

EXECUTIVE SUMMARY

1. INTRODUCTION

Bihar approaches the 12th Plan with a sense of confidence and optimism. During the Eleventh Five Year Plan (2007-12), the economy of Bihar showed a steady growth trend. Growth is typically sustainable, if inter-linkages in the economy are such that growth in one sector pushes growth in the others. Growth in all sectors thus leads to safely predicting that the economy has 'taken off' to a sustainable growth trajectory.

Such a growth process in Bihar has been made feasible with massive investments in physical infrastructure, strengthening of the social sector, particularly education and health; and by good governance - all leading to achievement of growth targets in all sectors of the economy. The government followed the path of rapid growth as a key strategy to achieve adequate buoyancy within the economy to ensure sufficient enhancement in income of all sections of the population to bring about general improvement in living conditions.

1.1 Growth Trends

The trend in growth rate of Bihar's Gross State Domestic Product during 2004-05 to 2011-12 (Advance) has been volatile, mainly because of the dominance of the agricultural sector in the state economy. During the 11th Plan, against an average growth rate of 7.94 percent of the Indian economy, Bihar's average annual growth rate was 12.08 percent at constant prices. This rate of growth of the Bihar's economy was much higher than the rate of growth recorded during the 10th Five Year plan (7.04 percent at constant prices). The per capita income of Bihar grew at 10.47 per cent during the Eleventh Plan as against 6.46 for India at constant prices.

2. STRUCTURE OF THE ECONOMY

The share of the primary sector has been declining over the years. It dropped from 50.57 percent in 1980-81 to 37.49 percent in 2000-01. The share further dropped to 24.42 when the triennium average for 2007-08 to 2009-10 was considered. In 2011-12(Adv.), the primary sector's contribution stood at 18.12 percent. This demonstrated the decline in the importance of the primary sector, over the years.

The contribution of the secondary sector, which was 21.78 percent in 1980-81, dropped to 17.47 in 2011-12(Adv.). The tertiary sector though has grown disproportionately and without concomitant growth of the secondary sector. The share of the tertiary sector grew from 27.65 percent in 1980-81 to an enormous size of 64.40 percent in 2011-12(Adv.) at constant price.

2.1 Twelfth Plan Objectives for Growth Trends

- To plan for a 12-13 percent growth rate for the state of Bihar, so that the state income can be closer to the per capita national income by the end of the 12th Plan

- To attempt for a high growth rate (7%) in Agriculture and allied sectors by adopting the strategy of the Rainbow Revolution
- To develop infrastructure at a much higher pace
- To focus on industrialization
- To emphasize the development of the social sector further, particularly education and health
- To make a sustained effort for reduction in poverty
- To make a substantial increase in the income level of the lowest strata of society
- To make an attempt at equitable regional development

2.2 Growth Prospect in the 12th Plan Period

It is important to note that the gap between the per capita income of Bihar and the national per capita income has kept on widening since the beginning of the planning era (1950-51). Due to exemplary growth shown by the state, it hinted at a sign of recovery in recent years but in reality, the rate of recovery is quite low. In fact, at the beginning of the planning era the Per Capita Income of Bihar at Constant Prices (2004-05) was Rs. 4707 which had a gap of 31.37 % with respect to average per capita income of India. This gap has continued to widen in each succeeding plan period up to the Ninth Plan. From the 11th Plan period the gap has started narrowing down, but at a slow rate. In the year 2011-12 the gap has narrowed down by 2.5 percentage points over the 2010-11 figures. During 12th Plan (2012-17), not only this wide divergence between per capita incomes has to be addressed but a conscious effort needs to be made to bridge the gap effectively and efficiently. It is, therefore, imperative that the investment is substantially stepped up both in public and private sectors. There has been a commendable rise in rate of investment during the period from 2006-07 to 2010-11.

The Planning Commission has explored two alternative targets for economic growth in the Twelfth Plan- one for 9 percent growth rate and the other for 9.5 percent average growth for the 12th Five Year Plan. Table below presents an assessment of investment requirement in Bihar for target growth rates (at varying rates), which will call for a higher rates of investment as compared to the investment in the Eleventh Plan public as well as private.

Alternative Investment Scenarios for the 12th Plan (Rs in Crore)

Target Rate of Growth (Total)	11	11.5	12	12.5	13
Total Public Investment	313449	329335	345372	361558	377468
Total Private Investment	546838	574553	602531	630360	658465
Total Investment	860287	903888	947903	991918	1035933

For Bihar, acceleration of the rate of growth of around 11 percent during the Eleventh Plan to around 13 percent during the Twelfth Plan will require a massive increase in total investment (public and private)- from around 29.9 percent in Eleventh Plan to around 45 percent during the Twelfth Plan period. This has got to be financed by domestic and government savings.

2.3 The Incremental Capital Output Ratio (ICOR)

It can be safely assumed that ICOR for the Twelfth Plan period will be around 3.1. Based on the postulated ICOR, proposed outlays for the 12th Plan for alternative growth rates have been estimated. According to a preliminary estimate, the share of public sector investment for the Eleventh Plan period was of the order of 36.43 percent. Based on this the public and private sector outlays have been projected for the 12th Five Year Plan.

Public and Private Sector Investment for the 12th Five Year Plan (Rs in Crore)

Rate of Growth (Percent)	Proposed Investment		
	Public	Private	Total
11.0	3,13,449	5,46,838	8,60,287
11.5	3,29,335	5,74,553	9,03,888
12	3,45,372	6,02,531	9,47,903
12.5	3,61,558	6,30,360	9,91,918
13	3,77,468	6,58,465	10,35,933

2.4 Projection of State Plan Outlays for the 12th Five Year Plan

Estimates show that the total investment during the Eleventh Five Year Plan was of the order of Rs. 3,05,122 crore. Of this total, investment in the public sector, state plan along with direct central investment was to the tune of Rs 1,11,172.52 crores which accounted for 36.43 percent of the total investment. This data was utilized at the public sector outlays for the Twelfth Five Year Plan and the Total State Plan outlays as per the Planning Department estimates for the Eleventh Five Year Plan was of the order of Rs 80,256.76 crores. State Plan Outlays therefore comprised 72.19 percent of the total public sector outlays estimated for the Eleventh Plan (2007-2012) (Rs 1,11,172.52 crores). On this basis, the state plan investments were projected for the Twelfth Plan and are shown in table below.

Projected State Plan investment at varying rate of growth for the 12th Five Year Plan

Growth Rate	State Plan Investment
11.0	226279
11.5	237747
12.0	249324
12.5	261009
13.0	272478

2.5 Policy Parameters

The high share of the primary sector in the State's economy is expected to continue. Public investment needs to be directed so that the trend is accompanied by an increase in the share of the secondary sector. But this should not be done at the cost of the agricultural sector. Agriculture would continue to play an integral part in the developmental process since approximately 88 percent of the population still lives in the villages and as a result the majority of the population would continue to depend on agriculture as a prime source of livelihood. In that context the State government is not only stressing for a second green revolution based on bio-technological improvement but also putting forth a concept of a Rainbow Revolution. Sectoral policies would be restructured and public sector outlays would be much higher in the Twelfth Plan for faster and more inclusive growth.

3. CROSS CUTTING ISSUES FOR 12TH PLAN PERIOD

In order to achieve the goal of 'Growth with Justice' it is necessary to ensure inclusion at all levels and of all stakeholders. The state government should make efforts to see that the fruits of growth reach all sections of society especially the weakest and poorest. This needs a fresh set of strategies. Such strategies would have cross cutting implications for all sectors and would be relevant for planning and governance issues in the state.

3.1 Entitlement Based Planning: Entitlement refers to basic human rights, constitutional and statutory provisions and schematic rights for individuals or group of individuals.

The plan would be prepared from the Panchayat level upwards based on the actual requirement within the premise of entitlements well-articulated in various schemes. The approach should be to go for universal realization of such rights and entitlements rather than restricting oneself to certain targets. During 12th Plan such approach should be extended to identification of entitlements at the state and regional level, particularly in creation of physical, social and productive infrastructure.

Entitlement Based Planning will help in bridging regional disparities, better assessment of requirement of resources thus better allocation of resources, better monitoring enhanced decision making, reducing chances of corruption and leakages, increasing people's participation and bringing outcome orientation in the planning process.

3.2 Habitation Based Planning: At present revenue villages are considered as the unit of planning. Each village includes large numbers of Tola or habitations. These habitations are sociologically better homogeneous groups. In taking a village as a planning unit, the primary focus remains on the mainland of the village and the habitations in the periphery, which comprise mainly of weaker sections, are deprived. In the 12th Plan, strategies need to be made for envisaging 'habitation' as the basic unit of planning.

3.3 Convergence: The experience shows that there is lack of coordination between the sectors for targeting and implementation of development schemes. Plethora of schemes usually promotes planning

and implementation in silos. Now is the time, when one should focus on the convergence approach to target the last person by leveraging maximum benefits at the door step of the beneficiaries. A dedicated approach is required to develop a convergence plan considering various issues of development and different components of schemes/ programs including dovetailing of funds, convergence of services and convergence of human resources. Entitlement based planning provides the opportunity to map the areas of convergence.

3.4 Manpower planning: Skilled and semi-skilled human resources are pre-requisites for efficacy of any development process. Following are some of the aspects, which may be considered while preparing the sector wise approach and plan: assessment of types of human resources required during next Five Year Plan; devising skill development strategy to meet the futuristic requirements and establishment & development of institutions to bridge the emerging requirement of human resources.

3.5 Land planning: Land planning is one of the important dimensions in executing the schemes which aim to develop the infrastructure like buildings, community center, schools, health infrastructure, AWCs, Panchayat Sarkar Bhawan, etc. During the 12th Five Year Plan formulation, the respective sectors should workout the requirement of land and make a comprehensive plan for ensuring its availability.

3.6 Input/Material planning: Managing inputs and materials is a critical component of effective supply chain management. The 12th Five Year Plan must ensure assessment and smooth supply of inputs and materials of good quality at relevant destinations in time. In this regard, the following points may be considered: assessment of inputs/material requirement under different schemes for the 12th FYP; planning of production or procurement, storage and transportation of inputs /materials for implementing schemes for the 12th FYP and establishing and strengthening the supply chain management/logistic.

3.7 Inclusion by Broad-Streaming: The concept of **Broad-streaming** means giving equal importance to the lifestyle practices, habits, languages, vocations, etc. of underprivileged and marginalized communities as compared to that of mainstream system. The entire system develops in such a way that the sub-streams become the mainstream.

All sectors would identify areas for inclusion and explore the possibilities of broad-streaming the existing avenues keeping in view the language, tradition, culture, practices of under-privileged communities into consideration. This may be one of the effective and feasible solutions for inclusive development.

3.8 Government Process Re-engineering (GPR): Each and every office has a definite set of rules, regulations and procedures for its normal functioning. These rules, regulations and procedures determine the efficacy of the functioning of the office. Implementation of different programs is also dependent on the efficiency of the office responsible for implementation. In keeping with a rapidly changing environment, it is desirable that the rules, regulations and procedures are re-examined and re-engineered at regular intervals of time.

3.9 Restructuring and Rationalization of schemes: In Bihar, there are more than 600 schemes, which are being implemented through plan exercises. For better implementation and monitoring, existing structure of the schemes needs to be re-examined; smaller schemes can be either dropped or integrated/amalgamated with other schemes. There is also a need to examine the duplication of interventions under various schemes.

3.10 Growth Clusters: For holistic development, it is important to invest in support systems required for integrated development of an area, institutions, enterprises, etc. Without having the necessary support structures none of the facilities and system can work and deliver services efficiently. It is imperative to roll out the concept of Growth Clusters during the 12th Five Year Plan covering key dimensions of development namely, 1.Township Development, 2.Civil Amenities, 3.Technology, 4.Connectivity, 5.Energy, 6.Institutions to develop competent human resources, 7.Financial institutions, 8. Market and 9.Other infrastructure facilities.

3.11 Strengthening Mission Manav Vikas: During the 12th Plan, emphasis would be given to track major indicators pertaining to human development. The overall objective is to strategize the efforts to devise interventions in such a manner so that the state can achieve the key development goals like Millennium Development Goals, National Development Goals, etc. The state is in the process of formulation of comprehensive guidelines to set goals and finalize relevant indicators, which can be monitored from time to time.

4. AGRICULTURE & ALLIED SECTORS

Agriculture is the mainstay of Bihar's economy. The state is endowed with vast natural resources and suitable agro-climatic conditions. Eleventh Five Year Plan has made significant gains in identification of sectors, preparation of road maps and laying foundation of the growth process.

The 12th Plan will focus on rapid growth in agriculture and allied sectors for substantial increase in agricultural outputs, rise in rural incomes, food and nutritional security and reduction in rural poverty. Ensuring adequate supply of quality inputs, institutional reforms and realignment and strengthening of extension services structure can realize the vision.

4.1 Agriculture Road Map

The challenge of comprehensive development of agriculture in state requires focused strategies across sectors. Programs and policies must be realigned towards this common aim. Realizing the role of multiple sectors, urgency and importance of broad based development of agriculture, a Cabinet Committee has been set-up to prepare a comprehensive plan of action for holistic development of the agriculture sector and to review and monitor its implementation. A Road Map for 10 years has already been prepared by the state.

