assistance can be obtained from the department of animal husbandry.

- A comprehensive action plan for fodder development programme should be drawn out and every effort should be made to expedite the process of mobilizing, required financial assistance from North–East Council/ Government of India. It should also be taken up under the 'Hariyali' programme of rural development. However, the industrialists of the north–east region may be approached/ motivated for investing in the animal husbandry sector particularly in broiler chick production and broiler meat processing.

- The North East Council must open operation silk board in Tripura for the development and marketing of serviceable products which have tremendous export potential.

- Keeping in mind the prospects of additional employment generation, particularly self employment and self sufficiency in fish production in the animal resource section, the Government of India should be convinced to immediately sanction the project requested by the Government of India under the Integrated Dairly Development Programme (IDDP) – Phase III in South Tripura district.

INDUSTRY, TRADE AND COMMERCE

- With a view to providing a fillip to industrialization, the types of industries, characterized by the presence of internal and external economies, that should be promoted in the state are

  (a) Raw material based industries which would be mainly paper, cement and petrochemicals industry

  (b) Industries to supply local goods where the scale of local requirement is large enough to sustain an economically viable unit

  Other small industries including Agro- processing like fruit canning, meat processing and timber processing etc.

- In order to enhance and utilize the irrigation potential of the state, public and private investment in irrigation and Watershed development project should be encouraged. Consolidation of small and marginal holdings must also be taken up through effective land reforms package in harmony with the local tribal laws.

- Value Added Centres (VACs) should be set up in all Food Parks to encourage production of value added items. Proper warehousing and storage of the produce must be ensured through the creation of Cold storage, Stock warehouses and Crop insurance facilities.

- Productivity and employment in the organised manufacturing sector should be increased through improved technologies, labour reforms and self employment schemes. Registration of industrial small scale units should be vigorously promoted in the state by offering various incentives to bring a larger ambit of manufacturing sector in the state under the organized sector.

- Technology/ Consultancy and Entrepreneurship Development Programmes should be organized in the state. Specific skill development and technology for decentralized production and centralized marketing,

centralized designing and centralized quality control should be followed. Training in product design and diversification, packaging etc should also be provided with suitable tie-ups with nodal agencies like IITs, NID, NIFT etc. A project for linking up design studios to the clusters of weavers and artisans should also be started in the state under NIFT to reduce their fragmentation and increase their bargaining power.

- Provision should be made for strengthening micro–finance and budgetary support for traditional artisans instead of institutional finance. Revival of chronic sick SSI's should be initiated in the state through early action, State assistance, institutional finance and other structural adjustments.

- Special emphasis must be made on the development of Khadi and Village industries in the hilly and backward areas under Border Area Development Programmes in terms of provision of soft credit facilities, capacity building of the manpower engaged in these industries with proper training and access to domestic and international markets etc. A Market Development Assistance (MDA) Scheme should be introduced for the small–scale sector to provide financial assistance to SSI Associations for their participation in International Fairs.

- 'Bi-voltine Culture in sericulture must be immediately introduced. As opposed to multi-voltine silk which has a yellowish tinge, bi-voltine silk is white, fetches a good price and is in great international demand.' Besides sericulture, the state should also focus on ericulture (producing eri silk). Ericulture is a household activity and can generate additional employment opportunities for the tribal population of the state. In order to enlarge the market for sericulture, online cocoon trading should be started linking Tripura to cocoon mandis like the one at Ramnagar in Karnataka (the biggest cocoon mandi).

- ‘Export–oriented approach should be adopted especially for the promotion of rubber and jute based products through quality certification and design engineering with suitable tie-ups’. Quality Testing / Certification Laboratories such as Hazard Analysis and Critical Control Point (HACCP) and ISO -9000 must be set up for quality assurance via State participation.

- In order to promote the production and export of premium quality tea in the state, a Tea park should be set up with Central Government assistance offering latest cleaning, sorting, blending and packaging technologies. Emphasis must be on growing high quality teas such as Orthodox tea which has great international demand from Russian and Iran.

- In order to attract private and foreign investment, suitable physical and financial incentives should be provided to offset its peculiar locational disadvantage. In addition, a display centre should be established in the state on the lines of Chinese industrial towns which could act as a single halt for private investors to see all that the town manufactures.

- In view of bio-diversities and unique heritage sites present in north east in general and Tripura in particular, the development of eco–tourism with its emphasis on beautification and commercialization of tourist sites should be taken up. North east India is also famous for its exotic flora and fauna. Out of the 925 verities of orchids available in India, over 600 can be grown in the region due to the favourable climatic conditions. In fact, approximately 200 varieties are unique to this region and 60 % of these are ornamental in nature with a high demand in the international markets. It is also ideally situated to produce herbs, spices and medicinal plants. Moreover, the forest of North-East offers a vast array of aromatic plants which can be used for setting up aromatic industry for the manufacture of perfumes, incenses, room fresheners etc.

- The focus of the future strategy should be on sustaining and accelerating the growth of SSI in the state as well as promoting private and foreign investment in medium and large–scale industries .The State Government in collaboration with the Corporate sector should decide on the quantum of investment for establishing at least 1500 functional SSI units and at least 20 medium/large scale projects by 2007-08 .For boosting investment in the state , the primary goal of the department should be to develop Bodhjungnagar as an ideal location for industrial investment in Tripura. The proposed strategy of the Government for attracting investments in the industrial sector must focus on the following aspects:-

    a. **Development of Infrastructure** comprising of
        - Growth Centres
        - Export Promotion Industrial Parks
        - Food Parks
        - Rubber Parks
        - Integrated Infrastructure Development Centres
        - and Information Technology Parks

    b. **Attractive Incentive Packages** comprising of
        - 100% reimbursement of excise duty for 10 years from the date of commercial production.
        - Income Tax benefit @ 100% profits from industrial undertakings located in Growth Centres/ IIDCs to be excluded from total income.
        - Comprehensive Insurance Scheme for insurance coverage for 10 years from the date of commercial production**.**

    c. Efficient and Responsive administration

- With a view to discourage the functioning of the unofficial channels of the exchange characterized by the existence of dual exchange rate, the border trade policy of the Government of Tripura should also focus on the transformation of the low economic activity region into a vibrant and dynamic trade region with a span of 5 yrs. This transformation is possible only with the effective collaboration of the Central Ministry of External Affairs, Home and Commerce and strong political will and commitments of the NE States. The creation of such FTZ would help the NE States in establishing powerful linkages with well diversified markets of China, Bangladesh, Laos, Thailand, Vietnam, Cambodia, Malaysia and Indonesia.

- With a view to converting the unauthorized trade into legal/ authorized trade and helping the genuine traders operating in the different parts of the NE region, the recommendation of the IIFT for declaring the whole NER as the Export Processing Zone should be immediately implemented by the GOI. In this regard, it will be worthwhile to recommend for the creation of Growth quadrangle involving NE India, Northern Myanmar, South West China, Northern Thailand and Bangladesh. The creation of EPZs and triangle of Growth quadrangles would be made possible through regional co-operation based on the 5 principles of Peaceful coexistence, emphasizing equality and mutual benefit, sustainable development, comparative advantages, adoption of international standards and infrastructural development in order to enhance connectivity and facilitate the widest possible 'economic co-operation'.

- The declared goal of the SAARC Nations to declare South East Asia as a " Free Trade Area '' in the coming years is also expected to have significant trade impacts on the state economy. Formal trade relations should therefore be developed and established by the state with other S.E Asian countries like China and Myanmar in those areas where Tripura has competitive advantage. Effective trade liberalization would also discourage hawala transactions and smuggling activities in the state.

- In view of the continuous pursuance of the process of trade liberalization by the countries of Bangladesh, Myanmar and Bhutan, there exists tremendous scope of integrated economic co-operation in the strategic areas of Energy, Cement, Food Processing. Moreover with Myanmar becoming a member of ASEAN, a common market of more than 500 million consumers is available in the NE and hence establishment of forward linkages with Myanmar would be a vital move towards successful integration of the North Eastern economies with the South Eastern economies.

- A WTO compliant delivery mechanism and a transparent, efficient and responsive administration system should be adopted right upto the grassroots level to take advantage of the window of opportunities that would be opening up with the phasing out of the Multi-Fibre Agreement (MFA) in Jan, 2005 and the agreement signed between India and ASEAN Nations in 2003 to boost border trade.

- However, without proper development of transportation network we cannot expect anything. Rail/ Road and Waterway links in the state should, therefore, be strengthened for a more effective integration of Tripura with the rest of India and other countries in the region.

- It must also be noted that unless exportable surplus are produced, the State would not be able to derive full benefits of all these developments simply by acting as a corridor of exports of other countries. The state Government should therefore identify a few well–defined thrust areas and concentrate itself by specializing in those areas of production so that it can produce in excess of local demand.

RURAL DEVELOPMENT

- For reaping the benefits of the expanding service sector, there is a dire need for promoting technical skills among the masses through various technical and professional training programmes. The total number of BPL families in the State is 3.98 lakhs. Fund provided under SGRY – I and SGRY – II by Govt. of India is not sufficient to provide 100 mandays work to each rural BPL families. During the year 2002-03 only 24 mandays of work was given to each BPL family. Due to in-sufficient allocation of fund from Government of India the above target could not be achieved. The Central Government should increase the allocation to the State Government under SGRY to reduce the gap between the stipulated target mentioned and the actual achievement under the SGRY for employment generation.

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- Increased involvement of SHGs under Khadi and Village Industries (KVI) sector for additional employment and income generation is called for.

- In view of the absence of a proper accounting system at the grassroots level, it becomes very difficult to make a scientific and realistic assessment of the fiscal needs of the panchayats. Obviously the estimation of resource gap for core services becomes difficult in the absence of objective data required for the actual determination of the gap between the capacity of PRIs to raise resources and the cost of service delivery. Logically therefore, creation of database and maintenance of accounts should be given top priority. This can be

facilitated by complete computerization of the accounting and management systems of Panchayati Raj Institutions.

- While recommending the transfer of resources to the local bodies the State Finance Commission should adopt the same methodology as adopted the Central Finance Commission for scientific and realistic estimation of fiscal components of needs of the PRIs. In other words, State Finance Commission must adopt a normative approach rather than a gap filling approach for the expenditure and revenue variables.

- The PRIs should integrate the development plans and district budgets and these district budgets be presented separately before the State Legislature so as to ensure functional and financial autonomy. Necessary legislative amendments may be carried out.

URBAN DEVELOPMENT

- The Integrated Development of Small and Medium Towns Programme should be extensively carried out with the increase in its coverage with more than 50 per cent funding from the Central Government and rest by the state government. The IDSMT should cover the Nagar panchayats of Telimara and Ranibazar and the suggestion of the Hon'ble Chief Minister of Tripura should be translated into action by constructing a super market in Telimura Nagar Panchayat and shifting the location of fire station elsewhere. Moreover, the direction of the Chief Minister for constructing a motor stand at Ranibazar Nagar Panchayat and separate night shelters for rickshaw pullers be implemented.

- The status of the existing growth centres be upgraded for smooth delivery of infrastructural services and couple of other nagar panchayats having potential be identified for purposes of establishment of new growth centres. A long term perspective plan with adequate integration between the functional areas of planning and budgeting be formulated so as to reflect the actual social, cultural, economic and political implications of such a comprehensive plan for the urban local bodies. In this context, the policy makers must emphasize the Nagarodaya Model of resource based participatory planning. This comprehensive planning process must aim at the development of growth centres which would take care of the problems of underdevelopment, unemployment, environmental degradation and regional disparities. The primary responsibility of the planning and coordination department would be to make a scientific assessment of the existing status of economic infrastructure and make an accurate forecast of the existing status of urban development of the urban local bodies and finally to estimate the gap between required financial resources and actual amount of financial resources available. This exercise would really help the government to convince the central government /private

agencies/ international agencies for providing adequate funding to make–up the gap and thereby achieve the desired targets.

- The system of resource mobilization of urban local bodies should be revamped by rationalizing and simplifying the property tax structure, enhancing tax collection, increased flow of central assistance both from the Planning Commission and Twelfth Finance Commission, attracting larger private investment and adequate institutional financing from Scheduled Commercial Banks, LIC, HUDCO and other private banks. The urban local bodies may generate additional income from certain tangible income–generating assets like community halls, community farms etc, which may be operated on a viable commercial scale. One of the most important funding requirement of urban local bodies is capital expenditure which is required for creation of social infrastructure/social overhead capital. This huge amount of capital expenditure may be obtained only from the Central Government and to this end, the Central Government in general, and urban local bodies in particular, need to convince the Central Government regarding the imperative needs and paramount significance of such types of capital assets through the agencies like NIC and DONER.

- There is a good deal of scope for signing MOUs with foreign agencies in consultation with Government of India for getting substantial amount of external assistance for the all–round development of urban local bodies. In this respect, the nagar panchayats and other urban local bodies must be made accountable to the utilization of funds received from various funding authorities. For this purpose, the urban local bodies must maintain proper system and suitable monitoring and evaluation mechanism with the help of adequate computerization of the system of information. This would certainly enhance creditworthiness of the urban local bodies.

DEVELOPMENT OF STs, SCs AND WOMEN

- Self Help Groups based on micro financing and promotion of income generating activities in the scheduled areas should be the topmost priority of development planning. It requires additional budgetary allocation and empowerment of poor as well as capacity building of community based organizations viz NGOs, SHGs, Panchayats, Youth Clubs etc. The members of SHGs need training, entrepreneurship, skills and managerial efficiency to handle credit and income generating activities. The SHGs and their members also need support in terms of forward and backward linkages, markets and institutional linkages.

- Participatory development and decentralized governance should form the basic parameter of development planning. This may be ensured through empowering Panchayats and also through implementation of PESA Act, 1995 in scheduled areas. The process of accelerating functional and financial devolution should be ensured. The rationale of Gender Budgeting is already well accepted, however, initiative for it should be taken by the government. The budgetary allocation under SCP and TSP should be according to the proportion of scheduled caste and scheduled tribes in the state. The jurisdiction and coverage of Tribal Autonomous Development Council (TADC) has been a debatable issue, therefore, the representation and coverage area may be re-considered to ensure its proper functioning and to avoid tribals and non-tribals conflict as well as ensuring vibrancy of democratic governance units. Again, Effective and efficient functioning of Tribal Autonomous Development Council should be ensured through regular monitoring, performance appraisal and making concrete efforts towards sensitization of elected representatives.

- Restructuring of development programmes is called for gender sensitization in governance, empowerment of women, ensuring gender–just society, social equity and capacity building of the women so that they

may actively participate in the process democrative decentralization and governance.

- There is an urgent need for documenting the fast vanishing bio–pharmacological traditional knowledge of tribal communities. Introduction of economically important plants for large–scale cultivation and nursery–raising activities in the area of medicinal herbs be promoted. These schemes deserving special attention of the policy makers should be financially supported by the Central Government of North East Council.

SCIENCE AND TECHNOLOGY

Information Technology

- Universities/Institutes should also start five year integrated programme of M.Sc. Computer Science in order to tap quality students from higher secondary/college level.

- While three training centres for training of teachers have been established, one each in St. Anthony's College, Shillong, IIE, Guwahati, and CEDTI, Imphal, there is no such centre in Tripura and one needs to be set up.

- In this regard, NEC must contribute towards the infrastructure support like, computer and other peripherals, Computer furniture and library books, computer room renovation and proper electrification *et al.*

- Since investment by private sector needs to be attracted, instead of subsidy that would be difficult to monitor and thus prone to misuse, tax sops as regards income and property taxes could be offered for a period of five years.

E- Governance:-

- The National Common Minimum Programme has recognized e-governance as a thrust area. Service delivery access infrastructure as information kiosks, government to citizen service portals and other IT-enabled community access points need to be established.

- Community service centres and data centres to link these to the State Govt. and respective ministries through state wide area networks need to be set up

Telemedicine

- While in the intital phase Regional Institute of Medical Sciences, Imphal and North Eastern Indira Gandhi Regional Institute of Medical Sciences, Shillong would be providing telemedicine service to the North East, later a super specialist site will have to be set up in Tripura to cater to the need of the network as a telemedicine provider.

- By connecting district hospitals to the community information centres the e-health service network would reach the last outpost.

Bio-technology

- In order to assist bio-technology units in the state, it would be prudent to set up a venture capital fund in Tripura. Adequate financial support should be extended to encourage new projects in fields

- Despite potential in bio-tech sector, many entrepreneurs do not come forward to set up their projects owing to the high risk factor. The state government can consider offering insurance cover to the bio-tech projects. A pool of experts should be instituted in various areas of Biotechnology with experience in commercialisation of Biotech products. In addition, in order to tap the potential of bio-technology, medicinal plant gardens and processing units, patent information centre, and a tissue culture laboratory must be established.

- There should be establishment of Bio-technology parks. A fixed percentage of the budget of Department of Bio-technology within the Ministry of Science & Technology shall have to be assigned for such proposals / activities;

- The state government can offer subsidy to those entrepreneurs who want to carry out feasibility report for their projects. Their should be an integration of academia with the biotech industry and financial support to R&D activities.

- Biodiversity Conservation: Not only has the gene conservatory for agri-horti-forestry species in the State to be strengthened but collaborative programmes for bio-diversity conservation must also be taken up with the Institute of Bio resources and Sustainable Development in Imphal.

Potential of Technology Business Incubators-

In order to kick start the concept of TBIs in Tripura, it would be desirable that National level R&D Institutions, Tripura University, and local NGOs be involved in various projects and programmes and there should be an arrangement of easy flow of technologies from National level R&D institutions.

Rural technology parks

Employment generations projects and develop bio-villages by dovetailing various technologies like, vermicomposting, tissue culture based plantations, herbal products, aqua–culture, animal; feed and animal resource based production units, bio-fertilisers and bio-pesticides.

Natural Gas

Projections of gas demand made by a number of agencies indicate a wide and growing gap between demand for and supply of gas. In view of the huge finds of gas in Myanmar, feasibility of importing gas from Myanmar to the Eastern/ southern parts of the country is also being explored.

Since the gas reserves in Tripura are not being properly exploited due to absence of local market, the Indian Government should push for an early agreement on the Myanmar-Bangladesh-India gas pipeline proposal with natural gas from Tripura also being fed into the pipeline. The proposed pipeline would run through Arakan state in Myanmar, then via the Indian states of Mizoram and Tripura before crossing Bangladesh to Kolkata.

Pollution control

Pollution control requires extensive and intensive dissemination of information through the print as well as audio-visual media. In view of good potential and scope for pollution control the primary focus should be to

- give effect to various measures and policies on ground, diversifed approach be adopted that includes stringent regulations, Development of Environmental Standards, Control of Vehicular Pollution, preparation of Zoning Atlas for Spatial Environmental Planning including Industrial Estates etc.

- shift to pollution prevention and control through promotion of clean and low waste technology, re-use and recycling, natural resource accounting, Environmental Audit and Institutional and Human Resource Development.

- There should be a conscious decision to establish power plants in remote areas under non-conventional energy resources.

- spatial planning through remote sensing, utilization and development of national resource information system, and urban resource information system should be adequately developed.

Disaster Management:

There should be a pro-active approach to disaster preparedness, mitigation and prevention by integrating disaster management in the development agenda, establishing enabling institutional arrangements, creating awareness for risk reduction as well as enhancing the capacities of government institutions, communities and civil society.

Socio-economic development cannot be viewed in isolation. It needs to be ensured that there is simultaneous growth in all sectors. Uninterrupted

power supply, well developed infrastructure, a proactive bureaucracy, trained and skilled manpower are a few such parameters that need to be addressed for holistic progress. Hi-tech sectors of the industry like, software technology, bio-technology can evolve and advance only if there is a favorable climate as reflected in an assured power supply, well developed infrastructure, and availability of proper resources, whether human resources or physical resources.

INFRASTRUCTURAL DEVELOPMENT IN TRIPURA

- N.E council should be persuaded to convince the Central Government for linking Tripura with the proposed East-West corridor with a four lane highway and Trans-Asian Highway. The council should be further apprised of the paucity of funds relating to the completion of work on Agartala-Sabroom stretch of National Highway-44.

- N.E council must also be approached with the concrete proposal for the development of airlinks between Agartala and Kamalpur, Kailashahar and Silchar-Imphal-Aizwal to minimise inter-state disparities in the North-East region. With a view to further integrate Tripura with the rest of the country, airlinks between Tripura and Delhi and other N.E State capitals should also be established. Helipad services should also be promoted in the state especially to tourist spots like Jhumpui Hills as it would provide a fillip to the tourism activities in the state.

- In order to minimise the need for frequent repairs and maintenance of roads, roads should be built with crumb rubber modified bitumen. Crumb rubber modified bitumen roads can be built by using waste rubber products including used tyres which strong and can withstand the challenges of heavy rainfall and rising vehicular traffic including heavy / laden buses and trucks.

- A standard comprehensive transport document consisting of the legal rules and regulations should be developed by the Planning Commission, GOI for exercising effective control over inter-modal traffic within the country and across the international boundary.

- The GOI should take effective steps in initiating dialogues and round table discussions with Bangladesh for linking up the IDR and BDR Railway systems particularly in the Karimganj and Agartala districts. Moreover

GOI should also show its pro-active attitude and mental preparedness for making additional investment on such upgradation as the BDR system might require in order to carry the additional Indian traffic up to Chittagong.

- The Department of Telecommunication must provide all administrative offces up to the Block Level with a fax and internet connection through the Multiple Access Radio Relay System (MARR). The same facilities must be provided to the officers of the Defence Department, Border security and Para military forces, Police, AIR, Doordarshan and others who provide essential services.

- In order to ensure greater connectivity and enhanced communication, along with BSNL, the private players like Reliance, Tata Telecom, Hutch and Airtel should also be encouraged to launch mobile phone and WLL services without compromising on the national security.

- A comprehensive reform plan for electricity supply industry in Tripura should be adopted. The reform policy should focus on
    - Introducing competition in the electricity sector and improving its efficiency and overall performance by taking into account the issues of electricity access, energy security, environmental protection and economic growth.
    - Making the State Electricity authority accountable for the performance of its public electricity system by providing additional incentives / assistance to better performing units on the basis of a transparent set of criteria.
    - Adopting an implementable time-table for establishing a regulatory framework, removing subsidies, curbing power theft and developing innovative solutions for private sector distribution.

- Maximising the use of existing auto production capacity to meet the demands of the growing electricity market.
- Undertaking market-based reforms in terms of improving business practices, mobilising investment and consequently giving more freedom to market players to exchange and trade power across state borders.

- In view of the unbalanced regional development in the state, more bank branches should be opened in remote and in-accessible areas especially the Dhalai region which at present is the most backward region of the state..Emphasis must also be made on improving banking services and facilitating ease of transaction for customers by reducing red tapism and paper work through E-banking and Tele-banking services.

- The interdisciplinary group of experts from the University of Tripura should undertake long term project in consultation with the RBI for examining how the banking and financial institutions norms and procedures may be suitably amended, improved and adapted to respond to the fastly changing financial requirements of the business environment of the industry in Tripura. The expert group would also organize effective interactions, brainstorming sessions and regular day to day interactions between the bank, industrialists, SLVC, SLMC, State Level Task Force and Corporate Bodies.