Agriculture Road Map 2022 lays out the vision and the specific programs for a Rainbow Revolution in Bihar. The Road Map will have six point objectives:

- Food security
- Nutritional security
- Rise in income levels of farmers
- Generation of employment and reduction of migration of laborers
- Inclusive base of agriculture development and comprehensive participation of women
- Conservation of natural resources and sustainable development

4.2 Vision for 12th Five Year Plan

Agriculture development plan will entail substantial augmentation of storage and processing capacities. Creating infrastructure for the distribution chain and market linkages should be the thrust area. To increase the profitability, improvement in value chain will be promoted. Expansion of credit availability and insurance coverage will facilitate the processes of agriculture growth. Constructive and effective measures will be taken to improve land use and planning.

Agriculture development plan will require massive rise in investments; private sector participation will be encouraged particularly in establishment cold chains, credit facility and marketing. Acceleration in agriculture growth will be integrated with adoption of sustainable practices to check degradation and restore environmental health. Aligned with the 12th Five Year Plan of GoI, production systems will be strengthened by strategic interventions in seed systems, water management, efficiency in use of fertilizers, facilitating new technologies for the farm sector and promotion of Integrated Pest Management (IPM) and Systems Rice Intensification (SRI).

Harnessing vast untapped resources from allied sectors, particularly animal husbandry and fisheries, will complement the growth of the agriculture sector and ensure inclusive growth. Sustained efforts in expansion of inputs in breed improvement, fish seeds/fingerlings supplies and credit facility will be required to increase productivity in animal and fish products. This holistic model can trigger growth and development in agriculture and allied sectors in the state ushering into a Rainbow Revolution. By end of the 12th Five Year Plan, Bihar can lead the expansion of the green revolution in the Eastern region and contribute substantially in national food security and alleviation of rural poverty.

4.3 Integrated Efforts to achieve the objectives of Agriculture Road Map

Accelerated development of agriculture and rainbow revolution will require integrated efforts in multiple sectors:

Irrigation: Irrigation facility will be improved with use of surface and groundwater. Programs for shallow and deep tube wells will be implemented; agriculture scenario in south Bihar and areas producing sugarcane will particularly benefit from deep tube wells. Water harvesting schemes will help in groundwater recharging. Activities like removal of water logging and rehabilitation of AharPyne

irrigation will support in improving cultivation at local levels. In drought and flood affected regions suitable crop varieties will be promoted to minimize crop losses. Effective and timely availability of agriculture input subsidy and diesel subsidy will be ensured.

Energy: Electrification of private and state tube wells will be carried out and separate feeders for agriculture purposes will be established. Use of energy efficient pumps and non-conventional sources of energy will be promoted.

Connectivity: Improvement in rural connectivity will help in bringing benefits of modern agriculture to farmers. All villages of population above 250 and habitations of population above 100 will be connected by pucca road.

Land management: Upgradation of land records will help farmers in multiple ways. Comprehensive task of land re survey - covering all villages - will be completed in the 12th Five Year Plan period. Modern tools like aerial survey, GIS and Remote Sensing will be used.

Afforestation and Environmental Conservation: Forests are keys for conservation of the environment besides there are immense opportunities available in forestry. Forestry will be carried out in government lands in plateau areas and along canal and embankments. Commercial cultivation of fruit bearing trees, trees used for herbal products, silk worm rearing, fodder products and timber wood trees will be encouraged.

Land Use Planning and Agriculture Statistics: Growth of Agriculture and allied sector will require modern and efficient land use planning for managing competing uses (agriculture, industry, residential, institutional, and others). In the 12th Five Year Plan, agricultural statistics systems will be strengthened and modernized.

5. WATER MANAGEMENT

Bihar is endowed with rich surface and groundwater resources. With efficient and sustainable use, water resources can play a critical role in realizing goals of rapid agriculture development, mitigation of natural hazards like floods and drought and provision of safe drinking water.

The Twelfth Five Year plan envisions development of surface water resources by expansion of irrigation facilities for agriculture growth in the state. New major and medium schemes will be taken up with an aim of timely completion of projects. Effective institutional measures will be taken up to avoid disputes. Creation of new irrigation potentials will be accompanied with strategies for effective utilization of existing irrigation potential as the gap between potential created (PC) and potential utilized (PU) has increased over years. Timely completion of extension, renovation and modernization schemes will be encouraged. In order to promote Participatory Irrigation Management, constructed canal systems will be transferred to Water Users Association (WUAs) and existing WUAs will be strengthened with the help of capacity building programs.

5.1 Strategy

Creation of additional irrigation potential and restoration of lost irrigation will be key strategies of the 12th Five year Plan. The tasks would be achieved through completion of ongoing schemes, completion of Extension, Renovation and Modernization (ERM) projects, and start of new schemes. The tasks would be completed through State Plan and Centrally Sponsored Schemes.

5.1.1 Completion of On-going Irrigation Schemes: To fully utilize water resources of Bihar, rapid completion of ongoing projects is indispensable. The additional irrigation potential of the tune of 24.67 Lakh hectares is yet to be created to achieve the ultimate irrigation potential of 53.53 Lakh hectares through major and medium irrigation schemes. Large numbers of schemes are in different stages of implementation; some of them have been excessively delayed. The completion of ongoing schemes are targeted to be completed during the 12th Plan period (2012-17).

5.1.2 Flood Management: Effective flood management is imperative to achieve the goal of making a developed and prosperous state. Efforts for long term measures like construction of reservoirs in upper catchments of North Bihar rivers with cooperation of Nepal will continue. Short and medium term measures like construction and maintenance of embankments along the rivers, anti-erosion works, raising and strengthening of embankment and Zamindari Bandh will be taken up. Information networks will be strengthened and use of space-based technologies for disaster mitigation and flood management will be encouraged.

5.1.3 Minor Irrigation: Expansions of groundwater resource development and sustainable management practices have immense potential to accelerate agriculture growth in the state. Major strategies would be as follows: speedy development of potential, improving the utilization of developed potential; expanding irrigation benefits to un-irrigated land; increasing the supply of private electric-based tube wells; increasing subsidies for tube wells and pumps and increasing sustainability by strengthening water users associations through proper training programs in the field.

Additional groundwater irrigation potential will be created through execution of shallow and deep tube wells schemes. Extensive renovation program of state tube wells will contribute in restoration of lost potential.

5.2 Rural Drinking Water Supply

Improvement in drinking water and sanitation facilities is the key component of Water Resources Management. Providing safe and adequate drinking water to the people adopting entitlement based approach of planning and implementation is one of the top priorities of the state. The objectives are to provide safe, accessible, and adequate drinking water to all rural areas especially to reach the unreached people by adopting the policy of taking habitation as the basic planning unit. The outcomes of this objective would be better quality of life by improving the general health status, reducing drudgery of women and unprivileged people (Mahadalit) and meeting the requirements of good governance.

5.2.1 Major goals of Drinking Water for the 12th Five Year Plan

As far drinking water supply is concerned, following goals will be set for achieving the objective of providing safe, adequate, and sustainable drinking water supply to all habitations:

- Cover all the partially covered habitations with sustainable and stipulated supply of drinking water. Cover newly emerged habitations and those which have slipped back to 'partially covered' or not covered status due to a variety of reasons.
- Quality issues continue to be major concern. In the 12th Plan, it would be taken up as urgent priorities to cover habitations facing a severe water quality problem with safe drinking water facilities on a sustainable basis.
- Cover schools in rural areas with safe and sustainable drinking water on priority basis.
- Ensure social equity in distribution of assets for drinking water so that SC/ST population and other poor and weaker sections including minority communities are covered fully.
- Tackle problems of seasonal shortage and natural calamities and taking appropriate measures for flood prone areas.

6. ENERGY

After bifurcation, Bihar was left with a meager generation capacity of only 493 MW (2x110 MW at Barauni in state sector, 2x110 MW at Kanti in Joint Venture with NTPC and 53 MW from Hydel projects). The generating capacity of Bihar is the lowest in the country. The state is predominantly dependent on allocation of power from the central sector generating stations to meet its demand. The peak availability is about 1000 MW against the peak demand of 2500 MW, causing a peak shortfall of about 1500 MW, which results in widespread power shortage in Bihar.

The per capita consumption of energy in Bihar is 122.21 units as against the present national average of 778.71 units. Bihar has targeted to achieve per capita consumption of electricity at least 731.66 units by the end of 12th Plan. This per capita consumption translates to a staggering 11,650 MW of power generating capacity for Bihar. Efforts on various fronts would be required to ameliorate energy situation.

6.1 Key thrust areas in energy sector:

- Enhancing generation capacity
- Procurement of power through Case -I bidding
- Strengthening transmission
- Distribution reforms
- Intensive checking and raid against pilferage of energy
- Cent percent metering
- Hydro Power

- Renewable Energy sources
- Energy conservation
- Energization of Irrigation pumps through conventional sources of energy

7. INFRASTRUCTURE DEVELOPMENT

The state government has given top priority to the road sector in order to achieve its stated objective of bringing it at par with the national level and reducing travel time from the remotest part of the state to the state capital to less than six hours. In keeping with this objective, the state government has focused its efforts on improvement of road infrastructure during the last five years. This massive effort encompasses upgradation / improvement of all categories of roads in the State including construction / rehabilitation of bridges.

In continuation of the momentum attained in the 11th Five Year Plan period, the Government of Bihar has amplified its road infrastructure development efforts with a view to upgrade roads of all categories in the state to the best national standards.

7.1 Thrust of 12th Five Year Plan in infrastructure development

- In 12th Plan period, thrust would be given to bring the road density of Bihar at par with the national average.
- Upgrading National Highways networks in the state. This will include 4-laning of all major routes
- Construction of East-West Corridors
- Upgrading selected important State Highways into 4 lane standards
- Upgrading newly declared State Highways
- Upgrading Major District Roads to 2 lane standards
- Improving connectivity in LWE areas
- Strengthening Indo-Nepal Boarder road
- Strengthening rural connectivity under PMGSY
- Eastern Economic Corridor and Dedicated Port

8. RURAL DEVELOPMENT & PANCHAYAT GOVERNMENTS

About 90% of the total population of the state lives in rural areas with large dependency on agriculture and allied activities. The 12th Plan will aim at reducing the Poverty Headcount Ratio by at least one-third of the current level. This will be achieved by a combination of strategies relating to strengthening of the agricultural as well as non-farm sectors; reducing inter- district disparities in per capita investments; ensuring formulation of suitable schemes and greater allocation of resources under Scheduled Caste Sub-plan and Tribal Sub-plan; and strengthening of participatory planning processes at all levels, among others.

- The 12th Plan will seek to reform the Public Distribution System to serve as an effective instrument of food security, through strategies for improved targeting of beneficiaries, effective grievance redressal systems and smoother flow of subsidies, based on decentralized, transparent and accountable mechanisms of service delivery.
- There will be twin approach to handle the issue of rural employment. On one hand we have to work on enhancing wage employment, on the other we have to focus on increasing opportunities of self-employment.
- MGNREGS will be the major program for enhancing the opportunity of wage employment in rural areas. At present it has been covering around 6% -7% of rural households in Bihar. The 12th Plan will aim at ensuring provision of 100 days of employment to at least 10% of all rural households in a year. In case of households of Scheduled Castes and Scheduled Tribes, the target will be raised to 20%. During the 12th Plan, wage employment through MGNREGS will be substantially stepped up to ensure at least 50 days employment per household per annum as against about 31 days per household per annum at present.
- Expanding coverage of Bihar Rural Livelihood Project
- The 12th Plan will aim at provisioning of 43.5 Lakh additional houses to homeless families by end of the Plan period through Indira Awas Yojana
- The 12th Plan will accord high priority to speedy resolution of land disputes pending in various courts in the state.
- An objective and full proof procedure for identifying BPL families is required. Hence, it is suggested that BPL Census should be conducted by a national commission to be setup along the lines of the Election Commission of India.

8.1 Panchayati Government

The role of the Panchayat government is quite crucial for ensuring people's participation and empowerment. Steps have already been taken in Bihar to strengthen the roots of the decentralized governance. The Bihar Panchayati Raj Act, 2006 was enacted after replacing and repealing the Bihar Panchayati Raj Act, 1993. It took a historical decision of providing 50% reservation to women in all the Panchayat governments. In August 2011, the cabinet of Bihar took another historical decision of devolving 7.5% of state's net tax revenue to Panchayat governments and Urban Local governments in Bihar. The 12th Plan will further strengthen Panchayat governments in Bihar by formulating rules to accompany the Bihar Panchayati Raj Act 2006, thereby enabling PRIs to initiate measures in the following direction:

- Stipulation of maximum rates of taxation of Gram Panchayats, Panchayat Samiti, and Zila Parishads in line with section 27, 55, and 82 respectively of Bihar Panchayati Raj Act 2006
- Specifying the domain of authority of various standing committees of Gram Panchayat, Panchayat Samiti, and Zila Parishad to enable them to discharge their responsibilities
- Specifying directives to ensure administrative control of all state government institutions,

projects, schemes and offices located within the territory of a Panchayat to be vested in the Panchayat in line with Bihar Panchayati Raj Act 2006

- District Planning Committee (DPC) has been established in all the districts of the state. The 12th Plan will aim at strengthening DPCs as well as Gram Panchayats, Panchayat Samitis, and Zila Parishads with provision of fully equipped secretariats, including full-fledged office buildings, competent support functionaries, and convergence facilitation units
- The 12th Plan will aim at streamlining the planning process in the Panchayat governments at various levels, by ensuring timely stipulation of resource envelopes for steering the process of entitlement based decentralized district planning process.
- Amending Bihar Panchayati Raj Act 2006 to include a clear stipulation of the need of formulation of Entitlement Based Integrated Plans at the level of planning units which are Gram Panchayat, Panchayat Samiti, and Zila Parishad.
- The Panchayat governments and key functionaries are provided with opportunities of enhancing their capacities related to planning, monitoring, and governance of development processes based on values of equity, social justice, and accountability.

9. URBANIZATION AND ITS CHALLENGES

Although Bihar continues to be the second lowest urbanized state for three successive decades (separating out Jharkhand from 1991 Census), its percentage decadal growth of urban population at 35.11 against 31.80 for the country as a whole (it is also higher than as many as eighteen states/UTs) speaks of its urban growth. The state offers a unique case of nearly constant urbanization with significant urban growth.

Despite having a solid urban base, the urban affairs in the state are yet to be streamlined on a sound footing. Given the urban scenario in the state, the following strategies would be adopted in 12th Five Year Plan:

- Building up of a comprehensive and consistent municipal database.
- Mapping of municipal areas must be digitized in GIS enabled framework.
- Pending the preparation of master plan, a uniform set back, height and coverage regulation may be enforced across the urban settlements where the master plans have not yet been prepared. No building plan is sanctioned unless the same conforms to the coverage, height and set back regulation.
- Land being a principal constraint in project implementation, securing land availability free from any encumbrances must be ensured before formulating any project.
- Community participation must be ensured through legislation and Government Order as the case may be.
- Poverty mapping must be done across the urban areas by clubbing together the formats as indicated in the guidelines of Rajiv Awas Yojana and Revamped SJSRY.
- Two programmes namely, SJSRY (for poverty alleviation) and IHSDP (for slum improvement) should be fully handed over to ULBs.

- ULBs would plan for the convergence of all government programmes being / to be implemented within their jurisdiction in consultation with the District Collector by synergizing the efforts of all stakeholders till the activation of DPC. Ward index would be prepared to prioritize the schemes across a municipal area.
- Municipal e-governance would be concurrently implemented with intense e-participation, the latter through IEC.
- In addition to the above mentioned agenda of urbanization, the state would also strategize to prepare a comprehensive framework of urban policy and planning in view of the recommendations of the Report on Indian Urban Infrastructure and Service.

10. INDUSTRY

In the 12th Five Year Plan, focus will be on intensive efforts to promote industrial growth in areas where the state has comparative advantage such as agro and food processing, tourism, healthcare industry, higher and technical industrial education, FMCG and other consumer goods, secondary steel sector, textiles, power and renewable energy generation. There is need to raise this growth to 11-12% per year in the 12th plan period to create more jobs for our growing labor force. This has become an urgent need, since it is now clear that agriculture will no longer absorb more workers. The manufacturing sector (industry) performance is weak at the present scenario. Hence it has to perform better in investment, production, and creation of jobs.

10.1 Strategy

- To improve the business environment and reduce the overall cost of existing business.
- Land and infrastructure constraints must be addressed effectively.
- Promoting MSMEs 'cluster'.
- Thrust on skill upgradation/Skill development Institutions.
- To adopt and encourage PPP mode of investment.
- Revival of PSUs of the state.
- Rehabilitation of Sick Units.
- To promote value added production (Food Processing)
 1. Diversified products- milk, fish, meat, poultry.
 2. Agro based consumer products.

10.2 Short Term Strategy

- A new purchase preference policy to promote MSMEs.
- To facilitate the modernized technology to MSMEs
- Simplification of labor laws
 - a. MSMEs enterprises to be exempted from all labor laws except the Minimum Wages Act.
 - b. A separate and simple law on labor related matters should be enacted for MSMEs employing less than 100 workers.

10.3 Medium Term Strategy

- Strengthening power distribution and transmission system to reduce distribution losses
- Dedicated freight corridor from the Ports in Orissa or West Bengal to major commercial cities in Bihar, i.e., Patna, Gaya, Bhagalpur, Muzaffarpur, Begusarai, Katihar, Raxaul.
- Dedicated Industrial Corridor.
- Development of waterways navigation system on river Ganga to reduce the cost of transportation.
- Establishment of dry cargo terminal to promote silk, handlooms, and handicrafts sector.
- Provision of gas pipeline for industry to switch over to cleaner and cost efficient mode of fuel supply especially for industrial units located in Begusarai, Bhagalpur, Muzaffarpur, Patna, Ara, Gaya.
- The state government and private sector will collaborate for development of tourism infrastructure.

11. HEALTH

● Health sector in Bihar witnessed notable developments in the last few years particularly in fields of improvement in health infrastructure, patients visiting health centers, institutional delivery & reduction maternal mortality and others. The results of NRHM are very positive in Bihar and the state needs to sustain the momentum during the 12th Plan period. The state plans to move ahead with five primary objectives that are going to define its guiding principles in the sector in the coming years.

- Reduce maternal deaths
- Reduce infant deaths
- Reduce Total Fertility Rate
- Increase availability of medical professionals
- Reduce barriers to access health services

11.1 Guiding principles

In order to achieve these objectives, the state will have the following guiding principles:

- Health as a matter of right
- Health as a sector-wide issue
- System approach to health improvement; and
- Partnerships and community involvement

11.2 Strategy

- Coordination with other departments would be a key strategy towards seeking a comprehensive health plan within the state.

- Inter- connectedness i.e. inter sector collaboration such as departments dealing with health, ICDS, Education, PHED should converge effectively so that indicators of health that rely on drinking water, female literacy, nutrition, early childhood development, sanitation, women empowerment etc. are strengthened at village/Tola level committee.
- For achieving efficiency, accountability and providing transparent services focus would be on developing the capacity of the departments; improve the direction, utilization and effectiveness of budget spending, enhance the availability of skilled medical, nursing and support professionals, strengthen information, monitoring and evaluation systems, enhance the capacity for strategic planning and evidence based decision making, improve governance, social accountability and transparency.
- Some of the concrete steps that is planned to be undertaken as key strategies for achieving these goals will be strengthening Nursing Services, following protocols for quality control, thrust on multi – skilled doctors, Concerted Behavior Change campaign, Covering Non Communicable diseases and strengthening Arogya – Monthly Village Health and Nutrition Days.
- It is necessary to get non-institutional delivery supervised by female health worker in order to reduce the number of delivery deaths.
- Muskan Ek Abhiyan program will be run as a mission in Bihar to ensure better immunization percentage as compared to national average. After intensifying implementation of Polio Eradication program, all possible efforts will be made for its complete eradication in the next year.
- All Health Centers in the State will be made to work for 24 hours in order to provide primary health care.
- There were 8858 health sub center in the year 2004-05. Based on population, decision has been taken to construct additional 7765 new health sub centers. Keeping in view the dearth of Super Specialist Hospitals in the State, at least one Super Specialist Hospital would be established for each main disease in next five years.
- The 12th Plan should explore the possibility of establishing government medical colleges as per the National Commission on Macroeconomics and Health norm for 50 Lakh populations. By this norm Bihar should have 20 medical colleges. The proposals to build three medical colleges in the state and its proper functioning will be ensured. Besides, investors will be encouraged to invest for private medical colleges. With the vision to strengthen the present medical colleges of the state, facilities like building, specialized equipment, trained doctors and para-medical doctors will be provided.

12. EDUCATION

Although the state has shown good results in the various indicators of education, still much requires to be done. There has been a significant improvement in the literacy rate in last decade as it moved from 47.53 percent (2001) to 63.82 percent (2011). There was a jump in the literacy rate of females from 33.57percent (2001) to 53.33 percent (2011).

12.1 Approach

- Bihar has made satisfactory progress in the access indicators to elementary education. Now there is a need to focus on quality indicators during the next Plan. The focus should be on improvement in infrastructure, appointment of additional teachers, teachers training, curricular reforms and improvement in delivery systems related to free distribution of text books, uniforms, mid-day meal etc.
- To ensure the accountability to the local authorities, the decentralized recruitment process of teachers is being followed in the state. For management and ownership of the schools, the state is going to ensure a better community involvement through election process which can bring a remarkable change regarding absenteeism of teachers and lack of accountability. It will benefit the students by doing away with private tuitions.
- There is a proposal to develop about 15 'Centers of Excellence' across the state. The state government is also planning to convert good colleges into center of excellence so that quality education is available at the district level.
- There is a need to work out proper incorporation of creative learning strategies in the pedagogy of our education system. Bihar has encouraged pre-school education by an innovative system of pre schooling of children by starting the Bal-Varg.
- In order to achieve better access to higher education, we have to ensure that all subdivisions have adequate centers for higher learning. The issue of quality in higher education in Bihar also needs to be addressed during the 12th plan. The academic reforms initiated during 11th Plan at the national level needs to be firmly addressed during 12th Plan in Bihar. All universities and colleges should be accredited by NAAC.
- Credit system and semester system which is on the national agenda would also be introduced in the colleges and universities of Bihar. Universities need to evolve a system of annual academic audit for colleges. All colleges and universities would be affiliated under 2F and 12B of UGC in order to attract Central planned funding on a large scale.

12.2 Objectives

- Though the number of out of school children has reduced significantly, Bihar still has more than 7 Lakh out of school children. These children are of older age and come from scheduled caste and minority community. Reaching out to children will be more difficult and will require higher level of funding.
- Bihar still needs more than 2 Lakh class rooms according to its child population and national norm.
- Large numbers of institutions are needed in the state for teachers training to meet the requirements under RTE Act.
- There is an urgent need to open new high schools in large numbers within the state.
- Lack of secondary schools results in high drop out rates especially among the girls in rural areas. It has been estimated that Bihar requires around 14,000 secondary schools

to accommodate its students. Similarly there is a dearth of class rooms in most secondary schools. The success in elementary education has led to great pressure on the quality of secondary schools.

- As far as higher education is concerned there is serious need of expanding the infrastructure of higher education to meet the growing demand in the society.
- During the 12th Plan the government of India might target the GER above 20 percent in higher education. It is necessary to raise the GER in higher education in Bihar to a level of 17 to 18 percent in order to keep parity with other states at the end of the 12th Plan. This requires that a large number of institutes are established in the state.
- Bihar has a very strong base of young population. This can be converted into major demographic dividend, if this population is linked with marketable skill sets. Thus, there is a need to stress upon marketable vocational skills beside formal education. This will also help in reducing unemployment rate as the working age population will have appropriate skills to suit the needs of the market.

12.3 Strategy

- The strategy of giving assistance for school dress and bicycle would continue in the next plan also. This scheme would be strengthened further to enable the provision of school uniforms to all students upto class VIII and for all girl students upto XII.
- Bihar has to recruit 3 Lakh teachers to meet the requirement of Right to Education Act. Separate program would be formulated for training them in a given time frame.
- To implement the RTE in its true spirit the state requires a huge budget which works out to be Rs 43,000 crores every year as per a conservative estimate which cannot be met out of the state budget. Innovative ways of raising resources by including participation of non-governmental agencies in the management of schools needs to be worked out.
- In view of the success in elementary education, the pressure on secondary education is going to be very high. There is a need to meet the huge deficit in number of secondary schools, particularly the issue of providing a secondary school within a radius of 5 kms. In this regard, all options like including up-gradation of elementary schools, opening of new schools and support to voluntary agencies to open schools would be attempted along with augmentation of their infrastructure. In this context, RMSA (Rastriya Madhaymik Shiksha Abhiyan) needs to be strengthened.
- The revived scheme in vocational institutions of secondary education would be made industrially oriented so that some jobs can be guaranteed to the students.
- Agriculture would be taught as a subject from high school onwards.
- In order to ensure equal access to education and educational institutions at all levels for differently abled children (i.e. special needs children), it is necessary to make adequate provision and resources under the 12th Five year Plan. Provisions like tricycle, school text books and other teaching materials must be made for these special children.

- In order to improve the overall educational standard it is necessary to conduct and run regular training programs for effective quality education. The training institutes and colleges would be revived and their syllabus must be updated.
- Apart from revival of all PTECs and establishment of DIETs, in the University system assistance would be provided to set up new institutions and request would be made to design new courses by the academics.
- Along with this, training in physical education would be regularized and encouraged.
- The 12th Plan must articulate the need to improve the quality of higher education and strengthen their infrastructure.
- The gender parity index in higher education in Bihar is 0.49 whereas at all India level it is 0.70. It shows that the participation of woman in higher education in Bihar is quite low. Effort will be made to increase the number of woman colleges to raise the participation of woman in higher education.

13. EMPLOYMENT, VOCATIONAL TRAINING & SKILL DEVELOPMENT

In Bihar 58 Industrial Training Institutes have been sanctioned with capacity to train over 15,000 youth per year in long term trades. This number is inadequate keeping in view the potential requirement of skilled manpower in the markets. Due to high dropout rates in schools, work participation rate is very high among the age group of 15-29 years. High dropout rate and low infrastructure of formal vocational training in the state compels a large proportion of persons in the age-group of 15-29 to join the work force without any skill training.