- The banking system should be completely overhauled and geared up for making concerted efforts to improve the CD ratio and in this direction the RBI may be requested to direct the public and private banks to invest at least 60 percent of the deposit in Tripura. Every department in the bank should be asked to draw a credit plan under the concerned scheme. Scheme-wise –Department wise credit target should be fixed. The concerned Department should also arrange for the issue of bank loans linked work order.

- The banks should provide facilities for soft loans and micro-credit to priority sectors and initiate more lucrative schemes to attract deposits. In this regard the North Eastern Development Financial Corporation (NDFC) should be convinced and persuaded for providing greater priority sector lending in Tripura so as to encourage large scale investment in the infrastructural projects particularly Gas and Bio-fuel.

- To tap the irrigation potential of the state, the Water Resource Department should identify viable Deep Tube Well schemes for irrigation purposes and formulate projects accordingly keeping in mind that the said projects do not deplete the ground water level of the area.

- The proposal of the State Government relating to Flood control measures in the form of construction of embankments, anti-erosion works and the improvement of the existing irrigation infrastructure must be properly funded and expedited by the NDFC and the NABARD. Moreover the execution of the proposed irrigation projects must be matched with adequate flow of power supply.

- With a view to providing a fillip to higher education in the state, requisite infrastructure for setting up a geo-technical centre at Agartala should be established. A State Central Library, a State archive and modern State museum should also be set up with financial assistance from the Central Government.

- There is a need to set up a Medical Institute in the state and the DONER should immediately give its approval to the Ministry of Health and Family Welfare for funding the establishment of the Medical Institute.

- In view of the erratic water supply and high iron content found in water, a comprehensive and explicit report must be prepared for mini-surface

water treatment and improving water supply system in all identified rural and urban areas.

Tripura government needs to focus on creating an “investor friendly” environment for attracting investment from both domestic and foreign resources for an optimum use for infrastructural development in the state. For all practical purposes, a true vision of the State can be made more operational, in an investor–friendly market oriented environment, if and only if we are able to fully mobilize and exploit all the available human, institutional, technological and physical in the best possible manner for an optimum use of infrastructure development.

CHAPTER–XV
OBSERVATIONS AND RECOMMENDATIONS

Economic Growth Structural Change and Work Force Participation

Observations, Issues and Policy Implications :

1. One of the important inference that has emerged from the analysis is the significant increase in the rate of growth of Net State Domestic Product as well as that of Per Capita New State Domestic of Tripura's economy since 1987–88. '**Can this growth rate be sustained over time?**' The task of sustaining growth rate in Tripura depends on private and public investment. The private investment in Tripura is low, this to a great extent is reflected by a low credit–deposit ratio of around 22 per cent in 2001–02. The public sector investment will depend upon state's own resources as well as on the central assistance in plan outlays, since 90 per cent of the plan outlay comes in the forms of central assistance. It has been observed during the course of our analysis that state's own resources to revenue expenditure is just 15 per cent while central assistance in plan outlay has just gone up by 29 per cent in the tenth five year plan as compared to a 83 per cent increase in the ninth five year plan. Considering these financial constraints we have estimated a modest increase in the net state domestic. It is expected to be Rs. 3868 crores in the year 2007–08 with a average growth rate of about 5.5 per cent per annum, during the ten years period ending in 2007–08. A relatively higher growth rate of about 6 per cent per annum can be achieved up to 2021 provided the following policies could be taken care off :

    i. To raise share of special category states in the divisible pool of taxes and duties to augment resources of the state for development.

ii. Excessive reliance on market borrowings is not a viable option in the long run for raising public investment and sustaining growth. Need is to augment its own resources especially through non–tax measure like raising revenue through forestry and forest based products and by promoting tourism.

iii. Private investment must be stepped up. No country or state can sustain growth in the long run if private investment is less than 60 per cent of total investment in the economy. Increase in private investment is mainly guided by a new major resource endowment like 'Gas–Stock' in Tripura or through a large swing in the optimism of investors which is only possible if enough infrastructural facility is provided along with a sense of security to the investors by eliminating insurgency not only in the state of Tripura but in the entire north eastern region.

2. The sectoral pattern of development of Tripura's economy is dominated by the services sector, while the industrial development has tended to significantly lag behind. '**Can such a skewed pattern of development continue to promote growth in the long run?**' It has been observed during the course of analysis that services sector led growth is largely on account of asymmetric distribution of financial resources. It has also eroded state's potential to generate its own resources. For instance, total revenue expenditure on general services (like police, pension and interest payments) and social services (especially education) on the one hand and economic activities on the other hand is distributed in the ratio of 80:20. However the non–tax revenue generated from these activities is just reciprocal of the ratio on the expenditure activities. There is a need to slowly modify this expenditure ratio on different activities to 60:40 by 2007–08 and to 40:60 by 2021 so that state could generate larger resources for its own development. It is because of this that we have proposed a modest growth rate of 5.3 per cent p.a. for the services sector during a ten years period ending in 2007–08. The contribution of services

sector to net state domestic product in 2007–08 is about Rs. 2105 crores which is about 54 per cent of the total NSDP of Tripura in 2007–08. If the proposed policy changes are followed then the services sector growth rate will vary between 5 to 6 per cent till 2021.

The suggested policy change will be fairly conducive for industrial and agricultural growth. The industrial growth rate up to 2021 is expected to be about 8.5 per cent per annum while agricultural growth is likely to be 2.95 and 3.5 per cent per annum up to 2007–08 and 2021 respectively. The contributions of industrial and agricultural sectors to NSDP for the year 2007–08 are respectively Rs. 825 crores and Rs. 938 crores which is about 21 and 24 per cent of the total net state domestic product.

3. The urban areas have experienced a much significant impact of development and growth than the rural areas in Tripura which has caused urban poverty ratio to come down to 7 per cent in 1999–2000 from about 37 per cent in 1972–73, while the rural poverty ratio has declined from about 52 per cent to 40 per cent during the same period. It is indeed noticeable that over 80 per cent of the Tripura's population resides in rural areas and if the rural population are living a miserable life then one must ponder, '**Whether the existing development strategy holds potential for the betterment of masses or not**.'

The strategy of incurring huge expenditure on social and community services is not a sustainable strategy for development and growth in the long term since it imposes a serious constraint on the future availability of financial resources. Therefore, development strategy must focus on investment in economic activities like agriculture, manufacturing etc. Investment in agriculture will facilitate to raise labour productivity which is so essential for lowering the incidence of poverty in Tripura. It has been observed during the course of analysis that during the period 1993–94 and 1999–2000, the agricultural productivity especially of foodgrains increased significantly which has resulted in lowering rural poverty from

45 per cent to 40 per cent during the same period. If investment in agriculture is improved then the target of lowering rural poverty to 37.89 per cent and overall poverty to 31.88 per cent can be achieved by 2007–08.

Moreover, along with it, investment in rural manufacturing activities must be stepped up since manufacturing activities in rural areas lack growth. It has been observed that percentage distribution of work force in rural manufacturing activities has declined from 11 per cent to 4 per cent during the period 1977–78 to 1999–2000, therefore there is a need to encourage investment in these activities. Private investment could only be propped up if proper infrastructural development (especially linking of rural areas with main centres) and strengthening of marketing network is available along with a sense of security to the investors. There is a urgent need to think seriously along these lines.

4. '**The overall employment elasticity has increased during the period 1983 to 1999–2000. Will this trend persist?**' The trend is unlikely to persist over time. A perusal of sector specific elasticity has revealed that increase in the value of overall employment elasticity is mainly because of a significant increase in the value of employment elasticity of the services sector. However, since the plan outlay for tenth five year plan has increased by just 29 per cent, and, moreover the percentage share of plan outlay for the services sector has gone down it is likely that overall employment elasticity may decline to about 0.17. A little over 7 per cent growth rate of NSDP is needed to absorb the growing labour force, however as per our estimate long run growth rate of NSDP is about 6 per cent per annum. Thus, problem of unemployment may aggravate. In order to mitigate the problem of unemployment there is a need to make large investment in the agricultural and industrial sectors of the Tripura's economy.

5. Despite development in Tripura during the last 30 years, yet 'Gender Disparities' continued to persist. Therefore, the issue which requires further scrutiny and attention is that, '**In the event of persisting gender disparities, can the standard of living of the people will improve?**' A little insight will suggest that persisting substantial gender disparities are responsible for high dependency ratio and poor standard of living. 'Gender Disparities' are fairly visible in terms of two parameters:
    i) Though the female to male population ratio is as high as 95 per cent yet female participation in work force is just 28 per cent as against 72 per cent of male participation in work force.
    ii) Despite low female participation in work force and their low representation in labour force yet female unemployment rate of 5.7 per cent is much higher than male unemployment rate of just 1.7 per cent on a Current Daily Status (CDS) basis in Tripura.

The development strategy therefore must focus on lowering gender–disparities by stimulating investment in allied agricultural activities, tea plantations, local handicrafts and ensuring marketing facility for the produce. These activities provide larger employment opportunities to females and will definitely facilitate to lower gender disparities and improve overall standard of living of the people.

HUMAN RESOURCE DEVELOPMENT

Demographic Scenario :

Recommendations :

- An integrated and coordinated service delivery mechanism should be evolved involving MPWs, AWWs, Village health guides and TBAs for implementing the reproductive and child health and family welfare programmes.

- Gram Panchayat, Panchayat Samities and Zila Parishads should be essentially associated with the formulation of the strategy of family welfare programme, right from the stage of planning, programming and monitoring of family welfare activities. These players at the grass root level should also be entrusted with the responsibility of implementation.

- In addition to active participation of women in the family planning process, the society for women activists should be encouraged to become part and parcel of the decision making apparatus concerned with the formulation of the future family planning policy of the state.

- The NGOs and voluntary organizations should be encouraged to take up activities in the field of promotion of small family norm and population control.

- The family welfare programme and the reproductive and child health programme should be implemented effectively particularly in the rural areas of the state.

- With a view to reduce infant mortality rate and maternal mortality rate, the coverage of institutional deliveries should be widened.

- The quality of the services must be improved to attract larger number of couples to practice modern methods of family planning. Health personnel should raise the satisfaction of the couples with the use of contraceptive

methods. The satisfied users of contraceptives will motivate other couples to accept family planning methods.

- The scheme of incentives must be effectively implemented for the couples who limit their family size to one or two children.

Strategy :

- Despite the decline in the rate of population growth in the decade 1991–2001 as compared to previous decades, the density of population is still high in the state. This indicates that the state needs further reduction in population growth with a view to avoiding congestion, overcrowding and other types of social tension. Considering geographical location of the state and scattered population in the tribal remote and inaccessible areas, sub–centres should be established in each panchayat. The motivation and IEC activities for popularizing small family norm and family planning should be intensified. The community need assessment approach should be properly followed while planning family welfare and RCH activities. The counseling centres at the district CHC, PHC and sub–centre level should be commissioned.

- Effective monitoring and management of the family welfare programme and RCH programme is needed. In this regard, the Gram Panchayat can play a significant role. Special programmes should be introduced to provide the needed training to the panchayat members to monitor these population control programmes.

RECOMMENDATION

Education :

- Every concerted effort must be made by the University of Tripura and the Tripura Secondary Board for adopting necessary safeguard mechanism with a view to preventing the unhealthy trend of communalizing education.

- The basis and fundamentals of computer and technology education must be imparted at the school level and the concerned teachers of the respective school should be trained with SMART system of teaching through computers as being done by the XVs. The funding part has to be essentially borne by the Education Department of Tripura and in case of paucity of funds, education cells can be composed by the schools.

- The Tripura Education Commission should seriously consider the imperative need of including modern and professional subjects at the secondary level and upgrade/ revise the syllabus at predetermined regular time intervals. The Tripura Board of Secondary Education (TBSE) should be concerned as to highlight it. The importance of environmental education, biotechnology, micro–superstition, home science, NSS, NCC, Yoga etc. and generate the necessary conducive climate among the students so that the students are absorbed after completing their secondary education in different specialization and the subsequent pressure on higher education is reduced.

- A community old system of education involving the PRIs, Government Department officers, NGOs, SHGs and other sensible representatives of the community must be implemented in the state so as to deal with the epidemic of drop–out children in the state and to motivate the parents to compulsorily send their children to school for getting education upto secondary level. The different players of the community should also induce the parents through debates, discussions and interactions in public platforms for considering the investment in the education of girl children as productive. This would not only minimize the social tension of exploitation of the girl child but also would reduce the pronounced gender disparity in education.

- The Plan outlay for secondary and elementary education should be released by the state government and the state government should be

advised for providing in–service training to all the primary and upper primary teachers for improving the quality of education.

- The share of state government for the Sarv Shiksha Abhiyan (SSA) and Universal Elementary Education (UEE) should be increased along with the grant component from the Ministry of HRD. However, improved monitoring and education mechanism at district level must be evolved for ensuring optimal allocation of the central funds being provided under the CSS as well as under non–plan lapsable central pool of resources.

- With a view to do away with the evils of the existing examination system, monthly examination system in all government and government aided schools be immediately introduced, the semester system may also be experimented and the teacher should be given necessary training for re–orienting their capabilities in the desired direction.

- Alternative methods of teaching like joyful learning in classrooms, play way approach in primary schools etc. should be evolved and implemented with a view to attract the children for regularly coming to school. In this context, Block Research Centres (BRC) and Cluster Resource Centre (CRC) should be made operational for providing academic support to the schools.

- In addition to the ongoing scheme relating to the construction of DIET at Kailashahar and Kamalpur, the education department of the state should accord top priority to the establishment of more IASEs and DIETs in collaboration with the private sectors so that quality inputs and training and re–training may be given to the potential teachers.

- The alternative modes of mid–day meal programme should be worked out and experimented on pilot basis by the state government with the help of community leaders, so that such schemes should not come in conflict with the normal routine functioning of the school.

Strategy :

A. Education

- The Kendriya Vidyalaya Sansthan should expedite the process of opening new Kendriya Vidyalayas at Udaipur, Ambasa, Kanchanpur, Dharamnagar, Longtharai Valley, Teriamura, Amarpur, Gandacherra, Gokulnagar, Sabroom, Bellonia and Sonamura. The necessary funding may kindly be considered by the Ministry of HRD, Government of India.

- In addition to the upgradation of the English Medium schools, 5 new English medium schools should be started every year. This mega scheme can be funded with the active financial support from the corporate sector.

- The state government is required to evolve alternative ways and means to focus on better delivery of the core services rendered by the government and evolving a mechanism for enthusing the culture of performance.

- Despite the existing infrastructural bottlenecks, the state can not afford to ignore the private sector, rather it is to be engaged as an effective agent to meet the basic societal goal of good health particularly for the rural poor.

- There is no denying about the fact that a partnership approach of sine–quo–non for the qualitative enrichment of the provision of 'merit services' like water, sanitation etc. However, the government is required to analyze the factors which ultimately are responsible for this qualitative enrichment and the state government should venture upon the task of continuing research in the critical areas of education and health.

- Re–alignment of the role of the state government to focus on primary education, health and sanitation, is crucial because where the state government happens to be the provider of education and health services,

the corporate sector well equipped with fund and technology should concentrate on higher education and health.

- Focus on effective public sector management and decentralization rather than public sector budgeting would be of immense significance in ensuring the smooth and perpetual transmission of the benefits reaching the poor and the under–privileged.

- The primary education department of Tripura may derive some fruitful lessons of experience from the experimentation of the Himachal Pradesh Model of Primary Education which were based on three cardinal corner stones viz. official commitment, civic cooperation and parental demand.

B. Higher Education

- In order to effectively exploit the potential of the existing natural resources including forest resource and manpower, the following proposal in the field of higher education deserve special attention of the Central Government, State Government and HRD.

Health:

Recommendations :

- Priority should be given to the development of health infrastructure in the state.

- Measures should be adopted to enhance nutritional status of the women and children.

- Action plans should be formulated for effective implementation of health awareness campaign which has already been initiated and a permanent cell be created in the government for timely monitoring regulating and evaluating the progress achieved by the government.

- Skill–upgradation of medical officers, para–medical staff and other supporting staff should be undertaken through training interventions and encouragement for higher studies and performance based incentives.

- Ensuring cent per cent immunization should form an important component of the health action plan.

- Maternal mortality rate should be reduced through the encouragement of larger institutional deliveries.

- Measures should be adopted for 100 per cent coverage of primary health care services in the remote rural areas.

- Effective implementation of the reproductive and child health programme should be ensured. The focus of policy and programme interventions should be shifted from general IMR to peri–natal and neo–natal mortality; clean delivery; timely treatment and control of new born infections; treatment protocol for babies with low birth rates etc.

- The specific case oriented proposals should be developed to deal with the major causes of childhood morbidity and mortality at all levels of care. Diarrheal diseases, measles, malaria and under nutrition.

- The government has to ensure enhanced investment in the supply of drinking water, sanitation and civic systems for prevention and control of water and vector born diseases.

- Vigorous and sustained efforts must be made to prevent the continuous spread of HIV/ AIDS with focus on interventions involving high risk population and arrangements be also made for medicinal and home based care of AIDS patients through clinical training and treatment protocols, generating awareness and sensitization of the health workers and community leaders.

FISCAL PLANNING AND MANAGEMENT

- The motor vehicle tax be merged with the state VAT, and the VAT rate for all categories of motor vehicles should be higher by 3 per cent to 8 per cent than the general commodity VAT tax, so that the share of Motor Vehicle Tax to its own tax revenue be raised from 3.17 per cent to 5 per cent.

- Commodities with negative externalities need to be controlled and be subjected to Special Additional Tax (SAT) against which no input tax credit should be granted. In this regard, the state should draw a common list for purposes of SAT and the number should be limited and determined conveniently by the state administration. However, in order to avoid cost cascading effect of VAT, SAT should not be imposed with the objective of protecting revenues from specific commodities.

- The system of tax administration be revamped through further simplifications of forms and procedures as well as comprehensive computerization of tax administration.

- Large scale tax evasion at major tax post such as Churaibari may be prevented through strict internal security arrangements and computerization.

- Credit method be adopted for computation of VAT liability and all exports should be zero rated.

- The state should expedite the formulation of scientific work plans for the management of forests which can effectively augment revenue from forests within the broad framework of the forest policy.

- Since high registration fees provides an incentive to evade through undervaluation of property and has spillover effect on compliance with other tax laws like stamp duty and capital gains tax, the registration fees should be kept low.

- The composition of government expenditure should be restructured in favour of the priority areas like water supply and sanitation, primary health care, education and infrastructure.

- The much needed pension reforms would render the state finances less vulnerable to exogenous decisions regarding pension by making this self sustaining.

- We have observed that the debt liabilities of the government have been increasing year after year leading to an increase in the borrowings which on account of pension and interest liabilities was 15.46 per cent of the revenue receipts. It is also evident from the scheme of financing that the state government is required to avail large amount of loans from the Central Government under various components i.e. AIBP, PF, SLR fared loan, small savings, part of NCA etc. Rates of interest charged for all these components of loan are very high and as a result heavy extra burden is imposed upon the state government for servicing these loans. It is therefore recommended that a substantial reduction in interest rate at par with market rates for the above mentioned components of loans be affected by the Central Government and the Planning Commission.

- Legislative provisions be made for curbing the issuance of guarantees in line with Karnataka and Rajasthan. Limits on guarantees should be fixed relative to GSDP of the state and the debt–GSDP ratio should be progressively reduced unless it reaches a manageable level.

- In view of the fact that only two out of the several parameters governing the interest gain from the debt swap scheme are meaningful for Tripura, and that these parameters are under the control of Government of India, the debt swap scheme has to be operated on a much wider scale so as to achieve reasonable amount of benefit. Moreover government should take up with the Union Government the issue of debt swap in terms of altogether different parameters for special category states.
- Subsidy as a budgetary instrument for promoting social welfare has been overused, some times abused, leading to inefficiencies. Cost of subsidies have generally been under estimated because most of the subsidies are hidden or implicit. At present, there are number of subsidies to attract private investment and private industrialist. Since there is a central incentive package for investment in the North–East region, there is no justification for augmenting the subsidy package for Tripura. The state with abundant natural gas, bamboo, horticulture, rubber, tea and tourism potential can effectively attract investors with improved infrastructure facilities requiring capital expenditure.

- In the areas like health and education where subsidies are merit based on account of the presence of large externalities, the government should rationalize the subsidy structure so that substantial amount of subsidies are made available to the economically poorer sections. However, subsidies should be time bound and withdrawn at various stages. Operationally, subsidy reforms should be approached both from the expenditure and revenue sides. On the expenditure side, reduced costs of providing subsidy by reducing operational inefficiency would eventually reduce subsidies without affecting the quality of services. On the receipts side, the state should target higher recovery rate by linking user charges to cost. Input linked charges, partial privatization of generation and distribution in electricity, proper metering, establishing bodies for autonomous tariff revision in power and transport, fees for health and

education etc. should lead to better cost recoveries and lower implicit subsidies.

- It has been observed that the Eleventh Finance Commission has over estimated the quantum of devolution of central share of taxes on the one hand and under estimated the non–Plan revenue expenditure on the other hand. Thus, the state experienced a high level of non–Plan Revenue deficit. Unfortunately, despite the state's better performance in mobilizing tax and non–tax revenues, as per the Eleventh Finance Commission projections, non–plan account continue to deteriorate due to the failure on the part of the Central Government in achieving the expected level of tax realization, as projected by the Eleventh Finance Commission. It is therefore recommended that the Twelfth Finance Commission should recast the forecast of state's own revenue and non–plan expenditure on realistic basis and restore the practice of bridging the non–plan revenue gap through additional central assistance.

- Since revenue expenditure, whether plan or non–plan, is similar in nature, the Finance Commission should do away with the plan and non–plan dichotomy and take into account plan revenue expenditure while assessing revenue expenditure viz–a–viz non–plan revenue receipts and deficits.

- It is expected that the Finance Commission will take into account the huge expenditure on police on security related expenditure and recommend the reimbursement of the entire amount, incurred by the state. The Twelfth Finance Commission must earmark 10 per cent of the total divisible pool of central taxes for the north–east states, whose existence is justified on ethnic, political and social grounds rather than from development point of view.

- The Twelfth Finance Commission may consider recommending writing–off debt against short fall in the share of central tax revenues and against under–assessment of expenditure by the Eleventh Finance Commission relating to pension and interest liabilities during 2000–01 and 2004–05 i.e. Rs. 1490 crores. It may also recommend the Special Debt Relief Package for writing–off the entire outstanding loan of the Central Government along with interest.

- Tripura did not qualify in 2000–01, the first year of the Eleventh Finance Commission award period, for the fiscal incentives as it did not fulfill the minimum benchmark i.e. reduction in the ratio of revenue deficit to revenue receipts with reference to the preceding year or equivalent to an increase of two percentage points in the revenue surplus. It is recommended that for a special category state like Tripura such a mechanical criterion which looks only at the first difference for each qualifying years should be disallowed for the purposes of fiscal incentives. In other words, special category state like Tripura enjoying positive primary revenue balance or negative RD/RR should be entitled for fiscal incentive regardless of the change with respect to the preceding year.