13.1 Key areas

- Strengthening State Skill Development Mission
- Establishment of new technical and vocational institutions
- Revamping of ITI/ITC courses (adequate blending of long term and short term courses on the potential sectors and state's requirements) to meet the changing needs of industry and technology.
- Strengthening institutions to produce high quality human resources for better employability
- Formulation of Policy for Vocational Education & Training

14. SCIENCE & TECHNOLOGY

Bihar has to take significant steps during the 12th Plan period to meet the growing demand of technology in various sectors. Innovation and improvement in existing efficiency are crucial for growth of the state. In process of economic development science and technology is an important component. Bihar has small number of technical institutions, only 0.56 percent engineering colleges and 0.76

percent polytechnic institutions of the country where as it accounts for 9 percent share of population. So it requires quantitative expansion along with bringing qualitative and innovative change in its existing technical institutions. Major strategies would be to:

- Bridge the gap between demands and supply to the extent possible and to ensure high quality, innovation, dynamic and demand driven technical/professional education to all sections of the society at affordable cost and plan to foster scientific temper and research.
- Devise a formula for establishing engineering colleges and polytechnic institutions considering the Gross Enrolment Ratio (GER) of 20 percent in higher education, which is to be achieved by the end of 12th Plan period.
- Focus on maximum utilization of the existing resources to increase the intake capacity in existing institutions which is a cost effective method.
- Establish Centers of Excellence (CoE) for focused applicable research in collaboration with well reputed industrial houses. It will start the demand driven research & development and innovation in collaboration with industry and other knowledge users in existing institutions.

15. SOCIAL WELFARE

A focused attention would be required to identify, reach and empower the vulnerable population of the state. The overarching vision of the social sector is to ensure full empowerment of all people belonging to the vulnerable groups specially children, women, disabled, old and others such as beggars, transgenders, etc., so that their quality of life can be enhanced and they can fully participate and contribute in the development of the society.

15.1 Objectives: The key objectives of the sector under the 12th Five Year plan would be: to cover all those segments of population which have so far remained uncovered in the development process; to take specific efforts to enhance women's participation in the development process; and to identify the age specific and disability related needs of such groups and make suitable interventions.

15.2 Approach: The approaches of the social sector for the 12th Five Year Plan are:

- To ensure inclusiveness in all programs for greater access to schemes and services.
- To Initiate entitlement based planning in all the socio economic programs
- To cater to the special needs of women and children
- To protect the legal rights given to women particularly for reducing violence against women
- To focus on integrated development Schemes/approach for the most disadvantaged.

15.3 Strategy

State would make comprehensive policy interventions in form of preparation of: (i) State Nutrition Policy, (2) State Policy for Children and (3) State Policy for Women.

15.4 Life Cycle Approach

As different interventions are required at different stages of the life of men and women, schemes would be designed keeping in view different requirements of different age groups following a life cycle approach from birth to death. Supportive structure and mechanism would be strengthened for providing better protection and care for children, women, elderly and other weaker sections of the society.

15.5 Integrated Child Development Services

Integrated Child Development Services (ICDS) would continue to be the major program for addressing issues related to child development. For a comprehensive coverage and reach, it is important that ICDS projects are universalized by expanding them throughout the state, so that all targeted beneficiaries can be provided with the mandated services. It would be necessary to cover all children through ICDS services. Steps will be taken for (i) training of various field level functionaries, especially Anganwari Worker (AWW) and Helper (AWH) and (ii) integration and convergence with related programs on health and sanitation.

15.6 Special program for Ultra- poor

There are many vulnerable groups in the society which have remained totally excluded from the developmental process. These groups are backward not only economically, but also have severe social handicaps. In fact, many of them are excluded that they have serious social identity crisis and at times they have to bear the burden of severe social stigma. State government has already taken an initiative to rehabilitate these left-out communities through a dedicated agency called State Society for Rehabilitation of Ultra Poor. This needs to be further strengthened and appropriate policies and programs can be implemented by this agency.

15.7 Beggar Free Bihar Mission

There is a strong need for an integrated program / scheme for the rehabilitation of ultra poor including beggars. It should have special provisions for shelter homes, Drop-in-Centers, Rehabilitation Centers, survey and awareness, etc. In fact, as the state is moving towards a higher growth trajectory, it should ensure that society becomes totally beggar free. In this connection Beggar Free Bihar Mission would be set up during 12th Plan.

15.8 0-3 Mission

It is gradually being realized that the first three years of a child's life are quite crucial from the view-point of brain development. At present initiatives to address the needs of the child's first three years of life is being done through ICDS program. However, this is grossly inadequate. ICDS does not fully take care of the total needs of 0-3 years children. Hence, the state would set up a dedicated Zero to Three Mission to take care of the physical, health, educational, social, emotional concerns of children below three years.

It would also take care of the concerns related to training of parents, exclusive breastfeeding, enhancing parent child interaction, facilities related to infantile diseases and such other issues that may have an impact on the young children below three years.

15.9 State Nutrition Mission

Malnourishment is one of the most serious concerns of the social administration. More than half of the children are malnourished. As malnourishment in early life is irreversible and leads to about 10 percent loss in wages during life time, it requires to be attended with more care and concern. There is a need to consider setting up of a State Nutrition Mission to address the severe issue of malnourishment. This Mission will coordinate with all the government departments and NGOs engaged in fulfilling the nutritional necessities of the beneficiary groups.

15.10 Women Empowerment

It is now an agreed concept that gender equality should be made a central concept in the planning, designing and implementation of the state programs. While promoting gender equality the central theme is to bring women in the forefront and specify commitments, targets, accounting mechanisms, planning and monitoring mechanisms across all areas of focus. There are four dimensions to the approach:

- A rights based approach be adopted securing particularly the rights of women and young girls in the state.
- Incorporation of the element of gender while addressing issues of vulnerability and marginalization
- Institutionalizing gender into particular issues concerning employment, health, education with an effort to change institutions (household, community, markets and the government)
- Focus on the woman as an individual as well as foster their collectivities such as SHGs etc.

A broad strategy has been outlined under integral empowerment strategy for women, with a time-bound action plan, wherein measures are worked out to tackle the situation through a flagship program of the state known as Mukhya Mantri Nari Shakti Yojana, one among similar efforts put in by the state government. In this regard necessity of a comprehensive Women Policy is being felt.

15.10.1 Strategy

- Mukhya Mantri Narishakti Yojana which encompasses social, economic and cultural empowerment would be further strengthened. It would also focus on life skill education for drop out (adolescent girls). State Resource Center on women would be made fully functional.
- The guidelines related to Domestic Violence Act, Child Marriage Prohibition Act, Prohibition of Dowry Act, PCPNDT Act, Prevention of Sexual Harassment at workplace act, Daain (witchcraft) would be revisited to make it more effective, the detailed protocol for rehabilitation of the victims would be required in these cases.
- Women Development Corporations would be strengthened to develop employable skills of women and adolescent
- MukhayaMantri Kanya Vivah Yojana would be continued to discourage child marriage and to promote registration of marriage. MukhayaMantri Kanya Suraksha Yojana in which a deposit certificate is given to the parents in BPL family on registration of birth of a girl child would also be continued.

- Involvement of women in governance would be further enhanced at all levels.
- Gender advocacy, gender training and gender sensitization.
- Institutionalizing and monitoring gender budgeting .
- Recognition and convergence support to women managed community based organizations.

16. DEVELOPMENT OF WEAKER SECTIONS

The SCs, STs, EBCs, BCs and Minorities together constitute almost 63% of the state's population. State is committed to the development of the weaker sections and has been consistently channelizing its energies and resources in this direction.

16.1 Key Areas

- Rolling out Schedule Caste Sub Plan in letter & spirit
- Strengthening Bihar Mahadalit Vikas Mission and effective implementation of the schemes being taken up by Bihar Mahadalit Vikas Mission
- Special scheme would be taken up for THARU
- Upgradation of existing residential high schools to 10+2 schools
- Rolling out concept of broad-streaming to address the issue of exclusion
- For an integrated development of the minorities, it is better to merge all minority welfare schemes as an Integrated Minority Welfare Schemes (IMWS). It should be implemented in a decentralized mode giving full autonomy to state in selection and implementation of the scheme.
- The other flagship central scheme of minority scholarship also needs simplification and better delivery mechanism. Pre-matric scholarship should be universalized.
- Cluster based support for development of schedule tribes in MADA and TSP districts
- Initiation of Shatabdi Sarvjan Yojna for BC and EBC
- provision of shelter home for the beggars, street children with necessary facilities required for living

17. ENVIRONMENT & FOREST

Environmental and ecological degradation has serious implication both at a local and global level. Environmental stability has its impact on climate which will impact the livelihoods of the national population.

17.1 Key Areas

- Increase tree cover in the state by plantation in non forest lands. A robust social forestry programme is being proposed to encourage farmers to plant trees on their lands. To achieve 15% forest/tree cover social forestry and agro forestry as well as schemes under MNREGA need to be intensively and extensively implemented
- Strengthening Joint Forest Management and Protection Committee
- Management plan for wildlife and bio-diversity conservation
- A robust plan for the protection of the Dolphins and its habitat will be put in place during 12th Plan.
- Sustainable management of water resources

- Waste management and pollution abatement
- Solid Waste Management - Door to Door collection of garbage urban bodies during 12th Plan period.
- Facility for disposal of Bio-medical waste and facilities in all urban centres.
- Adequate measures will be taken to mitigation impact of Climate Change aligned to National Action Plan on Climate Change.

18. DISASTER MANAGEMENT

The Disaster Risk Reduction (DRR) will besiege the safety and security of all especially focusing on vulnerable groups like women, children, elderly, Dalits and Mahadalits. The Vision in 12th Plan for disaster management sector in Bihar will be “DRR for all”. Since built-up environment is crucial in safety of life and property therefore associated vision will be to promote 'Safer Development in Bihar'. The 12th Plan will aim at reducing areas susceptible to different kinds of the disasters by a factor of 2 through appropriate risk reduction measures, planning of responses and adequate public awareness campaigns.

18.1 Key Areas

- Capacity building of Disaster Management Institutions
- Provision of 24 X 7 modern high tech EOC in Department of Disaster Management as part of capacity building
- Need to make rehabilitation and recovery approach comprehensive.
- Regular studies, research and workshops vulnerability analysis and existing coping mechanism
- Reforms in the existing administrative, legal, techno-legal and institutional systems for Mainstreaming DRR in all the development policies
- The BSDMA already initiated concept of 'Office Disaster Management Plan' to make every office of the Bihar safe. Next step will to reach at household level with disaster management plan.
- Establishment of Disaster Management Institute at state level
- Need to establish the 'Center for Excellence' within the education institutes and Universities to educate, train, conduct research, and assist in the state disaster preparedness, risk mitigation, disaster management and response, health security, and humanitarian assistance.
- Capacity building for emergency responder like Police, Medical, Fire Brigade
- Creation of cadres of volunteers & strengthening of civil defence system
- Capacity building of communities through pro-active role of PRIs/ULBs
- Mainstream DRR in development policy

The goal for the 12th Plan should be to move towards safer national development. Development projects should be sensitive towards disaster mitigation.

OVERVIEW

Introduction

Bihar approaches the 12th Plan with a sense of confidence and optimism. The economy of the state has been showing a steady growth trend. Growth is typically sustainable, if inter-linkages in the economy are such that growth in one sector pushes growth in the others and subsequently the overall growth rate keeps on attaining new heights. Growth in all sectors thus leads to safely predicting that the economy has 'taken off' to a sustainable growth trajectory. Such a growth process in Bihar has been made feasible with massive investments in physical infrastructure, strengthening of the social sector, particularly education and health; and by good governance - all leading to achievement of growth targets in all sectors of the economy.

Overview of 11th Plan Period - Fiscal Performance

Table 1: Plan Outlay and Expenditure in the 11th Five-Year Plan (Rs. In Lakhs)

Sectors	Outlay in 11 th Plan (at 2006 – 07 Price)	Actual Expenditure in initial three years of 11 th Plan	Expenditure in 2010 – 11	Expenditure in 2011 – 12	Total Expenditure in 2007 – 12
Agriculture & Allied	3,52,856.09	1,71,312.26	1,24,029.51	170422.07	465763.84
Rural Development	8,19,877.99	2,26,665.23	80,397.96	69140.67	376203.86
Special Area Program	1,22,023.28	1,91,836.99	97,289.47	69049.11	358175.57
Irrigation & Flood Control	7,87,615.01	3,71,482.37	1,41,154.92	203708.19	716345.48
Energy	4,71,784.00	1,68,572.12	1,60,877.30	98743.09	428192.51
Industry & Minerals	1,98,243.00	1,19,823.34	25,749.63	30941.66	176514.63
Transport & Communication	20,92,646.99	10,64,843.74	4,98,678.87	498966.03	2062488.64
Science, Technology & Environment	31,131.00	23,725.98	11,592.55	14378.26	49696.79
General Economic Services	2,37,624.94	49,913.17	34,709.69	113752.24	198375.10
Social Services	24,79,709.35	11,76,887.73	6,50,028.25	794739.78	2621655.76
General Services	54,666.00	69,596.17	47,249.47	38014.73	154860.37
Total	76,48,177.65	36,34,659.1	1,871,757.62	2101855.83	7608272.55

During 11th Plan period, the state has utilized Rs. 76,08,272.55 Lakh against the total outlay of Rs. 76,48,177.65 Lakh.

Social Development in Bihar

Bihar was bifurcated in November 2000 and Jharkhand was created as a new state. As a result of this bifurcation the population density in the state increased and the pressure on resources became further skewed. According to the 2011 census of India, it is the third most populous state with 1038 lakhs people after Uttar Pradesh (1995 lakhs) and Maharashtra (1123 lakhs) (See table 2). It has the highest population density (1102 per sq. KM) among all states. According to Planning Commission's figures for 2009-10, 53.5 percent of Bihar's population lives below the poverty line. An average of 9 out of every 10 people in the state live in villages where poverty is starkly visible. A high percentage of these rural poor are generally landless or near landless and have very limited access to land, livestock and other assets. Educationally as well, the rural population has limited opportunities leaving them very little scope for getting well paying jobs.