- The MTFRP norms with respect to the GSDP of a state may be a perfect general guideline but it is certainly not appropriate for special category states like Tripura which inevitably depends heavily upon revenue receipts from the Union Government. It is suggested here that for special category states like Tripura fiscal imbalance indicators should more correctly be assessed with respect to RR rather than with respect to GSDP. This alternative approach would be in perfect alignment with the MTFRP and encourage a better performing state like Tripura to secure fiscal incentive. However, the total debt stock of the state should be normalized with respect to the carrying capacity of the state as measured by GSDP.

- Due to the poor condition of infrastructure, geographical isolation and historical neglect as well as the problem of insurgency, the state could not attract substantial private investment. Investment under central sector projects in the state has been insignificant and the financial institutions did not play a dynamic role in promoting the private investors by creating an investor–friendly environment. In view of the lack of adequate investment and poor CD ratio, the central government may be requested to provide a comparatively higher plan allocation under NCA, SCA and PMGY.

- It has been observed that there has been a phenomenonal increase in the generation of non–tax revenues from fees and rentals of panchayat properties by the panchayats of the states. In per capita term this represents an increase from Rs. 0.06 per capita in 1990–91 to Rs. 0.24 per capita in 1997–98, to Rs. 3.59 per capita in 2002–03. It is recommended that this favourable trend be continued by encouraging the panchayats and rural local bodies with special incentive schemes and by providing adequate financial autonomy to the village panchayats.
- Management of deficits, both revenue and fiscal, should be governed by the fiscal reform facility programme with the objective of bringing down the fiscal deficit–GSDP ratio and completely eliminating revenue deficit by 2005–06.

- Comprehensive statements relating deviation from actuals and budget estimates as well as an analysis of factors explaining the deviations be periodically prepared for achieving continuous improvement in the methodology of estimation. The state government should come out with a Functional and Economic Classification of Budget which will help in analyzing the role of the public sector viz–a–viz the private sector.

FORESTRY

RECOMMENDATIONS:

(A) Conservation

Issue 1: Paucity of data base on basic hierarchical categories of biodiversity for identification of thrust areas, and formulations of proper strategy and planning for conservation.

Recommendation:

- Involvement of university and colleges, and / or other capable agencies for this purpose may be encouraged. Students may be given fellowships to undertake research work on different aspects of biodiversity and to ecosystems including ethno-botanical and ethno-medicinal studies.

- Agencies qualified / suitable for the job may be engaged for specific tasks. This approach would also help in constant monitoring of status of biodiversity in the State. With the progress of work, new areas which need to be brought under PAN (Protected Area Network) can also be identified.

Issue 2: Creating environmental awareness among people and promoting eco-friendly alternatives to reduce pressure on environment and forests ecosystem need to be given proper attention for conservation of biodiversity.

Recommendation

- Ecologically sound income generating activities for local communities be carried out. The knowledge and skill required for bamboo resource development and value addition are part of their tradition. These communities with scientific assistance and training support, would be able to revive their traditional knowledge and support and integrate it with modern techniques to ensure economic upliftment.

- For educating people about these issues, a four-pronged strategy must be adopted.
  - use be made of the most powerful audiovisual media i. e. Doordarshan, Akashbani, and video films;
  - the newspaper media be used;
  - inclusion of environmental education in school curriculum, and
  - a mass contact programme be launched to train & educate people, especially womenfolk, about use of fuel-efficient stoves; pre treatment of foodstuff like soaking of rice and pulses for a few hours before cooking; benefit of using pressure cookers; and non-conventional sources of energy like biogas plants. The fuel saving devices and non-conventional energy devices must be distributed / installed at a subsidized rates in collaboration with Science & Technology Department, which is already doing some work in this regard, although, on a small scale. This project will require substantial funding on media publicity; creation of infrastructure; subsidies; and training of rural folks.

Issue 3: Arresting demand on forests and consequent degradation of environment and biodiversity due to an increase in population

Issue 4: Forest fires sweep a large area of forest floor every year, affecting regeneration in natural forests and young crop in the plantations. This poses a serious threat to biodiversity as only hardy species are able to survive & regenerate; habitat is destroyed; and micro flora and microphone are destroyed.

Recommendation:

- Employment of fire-fighting measures by way of erection of watch towers, engagement of fire watchers, strengthening of communication system (wireless sets, vehicles for speedy transport of fire fighting staff and

reinforcement to the site of occurrence, etc.), be made, procurement of fire fighting instruments be ensured and incentives to Joint Forest Management Committees (JFMCs) and other institutions for fire protection etc. should be adopted.

Issue 5: Shifting Cultivation

Recommendations:

- Economic rehabilitation of shifting cultivators under suitably framed schemes to wean them away from jhuming, and provide them with assured means of livelihood should be adopted.

- The detrimental effects of shifting cultivation need to be viewed in the perspective of possible *remedial measures* and in this context efforts need to be initiated to transform the jhums into economic opportunities. Some of the *possibilities include* encouraging the cultivation of tea in the jhum fallows as well as promotion of high value organic food grains, pulses, spices, medicinal herbs, oil seeds, and other non-timber forest produces (NTFPs) in jhum lands for export markets with the association of TRIFED (Tribal Cooperative Marketing Development Federation of India Ltd). Horticulture, particularly pineapple based programmes, and taking up land terracing for paddy cultivation cum fish culture are also possibilities, which should be seriously explored. Tree farming in jhum fallow areas as exhibited by the Alder system of Nagaland and the modified shifting cultivation method known as 'bun' which is used for the growing of vegetables in Meghalaya needs to be popularized and modified to suit the local area requirements.

- Rehabilitation of jhumias can not be carried out as an additional routine activity of the Forest Department. To achieve this end, a separ.ate set up under the Department, wholly devoted to this cause, needs to be created.

- Integrated project for rehabilitation of jhumias need to be prepared involving all development departments. The activities under the project will include: raising of plantations of forest species; raising of orchards; animal husbandry; fishery; primary education; adult literacy medical facilities; etc. The time frame may be 20-25 years considering the number of families and gestation period of plantations etc. The Forest Department will be the lead department as the works will be done in forest areas and under the provisions of Indian Forest Act, 1927, and Forest Conservation Act, 1980, no other department is competent to take up such activities whatsoever in forest areas. As such, a Directorate for Rehabilitation of Jhumias under the Forest Department needs to be created. In fact, the Committee on Forests and Tribals in India, set up by the Government of India, Ministry of Home Affairs, in its recommendation has strongly advised creation of a Tribal Wing under Forest Department in the States for successful formulation, implementation, and coordination of tribal development schemes (Ministry of Home Affairs, Report of Committee on Forest and Tribals in India, 1982, Government of India, New Delhi, page 75).

Issue 6: Protection of threatened species and unique habitats including aquatic areas of high biodiversity.

Recommendation

- Concerted efforts need to be made to save the endangered flora and fauna by means of in- situ and ex- situ conservation. The genetic pool of the medicinal plants resources need to be conserved and suitable strategies devised to ensure ex situ and in situ conservation for their for survival and sustainable use.

- Protected area network need to be increased to conserve the gene pool. Species existing in small isolated population are susceptible to extinction caused by random environmental events, genetic deterioration and

intense biotic interference. In this State, though, 4 wildlife sanctuaries have been formed, two of them, namely Rowa Wild Life Sanctuary and Sepahijala Wildlife Sanctuary have very small areas (0.585 and 18.53 sq. km. respectively). These four sanctuaries do not cover the entire spectrum of biodiversity in the State. It is, therefore, necessary to bring more representative areas under protected are net work. There is already a proposal to create 2(two) more sanctuaries, viz., Unakoti Sanctuary and Atharamura Sanctuary. In addition at least one more sanctuary need to be created, i. e. Central Catchment (Jampui) Sanctuary, in immediate future.

- In pursuant to the orders issued by the Supreme Court on 15.1.98 in Writ Petition (Civil) No.202 of 1995 & No.171 of 1996, it has been emphasized that at least 10% of the forest area (6292.681 km^2) of the State i. e. 629.268 km^2 should be identified as protected area. Presently, 603.628 km^2 forest area is already under Wildlife Sanctuaries. Thus the minimum of the area needed to be identified as protected is about 25.640 km^2. As per recommendation of the committee constituted by the State Government in this regard, a proposal for notification of 75 km^2 of forest area as wild life sanctuary is under active consideration of the Government.

- Formulation and implementation of management plans for protected areas

- No approved management plans for wildlife sanctuaries except Trishna Wildlife Sanctuary, exist. Management plans for other 3 wildlife sanctuaries are immediately required.

- Management plans for the wildlife sanctuaries will be prepared by the officers who have received specialized training in wildlife management and formulation of management plans for protected areas. Working plans

shall be revised so as to give proper treatment to management of wildlife with reference to habitat manaqement.

- Conservation of natural orchids, tree ferns, and other primitive and rare plants
  - Measures to extend adequate protection to the biodiversity of this State must be taken. A battalion of Tripura Forest Police Force be raised to combat the menace of illicit fellings and smuggling so as to save the habitat from wanton destruction by miscreants and smugglers of forest produce.

  - The biggest issue, as regards conservation of ecology, environment, and forests in Tripura, is paucity of funds. The State is experiencing a severe .resource crunch and, so, the Department of Forest is finding it increasingly difficult to take necessary measures for conserving the unique features of the State. Funds need to be made earmarked for this purpose.

- Conservation efforts outside Protected Areas

  - Conservation efforts must be extended to all the surrounding areas of PAs, managed forest areas and other areas of special significance.
  - Effective involvement of people would also be ensured for the purpose.
  - Honorary wild life wardens would be appointed to cover such areas of significance.
  - Ex-situ conservation efforts would also be strengthened by improvement of existing Sepahijala zoo and by establishing arboretums, bambusetums, botanical gardens, gene banks and medicinal farms. These would also serve as a means of earning income without causing damage to the resources.

(B) Protection of Forests

Issue 7: Changing attitude of forest personnel and people is required to successfully implement the idea of JFM / PFM.

Recommendation

- The change in the attitude of forest personnel will be brought about by imparting training in this regard to new entrants; conducting orientation courses for in-service personnel; and holding workshops and seminars.
- The change in public attitude will be brought about by associating NGOs; holding of seminars; and a massive publicity drive.
- Schemes incorporating all these components will require funding by GOI/door agencies.

Issue-8: Providing immediate benefits to beneficiaries is essential to avoid their disenchantment with participatory management concept.

Recommendation

- Eco-development schemes for providing immediate benefits be implemented.
- These include excavation of lakes; raising people's nurseries; distribution of fuel saving devices at subsidized rates; providing machines for value addition to forest produce (e. g. machine for making sal-leaf plates); raising of broom grass (for making brooms); mushroom cultivation etc.
- This approach will keep the interest of beneficiary from flagging.

Issue 9: Resources of the Forest Department are woefully inadequate to fight the menace of rampant illicit fellings and smuggling of forest produce across the border.

Recommendation

- The number and strength of patrol parties be increased and

- They be provided with arms and properly trained in use of the same. Each patrol parties will have one fast moving vehicle in good order, equipped with one mobilophone, and two portophones. Number of fixed wireless stations will also be increased so as to cover all Beat Offices. This will strengthen the existing skeleton wireless network. These measures will also require substantial investment and need to be extended funding by Government of India.

- Government of India should take up the issue of smuggling of forest produce with the Government of Bangladesh at diplomatic level.

Issue-10: All the nine major rivers of State flow to Bangladesh and make excellent waterway for smuggling of forest produce across the border. Forest Department can not exercise effective control due to lack of infrastructure and adequate man power.

Recommendation

- It is also proposed to establish check posts over vulnerable locations of rivers through which large scale smuggling of timber/bamboo take place. Identified rivers in this regard are Manu, Juri, Dhalai, Khowai, Burhima, Gumti, Muhuri and Feni at Dharmanagar, Kailashahar, Kamalpur, Khowai, Kamthana, Sonamura, Belonia and Manughat respectively.

Issue-11: Poaching has been going unchecked in absence of effective, preventive apparatus for want of funds, bringing down population of a number of species.

Recommendation

- Schemes for taking preventive measures, like fencing of sanctuaries; collection of intelligence about offences; strengthening of patrol staff; creating/ improving infrastructure, like wireless network, etc. ; and

providing vehicles for speedy deployment and reinforcement be prepared and submitted for funding to Government of India / DONOR agencies.

Issue 12: It is not practicable to evict encroachers in the existing circumstances as they often have political backing. Inability of the Forest Department to evict encroacher encourages potential encroachers and more encroachments take place. This process is going on unabated.

Recommendation-

- A two pronged strategy. One is to make encroachment less attractive by not extending benefits to encroachers under any scheme of any Department;

Issue-13: Forest based industry

Recommendation .

- Saw mills and other wood based industries would be regulated to keep the installed capacity within sustainable yield of forests. Units based on processing and value addition of Minor Forest Produce would be promoted to ensure increased value addition of Minor Forest Produce and concomitant flow of benefits to the local communities within the State.

(C) INCREASING FOREST PRODUCTIVITY, ARRESTING DEMAND ON FORESTS AND CONSEQUENT DEGRADATION OF ENVIRONMENT AND BIODIVERSITY

Issue 14: Increasing Forest Productivity :

- **Increasing Forest productivity in dense forests.**

Recommendation

  - Technology inputs - Most of the dense forests are plantations. In natural forests, extraction is not permissible due to restrictions

under Forest Conservation Act. Productivity in the plantation can be increased by planting superior stock.

- Silvicultural practices for multiple use forestry
  - Reactivation of the since abandoned practice of planting coffee in the plantations of the species Albezia procera, which has a light crown.
  - Another alternative would be to raise shade bearer species (middle storey) in the plantations of light demander species (top storey). This may prove expensive than raising plantations of single species;
  - Mixed plantations can be raised of species having different average root length so that different layers of soil are used.
- Cultural operations like, cleaning, timber cutting, removal of weeds, etc. to promote natural regeneration be encouraged.

- In situ soil conservation by way of clothing areas with vegetation cover and, restricting grazing with the cooperation of people must be tried to achieve through participatory management.

- Use of quality seeds, clones, tissue culture be encouraged.

- **Increasing forest productivity in open forests**

Recommendation

- Problem of jhuming needs to be tackled first, by economic rehabilitation of jhumias and then by identification, mapping and a time bound reforestation programme of degraded forests.

Issue 15: Eco-restoration of ecologically fragile areas

Recommendation

- Massive afforestation drive be launched through suitable site specific management and treatment models to reforest the denuded areas

thorough participation of local communities, Panchayat Raj Institutionas (PRIs) and NGOs under Joint Forest management.

Issue 16: Identification of degraded forest areas for raising multi product plantations of identified / prioritized species

Recommendation

- Govt. should consider the proposal for creation of a Remote Sensing Unit in the Forest Department of the State. Partial infrastructural support in the form of foresters, surveyors, draftsmen etc. for ground truth checking and mapping is already available with the working plan divisions. The remote sensing unit, once established, can be linked to the existing facilities of Geographical information System.

(D) Reducing Pressure on Existing Resources

Issue17: Reducing demand of fuelwood

Recommendation:

- Introduction of fuel efficient chulahas and crematoria

Department of Science, Technology & Environment be requested to constructed fuel efficient crematoria at all sub-divisional and district headquarters.

- Promotion of fuel efficient practices among household

Regular publicity drives be launched to encourage the people to adopt fuel-efficient practices. These will include pretreatment of food articles before cooking, use of pressure cookers (these may be distributed at subsidized rates among villagers), use of solar cookers, etc.

- Promotion of biogas plants etc.
- Discouraging use of fuelwood in Industrial sector

Brick kiln industry is the only industry using fuel wood in the State. It will be persuaded to use coal for firing bricks. The matter be taken with the Industry Department for evolving suitable strategy.

Issue 18: Reducing pressure on forests due to grazing

Recommendation

- Increasing fodder production from private / community lands.

Encourage planting of fodder species under social forestry schemes with the involvement of panchayats and animal husbandry department. Encourage people to plant fodder grasses along the boundaries of farms, vacant land, etc. Under agro-forestry programme, planting of fodder trees will be urged.

- Introducing a system of rotational deferred grazing.
- Strict implementation of grazing rules to avoid further damage to degraded and most critical areas of forests.
- Reduction in the number of scrub cattle through castration and promotion of high yielding animals

Issue 19: Development of Non-timber Forest Produce (NTFP)-

Bamboo

Recommendation:

- Suitable bamboo species must be identified for each agroclimatic region of the state to take up large-scale plantation under farm forestry, agro forestry, social forestry and JFM models. It will provide additional income monthly, annually and in the long run improve the economic level of Tripura from agroforestry based bamboo ecosystem.

- A bamboo based multipurpose windbreak with an appropriate design provides multiple functions and/or products, in addition to protection from wind damage. Horticultural crops, in particular, benefit from wind protection where the visual appearance of fruits, vegetables or flowers is crucial. It is not the gentle spring and summer winds that are in need of management. Soils that are best suited for horticultural crop production are also ideal for many windbreak tree species. On well-drained moist

land, bamboos provide good protection around farm fields.

- A fillip to bamboo based industry through value addition by way of improved processing technology, improved design and product diversification in the below given aspects/areas.

  - Food Items

Bamboo shoot is a young culm harvested shortly after it appears above the soil surface. It is eaten fresh as salad, chutney, curry etc. or in processed form as that of dried shoot, shredded shoot and pickled shoot. The use of bamboo as edible shoot gives 16.67 times value addition over that of raw bamboo. The species suitable for edible shoot available in Tripura are *Bambusa balcooa, Dendrocalamus hamiltonii, Dendrocalamus strictus* and *Melocanna baccifera.* The demand for bamboo shoot is mostly confined to Northeastern states. Meeting this demand should be the priority rather than looking at exports straightway, which requires stringent standards in order to survive international competition mostly from China, Taiwan and Thailand. Establishing small to medium scale industry with bank finance is a viable option in Tripura.

  - Building and construction material

Structurally bamboo finds application in three main types of structures viz. scaffolding, housing and roads. Despite construction becoming high-rise, bamboo has continued to hold advantages over other materials such as steel. This is because of the fact that bamboo offers flexibility in terms of length that it can be cut into, lower investments required by contractors and the ease with which it can be set up and dismantled. Of the 13.47 million tons of bamboo consumed in India every year, 3.4 million tons is used for scaffolding alone. The only problem with bamboo scaffolding is that it lasts only 5-7 times as against the 50 times in case of steel scaffolding. There is virtually no value addition on the raw bamboo used for scaffolding purpose. The preservative treatment of round bamboo need to be looked into which not

only will add value to the scaffoldings but also increase manifold the number of times it can be used.

Traditionally bamboo has been used in rural house construction since ages. Villagers use bamboo for walling, roofing and flooring. However, today bamboo is increasingly being used in its more modern form as follows

- Support structure for shelters (Columns, roof trusses, rafts, purlins etc.)
- Bamboo mat corrugated sheets as roofing material
- Bamboo grid with cement mortar plaster for walls
- Bamboo mat boards for partitions, wall paneling, false ceiling
- Door and window frames
- Bamboo mat boards for door and window shutters
- Flooring tiles

Road construction is another area where bamboo has got huge potential. Bamboo slivers can be effectively used to make grids for reinforcement of roads, which not only increases the life of the road by at least two fold but also saves huge maintenance costs.

The state need to look into the possibility of establishing a bamboo plywood industry which will produce bamboo plywood and bamboo corrugated sheets for domestic consumption as well as for export to other northeastern states and the neighbouring Bangladesh. The huge Muli stock that is going to be available after flowering can be used by this industry. The bamboo corrugated sheets and plywood can be used in the rural house construction under various Government schemes. The possibility of using bamboo grid for rural road construction under Government scheme need to be explored. These two construction sectors viz. housing and road will generate huge employment opportunities in the rural area thereby boosting its economy.

- Tiny and cottage industries

There is enough scope for establishing different types of village level small-scale cottage industries like the followings in the state.

- Bamboo rounds for props, scaffoldings, lathis, fishing rod, javelin etc
- Bamboo activated charcoal or briquettes for numerous end uses
- Bamboo splints for incense stick, chopstick, toothpick, hand fan, ice-cream stick, kite making, woven mat, bedspread, Venetian blind etc.

Emphasis need to be given on activated charcoal industry which has got immense potential considering the numerous end uses of activated charcoal. Any bamboo species and any part of bamboo can be utilized. There is a very high value addition compared to any other cottage industry. The technology and funding provided by TIFAC need to be popularized among the entrepreneurs of the state.

- Handicrafts & Furniture

The Bamboo based craftsmanship of Tripura state artisans is second to none. This can be found in the range of products being made using bamboo rhizomes and culms. The figurines carved out of bamboo rhizomes, decorative fans made of woven bamboo splints etc prove the skills of the artisans. The state needs to look into interests of its artisan by promoting them and by taking up marketing of their products in the northeastern region and other states of the country.

Furniture made of bamboo has got huge potential in the state, in the region and in the country. There are a few species like *Bambusa tulda, Bambusa nutans, Bambusa pallida and Bambusa affinis* which can be used to make products like Sofa, Chairs, Tables, Dining Table, Cots, Stools, Partitions etc. There is enough scope for establishing small to medium scale furniture industry.

- New generation products

The new generation products like the bamboo laminates and composites used for flooring, partitions, cupboards, racks, door and window panels, door and window frames, rails and numerous other value added products. However, the market for such high end products is limited in the state and the northeastern region. Establishing such industry in the state may not be viable.

- Large Bamboo based industries

Large bamboo based industry like paper and rayon pulp is not a viable option keeping in mind the geographic location of the state and the fact that there are two pure bamboo based paper mills in the northeastern region.

- Community participation
  - Scientific assistance and training support should be extended so as to involve the communities in development of the sector to revive their traditional knowledge and also support and integrate it with modern techniques to ensure economic upliftment.

  - Active participation and involvement of local communities under Joint Forest Management (JFM), under cluster co-operatives of artisans, and other mechanisms be formulated to ensure sustainable return to these communities.

  - Institutions of local self governance in ADC and non-ADC areas would be involved in promotion and development of bamboo at grass root level, and shall ensure participation of masses in sectoral development programmes.

- Conservation of the resource

- ❖ Claim of bamboo dependent local communities be honoured and their access to the resource ensured through implementation of suitably designed arrangements. The income generation of these communities must be enhanced through cultivation/extraction/value addition of bamboo. Where the need is felt, an additional income source/arrangement be considered to tide over the phase of gestation before plantations mature.

- ❖ Existing management practices related to end-use be updated and down- streamed to the community by infusing appropriate scientific inputs.

- ❖ To ensure ex-situ conservation of the bamboo resource, gene banks of different cohorts of species be developed, which may also be used for propagation, multiplication and cultivation needs in future.