Table 2: Development and Demographic Indicators

Indicators	Bihar	India
Total Population (million) (Census – 2011)	103.8	1210.2
Population (Rural (%)) (Census – 2011)	88.7	68.84
Population Density (Census – 2011)	1102	382
Decadal Growth Rate (Census – 2011)	25.07	17.64
Birth Rate (Census – 2011)	28.5	22.5
Child Population (0-6 years) (lakhs) (Census – 2011)	186	1588
Sex ratio (all) (Census – 2011)	916	940
Sex ratio (0-6 years) (Census – 2011)	933	914
Literacy rate (total) (%) (Census – 2011)	63.82	74.04
Literacy rate (females) (%) (Census – 2011)	53.33	65.46
Life expectancy at birth: male (SRS – 2005)	60.7	62.8
Life expectancy at birth: female (SRS – 2005)	58.9	65.2
Institutional Delivery (DLHS – III)	27.7	47.00
Gross enrollment ratio (6-14 years, %) State Elementary Report 08-09	133.4	115.31
Per Capita Consumption of Electricity	122.21	778.71
Length of Road Per Lakh Population (Annual Report – Road Construction Department 2010 – 11) In KM	126.13	322.77
Length of Road Per 100 Sq. Km (Annual Report – Road Construction Department 2010 – 11) In KM	111.17	129.00

The Human Development Index (HDI) rank of Bihar among the states of India has also remained unchanged at 15 for the last many years. The HDI score has marginally increased from 0.237 in 1981 to 0.308 in 1991 and to 0.367 in 2001. A vigorous effort is needed to combat all these during the 12th Five Year Plan.

Education

A good basic education and a well functioning system of health care for the population as a whole is an essential component to empower people to be productively employed in their future. The state's comparatively poor performance on social indicators demonstrates the need for essential public services to go to the doorstep of each person so that they can combat poverty and low levels of development. Table 2 would present a comparative picture of social indicators of Bihar vis-à-vis the rest of India. The indicators linked to education are stark compared to the national average mainly because of lack of educational institutions and lack of educational professionals in the state.

For several years, systems and process related to education in Bihar, remained stagnant with almost no addition in capacity and quality of infrastructure. In primary schools, there were more than hundred students studying in one classroom and a majority of schools had staff strength of only one or two teachers. The gender gap was huge with far more boys in the schools, than girls and the enrolment of students from economically weaker sections of society were quite low. Most young persons, keen on a good quality education had to migrate out of Bihar, in order to access better educational facilities and opportunities. The scenario in secondary and higher education was similarly grim mainly because there was no pressure of large numbers of students completing primary education and demanding better secondary education opportunities.

Bihar has about 1837 secondary schools (Pre-degree/Junior Colleges/Higher Secondary Schools) in the government sector, 61 colleges for professional education, 817 colleges for general education constituent colleges and 20 universities/deemed university/institute of national importance – fewer in comparison with many other states. There are about 1000 secondary schools under private management and some private degree colleges in the state that receive no financial support from the government. State government had a policy of '*Vitta Rahit Shiksha Niti*' (literally translated as unaided education policy), which in practical terms meant that the government allowed establishment of colleges and secondary schools in private sector with the understanding that they had no responsibility for their funding. As a consequence, they had very little say in the quality of education in these institutions and resultant output continued to be far from satisfactory.

In the last 5 years, during the 11th Plan, the scenario has changed after the state government realized that development of Bihar is not possible without improving quality of its human resource through better educational facilities. The Chandragupta Institute of Management, National Institute of Technology, and Indian Institute of Technology (IIT) were opened in the state. Efforts were made to boost enrolment rates in primary schools and at curbing dropout rates. Much has to be done to put a break on the migration from the state in search of better avenues of education and employment which otherwise resulted in a large and continuous loss of human potential. In addition to this, in light of the new Right of Children to Free and Compulsory Education Act, 2009, the state government has made serious attempts for universalizing access to elementary education. Attempts have also been made to make education more appropriate for specific vocations and provide facilities for vocational skill building right from the upper primary level. Despite these efforts, the issue of retention and achievement still remains a matter of concern – as demonstrated in the table below:

Table 3 : Key Indicators of Education Sector

Indicators	2010-11	2009-10	2008-09	2007-08	2006-07	2005-06
GER – Primary	103%	102%	105%	104%	91%	79%
NER – Primary	96%	97%	99%	96%	86%	72%
GER – Upper Primary	71%	65%	57%	52%	45%	40%
NER – Upper Primary	63%	60%	52%	48%	42%	37%
Retention Rate – Primary Level	66.94%	55.13%	50.66%	48.65%		
Retention Rate – Upper Primary Level	86.49%	87.29%	88.41%			
Annual Average Dropout Rate -Primary Level	6.00%	7.47%				
Annual Average Dropout Rate –Upper Primary Level	5.54%	4.63%				

Health

The health infrastructure in Bihar is way below the national norms due to poor funding in this sector. Despite this obstacle, Bihar has achieved unprecedented success during the last year. In comparison to an average of 39 patients per month visiting Primary Health Centers (PHCs) for treatment in 2006, during 2010-11 this increased to an average of 3500 to 5000 patients. In 2010-11 approximately 4 crore people got treatment at government health facilities whereas in 2011-12 approximately 2.45 crore people have got treatment till August 2011. Approximately 7.98 lakh patients were admitted to government hospitals for treatment in 2007-08 whereas in 2010-11 this number increased to 24 lakh.

In an attempt to enhance skills and infrastructure, a medical college - Indira Gandhi Institute for Medical Sciences with a capacity of 100 students was recently opened in the state. The enrolment capacity at another reputed institution, Nalanda Medical College at Patna, has also recently been doubled. Similarly, for the first time in state, two nursing colleges have been established for people to attain bachelors degree in nursing. These nursing colleges have been established at Indira Gandhi Institute of Medical Sciences, Patna and Kurji Holy Family Hospital, Patna.

Table 4: Key Health Indicators

Indicators	Bihar 2005	India 2005	Bihar 2010	India 2010
Infant Mortality Rate (IMR)	61	58	48	47
Crude Birth Rate (CBR)	30.4	23.8	28.1	22.1
Crude Death Rate (CDR)	8.1	7.6	6.8	7.2
Maternal Mortality Rate (MMR)	312	254	261	

Indicators	Bihar	
	2005	2010
Full Immunization	18.6%	66.8%
Monthly OPD	39	4500-5500
Sterilization	1.62 Lakh (2006-2007)	5.16 Lakh
IUDs	0.33 Lakh (2006-2007)	3.46 Lakh
Institutional Deliveries	1.12 Lakh	13.85 Lakh

Table 4 demonstrates the progressive improvement in important health indicators for Bihar, over the years, as stated in the Sample Registration System (SRS) bulletin 2011. While IMR and MMR figures have fallen over the years, the decline in health infrastructure from 2001 to 2006 was reversed in 2007 and 2008. There has been a phenomenal increase in the number of PHCs and APHCs during the 11th Plan period (2007-12). Despite these encouraging improvements, a World Bank Study indicates that if Bihar progresses at the present rate, it will be able to achieve only two of the Eight Millennium Development Goals (MDG) by 2015.

Drinking Water and Sanitation

After the passing of the 73rd Amendment Act, drinking water and sanitation are included in the list of subjects to be devolved to Panchayats. The Public Health Engineering Department (PHED) is the state nodal agency responsible for providing drinking water and sanitation facilities in the rural areas of the state and implements the drinking water supply and sanitation projects under the National Rural Drinking Water Plan (NRDWP), Total Sanitation Campaign (TSC), State Plan and other external assistance programs. Under the various central and state plans, villages/habitations were covered with safe and adequate drinking water facilities as per GOI norms of providing 40 liters per capita per day (lpcd) of water mainly through hand pumps till the end of the 9th Plan. But during the 10th Plan, a survey revealed several new habitations and revealed that many of the habitations presumed as covered were in reality not covered or partially covered (NC/PC). Some reasons for this include: the source drying up or lowering of the water table; the quality of water at the source being affected; sources outliving their lives; an increase in population resulting in a lower per capita water availability; emergence of new habitations and so on.

- **Drinking Water:** As far as drinking water is concerned, out of total habitations of 1,07,642, 71.5% habitations were Fully Covered (FC) and the remaining 29.5% habitations were Partially Covered (PC) which included 11% of those which had slipped back and 17% habitations which were identified as quality affected (as on 1.4.2011). Out of remaining 30773 PC habitations, 15810 habitations (which include 9435 habitations as slipped back and 6375 habitations as Quality affected) have been targeted for coverage during 2011-12. The Quality Affected habitations (QA) as on 1.4.2011 include 1113, 3380, 14010 habitations as Arsenic, Fluoride and Iron affected habitations respectively.

As on 1 April 2011, there were approximately 7 Lakh hand pumps, 1000 rural piped water supply schemes, 100 mini piped water supply schemes, and one multi-village water supply scheme. An investment of Rs 1,794.12 crore has been made in the 11th Plan (till 31.8.2011).

Several constraints were encountered during meeting targets for drinking water programs, primarily with the coverage of uncovered habitations. Some of these include:

- Non-availability of ground and surface sources close to habitations;
- Difficulty in procurement and transportation of materials by the contractor;
- Lack of good and experienced contractors for specialized work of the drinking water supply sector;
- Depletion of ground water level due to low rainfall;
- Deterioration of water quality. (Improvement in sanitation is constrained by lack of awareness, inadequate capacity building at the grass root level and lack of convergence and co-ordination with related departments like health, education social welfare.)

Rural Sanitation

Physical progress as on 31.03.11 of different components of TSC and Lohia Swachchata Yojna against the revised project implementation plan (PIP) is presented in table 5 below:

Table 5: Rural Sanitation Achievements

Type of toilet	Target	Total achievement up to 2011-12
IHHL (BPL)	97,69,555	24,19,248
IHHL (APL)	1,24,78,041	7,60,513
Total (IIHL)	2,22,47,596	31,79,761
School toilet	1,01,763	54,213
Anganwari toilet	13,672	1,476
Community toilet	9,293	663

Agriculture

Agriculture is the foundation of Bihar's economy and the state is endowed with vast natural resources and suitable agro-climatic conditions. A large workforce in rural areas is primarily engaged in agriculture and allied activities. Despite huge potential, the agricultural growth rate has remained sluggish due to low productivity, lack of infrastructure, poor linkages between farms and markets as well as institutional constraints. Environmental factors like floods and drought also cause fluctuations in agricultural outputs in Bihar. Consequently, allied sectors are also afflicted with wide gaps in productivity and low realization of potential.

For holistic development of the entire agro-based production system and to reap the agricultural potential, Bihar has already constituted a special Agriculture Cabinet and has prepared an Agriculture Road Map for the next 10 years. The proposed Road Map includes intensification of the current agriculture

scenario. The irrigation intensity is about 85% and needs to be enhanced through development/restoration of irrigation potential of 25.10 Lakh Hectare.

Energy

Endemic power shortages continue to negate Bihar's development efforts. The per capita electricity consumption of Bihar stands at 122.21 units, which is about 1/7th of the national per capita electricity consumption level of 778.71 units. Massive investments in power infrastructure and increased availability of power would be required for Bihar to reach the national average during the 12th Plan. Bihar is wholly dependent on power allocation from the national government's power generating units since the state's own generation is negligible. Presently, the availability of power from the central sector remains around 1000 MW, which is insufficient to meet Bihar's demands. The power allocation from the central sector during the 12th Plan period needs to be increased substantially so that we reach the national average of per capita consumption of power. As far as the power distribution capacity goes, it has reached 3,338 MW, which is bound to increase further during the 12th Plan.

Prior to the implementation of the Rajiv Gandhi Grameen Viduytikaran Yojana (RGGVY) in 2005, there were 14,020 electrified villages. Electrification of an additional 23,211 un-electrified villages was taken up under the scheme. So far, 15,744 villages have been electrified and work is in progress in the remaining 7,467 villages. Out of 27,62,455 BPL households, 18,01,876 BPL households (65%) have been provided with electricity. 79.5% of funds was utilised (of the Rs. 3,710.81 crore provided, Rs. 2950.06 crore has been utilized).

As far as using alternate or renewable energy sources goes, the major focus has been on distributing solar lanterns to individual families. There is also a growing recognition of a strong need to establish a Solar Energy Based Grid at the Panchayat level which can cater to the electricity needs of 4-5 villages.

Infrastructure Development – Connectivity

Presently, the road density of the state is below par when compared to other developed states and the national average. The length of road per lakh of population in Bihar is only 126.13 Km as compared to national figure of 322.77 Km and the length of road per 100 Sq. Km is only 117.17 Km where as the national average is 129.00 Km.

During the 11th Plan period, the state focused on the aspects of connectivity and tried to improve this within the state. Four-laning of National Highway (NH) 2 in a 205.7 km stretch of the Golden Quadrilateral in Bihar was completed in the year 2010. Construction of the 320 Km stretch out of 513.30 Km of the East-West Corridor has also been completed. Additionally, 1,015 Km of road has been taken up under the National Highway Development Project (NHDP)-III in different stretches of National Highway. A length of 178.6 Km of three National Highways has been awarded on a Build-Operate-Transfer (BOT) annuity model for upgradation to a 4-lane standard. A 95 Km. stretch of NH -82 (Gaya-Manpur-Hilsa-Rajgir-Nalanda-Biharsharif) has been proposed for upgradation to a 4-lane standard at the cost of Rs.1,210 crores with financial assistance from JICA (Japan International Cooperation Agency). This work is expected to commence during 2012-13.