- ❖ A bamboo museum, which would contain a live collection of different bamboo species, could be established with in next two years, to enable local artisans, bamboo growers and farmers to get first hand information about morphological features, aesthetic properties and growth characteristics of these plants. Information systems should be put into place for all to be aware of this facility and encourage usage.

- ➢ Plant propagation
  - ❖ The shortage of bamboo planting material, a major constraint for large-scale bamboo plantation, need to be addressed.
    - ▪ Use of rhizome as planting material is costly and in case of clump forming bamboos quite often it also leads to relocation rather than development of the resource. Where alternatives

are available, the use of rhizome for field panting be phased out.

- Plant tissue culture technique for mass clonal propagation viz, micro-propagation of bamboo, for identified bamboo species be developed in collaboration with appropriate technical agencies.

- Development of the resource
  - To meet the prospective requirements of non-clump forming bamboos, productivity of existing Muli (Melocanna baccifera) bamboo forests be enhanced through cost effective method of Aided Natural Regeneration (ANR), which includes protection from fire, grazing and substitute sowing of seeds on steep slopes following gregarious /sporadic flowering.

  - To meet requirements of other clump/non-clump forming bamboos, production base be enhanced by taking up artificial regeneration over 10.000 ha of degraded forests and 5,000 ha of un-arable tilla land in private holdings. The species targeted for artificial regeneration are Barak (Bambusa balcooa). Bari (Bambusa polymorpha), Mritinga (Bambusa tulda), Muli (Me/ocanna baccifera), Poara (Bambusa teres), Dolu (Schizostachyum dullooa), Makal (Bamboo pallida), Kanak Kaich (Bambusa affinis), Lanthi bans (Dendrocalamus strictus), which are primarily being used in value addition and creation of income generation activities in the State. To encourage bamboo plantation in private holdings, the favourable economic return of bamboo plantation vis-a-vis other crops would be publicized and appropriate technical and financial support would be provided to the cultivators.

- ❖ To ensure achievement of targets as mentioned above, the responsibility for bamboo resource development would be taken up by different departments with technical and material support of Forest Department.

- Promoting value addition
  - ❖ Promote bamboo industrial products be promoted by developing Small Scale Industries (SSIs) and also medium-scale operations based on bamboo such as Bamboo Mat Boards, Bamboo laminates, Bamboo ply, Bamboo flooring and Bamboo shoot processing, among others, to be identified by the INBAR- Tripura Bamboo Mission. Smaller industries for production of chopsticks, agarbattis and baskets can be promoted at the community level.

- INBAR- Tripura bamboo mission
  - ❖ A medium-term arrangement has been entered into with INBAR (International Network on Bambo and Rattan) to provide necessary technical backstopping, institutional and managerial support, to ensure integrated development of bamboo sector in the State through an integrated approach of market-led community-based utilization, development and conservation of the resource.

(E) Strengthening Of Policy And Institutional Framework

Issue 20: Proposed changes in format of working plans

- In view of modern concepts, technologies and management practices, following changes are suggested in the format of working Plans:

- Smallest unit of management (compartment) should be a micro / mini watershed so that bouhdaries are immutable and easily identifiable in the

field. In case of forests in plants, the boundaries should be roads, fire-lines, etc.

- In Tripura, ratio of requirement / consumption of firewood to timber is 37:1 compared to all India ratio of 10:1(Forest Survey of India, Report on Forest Resources of Tripura, & State of Forests Report). Yet working plans, almost exclusively, deal with management of forests for the production of timber paying no attention to production of Fuelwood. A radical, attitudinal change in this regard is required.

- In conservation areas, there should be provision for periodic surveys to ascertain changes if any. In case of unwanted/unforeseen changes, provision for remedial measures/deviations should be made.

- Modern technologies like remote sensing techniques should be made us of for assessment of growing stock; identification of critical watersheds, degraded areas; delineation of compartments and blocks; etc.

- Provisions and implications of various acts must be taken into account while
- formulating treatments, prescriptions etc.

- Management of NTFPs like Arjunflower, bamboo, thatch, etc. should be given due importance and detailed prescriptions should be worked out for this purpose.

- Conservation of biodiversity and management of wildlife should be dealt with in
- detail.

Issue 21: Strengthening of manpower, and restructuring of Forest Department

Recommendation

- A committee must be constituted to examine the whole issue in all perspectives and suggest suitable structure and strengthening of manpower keeping in view not only the present position, but also the situation likely to develop in future. Required manpower would be inducted at different administrative levels with appropriate incentive mechanism.

Issue-22 : Institutional and Infrastructure development of Training in forestry sector in the State

- The training institute be upgraded/well equipped for professional training of foresters and forest guards to impart short term trainings in extension services, orientation to participatory management, refresher courses on different aspects of forestry & environment, etc. for different level officials and public representatives.

- Infrastructural and institutional improvement including, shifting of the training institute to a more appropriate location near Agartala, construction of new hostels for training of officers, introduction of audiovisual training aids, construction of auditorium, etc will be necessary.

Issue-23: Development of training packages with aspects relating to environmental, Social and economic studies and control of Jhumias.

- The training packages should be developed within the State with the help of institute of repute like Indira Gandhi National Forest Academy, Forest Survey of India, Indian Council for Forestry Research & Education, Wildlife Institute of India, Indian Institute of Forest Management, National Institute of Rural Development, Indian Institute of Public Administration, etc.

Following are some of the intended packages.

- Micro-level planning for treatment of degradation of forests

The components of the training may be:-

- Use of remote sensing techniques to identify problems/target areas (environmentally degraded/jhumed areas, etc.)
- Techniques of socio-economic survey to identify various factors, causes, issues, problems, etc. having bearing on the subject being addressed
- Methodology for identification of various resources and activities that can be used for development of the area for which macro planning is being done .
- Approaches for participation of target group in framing of schemes and implementation

- Promotion of fuel saving devices. - The components would be -
  - Techniques of socio-economic survey to identify various factors, causes, issues, problems, etc. having bearing on the subject
  - Development of communication skills appropriate to different audiences :) Participatorv forest management

The components may be -

- Assessment of environmental degradation using latest techniques -Techniques of socio-economic survey
- Development of communication skills- -Promotion of group participation

- Economic rehabilitation of ihumias : The components may be -
  - Identification of areas affected by shifting cultivation and degree of degradation by using remote sensing techniques
  - Techniques of socio-economic surveys
  - Analysis of past schemes and determination of causes of failure

- Methodology for identification of various resources and activities that can be used for economic rehabilitation

- Control of forest fires for conservation of environment

The components of the training may be -

- Methodology to survey the degree and extent of forest fires (using remote sensing techniques)
- Ecosystem response to fires in the region
- Organizing for fire control.
- Development of systematic fire management plans

- Management of protected areas The components will be -
  - Identification of linkages between various components of ecosystem -Habitat management Census of fauna
  - Relative abundance of different species

- Gender issues in conservation of environment & forests The components will be -
  - Gender relations in conservation of environment -Gender analysis; tools and methods. -Application and synthesis of situations

- Agro-forestrv for rural development The components will be –
  - Concept & principal
  - Design & Development of models specific to the State -Role of NGOs
  - Identification of species with reference to climatic factors obtaining in the State ssue-6

Issue 24: Inadequate status of extension set up and its improvement

- The staff engaged for extension activities (social forestry) must be given reorientation training at present as they have to deal with people and so, need to develop good public relations/communication skills to implement programmes successfully. Besides, they need to be trained in popularizing fuel-efficient energy devices/measures; non-conventional sources of energy; and par1icipatory forest management. These issues will become increasingly impor1ant in years to come.

Issue 25: Linkages with related Government Departments e.g. Tribal Welfare, Agriculture, Rural Development etc. and Research organization. Formal linkages with Industry, NGO's etc.

- **Education**

The National Education Policy (1986) has identified environmental education as one of the thrust area of the policy. It provides for formulation of a National Strategy for conservation and Sustainable Development. (Ministry of Environment & Forest, Report of the Core Committee, National Strategy for conservation and Sustainable Development, 1990, Government of India).

A beginning in this regard can be made by including topics on environmental conservation at primary and secondary school levels. Besides, the adult literacy programme can be made more meaningful by teaching illiterate adults in simple language about issues like need to protect our environment; health and sanitation; eradication of social evils; and other relevant subjects. Education Department will be requested to take suitable measures.

Family Welfare and Health

Arresting growth of human Population in the State is of paramount importance to save environment & forests. Since Forest Department can not exercise any control in this regard, State Government and Government of India will be requested to take effective action in this regard.

- **Animal Husbandry**

The 1992 livestock census of the State puts the number of grazing/browsing animals, at 14,68,300. It has already been stated that nearly 60% of such animals of the State roam in the forest for grazing/browsing. Less than 15 percent of such livestock is of improved (crossbreed) variety, and majority of animals is unproductive and a great drain on the resources of the State. These unproductive animals are let loose by their owners in the forests as they cannot feed them at home, it being neither profitable nor affordable. Under the very conservative assumption that (i) 60% of these animals i.e. 8,80,980 graze in the forests and (ii) only 50% of forest area is used for this purpose, the rest being too steep or remote and inaccessible, the incidence of grazing comes to an astounding 28 heads of animals per hectare.

This incidence of grazing is much higher than the carrying capacity of forests and accounts for near absence of regeneration in the forests of the State. Many areas planted with miscellaneous species in the past were reduced to completely bare patches under the onslaught of such heavy grazing, leaving the Forest Department with no other alternative but to go for plantation of unpalatable species which were not necessarily indigenous or ecologically suitable for the areas,

Further, the department, with the help of agricultural department, has to spell out a grazing policy for the State.

There is an immediate need to improve the cattle stock of the State and sterilize the Ii. Inferior breed of animals, which eat a lot but contribute nothing to the economy' lSubstantial investment may have to be made achieve this end. Govt. will be asked to place special fund at the disposal of the animal husbandry department for this purpose, '

The department will be requested to formulate a grazing policy in consultation with agriculture and forest Department.

- **Rural Development**

Rural Development department is implementing social forestry schemes (farm forestry) in Tripura, Success of these schemes will go a long way in reducing pressures on the forests besides improving the economy of rural areas. Rural Development Department can play a very important role in popularizing fuel saving devices and non-conventional sources of energy in rural areas, besides generating employment.

- **Tribal Welfare**

This Department is implementing several schemes for. the welfare of tribals. These schemes inc_lude re-settlement /rehabilitation projects aimed at providing assured means of livelihood, other than jhuming, to the tribals. At present there is no liaison between the department and forest department. Both departments are implementing schemes unaware of the other's plans, programmes etc.

Closer links will be established with this department. Substantial investment in economic rehabilitation projects will be canvassed.

- **Science & Technology**

There is scope for this department to work jointly with the Department of Forest in the following fields:

- Installation / distribution of fuel efficient chulahs (wood stoves) to reduce wastage of wood fuel.
- Development of appropriate technology for value addition to Non-Timber Forest Products (NFTP) for use by rural people, primarily forest fringe dwellers.
- Development of appropriate technology for use of alternative fuel for use in rural areas.

- Development of fuel efficient crematoria and installation of an electric crematorium in Agartala (in future, this State is likely to have surplus power).

There is vast scope to develop and use, on a mass scale, the eco-friendly technology.

Issue 26: Lack of support from NGOs Involuntary organizations for participatory forest management

There are only a few NGOs in the State devoted to the cause of environment and forestry. They are hampered in their efforts due to lack of funds, as State Govt. cannot provide funds due to resource constraints. It is only GOI, which provide funding directly to the NGOs. NGOs of this State are not very well acquainted with the procedure and formalities that have to be gone through to obtain funds. The State being far from the capital of the country, it is also not possible to gather information about different activities for which funding is available from time to time and pursue a particular case.

(G) Research And Development

Issue-27: Identification of critical areas of research

As per prioritization done under State Forestry Research Plan (SFRP), following areas' have been identified as critical for carrying out research works in forestry sector in the State.

- -Managing shifting cultivation
- -Biodiversity conservation and utilization -Development of alternate fuel species
- -Soil and water conservation -Joint Forest Management
- -Eco-restoration of degraded forests
- -Biodiversity assessment and monitoring
- -Impact on ecology and environment of various practices.
- -Species most suitable for rehabilitation of waste lands and their silviculture in the

- context of locality and biotic factors.
- -Development of agro-forestry/social forestry models
- -Innovation in the matter of utilization of forest produce
- -Identification of critical watersheds and determination of degree of degradation. Issue.4

Issue 28: Promotion of research in newly emerging areas

- **Forestry issues**

Research is required to be conducted into status of biodiversity; selection, preservation and treatment of seeds; calorific values of different species; propagation & uses of NTFPs; identification & propagation of multipurpose trees; selection of tree species best suited for agro-forestry and determination of best spacing, planting techniques etc; study of different village ecosystems and identification of linkages; etc.

- **Social and economic issues**

Basic data on number of people dependent on forests for their livelihood in activities, like harvesting and carrying to roads/markets of bamboo, thatch, etc.; making of incense sticks; making of umbrella handles; etc. has to be collected and collated. Similarly, percentage of diet, in a year, constituted by forest produce like tubers, bamboo shoots, edible fruits, etc. needs to be prepared.

Information of this kind is vital to assess the contribution of forests as a life support system and educate people, planners, and politician about this very important but least realized role of forests.

- **Environmental and forest ecosystem**

The areas requiring studies are impact of jhuming on runoff infiltration, quality of water, productivity of soil; comparison of these parameters in natural forests, pure plantations of different species, and mixed plantations; ecosystem response to forest fires; etc. Studies must be conducted in these areas.

Forest ecosystems can be valued on the basis of tangible and intangible benefits they are providing to the people of the State. No studies have been conducted in this regard.

- **Ethno-botanical studies**

Basic information on the use of a number of NTFPs for different purposes like medicine, fuel, food, shelter, house building, etc. must be compiled. Moreover, information on these produce, like species, their availability, and their efficacy/usefulness, their methods of propagations, etc. must be researched and documented. Future availability and means to ensure sustained supply should also be looked into.

- **Studies relating to marketing of forest produce**

Forest produce is sold in raw form to buyers. Value addition is done by villagers, small traders, etc. at different stages. For example, incense sticks are made out of bamboo by villagers and sold to traders, who export the value added product to other States. Similarly, many other articles are made out of bamboo and sold in the market. Same is the case with other forest produce. Research into the quantification of value addition at different stages, methods to improve quality at different stage, scope for innovation, appropriate level of value addition based on market information, available markets etc. would be carried out.

Issue 29: Resource inventory

- Resource inventories of the State have been prepared in the past by Forest Survey of India. There is need to update these inventories and also to widen the scope of such inventories to include minor forest produce such as bamboo (specie wise), medicinal plants and its availability in forest and non-forest areas. Regular inventories at short intervals would ensure monitoring rapid changes and enable taking corrective measures. Assistance would need to taken of remote sensing techniques and other technical agencies.

Issue 30: Jatropha

- Extensive plantation of jatropha on the village field boundaries, relatively unremunerative holdings, on community lands and government lands.
- A scheme of margin money, subsidy and loan needs to be instituted. Companies having land should be encouraged to undertake jatropha plantation. They may also be given technical advice and planting material.
- Funds for plantation in degraded forests through Joint Forest Management (JFM) could come through JFM members provided the tree pattas can be given to each member who may then be induced to spend his margin money and remainder may come from the banks.
- Funds for seed collection centres and oil extraction units, trans-esterification units could be mobilised as in Demonstration projects.
- Owing to the fact that the bio-diesel programme addresses the global environmental concerns, and deals with poverty alleviation, options of funding from bilateral and multilateral funding agencies could be explored.

Transfer of Technology to Target Groups

There is a scope of Jatropha plantation in maintaining the sustainability in the rural economy. However, rural folk have very less knowledge about importance of Jatropha in day-to-day life. Jatropha can be grown in the wasteland and can fetch more income than the agricultural crops.

Issue 31: Development of Medicinal Plants Sector in the State

- Small and large-scale medicinal plant based industries should be developed and training program for artisans should be organized for optimum utilization of medicinal plant resources.

- Technological advancement of traditional utilization practices may help in preparing more refined marketable products out of the available resources.
- The cultivation, harvesting and value addition of medicinal plant should be made implementable, adoptable and cost-effective so that it can be adopted at village level and small-scale industries in the state.
- Suitable technology may be developed to overcome the problems in post harvest processing and value addition.
- Industries and private entrepreneurs may be assisted in arrangement of better road and transportation facilities particularly in remote/ difficulty accessible areas.
- Industrial groups may also be encouraged and promoted to undertake large-scale plantation of medicinal plants as per their requirement in order to check collection of medicinal plants from their natural habitat.
- Possibilities may also be explored to manufacture industrial products having substantial export potential.
- Better preservation techniques should be adopted to prevent the losses by insect pest and diseases during long term storage.
- Suitable management planning may be worked out for optimized production and value addition.
- While inviting out side industrial groups and other users agencies, their security from antisocial elements may be insured.
- R & D Intervention is also essential to improve overall productivity and value addition of medicinal plants in the state.

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

Agriculture

1. With a view to bring about a continuous increase in agricultural productivity, the agricultural produce of rice both for Rabi and Kharif season should be optimally utilized and the jhum improvement programme should be simultaneously implemented.

2. The government must make every possible effort for the introduction of hybrid rice technology and the production of aromatic rice under organic agriculture and augmentation in productivity of direct seeded rice under rain–fed conditions.

3. Consolidation of land holdings being the major factor responsible for improved land management and enhanced productivity, the department of agriculture should expand the scope of the process of consolidation of land holdings in the state with all resulting expenses to be born by the Central Government in the form of incentive bonus. Again, the state government should provide financial incentives and lower stamp duties for computerization of land records so that pseudo–legal and illegal conveyance systems and unwarranted litigations related to land disputes are easily avoided and resolved.

4. The Ministry of Agriculture, Government of India/ North East Council must support the back ended beneficiary oriented subsidy scheme designed for reclamation of degraded land like reviles, unleveled lands, saline, sodic, alkaline and water logged lands.

5. The state government in its agricultural policy (in consonance with national agricultural policy) must emphasize legalizing the land leasing in/ leasing out systems and promotion of contract farming through standardized and simplified contract format enforceable on both parties.

This would certainly help in increasing the size of holdings, improving the viability of agricultural units and permitting intensive mechanization and leasing of forest land for agricultural purpose without damaging forest property.

6. Inter–boarder and intra–boarder movements of agricultural produce must be encouraged and unnecessary restrictions and impediments must be removed through suitable registration and all limits on the stock of foodgrains and agricultural products must be abolished.

7. Restrictions and impositions on institutional finance against agricultural stock must be removed and farmers and traders must be permitted to take loans from financial institutions by pledging their stock. Moreover, all restrictions and licensing of processing of agricultural produce may be removed and the corporate sector may be encouraged to buy all the agricultural produce in the open market and thereby the requirement of routing the commodities through the middlemen and mundies may be abrogated.

8. With the view to promote the diversification of agriculture in the state, the existing PDS should be revamped and the minimum support price for foodgrains and other produce needs to be adjusted accordingly. In order to encourage the process of diversification through minimization of wastages, proper emphasis should be laid on post–harvest technologies and improved marketing infrastructure.

9. The state government should ensure the compliance of “Agricultural Produce Marketing Act” and “a Credit Linked Subsidy System” should be developed by the state government for the construction of cold storage and rural godowns.

10. The ICAR (Indian Council of Agricultural Research) must work out the possibilities of getting the benefits from the development of the project 'True Potato Seed, a superior and cost saving technology. However, ICAR needs to exploit its marketing network in the whole of north east region by strengthening the down stream linkages and reaping the benefits of the potential of lab to land transfer mechanism.

11. In view of the ample scope of tribal rehabilitation in rubber plantation in terms of income and employment generation and minimization of external threat of the insurgence, the Ministry of Environment and Forest (MOEF) must be persuaded vigorously to revise their forest reservation policy so that the project of jhumia rehabilitation through rubber plantations on de–reserved, unclashed and open government forest land are made available for the purpose.

12. For ensuring the quality of agricultural produce, at least one soil testing lab be established in each district and in this regard funding must be requested from the North–East Council.

Horticulture

The state forest department in active collaboration with the horticulture department of the state must launch an aggressive product development and marketing expansion drive for the development of various plantations and spice crops like ginger, tea, turmeric, cashewnut, jackfruit, aricanut, lemon grass etc. a host of valuable herbs and medicinal plants and flowers like marigold, gladiolus, chrysanthemums, tubroes, rose and a few varieties of orchids. Moreover, effective agronomic market processing chain with necessary forward linkages must be evolved to encourage and involve the local farmers and the community leaders in the effective land use and crop intensive cropping pattern.

Floriculture

1. Vanilla plantation should be introduced as it would ensure high and quick economic return to the farming community. Collection and documentation of locally available trees and shrubs having medicinal value should be started along with imparting requisite training for mushroom cultivation in the state.

2. Efforts must be made to replace local varieties of fibre crops like jute, mesta and cotton with HY varieties. There is also a need to preserve the coloured cotton grown in shifting cultivation areas of export purposes.

3. The state government should earmark the marginal land for growing fibre crops particularly mesta. Proper marketing facility for economic and diversified use of fibre crops must also be ensured.

Mushroom and Tissue Culture

1. Training should be imparted to the farmers as well as entrepreneurs for mushroom cultivation in large scale.
2. The local varieties should be replaced by the high yielding variety.
3. Proper marketing facility should be created for economic and diversified use of these crops.

Animal Husbandry and Animal Wealth

1. The productivity/ yield of cattle and buffalo should be enhanced through artificial insemination and for strengthening of artificial insemination service, maximum number of breedable female cows of high productivity should be procured and maintained.

2. New dairy plants should be created and effectively run for marketing of pasteurized milk and related milk products. In this regard, every possible attempt should be made by the state government in collaboration with the corporate sector for enhancing the entrepreneurial skills of commercially viable dairy farms.

Poultry

1. Adequate arrangement of commercial venture for poultry rearing on a large scale has to be endured.
2. There is a dire need of introducing high input technology particularly for poultry bird having productivity of 200 to 220 eggs per year and also for introducing Khaki cambel duck for increasing the egg production.

Fishery

1. The approach of cooperativisation with adequate corporate links must be adopted for diversification of aqua cultural practices in the state and introduction of improved varieties of fish. In this regard, an integrated marketing network for activating the sales promotion activities of the various products of agriculture, horticulture, animal husbandry and fishery should be established and the required financial support may be acquired from the state government.

2. Adequate funding of research and development activities in the sector of horticulture, animal husbandry, floriculture, sericulture and tissue culture must be ensured by the Central Government and the north east council.

3. However, the marketing network system must be organically linked with the credit delivery system of the state supported by NABARD and RRBs.

INDUSTRY, TRADE AND COMMERCE

One of the main reasons for the industrial backwardness of the state is that it is heavily relying on Small Scale and Village industries as the propellant force for industrial development. At present there are hardly any medium and large scale industries in the state. Given the vast resources of natural gas, limestone and other deposits in the state there is considerable scope for expansion of these industries.

Main Recommendations

The main recommendations for the industry based on the detailed and careful analysis of the state economy can be divided into (a) General and (b) Specific

(A) General Recommendations

1. Strengthening the broad macro policies be formulated for the forward and backward linkages in terms of supply of scarce raw materials, selling and distribution networks and marketing through price preference and other methods. Cluster Development Programmes may help strengthening linkages.

2. At present the north district of the State is more developed in terms of industrial infrastructure while the Dhalai region is the most backward. Attempts be made to attain balanced regional development through the transmission of growth impulses from advanced to backward states.

3. Efforts should be made to increasing productivity and employment especially in the unorganized manufacturing sector through improved technologies, labour reforms and self employment schemes.

4. The Government in collaboration with corporate sector should organize Technology/ Consultancy and Entrepreneurship Development Programmes in the State.

5. The fiscal policy of the Government should focus on providing suitable physical and financial incentives to offset the peculiar locational disadvantages and attract private and foreign investment.

6. To provide a fillip to Border and Foreign Trade by access to the Chittagong Port and hence to the rest of the world.

7. Adoption of WTO compliant delivery mechanism and ensuring a transparent, efficient and responsive administration system right upto the grassroots level.

(B) Sector–Specific Recommendations

Agro–based Industries

Some of the specific measures the state can undertake to address the state of agriculture and hence the agro- based industries in the state include :

1. Consolidation of small and marginal land holdings through effective land reforms package and in harmony with local tribal laws must be taken up.

2. Public and private investment in irrigation and Watershed Development projects should be encouraged.

3. Proper Warehousing and Storage of the produce must be ensured through the creation of Cold Storages, Stock Warehouses and Crop Insurance facilities.

4. Value–added Centres (VACS) should be set up in all Food Parks to encourage production of value–added items especially for cane and bamboo resources.

5. Quality Testing / Certification Laboratories such as Hazard Analysis and Critical Control Point (HACCP), ISO -9000, Food Product Order must be set up for quality assurance via State participation.

6. There is a need to boost R and D facilities in the state via linkages between research and extension systems with active participation of research organizations.

Small–Scale and Medium–Scale Industries :

1. Skill and Technology Development Projects in the state need to be promoted. Specific Skill development and technology for decentralized production and centralized marketing, centralized designing and centralized quality control should be adopted and followed.

2. Training in product design and diversification, packaging etc should be provided with suitable tie-ups with nodal agencies like IITs, NID, NIFT etc.

3. Provision should be made for strengthening micro–finance and budgetary support for traditional artisans instead of institutional finance.

4. Trade Fairs, Melas, Expos and Urban Haats must be organized from time to time as promotional activities. Local artisans must be encouraged to take part in State, National and International Fairs.

5. A display centre should be established in the state on the lines of Chinese industrial towns which could act as a single halt for private investors to see all that the state produces.

6. Special emphasis must be made on the development of Khadi and Village industries in the hilly and backward areas under Border Area Development Programmes in terms of access to domestic and international markets, capacity building of the manpower engaged in these industries through proper training and soft credit facilities etc.

7. Involving the beneficiaries –local weavers and artisans under the State Khadi and Village Industries Board and Co- operative societies in the planning process would ensure better redressal of problems etc. Budgetary support under Village Industries Loan Head should be continued for the growth of Village Industry Sector in general and traditional artisans in particular especially for the traditional village industries activities which are not able to avail bank finance under Margin Money Scheme.

8. Involvement of Self–Help Groups (SHGs) under KVIC Schemes must be encouraged to widen the programme at grass root levels. Assistance can also be provided by local NGOs for setting up micro finance institutions.

9. Revival of chronic sick SSI's should be initiated in the state through early action and institutional finance, State assistance and other structural adjustments.

10. A Market Development Assistance (MDA) Scheme for the small–scale sector to provide financial assistance to SSI Associations for their participation in International Fairs must be introduced.

11. A Technology Development and Modernization Fund for modernization of SSI units should be set up with financial assistance from the World Bank.

12. Bi-voltine Culture in sericulture must be immediately introduced. As opposed to multi-voltine silk which has a yellowish tinge, bi-voltine silk is white and has immense market value, fetches a great price and is in great international demand.

13. Besides sericulture, the state should also focus on ericulture (producing eri silk). Ericulture is a household activity and can generate additional employment opportunities for the tribal population of the state.

14. Online cocoon trading should be started linking Tripura to cocoon mandis like the one at Ramnagar in Karnataka (the biggest cocoon mandi). This would not only enlargen the market for sericulture in the state but also ensure higher economic returns for its cocoons.

15. In order to promote the production and export of premium quality tea in the state, the State Government should set up a tea park with financial assistance from the Central Government. The tea park should aim to help the domestic tea growers achieve international standards by installing latest cleaning, sorting, blending and packaging technologies.

16. Emphasis must be made on plantation–based settlement schemes especially for Rubber and other income generating schemes through Block plantation. Again, export–oriented approach needs to be adopted especially for the promotion of rubber and jute based products through quality certification and design engineering with suitable tie-ups. Technology upgradation schemes for Jute and Textile industry with central assistance should be taken up on a priority basis.

17. Design Awareness Workshops must be held by National Institute of Design (NID) in collaboration with National Centre for Jute Diversification (NCJD) in rural areas to create new designs, re-design and revamp jute products and harness material manipulation skills ensuring better returns

for its rural artisans most of whom happen to be women. The Central Government must provide financial assistance to this end.

18. A project for linking up design studios to the clusters of weavers and artisans should be started in the state under NIFT for organizing the weavers and artisans which are at present highly fragmented. This would not only ensure higher economic returns but also increase their bargaining power.

19. Registration of industrial small–scale units need to be promoted in the state to bring a larger ambit of unorganized manufacturing activities in the state under the organized sector.

Trade and Commerce

1. In view of bio-diversities and unique heritage sites present in north east in general and Tripura in particular, the development of eco–tourism with its emphasis on beautification and commercialization of tourist sites along with transportation networking may powerfully contribute to the share of service sector and to the NSDP of Tripura.

2. In view of the decision of the NEC in its 48th Meeting to create Export Processing / Special Economic Zone under the Tenth Five Year Plan and Tripura sharing a long international border with Bangladesh, special efforts in terms of adequate financial investment be made by the NEC to tap the immense export potential of Tripura as a SEZ.

3. Trade between India and Bangladesh be liberalized to a large extent through effective functioning of SAFTA so as to discourage hawala transactions and smuggling activities. Restricted Area Permit (RAP) and Inner Line Regulations must be removed or modified.

4. Formal trade relation be developed and established between Tripura and other S.E Asian countries like China and Myanmar in those areas where Tripura has competitive advantage in terms of its exotic flora and fauna.

RURAL DEVELOPMENT OF TRIPURA

1. It has been observed that rural development is not well balanced. Mass awareness campaign be carried out on an extensive scale so as to reap the benefits of the existing programmes.

2. The department is implementing SGSY Scheme in the rural areas and this is self-employment scheme to bring rural BPL families above BPL, within a span of 2-3 years. The SGSY scheme intends to cover all BPL families within a certain period to bring these families above the BPL. However, employment generation work has to be continued for such time the BPL families covered under SGSY scheme are not brought above the BPL.

3. The existing financial gap for providing IAY standard houses to 2 lacs families is about Rs. 413 crores. The Central Government should provide the stipulated amount to the State Government for catering to the requirement of the BPL families.

4. Total Sanitation Scheme (TSS) is being implemented in all districts of the State to cover 337550 nos. of individual household, 1815 school sanitation, 21 alternative delivery mechanism, 195 Sanitary unit in Health Sub-Centre. The time limit for total achievement of the above project is 2004-2005. Adequate funds are available with all districts and it is a demand driven programme. The programme has been well accepted in South Tripura District and Dhalai District. But the progress of North Tripura District and West Tripura District is slow. Government along with local self help groups should adopt rigorous awareness programmes regarding TSS in the North and West districts of Tripura.

5. The various departmental schemes be converged together and the necessary facilities be provided to the Swarozgaris and SHGs to bring about sustainability in the schemes.

6. Regrouping of villages should form a part of strategic improvement in the speed of infrastructural development. This would have spill–over effects for other sectors to develop and would have implications for employment opportunities.

7. There is only one bank that is the Tripura Grameen Bank having about 86 branches and a low credit deposit ratio of 33 per cent. This shows reluctance on the part of the people of Tripura to optimally utilize the funds available to them. Thus, there is an imperative need for establishing linkages so that producer's interests could be motivated in the rural areas.

8. The state Government should sympathetically consider the long pending demands of the non–tribals for their adequate representation in ADC so that decision making at the grass root level is not biased against the non–tribals.

9. Principal Secretary, Rural Development, Finance Department and Planning should hold a meeting to assess and remove the shortage of funds for repairs and resinking. Quality of drinking water for all sources should be monitored and steps should be taken to improve it. The Panchayats and the beneficiaries should be made responsible for the maintenance of spot water sources at their cost. SHGs and local youth may be involved for smooth functioning, repairing and maintenance of spot drinking water sources.

10. Innovative technological options should be introduced to extend drinking water facilities to undulated, remote and hilly areas. The State Government should integrate the scheme of rain water harvesting and watershed management with the overall irrigation policy. For potable water supply, iron removal plant be set up at the village level and for

these activities, the Central Government may be requested to provide financial assistance.

11. The PRIs should integrate the development plans and district budgets and these district budgets be presented separately before the state legislature so as to ensure functional and financial autonomy. Necessary Legislative amendments may be carried out.

URBAN DEVELOPMENT

1. In view of the shortage of transport infrastructure in urban towns, more Motor, Bus, Auto and Rickshaw stands should be constructed by the State Government. At present, there are no Night Shelters for Rickshaw–pullers in 13 towns, so night shelters should also be constructed in all Nagar Panchayats.

2. Master plans should be prepared/reviewed for the state capital, larger towns and potential growth centres with expert assistance. This is all the more necessary in the fragile hills where unregulated constructions, high–rises and lack of infrastructure have adversely affected the urban environment and caused serious traffic and sanitation problems.

3. In case of urban expansion of potential township development around airports, rail leads, industrial areas and other growth cetnres. The state Government should freeze land prices and any new construction within a given ratios. This will ensure urban standards and enable the state to retain the capital appreciation of land. The source of funding will therefore be through regulated sales and for approved purposes and well preclude land speculation designed to fill private coffers.

4. For giving an onward momentum to the process of urban development, the proposals approved by the Chief Minister regarding the development of new urban centres like Greater Agartala, Census Towns and the construction of play grounds for children and elderly people should be immediately implemented with the funding from the NEC or the Central Government.

5. Scientific surveys be conducted by the urban local bodies in consultation with the planning and coordination department for the explicit identification of manifold needs of the slums.

6. The urban development department should make every possible effort to highlight the significance of public–private partnership for enhancing the quality of service delivery mechanism in respect of solid waster management. The municipalities should concentrate on collection, segregation and transportation of solid waste. To this end, it is recommended that the Central Government should earmark at least 50% of the grant for the Urban Local Bodies for carrying out the said activities.

7. Fresh proposals be formulated regarding the construction of gymnasium, stadium and yoga centres in various nagar panchayats with a corresponding flow of financial resources from the department of sports and culture, Government of Tripura.

8. The system of resource mobilization of urban local bodies should be revamped by rationalizing and simplifying the property tax structure, enhancing tax collection, increased flow of central assistance both from the Planning Commission and Twelfth Finance Commission, attracting larger private investment and adequate institutional financing from Scheduled Commercial Banks, LIC, HUDCO and other private banks. The urban local bodies may generate additional income from certain tangible income–generating assets like community halls, community farms etc, which may be operated on a viable commercial scale.

9. One of the most important funding requirement of urban local bodies is capital expenditure which is required for creation of social infrastructure/social overhead capital. This huge amount of capital expenditure may be obtained only from the Central Government and to this end, the Central Government in general, and urban local bodies in particular, need to convince the Central Government regarding the imperative needs and paramount significance of such types of capital assets through the agencies like NIC and DONER.

10. There is a good deal of scope for signing MOUs with foreign agencies in consultation with Government of India for getting substantial amount of external assistance for the all–round development of urban local bodies. In this respect, the nagar panchayats and other urban local bodies must be made accountable to the utilization of funds received from various funding authorities. For this purpose, the urban local bodies must maintain proper system of account and suitable monitoring and evaluation mechanism with the help of adequate computerization of the system of information. This would certainly enhance creditworthiness of the urban local bodies.

DEVELOPMENT OF STs, SCs AND WOMEN

1. Most of the tribal villages are scattered and schools in the areas are not properly functioning. It is therefore recommended that the existing scattered educational schemes for the under–privileged section of the society need consolidation. The scheduled castes, scheduled tribes students could be admitted in existing central and Navodaya Vidyalayas. The schemes of the State and the Central Governments may be integrated to pool resources for the expansion of educational facilities among the vulnerable groups.

2. Scheduled castes, scheduled tribes and OBCs suffer many chronic diseases but the most prevalent taking heavy toll of them are water–born. This is mainly due to very poor condition of water and sanitation system. Diarrhea, dysentery, cholera, guinea, worm, tapeworm etc are often the results of this situation. Deficiency of certain minerals and other nutritional elements is also one of the reasons for the diseases. These problems should be properly addressed by detecting these diseases through low–cost screening devices at the initial stage and providing adequate treatment facilities.

3. In view of high rate of drop–outs at various levels and difficulties faced by scheduled castes, scheduled tribes and OBC students in pursuing their higher studies, special components programmes and schemes should be developed, implemented and monitored.

4. For the generation of gainful employment opportunities in the backward areas of the state, it is recommended that an integrated planning process coordinating the farm and non–farm sectors along with the structure of infrastructure facilities and basic necessities should be introduced. Revival and promotion of traditional occupation such as pottery, carpentry, basketing, bamboo and wood based handicrafts etc would be useful for

giving an onward momentum to the process of growth and employment generation in the tribal areas.

5. More institutional programmes may be designed for providing training to tribal and scheduled castes women by using multi–disciplinary approach. Sericulture, horticulture, mushroom cultivation, commercial cropping such as menthe, medicinal plants, floriculture etc. require extensive training support and extension services. Again, in order to enhance women's access to credit for consumption and production, the micro–credit institutions should be further strengthened and the actual flow of funds should be substantially enhanced so that self–employed groups of women have access to adequate credit for income–generating activities. Interventions for women's health and nutrition are extremely crucial for the health and well–being of the women. Women should have access to comprehensive health care services. The vocationalization of education and vocational training for women would require a network of regional vocational training centres, residential facilities, and trained professional personnel.

6. Establishment of common facilities–centre for imparting training, marketing support, providing marketing intelligence, establishing linkages with financial institutions and other agencies, sources of raw materials, providing managerial inputs etc should be encouraged by the Government. Self–employment potential in the backward areas be included into services sector, manufacturing sector and production sector, Entrepreneurship development is needed to educate people regarding viable enterprises and mobilizing vulnerable groups to initiate society desirable profitable activities.

7. A massive awareness campaign involving the community, NGOs, Panchayats and other community–based organizations is necessary to

control the demographic imbalances and protecting the rights of the children.

SCIENCE AND TECHNOLOGY

Being a landlocked state and a distant geographical location has posed its own unique set of problems for Tripura, necessitating out of box thinking solutions. At the national level, the Department of Science & Technology (DST) within the Ministry of Science & Technology oversees scientific research in the fields of chemical sciences, physical sciences, life sciences, engineering sciences, earth sciences, atmospheric sciences, and mathematical sciences. In addition, DST administers technology development and societal programmes that aim at application of science & technology for rural development, young scientists, entrepreneurship development, and uplift of weaker sections like, women, tribals, scheduled castes. Department of Bio-technology, within the Ministry of science & technology governs research and application of bio-technology.

In addition to science popularization & awareness, co-ordinating activities of research and technology, the department of science & technology in Tripura also implements the Non Conventional Energy programme as well as acts as the state nodal agency for renewable energy programme in Tripura. At the national level this is the domain of Ministry of Environment & Forests. While Information Technology is being woven into the warp and weft of all fields of socio-economic development, in view of its strong nexus with science, technology, and bio-technology it is recommended that IT too should form a part of department of science & technology.

There is a need to harness the latent potential by according an intensive and extensive thrust to Information Technology and Bio-technology. The crucial suggestions and recommendations are encapsulated hereunder:

Information Technology

1. In order to meet the projected manpower requirements at the National level, it is imperative that either the intake capacity of the established institutes be increased or new centres be set up in existing colleges, universities, technical institutions.

2. The existing colleges may start BCA, PGDCA, B.Sc. (Computer Science) courses in order to create manpower for selection to higher level computer education such as M.Sc. (Computer Science), MCA, MIT in the University/Institute and also to join IT enabling services and other IT related emerging activities.

3. The college selected under this programme may also start computer awareness courses of three months duration for students studying in different core.

4. While the proposed Regional Institute of Information Technology could initially make available faculty for the courses especially oriented towards IT enabled service sectors, the future requirements of faculty could be served from within the graduates themselves.

5. For IT Enabled Services, high level of IT literacy is not essential & short duration skill-based training can be provided by IT Enabled Service Providers.

6. Introduction of self-financing scheme would enable the proposed college, Institute, or university meet recurring expenditure.

7. Since education is an area that merits special attention, it is felt that a specific size of budget of departments like Ministry of Human Resource Development, Ministry of Information Technology, should be earmarked for the acceleration of IT sector in Tripura. There should be a nodal officer (equivalent in rank to a Deputy Secretary to the Govt. of India) within IT

department in Tripura who shall monitor the funds that flow from Ministries as well as NEC.

8. There should also be a periodic analysis of the quality and number of beneficiaries so as to assess the need of revising extent of budgetary support. Moreover, there should be encouragement for active participation of the private sector in the filed of IT education whether at the school level or the University level.

E- Governance:-

1. Department of Information Technology as well as National Informatics Centre have been allocated funds for e-governance. A specified percentage of such funds should be earmarked for Tripura;

2. Additional assistance whether through DIT of through plan assistance must be linked to 'tangible progress' in the service delivery through e-governance and also whether the ministries/ deparments in Tripura are setting apart a specified percentage of their budgetary allocations for IT and e-governance activities.

Telemedicine:-

The project of telemedicine should rightly remain under the supervision and control of the department of health & family welfare in Tripura. In view of the grand scale of the project it is imperative that the needed budgetary support be provided by the Ministry of Health & Family Welfare for telemedicine project in Tripura. Funding can also be sought from WHO and other international organizations. Since the project envisages linking of district hospitals to super-speciality hospitals the need of private sector participation does not arise.

Bio-technology

1. In order to reap the benefits of bio-technology, it is of the utmost importance to have trained manpower. Towards this objective, while biotechnology may be introduced in the higher secondary curriculum to give exposure to the children to this newly emerging science, there is an acute need to initiate courses and curricula in the field of bio-technology in Tripura University.

2. Even the officers and staff of Department of Higher Education, Tripura Govt. as well as officers & staff of the Directorate of Bio-technology need to be imparted training so as to make them aware of the latest developments in this field.

3. While manpower development remains foremost there is immense potential awaiting to be tapped in the following areas-

    - Bio fertilizers and bio control agents: would enable avoid the deletrious effects of pesticides and fertilizers on the delicate eco-system of Tripura. This would also promote organic farming in the State.
    - Livestock Improvement: techniques of artificial insemination, embryo transfer, recombinant DNA technology accelerates selection intensity increasing rate of progress. With cloning, elite animals could be straight away cloned and used for dairying or livestock improvement.
    - Fish Technology: fish production can be increased by using biotechnology for providing high quality brood stock, prevention and detection of fish diseases. Application of gene transfer technology has major effect on aquaculture and fishery. There has to focus on intensive fish and prawn culture as well as conservation and captive breeding of turtles.
    - Tissue Culture Plants: potential of Sabri Banana variety. In addition, in floriculture there are commercial prospects for

anthuriums, gladiolus, orchids. In forestry there is potential for tissue culture on bamboos

4. The funds for education at the secondary and University level as well as expenses incurred on training would be provided not only by assigning a specified percentage of the budget of Department of Bio-technology within the Ministry of Science & Technology but also by NEC.

5. Analogous to IT, there should be a nodal officer (equivalent in rank to a Deputy Secretary to the Govt. of India) within Directorate of Bio-Technology, Tripura Govt. who shall monitor the funds that flow from Ministry as well as NEC.

6. There should also be a periodic analysis of the quality and number of beneficiaries so as to assess the need of revising extent of budgetary support.

Potential of Technology Business Incubators

For making available a platform to TBIs in Tripura, there should be an increased budgetary support and earmarking of a fixed percentage of funds of budgets of departments like, DST, DBT, ISRO, MNES, MOEF for the North Eastern States.

Rural technology parks

1. Training in various activities like nursery raising for floriculture and medicinal plant cultivation, agro-horticultural processing, construction and masonry work, animal husbandry, solar lighting system and computer application through demonstration centres established for each activity in the park.

2. Other support services like health, counseling, marketing and credit be taken care of with the support and linkages of other financial / technical institutions to make the intervention sustainable.

Natural Gas

Tripura has vast reserves of natural gas in non-associate form. The gas is of high quality, with high methane content of upto 97%.

1. While natural gas can be used as a feedstock for power plants and fertiliser plants, an option that can be exercised in Tripura is to supply natural gas as a fuel for household consumers. Another option is its use as an automotive fuel in compressed form known in common parlance as CNG. Small industries sector that comprise of glass furnace units, rolling units etc. too can use natural gas as fuel.

2. The initial retro-fitting of the plants / devices that would use natural gas as a feed stock would need to be subsidized. GAIL (Gas Authority of India Ltd.) could bear the burden of the subsidy. In view of the positive fall out of use of natural gas as in the case of bio-diesel, in the sense that this too addresses the global environmental concerns, options of funding from bilateral and multilateral funding agencies could also be explored.

3. The entire project should be undertaken in a specified time frame and under the supervision of an officer of the level of Director/ Deputy Secretary to the Govt. of India in the Department of Energy /Power.

Pollution control

There should be education, dissemination of information and increased usage of :

1. Installation/distribution of fuel efficient chulhas to reduce wastage of wood fuel;

2. Development of appropriate technology for value addition to Non-Timber Forest Products for use by rural poor, primarily forest fringe dwellers;
3. Development of alternative technology for use of alternative fuel for use in rural areas;

The focus should be on-

1. mapping of flood affected areas and preparation of base maps for block and panchayat level planning through remote sensing and GIS;
2. a physical control to ensure that the projects for disposal of hazardous wastes and bio-medical wastes are not only completed but regularly monitored.
3. While the overall supervision would vest with the Department of Pollution Control, it is desirable that Tripura University and local NGOs be involved in various projects and programmes.
4. Moreover, there is a need for an increased budgetary support and earmarking of funds of budgets of departments like, DST, MNES, MOEF for the State of Tripura.