The 2,035 Km length of the old State Highways has been taken up for upgradation as a 2-lane configuration under the Rastriya Sam Vikash Yojana (RSVY). Out of 1,880 Km of newly declared state highways, 820 Km (in 9 packages) have been taken up for upgradation with assistance of USD 420 million from the Asian Development bank (ADB) under BSHP-I in year 2008-09. Additionally, 254.0 Km (4 packages) have been taken up with ADB financial assistance of USD 300 million under the Bihar State Highways Project (BSHP)-II in 2010-11. Detailed Project Reports (DPRs) of another 121.60 Km (3 packages) have been prepared for estimated work valued at Rs. 462.27 Cr. The intention is to implement the construction of these packages with multi-lateral funding. With the declaration of new State Highways, the length of NHs and SHs within the state now stands at 3,734 kms and 4,857 kms respectively. An additional 1,000Km of priority roads are intended for upgradation to state highway standard. The state also intends to upgrade all 8,505 kms of Major District Roads to 2-lane standards. Additionally, it also intends to identify about 2,000 Km. of Other District Roads (ODRs) for upgradation to Major District Road (MDR) standard.

The Government of India (GoI) has declared six districts of the state as Left Wing Extremism (LWE) affected districts. The Ministry of Shipping, Roads, Transport and Highways (MOSRTH) has sanctioned upgradation of 70.83 Km of National Highways and 606.89 Km of State owned roads at a cost of Rs.614.37 crores under phase I of LWE and the work is in progress. Another 130.43 km of National Highway and 1,439.825 Km of State owned roads have been proposed for upgradation under LWE scheme phase II at an estimated cost of Rs. 2,228.02 crores.

Under Public Private Partnerships (PPP), development of a 4-lane greenfield bridge across river Ganga and its 4-lane approaches connecting Bakhtiarpur by-pass at NH-31 near village Karjan and NH-28 at Tajpur has been sanctioned for Rs.1,602.74 crore under PPP. The concession agreement was signed with the concessionaire in October 2010. The bid for development of a 4-lane NH-30 in Ara-Mohania section (117.0Km) under BOT (toll) has been received and the Viability Gap Funding (VGF) is 32.497% i.e., Rs. 298.0 crore. 20% of VGF has been approved in principle by the Department of Economics Affairs and Ministry of Finance. Administrative approval of this project has been given by the Road Construction Department, for a project cost of Rs. 917.0 crore.

Roads built under Pradhan Mantri Gram Sadak Yojana (PMGSY) roads have brought significant benefits to rural households because of better connectivity to markets and easier access to health and educational facilities. But, in addition to connecting habitations having population more than 250 in naxal affected districts, all the districts of the state with a population more than 250 need to be covered under this scheme; total length of roads would be approximately 65,000 KM.

Industry

The enterprise sector in Bihar is the smallest in India and comprises only 1.22 percent of the country's share. Bihar's industrial sector contributes only about 16 percent to its Gross State Domestic Product (GSDP) as against 26 percent for the national average. As a consequence of bifurcation, the share of net value added of the industrial units in the residual Bihar in 2002-03 remained only 17.9 percent, with Jharkhand getting the remaining share of 82.1 percent. This was on account of nearly the whole of the

mineral-producing region becoming part of Jharkhand, leaving only a limited number of large, medium and small-scale enterprises in Bihar.

Though broad based recovery from recession in the industrial sector at the national level had started in 2009-10, Bihar presented a downward trend with respect to the mining/ quarrying and manufacturing sector, both registered and unregistered. The contribution of the manufacturing sector as a whole is less than 5 percent of the GSDP, and the registered manufacturing sector with a much lower share recorded a sharp drop over the period. The share of mining and quarrying also recorded a decline in 2009-10. However, the construction sector proved to be the key driver in the growth trajectory of the state, and its share increased to almost twice in 2009-10 (11.18 percent) compared to 2004-05 (5.52 percent).

As is well known, the bifurcation of the state in 2000 proved to be a severe blow to Bihar's economy and the state became devoid of large industries. Almost all the big industrial houses went to Jharkhand and very few remained with Bihar. Primarily on account of lack of advanced infrastructural facilities and flight of capital from the state, the large-scale units could not be established here. Additionally, due to a modification of the capital based definition of enterprises, various large-scale industries are now counted among the medium scale units. As a result, the state has only 4 units under the food and beverages group in the large-scale sector, one each in the districts of Banka, Begusarai, East Champaran and Rohtas. Besides the above, there are four more large-scale units operating under the private sector, which include ITC, KCC and Gangotri Iron. Under the center there are 6 large units, of which 4 are National Thermal Power Company (NTPC) units; one is Indian Oil Corporation and one Ordinance Factory.

Micro, small and medium enterprises account for 45 percent of manufactured output and around 40 percent of exports of the country. The high labor to capital ratio, high growth and high dispersion make them crucial for achieving inclusive growth. The fourth round of the All India Survey of Micro, Small and Medium Enterprises conducted in 2006-07 by Ministry of Medium, Small and Micro Enterprises (MSME) reveals that, out of a total number of 71,435 enterprises surveyed in Bihar, around 73 percent or 52,188 units were working. Approximately 69 percent of these enterprises were manufacturing units and 31 percent services units. While manufacturing units accounted for 81 percent of the total employment, the services sector engaged the remaining 19 percent. Thus, per unit employment was higher in the manufacturing sector (3.64 persons) compared to the services (1.92 persons) sector. In the total market value of fixed investment, the share of the manufacturing sector was 87.58 percent, whereas its share in the value of net worth was 83.54 percent.

Panchayati Raj

The role of Panchayat Raj Institutions (PRI) and Urban Local bodies (ULB) in governance, planning and monitoring of development programs/schemes is crucial. But, ironically, there is a dearth of funds, functionaries and infrastructure facilities for PRI/ULB as a result of which the actual designated duties and functions as per the Bihar Panchayati Raj Act are not being performed by the local bodies. Presently, the local bodies are largely engaged in implementation of development programs and schemes but their role in governance is at a nascent stage.

In Bihar, the Cabinet took an important decision of devolving 7.5% of state's net tax revenue to Panchayati Raj Institutions and Urban Local Bodies in 2011-12. In addition to this, the component of Gram Kutchery and empowering the Sarpanch to resolve local conflicts related to violations of certain laws would certainly give impetus to strengthen local bodies as an institution of local governance.

Urbanization

While the national urban population figure stands at almost 400 million in 2011, Bihar is among the least urbanized states in the country with only 11.3 percent urbanization. However, the distribution of this population is skewed with 60 percent being concentrated in the southern part of the state in 19 Class I towns. Patna, the capital city, feels the maximum pressure of this population and the high intra state migration further impacts the situation. Taking this fact into consideration, there is a strong need to pay due attention to urbanization in Bihar as the status of infrastructure facilities and civil amenities like health care, housing, education facilities, drinking water and sanitation facilities and transportation in the urban areas are also very poor.

Science and Technology

The Central Government's policies tend to neglect the need for technical institutions both as part of higher education and for science and technology interventions. Additionally, it is a stark fact that Bihar has negligible numbers of technical institutions (only 0.56% engineering colleges and 0.76% of polytechnic institutions of the country), so it requires quantitative expansion along with qualitative and innovative changes in its technical institutions. This would help the state to bridge the gap between demand and supply of such facilities and would also ensure high quality, innovative and demand driven technical/professional education to all sections of society at an affordable cost.

Micro-finance

Many developing countries are increasingly realizing that conventional, government run anti-poverty programs cannot make a serious dent on poverty, especially the kind of poverty caused by the absence of strong rural infrastructure. This is particularly true in Bihar where these programs, benefit only a fraction of the poverty-stricken population. In this scenario, microfinance is a potent alternative for poverty alleviation. The access to timely, adequate credit and other financial services for the weaker sections of society at an affordable cost is essential for the overall economic development of society.

To succeed, micro financing should combine an innovative credit delivery mechanism that ensures viable financial services for the needy with a realistic assessment of the micro-enterprise opportunities in the state. However, creating adequate awareness among the potential beneficiaries is the first prerequisite for the success such programs. Self Help Groups (SHGs) and the SHG-Bank Linkage Program, implemented by commercial banks, Regional Rural Banks (RRBs) and cooperative banks have emerged as the major microfinance program in the country. Bihar is gradually catching up with other states in SHG-Bank linkages. As on June 30, 2010, an impressive cumulative number of 1, 85,600 SHGs were credit-linked to banks and the total credit flow to these SHGs was Rs. 1,003 crore, which will be increased in the 12th Plan period. Tables 6, 7 and 8 below present statistics related to the banking sector in the state.

Table 6: Access to Financial Institution - Network of Bank Branches in Bihar

Category of Banks	Type			Total
	Rural	Semi Urban	Urban	
Public Sector Banks	1319	683	634	2636
Private Sector Banks	-	25	63	88
Foreign Banks	-	-	2	2
Regional Rural Banks	1291	183	63	1537
Co-operative Banks	137	87	62	286
Total	2747	978	824	4549

Table 7: Credit Deposit Ratio enhancement – Year wise CD Ratio

March' 05	March' 06	March' 07	March' 08	March' 09	March' 10	March' 11
29.86	32.10	34.38	32.35	30.46	32.13	33.99

Table 8: Deposit/Advance and CD Ratio (Rs in Crore)

Year	Deposit	Advances	CD Ratio
2007-08	68,243.71	22,077.23	32.35
2008-09	83,047.56	25,293.56	30.46
2009-10	98,588.28	31,678.55	32.13
2010-11	113909.10	38723.19	33.99

Post Office Network

In the year 2008-09 and 2009-10, the number of post offices remained static at 9,056 - their rural-urban breakup being 8623 and 433 respectively; with approximately 88 percent of the total post offices being extra departmental and the remaining 12 percent being departmental post offices. Of the 9056 post offices in the state, around 99 percent were permanent and only 1 percent was temporary post offices. There are 6 night post offices in the whole state and these are all in urban areas. In 2009-10, there were 24,960 letterboxes and approximately 900 post boxes. The Post Office Savings Bank is the oldest and largest banking institution in the country. There are various kinds of savings schemes, which include Saving Accounts, National Saving Scheme (NSS) Accounts, Recurring Deposits (RDs), Time Deposits (TDs), Monthly Income Scheme (MIS), Public Provident Fund, Kisan Vikas Patra (KVP), National Savings Certificates (NSC), Senior Citizens Savings Scheme and Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS). There are approximately 32 Lakh accounts in all these schemes combined and a total deposit of Rs. 11,474 crores in the year 2009-10. Of the total accounts with the post offices, Savings Accounts were the highest in number. The next most popular scheme is MIS, which constitutes 2 Lakh accounts with a quantum of Rs. 994 crore deposits.

MACRO ECONOMIC FRAMEWORK

Growth Trends

The trend in growth rate of Bihar's Gross State Domestic Product during 2004-05 to 2011-12 (advance) has been volatile, mainly because of the dominance of the Agricultural sector in the State Economy. Table 9 illustrates the overall change in the growth rate on an annual basis during the 11th Five Year Plan.

Table 9: Trends in Gross State Domestic Product at Constant (2004-05) Prices

Year	State Domestic Product (Rs. in crore)	Change over Previous Year (%)	Annual Average Growth Rate at Constant (2004-05) Prices (%)
2004-05	77781	—	—
2005-06	78494	0.92	0.92
2006-07	92427	17.75	9.01
2007-08	99492	7.64	8.55
2008-09	113994	14.58	10.03
2009-10 (P)	125875	10.42	10.11
2010-11 (Q)	144472	14.77	10.87
2011-12 (Adv.)	163439	13.13	11.19

Note: P: Provisional; Q: Quick; Adv.: Advance

In table 10 below, the rate of growth of Bihar's economy has been compared with that of India. During the 11th Plan, against an average growth rate of 7.94 percent of the Indian economy, Bihar's average annual growth rate was 12.08 percent at constant prices. This rate of growth of the Bihar's economy was much higher than the rate of growth recorded during the 10th Five Year Plan (7.04 percent at constant prices). The per capita income of Bihar grew at 10.47 per cent during the Eleventh Plan as against 6.46 for India at constant prices. The table also shows the comparative sectoral growth rates and demonstrates how the services and industries sector in Bihar grew at a much higher pace than the national pace during the Eleventh Plan.

Table 10: Growth in Income and GSDP - Bihar and India (10th and 11th Plans)

Particulars	At 2004-5 Prices 11 th Plan 2007-12		At 2004-05 Prices 10 th Plan 2002-07	
	India	Bihar	India	Bihar
Per capita GDP growth rate	6.46	10.47	5.95	5.52
Growth in GDP of which	7.94	12.08	7.57	7.04
(a) Agriculture and Allied	3.27	0.93	2.24	6.31
(b) Industry	6.70	15.96	9.23	10.54
(c) Services	9.89	15.79	8.76	7.01

Note: Compound Annual Growth Rate CAGR (%) for 11th Plan based on Advance Estimate Released by the Central Statistics Organization (CSO).