Disaster Management:

The following steps are suggested under a comprehensive Action Plan:

1. Institutionalizing the system for natural disaster risk management and strategy formulation at the level of the Chief Secretary, Tripura;
2. Harmonising the legal framework and technical standards for disaster prevention and recovery with those at the national level;
3. Building an enabling environment for natural disaster risk management and sustainable recovery;
4. Generating awareness;
5. Identifying and train workers at the community level;
6. Strengthening capacities at various levels with special emphasis on women;
7. Preparing multi-hazard preparedness, response and mitigation plans for disaster risk management at various levels (state, district, block, village and ward level) in the most multi- hazard prone centres located in earthquake hazard prone regions of the state, and
8. Supporting knowledge networking on effective approaches, methods and tools for disaster risk management

INFRASTRUCTURAL DEVELOPMENT IN TRIPURA

In keeping with its approach of socio-economic development of the state, the basic policy recommendations that can catapult the state into the trajectory of high growth rate States would be :

- ✓ **Transport – Road, Railways and Air links**

1. NE Council be persuaded to convince the Central Government for linking Tripura with the proposed East-West Corridor with a four lane highway and Trans-Asian Highway.

2. The Council be further apprised of the paucity of funds relating to the completion of work on Agartala – Sabroom stretch of National Highway-44.

3. Expeditious conversion of timber bridges to Pucca bridges be taken up on a priority basis.

4. North–East Council must also be approached with the concrete proposal for the development of airlinks between
    - ❖ Agartala and Kamalpur
    - ❖ Agartala and Kailashahar
    - ❖ Agartala and Silchar-Imphal-Aizawl

   This would lead to all round development of Tripura and minimizing inter-State disparities in the North-East region.

5. Policies be formulated and implemented for establishing linkages from Agartala to Delhi and other N.E state capitals.

6. Extension of helipad services in the state should be promoted especially to tourist spots like Jhumpui Hills.

- ✓ **Power Sector**

1. The State Government should start schemes in other towns of the state to study existing system for reduction of T & D losses, systems improvement and energy/audit accounting like the model distribution management in Agartala Town.

2. There is a need for speedy implementation of the recommendations and suggestions given by the Administrative Staff College of India, which engaged as consultant for reform and restructuring of power sector in Tripura.

3. Energy tariff for different categories of consumers should be revised.

4. Additional transformers for systems improvement to reduce distribution losses and systems voltage regulation should be installed.

5. Corporatisation of departments and 100 % metering in the state preferably through electronic meters should be taken up. There is also a need to sign more MOUs.

6. Continued Central Government support is essential and private–public partnership in the power sector should be encouraged.

7. There is a need to set up more natural-gas based power stations like the one at Monarchak near Sonamura.

8. Massive dose of investment and large scale resource mobilization is required for the development of infrastructure which can be effectively generated through external aid.

9. Electrification of villages should be undertaken through the use of non conventional energy resources with special emphasis on solar energy.

10.There is a need for securitization of dues of CPUs.

11.Formulation of power policy should consider the following points

- ❖ To cover rural,small scale and cottage industrial areas
- ❖ Irrigation purposes
- ❖ Drinking water schemes
- ❖ Electrification of inhabited localities
- ❖ Electrification in the industrial and commercial development areas

✓ Plan of Action for Tripura State in Electricity Sector

1. A comprehensive reform plan for the electricity supply industry should be adopted by introducing competition in the electricity sector for improving its efficiency and overall performance taking into account the issues of electricity access, energy security, environmental protection and economic growth.

2. The State Electricity Authority should be made accountable for the performance of its electricity system by providing additional financial assistance incentives to better performing units on the basis of a transparent set of criteria. Absolute priority should be given to achieving full cost recovery within a defined time frame. This is necessary because of so called non–technical losses–actually unpaid or stolen electricity which are phenominally high in the state. The State should provide incentives to enforce the law and to clamp down on non paying consumers- and that they be punished if they do not do so. The State Electricity Board could be obliged to account for the cost of transmission and distribution losses in their budgets and to establish tariffs based on a low level of T and D losses (including theft). This would reinforce the responsibilities of regulators to monitor T & D losses and differentiate

between technical and non–technical losses. A legal framework should be established to improve the loose handling of tariffs, penalize power theft and also provide for targets and incentives. No progress can be achieved without improved revenue collection from final consumers.

3. The state should set up and adhere to a firm timetable for introducing market mechanism- An implementable timetable should be provided for establishing the regulatory framework, reforming subsidies, curbing power theft and developing innovative solutions for private sector distribution. The focus should be on development of a power market at the State level and should clearly identify the steps to be taken at the field level.

4. Mobilization of additional investment capital by the centralized public utilities should be taken up. The strategy for increasing generation capacity through large scale Integrated Power Plants (IPPs) has not proved successful. The gap has been partially covered by the development of self-generation and by central public- sector investments. It would be beneficial to have a mix of large and small public utility capacity, at least temporarily, to reduce the supply-demand gap.

5. Encouragement to grid access for surplus electricity from auto producers (captive producers) and increased private investment in generation should be facilitated– Use of existing auto production capacity should be maximized. The additional capacity generated by the private sector could make a significant contribution to the growing electricity market.

6. A framework for a power market at the Union Level should be created - This recommendation complements the above and calls for more integration. India is still far from the point where a competitive market can govern the supply-demand balance. However, India's eventual target should be an electricity market. Only at the aggregated Union Level are

there sufficient demand and supply. The first step towards such a national market would be increased investment in the Union level electricity grid and and second would be providing more freedom for market players to exchange and trade across state borders.

7. Measures for improving business practices of the electricity supply industry in the public sector should be implemented. More attention should be paid to developing human skills and personal accountability at all levels of the State and Central Government.

✓ **Banking and Credit Infrastructure**

1. The State government should ensure the availability of banking facilities in the remote and in–accessible areas of the state especially the Dhalai region by setting up bank branches in these areas. More lucrative schemes should be initiated to attract deposits and low interest rate credit should be provided for priority sectors to improve the CD ratio of banks.

2. Emphasis should be made on facilitating ease of transaction for customers by reducing red–tapism and paper work and by ensuring E- banking and tele-banking services.

✓ **Irrigation**

1. The 3 ongoing medium irrigation projects viz Manu, Gumti and Khowai since the Fifth and Sixth plan should be completed at the earliest with the help of AIBP assistance. Thus, with a view to enabling the State Government to make the fullest possible utilization of the irrigation potential, additional investment must go hand in hand with the single most important objective of meeting the maintenance cost through suitable revision of water rates.

2. The State Government should enhance its irrigation potential from 33.33% through ground water development and Water shed management. In this regard, the State government is required to draw up a comprehensive Water Policy consistent with the framework of National Water Policy.

Social Infrastructure

✓ **Educational Facilities**

- A State Central Library with modern technological facilities be set up in consultation with National Library, Kolkata.

- New well furnished buildings for public library should be constructed at Kamalpur, Sonamura, Udaipur, Sabroom, Kailashahar, Bishalgarh, Mohanpur, Rajnagar, Dharamnagar and Kanthalia.

- A modern State Archive should be constructed in consultation with National Archives.

- A modern State museum of quality be developed in consultation with the administrative authority of Victoria Memorial, Kolkata and National Museum. In this regard, the ministry of HRD should provide special assistance out of the Non Lapsable Central Pool of resources.

✓ **Health Facilities**

- The State Government should ensure provision of adequate health care facilities in the remote and inaccessible tribal areas by setting up requisite PHCS and CHCs. Technical manpower shortages in health centres must also be removed.

- The recommendation of the committee under the chairmanship of the Chief Secretary of Tripura regarding the creation of PHCs with two Medical Officers (one male and one female) be immediately implemented and these be funded under the Special area Projects to be sponsored by the Tribal Welfare Department.

- Advanced treatment facilities should be provided in the State hospitals at district level to reduce dependence on outside hospitals. Super specialty Wings should be started immediately in all disciplines at least in major hospitals.

- The State Government should impose levy on the people living above poverty line and the resources so generated be utilised for providing health care infrastructure services for the poor and under-privileged.

✓ **Clean Drinking Water Supply**

A comprehensive and explicit project report must be prepared for mini surface water treatment and improving water supply system in all identified rural and urban areas.

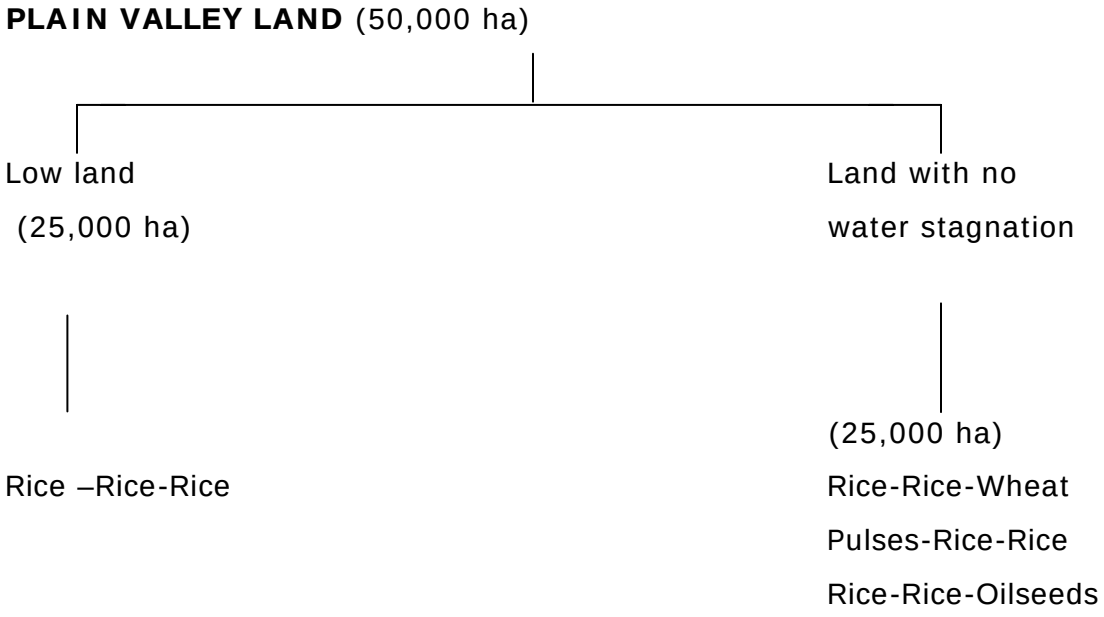
- A comprehensive and explicit project report must be prepared for mini surface water treatment and improving water supply in all identified rural and urban areas.

- Completion of water treatment plants at Agartala should be expedited.

APPENDIX

High input agriculture in plain valley land

The area under rice is 2.47 ha and the area having plain topography is, on an average, 19.8 %. So an area of 48,855 ha (50,000 ha) has to be brought under high input agriculture. This area can be utilized to grow rice. Here, the cropping intensity is expected to be around 300% through inclusion of three rice crops in a year or 2 rice with either pre kharif pulse or rabi oilseeds. So the cropping sequence in this type of land where high input agriculture is expected to be in operation is as follows.



In the cropping system as stated above, the first crop of rice is invariably an aus crop grown under direct seeded condition followed by either transplanted paddy or wheat/oilseeds. So seed requirement is presented in Table–A.1..

Table –A.1.: Seed requirement in plain valley land

Crop	Variety	Area (ha)	Quantity of seed(MT)

Transplanted rice	Swarna mahsuri, Krishna hamsa, Jaya, IR-64, Rassi, IET-5267, IET-12888, Vikash, Sabitri etc.	81,000	4050
Direct seeded rice	Kalinga 3, Bandana, RCM-9/10, TRC-87-251, DR-92, NDR-97	42,000	4200
Hybrid rice	DRRH-1, Pro Agro-6201, Sahyadri, KRH-1	2,000	30
Wheat	Kalyan sona, PK-7929, BW-148	8,300	830
Pulses			
Cowpea	Pusa komal, Pusa Barsati	8,300	167
Green gram	MH-309, UPM-79-4-12, Pusa-7926, K-851, 2KM-3-102, 2KM-3-152		
Black gram	UG-301, B-12-4-4, T-9, 2 KU-3-102, 2 KU-3-152		
Oilseeds			
Yellow sarson	TCN-03-12, Binay, YS 742	4,167	29
Toria	M-27, B-54, SCRT-1-1		
Brown sarson	Pusa kalyani		
Rai	Varuna, RH-30, RW-351		
Groundnut	ICGS 76, TKG-19, ICGV-87500	4,167	500

The fertiliser requirement of the crops grown in plain valley land ecology is presented in Table–23. However, high input agriculture as planned to be implemented in plain valley land ecology to increase the crop productivity, is required to be supplemented by organic manure @ 5 MT/ha and the total requirement of organic manure is around 2.5 lakh MT.

Table –A.2: Nutrient and fertiliser requirement (MT) of crops

Crop	N	P	K	Urea	SSP	MOP
Direct seeded rice	2,500	1250	749	5,425	7,812	1,250
Transplanted rice						
Kharif HYV	4950	2475	2475	5425	7812	1250
Rabi HYV	3760	1567	1567	8160	9794	2617
Hybrid rice	300	120	110	651	750	200
Wheat	100	500	333	217	3125	556
Pulses	83	292	167	180	1825	279
Oilseed						
Groundnut	125	20.8	166	272	130	278
Mustard	167	167	83	362	1044	139

Aromatic rice

Certain local varieties such as Khasa, Kali kasha, Binni, Binni Guria, Binni merang, Binni Rangi, Boral Binni and Mi Masang are observed to possess aroma. An area of 500 ha is earmarked for production of aromatic rice under organic agriculture in order to fetch high price through exploitation of national and international market.

Tilla or Upland:

The total area under undulated tilla land is around 1.98 lakh ha and out of which 16,531 ha is under gentle to moderate slope. The remaining area is either under steep slopes or under rolling topography. The cropping sequence under this topography is as below

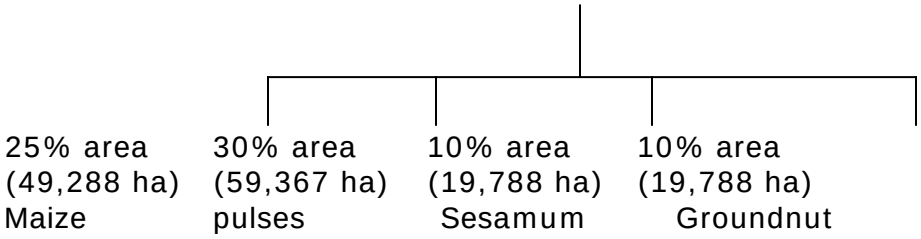
Tilla Land
(1.98 lakh ha)

|

Ist Crop
(Rice)

|

2nd Crop



Organic farming

High value vegetables with an introduction to cultivation in off season may be carried under organic farming using organic manure and biopesticides. The area earmarked for vegetable production under organic farming may be around 15 % of the total vegetable cultivation. The cropping sequence to face the high economic value at Agartala market is as follows.

Summer tomato-bhindi-capsicum/carrot-----1,260 ha

Summer cauliflower-onion/garlic-corriender/leafy vegetables----------630 ha

FYM----------1.13 lakh MT

Biofertilizer

Azotobactor----------3.80 MT

PSB----------3.79 MT

Biopesticides

Trichoderma viridie----------9.5 MT

Neem oil(0.5%)----------11.34 lakh litre spray solution

Poly house:

Attempt should be made to make green house as well as low cost poly house in order to grow high value crops and raise the vegetable seedlings for distribution among the farmers. Each district should have 2 nos. of green house with temperature, humidity adjustment. On the other hand each gaon panchayat should have a low cost poly house for demonstration vegetable seedling production and the supply to the farmers.

Soil conservation:

In an area of 1.98 lakh ha available in hilly undulated terrain, 20% of the area may be brought under watershed development programme. So, soil conservation in terms of half moon terrace, bench terrace, gully control and plugging, contour bunding may have to be carried out in 20% of the total hill area, as earmarked (0.4 lakh ha).

Spices

The main spice crops in Tripura are ginger, turmeric, chilli. The area under this crop is 2,985 ha. There is a plan to cover 500 ha under black pepper which is low volume and high value crop. The yield obtained in Tripura is 400 kg per ha which is exceedingly low as compared to potential

productivity of the improved black pepper varieties. The varieties are Panniyur 1,2,3,4,5, Panchami, Subhakara, Sreekara, Paurnami with average productivity varying from 1098 to 2828 kg/ha. Supply of good planting material along with improved package of practices is needed to augment the black pepper productivity. The fertilizer requirement per vine per annum is

Urea	152 MT
SSP	125 MT
MOP	34 MT

Keeping in view 2000 vines per ha for 500 ha of area, the planting material as required are 10 lakh.

Organic cultivation

An area of 250 ha is earmarked for cultivation of black pepper under organic farming. So the requirement of organic manure, biofertiliser and biopesticides are as follows

Organic manure	0.05 MT
Azotobactor (@ 20g per pit)	10 MT
PSB (@ 20g per pit)	10 MT

Biopesticide

Application of Trichoderma harzianum @ 50g/vine could control phytopthora attack. Efficient strain of VAM isolated from blackpepper rhizosphere *Glomus* spp and *Gigospora* sp are very efficient to suppress root knot nematode in black pepper. Application of floroscent Pseudomonas strain (IISR-6) promotes growth and suppresses root rot.

Total requirement of *T. harzianum* is 25 MT

Ginger and Turmeric

Most of the ginger varieties grown in Tripura are fibrous in nature, therefore fetch low price. The fibrous variety of ginger may be replaced by non–fibrous one like Nadia, China. The turmeric varieties are RCT-1, Kasturi Janaka and Lakadong.

Area under ginger and turmeric is 1,000 ha.

Betelvine

Betelvine is widely consumed by people of Tripura and the area under betelvine is around 350 ha. The varieties grown are mostly Bangla Pan. Attempt should be made to introduce the cultivation of Mithapati which can fetch high economic return. Betelvine cultivation should be done under organic farming.

Organic manure FYM-7000 MT

Oilcake- 525 MT

New area of 100 ha may be earmarked for mithapati cultivation and the planning material required for this cultivation is 60 lakh nos.

Biopesticides

Trichoderma viridie can be applied @ 94 kg/ha to control leaf rot and foot rot. The total requirement is 42 MT. Neem oil can be used as insect repellent in betelvine. The total requirement of 1350 lit is to be sprayed as 0.5 % solution.

Fruit crop

The total area under fruit as achieved upto IXth plan is 28,535 ha with a projection to cover an additional area of 3,095 ha during Xth five year plan. The fruit crops for which developmental plan is to be formulated, are mandarin orange, pineapple, banana, litchi, mango and jack fruit.

Orange

Out of this area orange has 2,107 ha with an expansion of 1000 ha in the Xth plan. Quality planting materials and supply of fertilizer, insecticides may have to be ensured to maintain the productivity level around 12 MT/ha and rejuvinate the declining orchards of Jumpoi orange. Grafted or tissue culture plants of khasi mandarin need to be procured.

No. of plants for rejuvenation (30% of 2,107 ha =632 ha area)3.16 lakh nos (500 Plants/ha)

No. of plants for planting in new area(1,000 ha) 5 lakh nos.

Requirement of lime for old plantation @ 1 kg/tree/year is 238 MT

Requirement of lime for new plantation @ 1 kg/tree/year is 816 MT

Micronutrients

To maintain the nutritional requirement of citrus 2 to 3 spraying (0.5 %) of $ZnSO_4$, Mg SO_4, $CuSO_4$, $MnSO_4$ should be done at the time of flushing period. So the micronutrient requirement of khasi mandarin is as follows

For old plantation- 3.83 MT

New Plantation- 12.9 MT

Pineapple

The area under pineapple is 3,500 ha and out of which the variety kew occupies 1,274 ha. The remaining area is under queen. The average productivity under queen is 19.6 MT/ha and the productivity of kew is 30.9 MT/ha. The present productivity of pineapple is very low so the high density planting under improved package of practices is the need of the hour.

Introduction of double row planting system (30x60x90 cm) to accommodate 43,500 plants/ha.

Application of 12 g each of N and K_2O, 5 g P_2O_5 to each pineapple plant to get the desired level of productivity (70-105 mt/ha)

Application o 50 ml of 25 ppm ethereal or ethephon solution combining with 2 % urea and 0.04 % sodium carbonate at 35 to 40 functional leaf stage at an interval of 10 to 15 days till the flowering starts.

Fruit staggering can be induced using chemical as well as planting of sucker in different season over a gap of one month.

An area of 500 ha may be earmarked for pineapple production under organic farming.

Creation of post harvest processing facility to increase the market potentiality of pineapple.

Planting material

During the perspective plan period, 1,500 ha under queen variety and 500 ha under kew variety will be added. So the total area is 2000 ha under new plantation. Out of 2,000 ha, 500 ha of queen variety will be put under organic fruit production.

Planting material required for 2,000 ha is 870 lakh nos. suckers

Organic production

Total area under organic production of pineapple is 1,000 ha. Out of which 500 ha is new plantation and the remaining area will be selected from the old plantation. Application of 25 MT FYM or well decomposed cattle dung should be applied before planting. In the existing orchard FYM is to be added before the onset of main kharif season i.e. in the month of March-April. Thus the total requirement of FYM is 0.25 lakh MT. Green manuring with the tree leaf from gliricidia or subabul containing 2.5 to 3.3% nitrogen should be done. On an average 10 to 12 kg green leaf may be obtained from a single tree. The application of 25 MT FYM can make a supply of 3g/plant nitrogen and the remaining N (7 g/plant) will be supplied through tree leaf manuring.
Total no. of gliricidia or subabul-2000 plants/ha

Biofertiliser

Azotobactor (10g/plant)-440 MT

PSB (10g/plant)-440 MT

Banana

The area under banana is around 5000 ha with a productivity of 13 MT/ha which is much below the national average. The varieties of banana grown in Tripura are mostly Sabri, Chini Champa but Cavendish and robusta are not grown in large areas.

Introduction of elite banana varieties such as Mortaman in place of low yielding traditional sabri varieties.

Creation of banana orchard in a large area as banana cultivation in the state is presently done on homestead basis.

Introduction of Cavendish or robusta in experimental basis in farmers plot

Adoption of appropriate package of practices to boost up the productivity of banana.

Vanilla

Vanilla is a monopodial spice orchid and its commercial cultivation is restricted in some pockets of Kerala and Tamilnadu. As vanilla thrives well under moist tropical climate, cultivation of vanilla may be encouraged among the farmers. It is generally propagated by stem cuttings and micro–propagation of vanilla can also be attempted. Since the crop is vine, it requires support for growing such as Erythrina, Gliricidia etc. In Tripura 100 ha of land for vanilla cultivation is earmarked.

To introduce vanilla following actions are to be adopted.

- Supply of vanilla stem cutting of 60-120 cm long with 8 to 10 nodes.
- To impart training to the farmers to take up vanilla cultivation on a commercial scale.
- To set up post harvest facility for extraction of vanillin from vanilla pod through curing method.