Structure of the Economy

The share of the primary sector has been declining over the years. It dropped from 50.57 percent in 1980-81 to 37.49 percent in 2000-01. The share further dropped to 24.42 when the triennium average for 2007-08 to 2009-10 was considered. In 2011-12(Adv.), the primary sector's contribution stood at 18.12 percent. This demonstrates the decline in the importance of the primary sector, over the years.

The contribution of the secondary sector, which was 21.78 percent in 1980-81, dropped to 17.47 in 2011-12(Adv.). The share in the intervening period dropped because of the bifurcation of the state in November, 2000. The industrially advanced and mineral rich parts of the state went to Jharkhand and as a result the growth of the secondary sector became sluggish.

The tertiary sector though has grown disproportionately and without concomitant growth of the secondary sector. The share of the tertiary sector grew from 27.65 percent in 1980-81 to an enormous size of 64.40 percent in 2011-12(Adv.) at constant price. Details are present in table 11 and 12.

Table 11: Sectoral Composition of GSDP at Constant Price (2004-05 to 2011-12)

Sector	Triennium Average (2004-05 to 2006-07)	Triennium Average (2007-08 to 2009-10)	2011-12 (Adv.)
1. Agriculture/Animal Husbandry	25.71	21.03	15.86
2. Forestry/Logging	3.22	2.22	1.45
3. Fishing	1.38	1.10	0.76
4. Mining/Quarrying	0.07	0.08	0.06
Sub Total (Primary)	30.38	24.42	18.12
5. Manufacturing	5.18	5.40	4.59
5.1 Registered	0.92	1.59	1.67
5.2 Un-registered	4.26	3.81	2.92
6 Construction	7.83	9.62	11.80
7 Electricity/Water Supply/Gas	1.44	1.32	1.09
Sub Total (Secondary)	14.45	16.34	17.47
8 Transportation, Storage & Communication	6.23	6.53	7.51
8.1 Railways	1.97	1.84	1.48
8.2 Other Transportation and Storage	2.62	2.46	2.33

Sector	Triennium Average (2004-05 to 2006-07)	Triennium Average (2007-08 to 2009-10)	2011-12 (Adv.)
8.3 Communication	1.64	2.22	3.70
9 Trade, Hotel and Restaurants	21.17	27.26	32.56
Sub Total (8and9)	27.40	33.79	40.06
10. Banking/Insurance	3.63	3.94	5.49
11. Real Estate, Legal and Business Services	5.33	5.14	4.76
Sub Total (10and11)	8.97	9.08	10.24
12. Public Administration	6.21	5.67	5.24
13. Other Services	12.59	10.69	8.86
Sub Total (Tertiary)	55.17	59.24	64.40
Total GSDP	100.00	100.00	100.00

Table 12: Trend of Sectoral Growth from 1948-49 to 2011-12

Year	Growth of Primary Sector (Rs in Lakhs)					Growth of Secondary Sector (Rs in Lakhs)					Growth of Tertiary Sector (Rs in Lakhs)						
	Total	Agriculture	Forestry	Fishery	Mining	Total	Manufacturing	Construction	Electricity	Total	Transport	Trade	Banking and Insurance	Real Estate	Public Administration	Other Services	
1948-49	8345	7470	669	200	6	1567	855	712	0	4181	440	640	27	2112	327	634	
1958-59	11776	10487	1053	228	8	1807	997	809	0	5035	642	727	59	2374	499	734	
1968-69	11925	10837	807	269	12	4274	3666	431	178	5398	1110	1035	93	1158	575	1427	
1978-79	14540	13323	994	208	16	3181	2148	712	321	8650	1480	2419	367	1018	815	2551	
1988-89	19428	16649	2351	405	22	5669	3952	1118	599	17505	2634	6446	852	1792	1752	4028	
1998-99	19024	16273	2069	617	66	4548	1805	1954	789	25863	2893	8578	1911	2519	3178	6784	
1999-00	17591	14673	2189	666	63	7535	3744	2700	1092	28926	3130	8701	1906	2595	3520	9074	
2000-01	23503	20368	2315	725	94	7146	3486	2713	946	31414	3509	10047	2104	2633	3793	9329	
2001-02	19061	15590	2375	919	178	6739	3171	2943	625	33039	3499	11028	2585	2565	4093	9269	
2002-03	23512	20018	2455	988	51	7717	3397	3515	804	34702	3724	13165	2479	2507	3509	9319	
2003-04	19674	16085	2556	992	41	7406	3290	3424	692	35647	3923	13225	2417	2465	3945	9672	
2004-05	22336	18623	2689	990	35	8996	3437	4906	652	38835	3885	16106	2541	2470	4196	9637	
2005-06	20374	16639	2636	1046	53	9969	3192	6084	693	40105	4349	15719	2894	2687	4098	10359	
2006-07	25755	22183	2578	950	44	11761	3430	7562	769	46331	4995	20186	3462	2973	4115	10600	

Year	Growth of Primary Sector (Rs in Lakhs)					Growth of Secondary Sector (Rs in Lakhs)				Growth of Tertiary Sector (Rs in Lakhs)						
	Total	Agriculture	Forestry	Fishery	Mining	Total	Manufacturing	Construction	Electricity	Total	Transport	Trade	Banking and Insurance	Real Estate	Public Administration	Other Services
2007-08	23763	20183	2524	1015	43	14213	4511	8935	767	52157	5528	24449	3862	3263	4183	10872
2008-09	26379	22800	2478	998	102	16554	5597	10064	893	60934	6097	29949	4151	3561	5391	11785
2009-10 (P)	24227	20736	2430	987	74	18174	5403	11759	1012	72730	7733	37042	5198	3920	6149	12687
2010-11 (Q)	25751	22336	2383	959	73	21807	5878	14884	1045	84931	9450	44485	6514	4322	6959	13201
2011-12 (Adv.)	26572	23193	2334	971	73	25632	6410	18141	1081	98195	10772	52585	8852	4777	7077	14131

Twelfth Plan Objectives for Growth Trends:

- To plan for a 12-13 percent growth rate for the state of Bihar, so that the state income can be closer to the per capita national income by the end of the 12th Plan
- To attempt for a high growth rate (7%) in Agriculture and allied sectors by adopting the strategy of the 'Rainbow Revolution'
- To develop infrastructure at a much higher pace
- To focus on industrialization
- To emphasize the development of the social sector further, particularly education and health
- To make a sustained effort for reduction in poverty
- To make a substantial increase in the income level of the lowest strata of society
- To make an attempt at equitable regional development

During the Eleventh Five Year Plan (2007-12), the economy of Bihar showed a steady growth trend. For growth to be sustained through inter-linkages in the economy; growth in one sector should ideally push growth in other sectors. Such a growth process in the Eleventh Plan was made feasible through massive investment in physical infrastructure by the state government and strengthening of the social sector, particularly education and health. The government followed the path of rapid growth as a key strategy to achieve adequate buoyancy within the economy to ensure sufficient enhancement in income of all sections of the population to bring about general improvement in living conditions.

Accelerated GDP growth though, when economy is opened, may not lead to a similar rate of growth of employment. The NSSO data shows a rise in rural unemployment in India during the period 1993-94 and 1999-2000. According to NSSO Survey, the rate of rural unemployment increased from 5.6 percent in 1993-94 to 7.1 percent in 1999-2000 and from 7.4 percent to 7.7 percent in urban areas.

So, a commensurate rise in gainful employment is needed along with a sustained growth in the economy. In the Twelfth Plan, a strategy has got to be evolved to tackle the unemployment backlog. Vigorous efforts are called for and will be initiated to trigger off a rapid process of industrialization during the 12th Five Year Plan. Effort would have to be made for an investment friendly environment for the development of manufacturing, agriculture and services sector to cater to the aspirations of a buoyant economy.

Growth Prospect in the 12th Plan Period

During the period from 1999 to 2004 the rate of growth rate of Bihar State Domestic Product (SDP) as compared to the national average was very low. This could be attributed to the low rate of accumulation of physical capital and lack of efficiency of capital or low marginal efficiency of capital. During the same period, the investment rate was 27 percent for the country, against 15% of GDP for Bihar. Of this, private investment worked out to 59 percent of total investment. This is detailed in Table 13 below.

Table 13: Trends in Rate of Investment

Year	Public	Private	Total
1999-2000	6.72	8.97	15.69
2000-2001	5.28	8.79	14.07
2001-2002	5.68	8.58	14.26
2002-2003	4.70	8.94	15.64
2003-2004	8.65	9.86	18.41

Source: Approach to the 10th Plan, Planning Department, Government of Bihar.

2005-06 though, saw a turnaround in the sphere of economic growth. This was due to the vigorous effort of the state government to push up plan outlay during the period 2005-06 to 2010-11. During the first five years since 1999-2000, the economy had grown at an annual rate of 3.50 percent at constant prices. But the economy had grown at an annual rate of 10.87 percent during 2004-05 to 2010-11 at constant prices (2004-05).

It is important to note that the gap between the per capita income of Bihar and the national per capita income has kept on widening since the beginning of the planning era (1950-51). Due to exemplary growth shown by the state, it hinted at a sign of recovery in recent years but in reality, the rate of recovery is quite low. In fact, at the beginning of the planning era the Per Capita Income of Bihar at Constant Prices (2004-05) was Rs. 4707 which had a gap of 31.37 % with respect to average per capita income of India. This gap has continued to widen in each succeeding plan period up to the ninth plan. From the 11th Plan period the gap has started narrowing down, but at a slower rate. In the year 2011-12 the gap has narrowed down by 2.5 percentage points over the 201-11 figures. During 12th Plan (2012-17) not only does this wide divergence between per capita incomes have to be addressed but a conscious effort needs to be made to bridge the gap effectively and efficiently. It is, therefore, imperative that the investment is substantially stepped up both in public and private sectors. There has been a commendable rise in rate of investment during the period from 2006-07 to 2010-11. This is shown in Table 14.

Table 14: Trends in Rate of Investment (Percent of GSDP)

Year	Public	Private	Total
2006-07	9.88	26.70	36.59
2007-08	8.75	23.98	32.73
2008-09	6.97	19.13	26.10
2009-10	6.67	18.30	24.97
2010-11	7.77	21.35	29.12

During the above-mentioned period the rate of investment has been an average of 29.9 percent, which is very high compared to 15 percent of the Gross State Domestic Product (GSDP) during the period 1999 to 2004.

The Planning Commission has explored two alternative targets for economic growth in the Twelfth Plan (2012-17): one for 9 percent average growth rate and the other for 9.5 percent average growth rate. Table 15 presents an assessment of investment requirements in Bihar for different target growth rates (varying rates are 11.0 percent, 11.5 percent, 12 percent, 12.5 percent and 13 percent respectively), which will all for a higher rates of investment as compared to the investment in the Eleventh Plan, public as well as private.

Table 15: Alternative Investment Scenarios for the 12th Plan (Rs in Crore)

Target Rate of growth (Total)	11	11.5	12	12.5	13
Total Public Investment	313449	329335	345372	361558	377468
Total Private Investment	546838	574553	602531	630360	658465
Total Investment	860287	903888	947903	991918	1035933

For Bihar, acceleration of rate of growth of around 11 percent during the Eleventh Plan to around 13 percent during the Twelfth Plan will require a massive increase in total investments (public and private) from around 29.9 percent in Eleventh Plan to around 45 percent during the Twelfth Plan period. This has got to be financed by domestic and government savings. The projected alternative estimates of GDP at different rates of growth can be seen below in Table 16.

Table 16: Projected 12th Plan SDP at Alternative Growth Rates - (As crores at 2010-11 prices)

Year	11% rate of growth	11.50% rate of growth	12% rate of growth	12.5% rate of growth	13% rate of growth
2012-13	2,79,765	2,81,025	2,82,285	2,83,545	2,84,806
2013-14	3,10,539	3,13,343	3,16,160	3,18,989	3,21,823
2014-15	3,44,698	3,49,377	3,54,093	3,58,862	3,64,661
2015-16	3,82,615	3,89,556	3,96,590	4,03,720	4,10,658
2016-17	4,24,703	4,34,355	4,44,181	4,58,195	4,63,836

The Incremental Capital Output Ratio (ICOR)

An estimate of ICOR was earlier made for the state for the period 1999-00 to 2003-04, with the available data on capital formation. It was found out to be 2.78 (please refer approach to the Eleventh Five Year Plan, Department of Planning, Government of Bihar).

Studies also throw light on the estimate of ICOR for the period from 2007-08 to 2010-11. The postulated ICOR for the above mentioned period works out the 3.31 based on estimated GFCF in the public sector and private sector. The ratio of private sector investment has been assumed to be 70 as against 30 for the public sector. The ICOR happens to be on the high side due to high gross fixed capital formation in the infrastructure sector.

Therefore, it can be safely assumed that ICOR for the Twelfth Plan period will be around 3.1. Based on the postulated ICOR, proposed outlays for the 12th Plan for alternative growth rates have been estimated. They are presented in Table 17.

According to a preliminary estimate, the share of public sector investment for the Eleventh Plan period was of the order of 36.43 percent. Based on this the public and private sector outlays have been projected for the 12th Five Year Plan.