Biofuel

Production of plants supplying bio–fuel is a need of the hour. Particularly in the areas not suitable to grow field and horticultural crops. Jatropha may be grown to supply biofuels which may turn out to be a income generation unit for unemployed youth. The productivity of jatropha seed containing 30-35% oil varies from 10-15 q/ha.

On an average the productivity of oil from 1 ha land is 450 kg/ha. The sale cost of the seed is variable from Rs. 5/- to 7/-/kg. On an experimental basis 5 ha of land can be earmarked for jatropha cultivation on a commercial scale.

Mushroom

Commercial cultivation of mushroom is a successful one and production technology of oyster mushroom (*Pleuratus*) and white button mushroom (*Agaricus biosporus*) has been standardised. Presently in Tripura there are 5 mushroom laboratory producing on an average 8 to 10 thousand spawn production per annum. Keeping in view the demand of nearly 50,000 spawn packet/annum there is a necessity to increase the capacity of mushroom laboratory.

Two more laboratories one at Dhalai district and another at south district to cater the increasing demand of mushroom spawn.

- Collection and standardization of production technology of local mushroom available in Tripura
- To impart training on production technology, supply of spawn and mother culture to the entrepreneurs.
- To create awareness among farmers

Post harvest technology of cereals

Post harvest facility both for field crops, fruits and vegetables is meager in Tripura. Attention has to be given to have modern post harvest facilities

- To set up modern rice mills having various modern components such as storage, cleaning, husking, separation, whitening and grading. In the mill, care should be taken to remove the husk from paddy without damage to the branlayer and rice kernel. The modern rubber roll husker is highly efficient to produce unbroken rice.

- There is no facility available in Tripura for modern milling of pulse crops particularly arhar, greengram and blackgram. There are two conventional pulse milling of which the preferred one is having operation such as cleaning and grading, rolling or pitting, oiling, moistening and drying.

Pulses

Cleaning(Chaff, dirts etc.)

Pitting (Mixture of husk and brokens)

Pretreatment with oil

Conditioning

Dehusking and splitting(Mixture of husk + broken + powder)

Grading

Polishing

↓

Grade I pulses

Flow diagram of dry milling of pulses

To set up dal mill at the community centre or gaon panchayat and impart training to the farmers to produce dal for their household consumption.

Farm power machinery

Farm mechanisation is in infant stage in Tripura and due to increase in cropping intensity to nearly 300% in plain land topography, there is an urgent need to introduce farm mechanisation. The timely land preparation is to be done in a short period for successful implementation of cropping pattern to achieve 100% cropping intensity. The following agricultural implements are necessary.

1. Maize sheller (Unit cost Rs. 40/-)
2. Metalic tip dibbler (Unit cost Rs.40/-)
3. Garden rake (Rs.100/-)
4. Wheel hoe with one blade(Rs. 675/-)
5. Seed drill for paddy (Rs. 1350)
6. Mould broad plough (Rs. 850/-)
7. Groundnut decorticator (Rs. 1500/-)
8. Paddy thresher paddle type (Rs. 3750/-)
9. Power paddy thresher (Rs. 4,500/-)
10. Japanese paddy weeder for low land (Rs.10/-)

The agricultural implements as mentioned above must be procured at the panchayat level, the requirement is stated below. Maize sheller (50 pcs), metalic tip dibbler (20 pcs), garden rake (100 pcs), wheel hoe with one blade

(50pcs.), seed drill for paddy (20 pcs.), mould board plough (10 pcs), Groundnut decorticator (20 pcs), paddy thresher paddle type (50 pcs.), power paddy thresher (20 pcs.), paddy weeder (100 pcs.).

Power tiller is mainly used in Tripura for various purposes and the estimated present fleet strength is about 2,500 no. As projected in the perspective plan prepared by Dept. of Agriculture, there is an additional requirement of 3,00 nos. of power tiller.

Egg production

Consumption of egg is presently 35 nos./yr. Attempts are required to be made to achieve the ICMR requirement of ½ egg/day.

To maintain the supply of egg in accordance with ICMR requirement keeping in view the 77% supply of egg from poultry and the remaining 23% of duckery units.

Table – A.3 : Annual requirement of egg from poultry and duckery unit

Year	Total no.of required egg (lakh no.)	Egg supply from layer hen (lakh)	Egg supply from layer duck (lakh)
2005-06	6186	4763	1423
2006-07	6262	4821	1441
2007-08	6370	4904	1466
2008-09	6462	4975	1487
2009-10	6559	5050	1509
2010-11	6657	5125	1532
2011-12	6790	5228	1562

To introduce the rearing of high input technology poultry birds (WLH/RIR/Cari-Gold/HS-200) supplying 50% of the total egg requirement from the layer birds. Here the egg production is considered to be around 200 eggs/bird/annum.

Meat

The per capita availability of meat in Tripura is only 1.94 kg/annum against 4.5 kg/head/annum (All India). In accordance with ICMR requirement, the daily need of meat is 60g/head/day which is accrued to 21.9 kg /head/annum. The programme to achieve the target of ICMR recommendation is highly ambitious. So keeping in view the necessity of generation of self employment among the unemployed youth, an attempt can be made to supply the required meat from all the available sources.

To develop the infrastructure and make the gradual increment in per capita availability in order to achieve the ICMR recommendation by 2011-12.

Table – A.4 : Annual meat requirement

Year	Per capita meat availability (kg/annum)	Meat requirement (lakh MT)
2006-07	8.0	0.28
2007-08	12.0	0.42
2008-09	14.0	0.49
2009-10	18.0	0.65
2010-11	20.0	0.73
2011-12	22.0	0.82

To use the culled duck/poultry bird after 2 years of the programme implementation to supply the annual meat requirement varying from 0.28 to 0.82 lakh MT. The meat availability from the culled bird is as follows-

Fisheries :

The scenario of fisheries as existing here in the state is promising. The demand for fish is very high and is mainly due to the fish eating habit already existing in the state. It is difficult to meet the actual demand but we can achieve the demand of ICMR recommendation. The requirement of fish @ 11 kg/capita/annum of the projected population up to 2011-12 works out as follows.

Table – A.5 : Requirement of fish over the years

Year	**Fish requirement (Lakh MT)**
2005-06	0.374
2006-07	0.379
2007-08	0.385
2008-09	0.391
2009-10	0.397
2010-11	0.404
2011-12	0.410

The data indicate that the fish requirement undergoes a variation from 0.374 to 0.410 lakh MT. On the other hand, the fish production is only 0.179 lakh MT out of 23,342 ha aqua resources of the state. So the productivity is, on an average only 1,200 kg/ha and with the present productivity, the deficit in fish supply may vary from 0.195 to 0.231 lakh MT

Only a few people are practising aqua culture in a commercial way. More professional commercialisation is urgently required. Aqua culture is widely practised and composite fish culture technology is also well accepted. But most of the farmers are not practicing the aqua culture in a scientific way. There are several reasons for that but one of the reasons is that even the poor management also gives them a profit. So motivation is the most important requirement in this sector. Water is good and productive.

Extension activities

Manpower

- There is a need of additional manpower for successful implementation, supervision and monitoring the programmes as illustrated in the report. Under Agriculture Dept there are 704 V.L.W. circles, 369 agricultural input stores and 69 agricultural sectors at the grass root level. It is necessary to provide extension support to each of 968 nos. of gaon panchayat. So additional requirement of VLWs (968-704=264) may be fulfilled. Following is the list of vacant positions in Agriculture Dept. ------Additional Director of Agriculture-3, Joint Director of Agriculture-5, Deputy Director of Agriculture-13, Superintendent of Agriculture-48, Superintending Engineer-1, Executive Engineer-1, Assistant Engineer-5, Agriculture officer-13, market Research officer-5 etc.

  Following additional manpower is required in Animal Resource Department ---- Vety. Officer-147, Para Vety. Staff-480, Fodder Officer-10, Dairy Officer-6, Ministerial Staff-130, Other supporting Staff-30, Group-D-378.

Following additional manpower is required in Department of Fishiries----- Additional Director-01, Fishery Assistant-59, Fishery inspector-26, Fishery officer-11, Supdt. of Fisheries-07, Deputy Director-02, Asstt. Engineer-01.

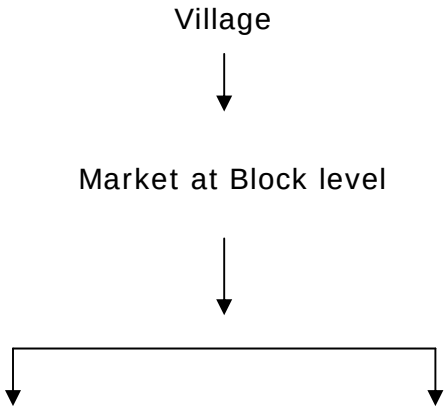
- To engage technically qualified personnels on contractual basis to monitor the Departmental activities in the light of the guidelines as enumerated in State Development Report.

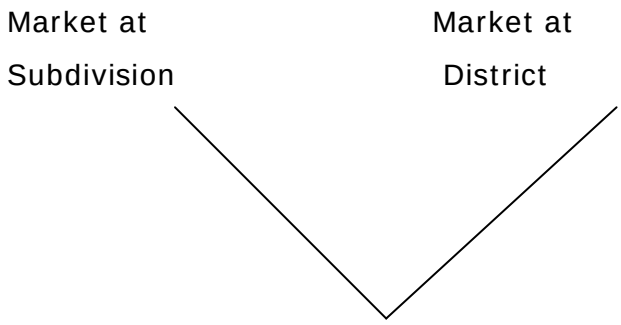
Training

- To impart training to the Officers as well as cultivators so that the technology as outlined will be disseminated among the masses to achieve the targeted production in crops, vegetables, fruits, animal and fish.
- Selection of entrepreneurs among the unemployed youth and arrangement of proper training to generate self employment potential.

Marketing

- To develop efficient marketing system with necessary infrastructural facilities so as to make avenues for sale of various products at competitive price. The market network should be designed in such a way that all the produce at the village levels should be gradually channelised throughout the state as well as export in the national and international level if needed.





- Necessary arrangement to keep the perishable products may be made available in the markets situated in Subdivision, District and Capital.
- Selection of product having export potentiality for domestic as well as international use is to be done only at the Capital level with a facility to take further steps.

Financial Outlay

Agriculture

Seed Replacement

The process of seed replacement for rice is very slow to the tune of 2.8% and the seed replacement as projected to achieve the self sufficiency in food varies from 40 to 100% over a period of 7 years. The requirement of foundation and breeder seed along with the respective areas is demarcated in Table A.6.

Table– A.6 : Seed replacement (MT) and fund requirement for seed

(Rs. in lakh) of rice

Year	Seed replacement	Foundation seed (MT)	Area (ha)	Breeder seed (MT)	Area(ha)
2005-06	11,186	124	2400	1.0	24
2006-	13,983	140	2730	1.13	27

07					
2007-08	16,779	170	3340	1.38	33
2008-09	19,576	200	4010	1.64	39
2009-10	22,373	237	4660	1.91	44
2010-11	25,169	371	5260	2.19	51
2011-12	27,966	307	6080	2.48	58

Cost of breeder seed is Rs.150/kg

Percentage of seed replacement is Rs. 40%, 50%, 60%, 70%, 80%, 90%, 100% respectively.

The total fund (Table 28) required for the foundation and breeder seed of rice varies from Rs.405.5 to 1001.7 lakh. The flow of fund among the farmers undertaking the job of seed replacement in rice is also calculated.

Table – A.7 : Flow of fund (Rs. in lakh) for seed of rice

Year	Total fund required	Flow of fund		
		Institutional credit (80%)	Govt. (15%)	Beneficiary (5%)
2005-06	405.5	324	60.83	20.28
2006-07	457.7	366	68.66	22.88
2007-08	557.0	446	83.55	27.85
2008-09	661.5	529	99.23	33.08
2009-10	771.9	618	115.78	38.60
2010-11	884.3	707	132.65	44.22
2011-12	1001.7	801	150.15	50.09

The hybrid rice programme as initiated in 2,000 ha is expected to undergo 2% increase/annum and as such the seed requirement (Table 29) varies from 30 to 33.7 MT.

Table – A.8 : Seed (MT) and fund requirement (Rs. in lakh) of hybrid rice

Year	Seed requirement (MT)	Fund requirement (Rs. in lakh)
2005-06	30	36
2006-07	30.6	36.72
2007-08	31.2	37.44
2008-09	31.8	38.16
2009-10	32.4	38.88
2010-11	33.0	39.6
2011-12	33.7	40.44

Cost of hybrid rice Rs.120/kg.

The flow of fund among the farmers contributing only 5% of the total requirement is presented in Table 30.

Table – A.9 : Flow of fund for seed of hybrid rice (Rs. in lakh)

Year	Fund required	Flow of fund		
		Institutional credit (80%)	Govt. (15%)	Beneficiary (5%)
2005-06	36.00	28.80	5.4	1.80
2006-07	36.72	29.40	5.5	1.84
2007-08	37.44	30.00	5.6	1.87
2008-09	38.16	30.53	5.7	1.91
2009-10	38.88	31.10	5.8	1.94
2010-11	39.60	31.68	5.9	1.98
2011-12	40.44	32.35	6.0	2.02

The fund requirement of others crops, viz., maize, wheat, oilseeds, pulses and fibre crops are shown in Table 31.

Table – A.10 : Fund requirement (Rs. in lakh) for maize, wheat, oilseeds, pulses and fibre crops

Year	Maize	Wheat	Oilseeds	Pulses	fibre crops
2005-06	118	125	761	108	5.3
2006-07	120	128	776	110	5.4
2007-08	122	131	792	112	5.5
2008-09	124	134	808	114	5.6
2009-10	126	137	824	116	5.7
2010-11	128	140	841	118	5.8
2011-12	130	143	858	120	5.9

Cost of breeder seed of pulse is Rs. 200/-kg. Cost of certified seed of maize, wheat, oilseed and fibre crops are Rs.12/-, Rs.15/-, Rs.25/-, Rs.10/- per kg seed.

The total fund required for these crops (Table 32) undergoes a variation from Rs.1,117 to 1,257 lakhs over the period of 7 years.

Table – A.11 : Flow of fund (Rs. in lakh) for maize, wheat, oilseeds, pulses and fibre crops.

Year	Total	Flow of fund

	fund required	Institutional credit (80%)	Govt. (15%)	Beneficiary (5%)
2005-06	1,117	894	168	56
2006-07	1,139	911	171	57
2007-08	1,163	930	174	58
2008-09	1,186	949	178	59
2009-10	1,209	967	181	60
2010-11	1,233	986	185	61
2011-12	1,257	1,006	189	62

2% increase per year is taken into account

Agricultural input

The quantity of agricultural input for the supply of NPK, organic manure, bio–fertiliser, micro–nutrients, pesticides and bio–pesticides along with the fund requirement are presented in Table 81 and 82.

Organic manure, the requirement of which is varying from 25.0 to 28.15 lakh MT over the period, is to be supplied from the various sources. The sources may be from animal, poultry bird, crop residues, vegetable wastes and the leaf etc. and the fund involvement may vary from 62.5 to 70.4 crore keeping in view Rs. 0.25/kg of organic manure. This involvement of fund may be income generating process to the entreprenures if engaged in the supply of manure through compost/vermicompost/biogas slurry.

Livestock-17.7 lakh MT (5kg/day)

Poultry/duck-0.38 lakh MT (40g/day)

Crop residues-12.8 lakh MT (2.5 MT/1 MTseed)

Vegetable water-1.14 lakh MT (0.5 MT/1 MT vegetable

Each gaon panchayat should have vermicompost unit and biogas plant in order to supply the organic manure. Gradually the number of unit may be increased over the period.

Table – 33 : Fund requirement for vermicompost and biogas plant unit (Rs. in lakh)

Year	Vermicompost unit		Biogas plant	
	No. of units	Fund	No. of units	Fund
2005-06	96	14.4	96	38.40
2006-07	193	29.0	193	77.2
2007-08	290	44.0	290	116.0
2008-09	387	58.05	387	154.8
2009-10	484	72.60	484	193.6
2010-11	580	87.00	580	232.0
2011-12	677	101.55	677	270.8

Rs. 15,000/- and Rs. 40,000/- for each vermicompost unit and biogas plant, respectively

The supply of fertiliser and pesticides is required to be ensured to achieve the targeted production of crops, vegetables and food and the fund requirement is assumed to be very high varying from 158.7 to 178.7 crore over the period of 2005-06 to 2011-12. It is suggested that 50% of the fund may be under the budgetary provision of the state and the remaining may be channelised through people's participation on the frame work of agro industries.

Table – A.11 : Arrangement of 50% fund(Rs. in crore) required for fertiliser and pesticides among the entreprenuers

Year	**50% of fund**	**Flow of fund**	
		Institutional credit (80%)	**Individual share (50 agro industry units)**
2005-06	79.35	63.48	0.317
2006-	80.94	64.75	0.324

07			
2007-08	82.56	66.05	0.330
2008-09	84.21	67.34	0.337
2009-10	85.89	68.71	0.344
2010-11	87.61	70.09	0.350
2011-12	89.36	71.49	0.357

Demonstration and Training

Field demonstration of modern technology is to be carried out in each district and the fund requirement to carry out the demonstration is presented in Table 84a.

Table A.12 : Fund requirement (Rs. in lakh) for demonstration of modern technology

Year	No. of demonstration unit	Fund required
2005-06	40	2.80
2006-07	45	3.15
2007-08	50	3.50
2008-09	55	3.85
2009-10	60	4.20
2010-11	65	4.55
2011-12	70	4.90

Rs. 7,000/-unit

Table – A.13 : Fund requirement (Rs. in lakh) for training

Year	Panchayat level Rs. 5000/camp (200 persons/camp)	Block level Rs. 10,000/camp (50 persons/camp)	Subdivision/district level Rs. 20,000/camp

	No. of farmers	Fund	No. of persons	Fund	No. of persons	Fund
2005-06	200 X 5	0.25	50 X 30	3.0	40 X 30	6.0
2006-07	200 X 10	0.55	50 X 35	3.5	40 X 35	7.0
2007-08	200 X 12	0.65	50 X 40	4.0	40 X 40	8.0
2008-09	200 X 15	0.75	50 X 45	4.5	40 X 45	9.0
2009-10	200 X 18	0.95	50 X 50	5.0	40 X 50	10.0
2010-11	200 X 20	1.00	50 X 55	5.5	40 X 55	11.0
2011-12	200 X 25	1.25	50 X 60	6.0	40 X 60	12.0

It is suggested that no. of training camps conducted at the panchayat, block and subdivision level be increased from 5 to 25 nos., 30 to 60 nos. and 30 to 60 nos., respectively. Departmental officers should be deputed for training at respective Institutions and the annual fund requirement is around Rs. 1.5 lakhs.

Horticulture

Vegetable

The fund requirement for vegetable seeds and planting material is presented in Table 36 and 37.

Table A.14 : Fund requirement (Rs. in crores) for vegetable seeds and planting materials

Year	Cole Crops (Winter)	Cole crops (Summer)	Solanaceous vegetables	Cucurbits	Leafy vegetables	Bhindi	Root crop	Capsicum
2005-06	3.45	0.100	1.29	8.82	0.052	0.200	2.38	1.25
2006-07	3.52	0.102	1.32	9.00	0.053	0.204	2.43	1.28
2007-08	3.59	0.104	1.35	9.18	0.054	0.208	2.48	1.31
2008-09	3.66	0.106	1.38	9.36	0.055	0.212	2.53	1.37
2009-10	3.73	0.108	1.41	9.55	0.056	0.216	2.58	1.40
2010-11	3.80	0.110	1.44	9.74	0.057	0.220	2.63	1.43
2011-12	3.88	0.112	1.47	9.93	0.058	0.224	2.68	1.46

Table A.15 – Fund requirement (Rs. in crores) for vegetables and planting materials

Year	Seed			Planting materials of tuber crops
	Tuber crops	Potato	Pulse as vegetables	
2005-06	2.58	0.2	0.130	1.42
2006-07	2.63	0.5	0.133	1.45
2007-08	2.68	0.6	0.136	1.48
2008-09	2.73	0.8	0.139	1.51
2009-10	2.78	1.2	0.141	1.54
2010-11	2.84	1.6	0.144	1.57
2011-12	2.90	2.0	0.147	1.60

The flow of fund for propagation of vegetable crops as needed to achieve the self sufficiency is presented in Table 38.

Table A.16. Flow of fund for seeds of vegetable crops(Rs. in crores)

Year	Total requirement of fund	Flow of fund		
		Institutional credit (80%)	Govt. contribution (15%)	Beneficiary (5%)
2005-06	21.87	17.50	3.28	1.09
2006-07	22.62	18.10	3.39	1.13
2007-08	23.17	18.54	3.48	1.16
2008-09	23.85	19.08	3.58	1.19
2009-10	24.71	19.77	3.71	1.24
2010-11	25.58	20.46	3.84	1.28
2011-12	26.46	21.17	4.00	1.32

Soil conservation

The soil conservation work in the 20% area of the total upland is to be carried out by the Directorate of Horticulture and Soil Conservation. Fund allocated is Rs.5 crores each for the year from 2005-06 to 2010-11 and Rs. 10 crores for 2011-12.

Table A.17 – Fund requirement for soil conservation work(Rs. in crores)

Year	Area for soil	Fund

	conservation	
2005-06	5,000	5
2006-07	5,000	5
2007-08	5,000	5
2008-09	5,000	5
2009-10	5,000	5
2010-11	5,000	5
2011-12	10,000	10

Rs. 10,000/-per ha

Table A.18. Flow of fund for spices crop (Rs. in crores)

Year	Total requirement of fund	Flow of fund		
		Institutional credit (80%)	Government (15%)	Beneficiary (5%)
2005-06	7.12	5.70	1.07	0.356
2006-07	7.27	5.82	1.09	0.364
2007-08	7.42	5.94	1.11	0.371
2008-09	7.57	6.06	1.14	0.379
2009-10	7.72	6.18	1.16	0.386
2010-11	7.87	6.30	1.18	0.394
2011-12	8.02	6.42	1.20	0.401

Fruit crop

There is a need to render an emphasis for growth and development of fruit crop and the fund requirement for seed and planting materials is presented in Table 41. The flow of fund for the fruit crops to be grown by the farmers is presented in Table 42.

Table A.19 – Fund requirement for seed and planting materials of fruit crop (Rs. in crores)

Year	Orange	Pineapple	Banana	Litchi	Mango
2005-06	0.816	1.74	2.61	0.060	1.20
2006-	0.832	1.77	2.66	0.061	1.22

07					
2007-08	0.848	1.80	2.71	0.062	1.24
2008-09	0.864	1.83	2.76	0.063	1.26
2009-10	0.882	1.86	2.81	0.064	1.28
2010-11	0.900	1.89	2.87	0.065	1.30
2011-12	0.918	1.93	2.93	0.066	1.32

Orange- Rs 10/- per planting material, Pineapple- Rs.20 paise per sucker, Mango- Rs. 15/- per planting material, Banana-Rs.3/- planting material, Litchi- Rs. 6/-per planting material

Table A.20 : Flow of fund for fruit crops (Rs. in crores)

Year	Fund required	Flow of fund		
		Institutional credit (80%)	Government (15%)	Beneficiary (5%)
2005-06	6.43	5.14	0.96	0.321
2006-07	6.54	5.23	0.98	0.330
2007-08	6.66	5.33	1.00	0.333
2008-09	6.78	5.42	1.02	0.340
2009-10	6.90	5.52	1.04	0.345
2010-11	7.03	5.62	1.06	0.352
2011-12	7.16	5.73	1.08	0.358

High value crops

High value crops are now the need of the hour and floriculture, vanilla, cardamom and bio–fuel are the crops as identified to fetch high economic gain by the farmers.

Table A.21 : Fund requirement for the seed of high value crops (Rs. in lakh)

Year	Floriculture	Vanilla	Cardamom	Bio–fuel
2005-06	195.10	15.0	2.50	0.25
2006-07	199.00	1.0	0.01	0.01
2007-08	202.98	1.0	0.01	0.01
2008-09	207.04	1.0	0.01	0.01
2009-10	211.18	1.0	0.01	0.01
2010-11	215.40	1.0	0.01	0.01
2011-12	219.71	1.0	0.01	0.01

Cardamom-Rs.10/- per cutting, Cost of cultivation of jatropha Rs.5,000/- per ha

Table A.22 – Flow of fund for high value crops (Rs. in lakh)

Year	Total fund required	Flow of fund		
		Institutional credit (80%)	Government contribution (15%)	Beneficiary (5%)
2005-06	212.85	170.28	31.93	10.64
2006-07	200.02	160.02	30.00	10.00
2007-08	204.00	163.2	30.60	10.20
2008-09	208.06	166.45	31.21	10.40
2009-10	212.82	170.26	31.92	10.64
2010-11	216.42	173.14	32.46	10.82
2011-12	220.73	176.58	33.11	11.04

Mushroom, tissue culture unit, TPS unit, green house and low cost poly house are also to be established to cater the need of the state.

Rs. 3 lakh and Rs. 13,000/- for construction of green house and low cost poly house, respectively

Processing

There is no adequate modern facility to process the cereals, pulses and oilseeds in the state and as such the fund required is presented in Table 45.

Table A.23: Fund required for processing of cereals, pulses and oilseeds (Rs. in lakh)

Year	Establishment	Recurring	No. of dal mills	Establish –ment and recurring cost of dal mills	Establish –ment of oil mill	Recurring
2005-06	60.0	-	96	9.6	20	-
2006-07	-	5.0	193	19.3	-	1.0
2007-08	-	5.1	290	29.0	-	1.02
2008-09	-	5.2	387	38.7	-	1.04
2009-10	-	5.3	484	48.4	-	1.06
2010-11	-	5.4	580	58.0	-	1.08
2011-12	-	5.5	677	68.0	-	1.10

2% increase for recurring expenditure per annum. Unit cost of dal mill is Rs. 10,000/-. No.of dal mills covering 10% to 70 % of the total gaon panchayat.

Table – A.24 : Flow of fund for processing of cereals, pulses and oilseeds (Rs. inlakh)

Year	Total fund required	Flow of fund		
		Institutional credit (80%)	Government (15%)	Beneficiary (5%)
2005-06	89.6	71.68	13.44	4.48
2006-07	25.3	20.24	3.80	1.27
2007-08	35.12	28.10	5.27	1.76
2008-09	45.0	36.00	6.75	2.25
2009-10	55.0	44.00	8.25	2.75
2010-11	65.0	52.00	9.75	3.25
2011-12	75.0	60.00	11.25	3.75

The fund required for other establishments, viz., cold storage, fruit and vegetable storage and processing is presented in Table 47.

Table A.25 – Fund requirement for cold storage, storage and processing of fruits and vegetables (Rs. in crores)

Year	Cold storage		Storage of fruits and vegetables		Food processing unit			
	Establishment	Recurring expenditure	No. of zero energy cool chamber	Fund required	Medium to large food processing sector		Small scale processing unit	
					New establishment	Existing	No. of units	Fund required
2005-06	40.0	0.40	96	0.096	2	0.20	20	0.04
2006-	-	0.41	193	0.193	-	0.21	50	0.10

07								
2007-08	-	0.42	290	0.290	-	0.22	70	0.14
2008-09	-	0.43	387	0.387	-	0.23	80	0.16
2009-10	-	0.44	484	0.484	-	0.24	100	0.20
2010-11	-	0.45	580	0.580	-	0.25	110	0.22
2011-12	-	0.46	677	0.677	-	0.26	120	0.24

Organic farming

Aromatic rice, vegetables and pineapple may be cultivated under organic farming in order to catch the domestic and international market. There may be 2 % increase in area/annum for the cultivation of the said crops. The quantity of agricultural inputs along with required fund has already been mentioned. Here is the fund required for certification of organic produced.

Table A.26. Fund requirement for certification of organic farming (Rs. in crores)

Year	Area(ha)					Fund for certification (Rs. in crores)
	Aromatic rice	Vegetable	Black pepper	Pineapple	Total	
2005-06	500	1,890	250	1,000	3,640	1.82
2006-07	510	1,928	255	1,020	3,713	1.86
2007-08	520	1,967	260	1,040	3,787	1.90
2008-	530	2,006	265	1,060	3,	1.93

09					861	
2009-10	540	2,046	270	1,080	3,936	1.97
2010-11	550	2,087	275	1,102	4,014	2.01
2011-12	560	2,129	280	1,124	4,093	2.05

Cost of certification of Rs. 5,000/-ha, 2% annual increase in area.

The flow of fund required for the purpose of fruit processing is also presented in Table 49.

Table A.27 : Flow of fund for cold storage, storage and processing of vegetable and fruits (Rs. in crores)

Year	Total fund required	Flow of fund		
		Institutional credit (80%)	Government (15%)	Beneficiary (5%)
2005-06	42.74	34.19	6.41	2.14
2006-07	0.913	0.730	0.14	0.05
2007-08	3.07	2.46	0.46	0.15
2008-09	1.20	0.96	0.18	0.06
2009-10	1.36	1.09	0.20	0.07
2010-11	1.50	1.2	1.20	0.08
2011-12	1.64	1.31	0.25	0.08

Farm power machinery

Farm power machinery is in infant stage in the state and the fund required for this purpose is presented in Table 50.

Table A.28 : Fund requirement for farm power machinery (Rs. in crores)

Year	Farm implements	Power tiller		Pump set	
		No. of units	Fund	No. of units	Fund
2005-06	0.391	300	3.0	600	1.2
2006-07	0.399	300	3.0	600	1.2
2007-08	0.407	300	3.0	600	1.2
2008-09	0.415	300	3.0	600	1.2
2009-10	0.423	300	3.0	600	1.2
2010-11	0.431	300	3.0	600	1.2
2011-12	0.440	300	3.0	600	1.2

Cost of power tiller Rs. 1.0 lakh per power tiller, Cost of pumpset Rs. 20,000/- unit.

Table A.29 : Flow of fund for farm power machinery (Rs. in crore)

Year	Total fund required	Flow of fund		
		Institutional credit (80%)	Government (15%)	Beneficiary (5%)
2005-06	4.59	3.67	0.69	0.23
2006-07	4.60	3.68	0.69	0.23
2007-08	4.61	3.69	0.69	0.23
2008-09	4.62	3.70	0.69	0.23
2009-10	4.63	3.71	0.69	0.23
2010-11	4.64	3.72	0.70	0.23
2011-12	4.65	3.73	0.70	0.23

Irrigation

The modus operandi of the irrigation plan is presented in Table 52. and the fund required to achieve the target is presented in Table 53.

Table A.30 : Irrigation plan over the years

Year	Lift irrigation (ha)	Deep tube well (ha)	Diversion (Ha)	Medium irrigation (ha)	Drip irrigation (ha)	Water harvesting structure (ha)	Total (ha)
2005-06	10,928	372	1,000	1,600	4,000	550	18,450
2006-07	11,107	393	1,050	1,600	4,080	550	18,780
2007-08	11,306	392	800	1,600	4,162	550	18,810
2008-09	5,893	206	370	1,600	4,245	550	12,864

2009-10	6,845	208	390	600	4,330	550	12,923
2010-11	3,079	200	704	-	4,417	550	8,950
2011-12	3,014	200	420	-	4,505	700	8,839

Table A.31. Fund requirement for creation of irrigation facility

(Rs. in crores)

Year	Lift irrigation	Deep tube well	Diversion	Medium irrigation	Drip irrigation
2005-06	54.64	2.79	20	48	12.00
2006-07	55.54	2.95	21	48	12.24
2007-08	56.53	2.94	16	48	12.49
2008-09	29.47	1.55	7.4	48	12.74
2009-10	34.23	1.56	7.8	18	12.99
2010-11	15.40	1.50	14.08	-	13.25
2011-12	15.07	1.50	8.4	-	13.52

Cost of lift irrigation, Deep tube well, Diversion, Medium irrigation, Drip irrigation is Rs.50, 000/-, 75,000/-, 2, 00,000, 3, 00,000 and 30,000/- respectively.

To run the irrigation projects electricity is needed and thus the fund required is presented in Table 54.

Table A.32. Fund required for electrification in irrigation projects (Rs. in crores)

Year	Lift irrigation	Deep tube well
2005-06	8.20	0.56
2006-07	8.33	0.59
2007-08	8.48	0.59
2008-09	4.42	0.31
2009-10	5.13	0.31

2010-11	2.31	0.30
2011-12	2.26	0.30

Electrification cost for Lift irrigation and deep tube well is Rs. 7,500 and Rs. 15,000 per ha.

Animal Resource Development

Dairy farming is to be encouraged among the unemployed youth and the financial involvement to generate self employment potential is presented in Table 55.

Table A.33 : Small scale dairy farming for self employment generation.

Year	Unemployed youth nos.)	Cross bred cows (nos.)	Financial involvement (Rs. lakh)	Flow of fund (Rs. in lakh)		
				Institutional credit (80%)	Govt. (15%)	Beneficiary (5%)
2005-06	800	4000	292	233.6	43.8	14.6
2006-07	1000	5000	365	292	54.8	18.2
2007-08	1200	6000	438	350.4	65.7	21.9
2008-09	1400	7000	511	408.8	76.7	25.5
2009-10	1600	8000	584	467.2	87.6	29.8
2010-11	1800	9000	657	525.6	98.6	32.8
2011-12	2000	10,000	730	584.0	109.5	36.5

There is involvement of no. of farmers from 51,350 to 78,925 to achieve the target in milk production.

Dairy Development

Besides Tripura cooperative milk producers union Ltd. Situated at Agartala, there is no other organised marketing agency to ensure the

targeted milk production. There is a need for extension of milk cooperative societies in all districts with a formation of 3 milk union in other districts and one chief apex body at the state level. Following is the distribution of milk producers cooperative societies operating in all districts.

West Tripura-10
North Tripura-5
South Tripura-10
Dhalai District-5

Table A.34 : Annual financial requirement (Rs. in lakh) of milk co-operative society

Year	West	North	South	Dhalai
2005-06	20	10	20	10
2006-07	20.4	10.2	20.4	10.2
2007-08	20.8	10.4	20.8	10.4
2008-09	21.2	10.6	21.2	10.6
2009-10	21.6	10.8	21.6	10.8
2010-11	22.0	11.0	22.0	11.0
2011-12	22.4	11.2	22.4	11.2

2% increase/annum over the period

There is a need to establish a modern dairy plant having a capacity of handling 1,00,000 litres of milk/day at the capital headquarter of Agartala dairy to have a capacity to handle 50,000 litres of milk/day in other district head quarters is to be installed. The dairy units should have milk processing and manufacture of a range of milk products as stated below:

Liquid milk—Full cream, standard toned and double toned.

Fermented milk-Butter milk, Masala chass.

Cheeses---Emmental, Mazzarella and Cheddar

Paneer

Ice cream, Cassatta and Ice candy

Ghee

Table A.35 : Financial requirement of dairy plant

Year	Initial cost (Rs. in crores)		Running expenditure (Rs. lakhs)	
	West Tripura	Other districts (3 nos)	West Tripura	Other districts (3 nos)
2005-06	15.0	22.5	30.0	45.0
2006-07	-	-	30.6	45.9
2007-08	-	-	31.2	46.8
2008-09	-	-	31.8	47.7
2009-10	-	-	32.4	48.7
2010-11	-	-	33.0	49.7
2011-12	-	-	33.7	50.7

Goat farming should always be encouraged among the resource poor farmers and the fund requirement for this purpose is presented in Table 58.

Table A.36 : Annual fund requirement for goat farming

Year	Fund for breeding stock maintenance in Govt. farm (Rs. in lakh)	Infrastructure (Rs. in lakh)	Fund for rearing (Rs. in lakh)	Flow of fund to private sector (Rs. in lakh)		
				Institutional credit (80%)	Government contribution (15%)	Beneficiary (5%)
2006-07	7.0	1,891	3,309	4,160	780	260

2007-08	9.0	2,847	4,982	6,263	1,174	391
2008-09	11.0	3,335	5,836	7,337	1,376	458
2009-10	14.0	4,392	7,686	9,662	1,812	604
2010-11	17.0	4,941	8,647	10,870	2,038	679
2011-12	20.0	5,551	9,714	12,212	2,289	763

Rs.350/goat/annum for goat rearing

The infrastructural facility to rear 50 nos. of goat is estimated to be around Rs. 10,000/annum and this expenditure includes housing, purchase of goat and other miscellaneous items. The goat when sold at the carcass weight of 4.5 kg may fetch an amount of Rs. 630 keeping in view Rs. 140/kg of chevon. So the cost of goat rearing may not exceed Rs. 350/goat/annum in order to make 80% profit. In order to rear 50 goat by each unit of farming community, Bank and Govt. of Tripura will be providing fund of Rs. 21,998/- and 4,125/- respectively. The remaining fund of Rs. 1,375/- may have to be arranged by the beneficiary varying from 18,910 to 55,510 nos. from 2006-07 to 2011-12.

Broiler poultry can supply 25 % of the total meat requirement in the state and is an important avenue to generate the employment potential among the unemployed youth.

Feed and fodder

There is an acute scarcity of both feed and fodder availability in Tripura. The productivity of ruminant species i.e. cattle, buffalo and goat depends mainly on the availability of green grass/fodder. In order to achieve optimum production in poultry, pig and duck, supplementation of concentrate feed is of prime importance.

Attempts should be made to bring the vacant and cultivable waste land under fodder cultivation. Degraded forest land may be used to grow fodder trees.

Table A.37 : Area, average yield, production and cost of cultivation of fodder crops

Crops	Area	Average yield	Production	Cost of cultivation (Rs. in lakh)
Hybrid napier, Fodder maize, Berseem, Deenanath grass and guinea grass	3,000 ha	70 MT/ha	2.1 lakh MT	90.0
Tapioca, Sweet potato, Colocasia etc.	2,000 ha	20 MT/ha	0.4 lakh MT	40.0
Wild soti	1,000 ha	9-10 MT/ha	0.10 lakh MT	5.0
Broom grass (perennial)	1000 ha	100 MT/ha	1.0 lakh MT	2.0
Fodder tree (*Leucaena leucocephala*)	20,000 ha	40 kg/tree 5000 tree (2m X 2m)	2.0 lakh	40.0
Rice straw	2.5 lakh ha	4 MT/ha	10 lakh MT	-
Rice bran, maize grain, wheat bran	-	-	1.44 lakh MT	-
Mustard oil cake and fish meal	-	-	0.02 lakh MT	-
Silage	50 m^3	10 MT/annum	-	0.1

Each farming family should be encouraged to make silo from the crop residues and grasses. The total dry matter requirement for 4 cattle reared in a family is 8.7 MT/annum and such quantity of dry matter can easily be had from a silo of 50 m^3 size particularly in lean season when grass is not available.

Animal health and veterinary services

Animal health and veterinary services are to be strengthened to cater the need of large no. of animal components as planned in the report. So the action plan to establish the network along with financial requirement is presented in Table 60.

Table A.38 : Action plan for strengthening of animal health and vety. Services network

Year	Vety. Hospital	Vety. Dispensary	Vety Sub Centre	Pathological unit	Clinocopathological Lab	Mobile Vet. Unit	Financial involvement (Rs. in lakh)
2006-07	4	4	40	6	12	2	600.000
2007-08	5	5	45	6	12	2	642.321
2008-09	4	5	45	6	12	2	640.032
2009-10	3	5	50	6	12	2	655.213
2010-11	6	6	40	6	12	2	630.316
2011-12	6	7	35	8	17	4	650.215

Training

Table A.39 : Fund requirement (Rs. in lakh) for training

Year	Panchayat level Rs. 5000/camp (200 persons/camp)		Block level Rs. 10,000/camp (50 persons/camp)		Subdivision/district level Rs. 20,000/camp	
	No. of farmers	Fund	No. of persons	Fund	No. of persons	Fund
2005-06	200 X 5	0.25	50 X 30	3.0	40 X 30	6.0
2006-07	200 X 10	0.55	50 X 35	3.5	40 X 35	7.0
2007-08	200 X 12	0.65	50 X 40	4.0	40 X 40	8.0

2008-09	200 X 15	0.75	50 X 45	4.5	40 X 45	9.0
2009-10	200 X 18	0.95	50 X 50	5.0	40 X 50	10.0
2010-11	200 X 20	1.00	50 X 55	5.5	40 X 55	11.0
2011-12	200 X 25	1.25	50 X 60	6.0	40 X 60	12.0

It is suggested that number of training camps conducted at the panchayat, block and subdivision level be increased from 5 to 25 nos., 30 to 60 nos. and 30 to 60 nos., respectively. Departmental officers are also to be deputed for training at the respected Institutions and the annual fund requirement is around Rs. 1.5 lakhs.

Fisheries

Creation of new aqua bodies

Horizontal of aqua resources can play a vital role in augmenting the fish production expansion scenario of the state. It is found that approximately 1000 ha of land can be made available to convert into aqua bodies.

Table A.40: Annual fund requirement for creation of aqua bodies

Year	Area under aqua body (ha)	Fund requirement (Rs. in lakh)	Flow of fund (Rs. in lakh)		
			Institutional credit (80%)	Govt contribution(15%)	Beneficiary (5%)
2005-06	140	245	196	36.8	12.2
2006-07	140	245	196	36.8	12.2
2007-08	140	245	196	36.8	12.2
2008-09	140	245	196	36.8	12.2
2009-10	140	245	196	36.8	12.2
2010-11	140	245	196	36.8	12.2
2011-12	160	280	224	42	14

It is estimated that an amount of Rs 1.75 lakh may be required to create 1 ha of new water bodies. The annual fund requirement may be around Rs. 245 lakh from 2005-06 to 2010-11 and an amount of Rs. 280 lakh may be needed to create 160 ha of aquabody in 2011-12.

Reclamation of old water bodies

There are many old water bodies in the state not having the retaining capacity of water upto desired level for fish culture particularly in dry season. No desilting/repairing of such water body has not yet been taken up.

Rudrasagar Lake is also under huge siltation and there is and there is an urgent need for desiltation in the lake. The total area for reclamation is around 10,000 ha. So the fund requirement is as follows-

Table A.41 : Annual fund requirement for reclamation of water bodies

Year	Area for reclamation (ha)	Fund required (Rs. in lakh)	Flow of fund (Rs. in lakh)		
			Institutional credit (80%)	Govt. contribution (15%)	Beneficiary (5%)
2005-06	1,400	1,050	840	158	52
2006-07	1,400	1,050	840	158	52
2007-08	1400	1,050	840	158	52
2008-09	1,400	1,050	840	158	52
2009-10	1,400	1,050	840	158	52
2010-11	1,400	1,050	840	158	52
2011-12	1,600	1,200	960	180	60

It is suggested that an amount of 0.75 lakh/ha may be required for reclamation of old water bodies. The target to reclaim 10,000 ha of water body may be achieved gradually over a period of 7 years.

The total fund requirement is Rs.7, 500 lakhs, the supply of which may be made from the credit linked institutional finance (80%), Govt. (15%) and beneficiary (5%).

Creation of water harvesting structure

In accordance with agricultural land statistics, an area of 1.98 lakh ha is available in hilly undulating terrain. Water harvesting structure may be made in this area to accumulate its run off water which can be used both for irrigation and pisciculture. Keeping in view 20% of the hilly area to be brought under watershed programme, the land available may be around 0.40 lakh ha. So 4,000 ha of water harvesting structure of 1,000 m^2 area or 1% of total watershed area may be created over a period of 7 years.

Table A.42 : Fund requirement for water harvesting structure

Year	Area for water harvesting structure (2 m depth) (ha)	Fund requirement (Rs. in lakh)	Flow of fund (Rs. in lakh)		
			Institutional credit (80%)	Govt. contribution (15%)	Beneficiary (5%)
2005-06	550	2,750	2,200	413	137
2006-07	550	2,750	2,200	413	137
2007-08	550	2,750	2,200	413	137
2008-09	550	2,750	2,200	413	137
2009-10	550	2,750	2,200	413	137
2010-11	550	2,750	2,200	413	137
2011-12	700	3,500	2,800	525	140

A fund of Rs. 50,000 is generally required to have a water harvesting structure of 2000m^3. Accordingly, the total fund requirement is Rs. 20,000 lakh for creating 800 lakh cubic meter water harvesting structure.

Promotion of pisciculture:

In nearly 4,000 ha of water harvesting structure created in the hilly undulating terrain, pig/duck cum pisciculture programme needs to be implemented. The total cost for this type of pisciculture is around Rs.90,000/ha.

Table A.43 : Fund requirement for pisciculture

Year	Area for pisciculture (ha)	Fund requirement (Rs. in lakh)	Flow of fund (Rs. in lakh)	
			Govt. (75%)	Beneficiary (25%)
2005-06	550	495	371	124
2006-07	550	495	371	124
2007-08	550	495	371	124
2008-09	550	495	371	124
2009-10	550	495	371	124
2010-11	550	495	371	124
2011-12	700	630	472	158

Marketing

Marketing facility is meager in Tripura and there should be provision of funds to create a marketing network across the state to cater the need of agriculture, horticulture, animal husbandry and fisheries.

Table A.44 : Fund required for creation of marketing facility

(Rs. in lakh)

Year	Super market		District level		Subdivision		Block	
	Establishment cost	Maintenance cost	Establishment cost (4 nos.)	Maintenance cost (4 nos.)	Establishment cost (15 nos.)	Maintenance cost (15 nos)	Establishment cost (28 nos.)	Maintenance cost (28 nos)
2005-06	50	-	60	-	150	-	140	-
2006-07	-	5.0	-	4.0	-	7.5	-	7.0
2007-08	-	5.1	-	4.08	-	7.7	-	7.14
2008-09	-	5.2	-	4.16	-	7.9	-	7.3
2009-10	-	5.3	-	4.24	-	8.1	-	7.5
2010-11	-	5.4	-	4.32	-	8.3	-	7.7
2011-12	-	5.5	-	4.41	-	8.5	-	7.9