Table 17: Public and Private Sector Investment for the 12th Five Year Plan (Rs in Crore)

Rate of growth (Percent)	Proposed Investment		
	Public	Private	Total
11.0	3,13,449	5,46,838	8,60,287
11.5	3,29,335	5,74,553	9,03,888
12	3,45,372	6,02,531	9,47,903
12.5	3,61,558	6,30,360	9,91,918
13	3,77,468	6,58,465	10,35,933

Projection of State Plan Outlays for the 12th Five Year Plan

Estimates show that the total investment during the Eleventh Five Year Plan was of the order of Rs. 3 05,122 crores. Of this total, investment in the public sector, State Plan along with direct central investment was to the tune of Rs 1,11,172.52 crores which accounted for 36.43 percent of the total investment. This data was utilized at the public sector outlays for the Twelfth Five Year Plan and the Total State Plan outlays as per the Planning Department estimates for the Eleventh Five Year Plan was of the order of Rs 80,256.76 crores. State Plan Outlays therefore comprised 72.19 percent of the total public sector outlays estimated for the Eleventh Plan 2007-2012 (Rs 1,11,172.52 crores). On this basis, the state plan investments were projected for the Twelfth Plan (shown in table 18).

Table 18: Projected State Plan investment at varying rate of growth for the 12th Five Year Plan

Growth Rate	State Plan Investment
11.0	226279
11.5	237747
12.0	249324
12.5	261009
13.0	272478

Policy Parameters

The high share of the primary sector in the state's economy is expected to continue. Public investment needs to be directed so that the trend is accompanied by an increase in the share of the secondary sector. But this should not be done at the cost of the agricultural sector. Agriculture would continue to

play an integral part in the developmental process since approximately 88 percent of the population still lives in the villages and as a result the majority of the population would continue to depend on agriculture as a prime source of livelihood. In that context the state government is not only stressing for a second green revolution based on bio-technological improvement but also putting forth a concept of a Rainbow Revolution, which focuses on increasing the production of pulses, cereals, vegetables, fruits, milk, fish and meat products.

Sectoral policies would be restructured and public sector outlays would be much higher in the Twelfth Plan for faster and more inclusive growth. Much of the outlays need to be allocated to the infrastructure sectors and the power sector would also be allocated a huge chunk as the state is grappling with power scarcity. Transport and communication sector would be given a much higher priority than in the Eleventh Plan. The private sector will have to play a much bigger role in the Twelfth Plan as its participation is expected to be order of around 70 percent of the total investment. Private sector participation is crucial in setting up industries for food processing, agro-processing, leather and handloom industries. With improved infrastructure, power supply and an investment friendly attitude existing in the economy, the private sector would be encouraged to introduce new industries in the economy of Bihar. Foreign direct investment would also be invited in the state for improvement in the economy's growth rate.

CROSS CUTTING ISSUES FOR 12TH PLAN PERIOD

In order to achieve the goal of growth with justice it is necessary to ensure inclusion at all levels and of all stakeholders. The state government should make efforts to see that the fruits of growth reach all sections of society especially the weakest and poorest. This needs a fresh set of strategies. Such strategies would have cross cutting implications for all sectors and would be relevant for planning and governance issues in the state.

Entitlement Based Planning

Entitlement refers to basic human rights, constitutional and statutory provisions and schematic rights for individuals or group of individuals (such as based on educational rights, scholarships, social security pensions, health security, bicycles to students, financial provision for self-employment, vocational training, etc.); for families (such as housing, food, wage employment, livelihood, sanitation facility, electricity, etc.).

It also includes norms and benchmarking of facilities in any institution (norms of teachers, classrooms, library, toilets, drinking water, etc., in a school; types of doctors, nursing staff, instruments, medicines, lab and other facilities required to render health services, etc. in a hospital (like PHC, APHC, HSC, etc.); and services to be rendered by it to the local populace.

Additionally, it refers to the norms on which a facility (like roads, irrigation facilities, electricity, schools, health centers, etc.) is to be extended to any area such as villages, Panchayats, blocks, districts or group of districts. These norms may include schools in a vicinity of 1 Km of each habitation, ratio of primary and upper primary schools, road connectivity to all habitations, source of safe drinking water facilities for a population of 250 persons, etc. Based on such well-defined entitlements, schemes are dovetailed to ensure their universal realization.

The plan would be prepared from the Panchayat level upwards based on the actual requirement within the premise of entitlements well-articulated in various schemes. The approach should be to go for universal realization of such rights and entitlements rather than restricting oneself to certain targets. Such efforts would also be helpful in better monitoring and evaluation, reducing malpractices and corruption and also addressing inter regional disparity.

During 12th Plan such approach should be extended to identification of entitlements at the state and regional level, particularly in creation of physical, social and productive infrastructure and we should work for realization of such entitlements all across the country. We should try to ensure that all states, districts, blocks, Panchayats, villages and habitations have certain basic minimum entitlements regarding infrastructure, such as connectivity, electricity, drinking water, elementary schools, Anganwari Centers, hospitals, banks, post offices, etc. It may be advisable to link BRGF grants to bridge the critical gaps for realization of those entitlements.

Every sector should identify the entitlements pertaining to individuals, family, area and institutions and evolve proper strategy for universal achievements of entitlements.

Advantages of Entitlement Based Planning

- Bridging regional disparities
- Better assessment of requirement of resources leads to better allocation of resources
- Better monitoring (planning cum monitoring tool)
- Government is better informed about the resources and its application
- Enhanced decision making
- Less chances of corruption and leakages
- Better people's participation (less scope for wish list; wide scope for actual needs)
- Outcome orientation in the planning process

Habitation Based Planning

At present revenue villages are considered as the unit of planning. Each village includes large numbers of *Tola* or habitations. These habitations are sociologically better homogeneous groups. In taking a village as a planning unit, the primary focus remains on the mainland of the village and the habitations in the periphery, which comprise mainly of weaker sections, are deprived. In the 12th Plan, strategies need to be made for envisaging 'habitation' as the basic unit of planning. This will imply that now the planning has to be done for reaching basic services to the level of habitation rather than restricting up to the village level. This would also require necessary changes in monitoring formats.

Convergence

The experience shows that there is lack of coordination between the sectors for targeting and implementation of development schemes. Plethora of schemes usually promotes planning and implementation in silos. Now is the time, when one should focus on the convergence approach to target the last person by leveraging maximum benefits at the door step of the beneficiaries. A dedicated approach is required to develop a convergence plan considering various issues of development and different components of schemes and programs.

There may be three dimensions of convergence:

1. Dovetailing of Fund
2. Convergence of Services
3. Convergence of Human Resources

Entitlement based planning provides the opportunity to map the areas of convergence (issue based) considering the norms and provisions of various developmental schemes and programs. Adherence to the dimensions mentioned above would enable the policy makers and implementing agencies to render the services within the premise of entitlement based approach, which would be articulated during the planning process.

Manpower Planning

Skilled and semi-skilled human resources are pre-requisites for efficacy of any development process. This has to be given thrust in the approach to the 12th Five Year Plan. Strategy needs to be evolved for human resource planning, capacity need assessment and devise structured course curricula for skill enhancement and for meeting futuristic requirements. Following are some of the aspects, which may be considered while preparing the sector wise approach and plan:

1. Assessment of types of human resources required during next Five Year Plan

2. Devising skill development strategy to meet the futuristic requirements
3. Establishment and development of institutions to bridge the emerging requirement of human resources

Land Planning

Land planning is one of the important dimensions in executing the schemes which aim to develop the infrastructure like buildings, community center, schools, health infrastructure, AWCs, Panchayat Sarkar Bhawan, etc. During the 12th Five Year Plan formulation, the respective sectors should workout the requirement of land and make a comprehensive plan for ensuring its availability. The following aspects can be taken care of in this regard:

1. Standardization of land requirements for every facility/institutions
2. Estimation of land requirements for different schemes in the next five year plan
1. Planning for creation of building structures keeping in mind requirement of space/land for the next 30 years
2. Strengthening of land bank

Input/Material planning

Managing inputs and materials is a critical component of effective supply chain management. The 12th Five Year Plan must ensure assessment and smooth supply of inputs and materials of good quality at relevant destinations in time. In this regard, the following points may be considered:

1. Assessment of inputs/material requirement under different schemes for the 12th FYP
2. Planning of production or procurement, storage and transportation of inputs /materials for implementing schemes for the 12th FYP
3. Establishing and strengthening the supply chain management/logistic management
4. This would also give us opportunity to attract private investments to meet the above requirements.

Inclusion by Broad-Streaming

All sectors would identify areas for inclusion and explore the possibilities of broad-streaming the existing avenues keeping in view the language, tradition, culture, practices of under-privileged communities into consideration. This may be one of the effective and feasible solutions for inclusive development.

The concept of Mainstreaming means bringing excluded communities into the mainstream. It presumes that excluded communities do not have much relevant knowledge, language, vocations, lifestyle, etc. for growth. So, they should be extricated from the present situation to bring them into mainstream.

Whereas, the concept of **Broad-streaming** means giving equal importance to the lifestyle practices, habits, languages, vocations, etc. of underprivileged and marginalized communities as compared to that of mainstream system. The entire system develops in such a way that the sub-streams become the mainstream.

The state has constantly emphasized on social, financial and economic inclusions. This should continue with more vigor. However, the state should now go for Broad-Streaming and not for Mainstreaming.

This concept of Broad-streaming visualizes the development of sub-streams by its broadening at par with mainstreams so they may be considered as one entity. Broad-streaming tries to take into account the strengths and weaknesses of the community and builds upon it.

The concept of broad-streaming respects individuality; promotes dignity of labor and provides base for an equitable society. The existing programs related to SC, ST and other weaker sections need to be re-engineered to align with the concept of Broad-streaming.

As part of our effort to prepare an Approach Paper and subsequently 12th Five Year Plan, each of the working committee attempted to identify the scope of broad-streaming under the schemes and programs being implemented for the development of society/state.

For example, in agriculture, proper strategy should be developed to enhance the production of food-grains such as maize, ragi, kodo, etc. popular among the under-privileged community. The proposed Rainbow Revolution is also having an aspect of broad-streaming as it clearly narrates the development of fisheries, animal husbandry, horticulture, etc. besides core agriculture development (not only principal crops but also secondary crops).

The following is the suggestive matrix with which the scope of broad-streaming under each of the schemes/programs can be identified for plan formulation:

Sector	Sub Sector	Key Schemes/ Programs	Scope/element of Broad-streaming
Human Resource Development	Elementary Education	SSA	Inclusion of local dialects in schools , preparation of dictionary of dialects, etc.
			Development of reading materials, sports, etc. considering the culture, values, lifestyle of underprivileged communities
			Teachers' training for pedagogical correction to bring sensitivity towards contextual issues
Labor Resources	Employment, Vocational Education and Skill Development	National Skill Development Mission and Bihar Skill Development Mission	Encourage local skill sets and make a provision of backward and forward linkages for their development
Health and Nutrition	Public Health	NRHM	Integration of Indigenous medical practices along with modern practices
	Nutrition	ICDS	Nutrition mela to promote and popularize the indigenous food practices and recipes
Agriculture and Allied Sector	Agriculture	RKVY	Holistic development of the Principal Crop along with the secondary crop and comprehensive development of allied sectors like fisheries, animal husbandry, horticulture, etc.
Rural Development	Self-Employment and Women Empowerment	SGSY	Encourage local skill sets and make a provision of backward and forward linkages for their development
			Promoting gender sensitive values and practices
			Involvement of women in decision making processes at community level, e.g. in forums like Gram Sabha

Public Private Partnerships

The desired growth rate in GDP cannot be achieved simply by increasing public investments. There has to be a conscious effort to leverage private investment through selective public investments. PPP model has been found to be quite useful in some of the areas of providing infrastructure facilities. During 12th Five Year Plan formulation, attention has to be given to identify areas of collaboration between public and private sectors.

Bihar Right to Public Service Act – 2011

Good Governance is one of the cross-cutting issues in each of the sectors, program designing and its implementation. Special strategy must be devised to monitor the progress against the indicators finalized as part of good governance for each of the sectors.

Bihar has already notified Right to Public Service Act - 2011. The objective of this act is to deliver notified services to the people of the state within stipulated time limits. Fifty sets of services have already been notified as part of the Act and time limits to render these services have also been notified.

Government Process Re-engineering (GPR)

Each and every office has a definite set of rules, regulations and procedures for its normal functioning. These rules, regulations and procedures determine the efficacy of the functioning of the office. Implementation of different programs is also dependent on the efficiency of the office responsible for implementation. In keeping with a rapidly changing environment, it is desirable that the rules, regulations and procedures are re-examined and re-engineered at regular intervals of time.

Implementation of many schemes critically depends on having smoother interface between government and the people. The interface between government and the people needs to be continuously re-examined to make it more efficient and effective. It is thus important that the working of different offices is re-engineered so that program implementation becomes more effective and efficient.

Department of Rural Development has taken initiatives to re-engineer the business processes from the block level to the state level, particularly for the schemes of Rural Development. This exercise needs to be done in other departments and offices also.

There are certain important statistical databases and information, which help us in better planning and program delivery. In some departments statistical databases have been created which have helped in strengthening the systems of program delivery, particularly in flagship programs. The District Information System on Education (DISE), Health Management Information System (HMIS), etc. is an example of such practices. There is need to identify the requirements of such statistical databases in all sectors. Some of these may be available through collection of routine statistical data either at state or national level. Compilation of supplementary databases needs to be made a part of the planning exercise.

Based on key statistics, relevant indicators need to be identified which can give an overall insight into the functioning of the sector. These indicators can further be monitored on a regular basis.

Restructuring and Rationalization of Schemes

In Bihar, there are more than 600 schemes, which are being implemented through plan exercises. Such a large number of schemes cannot be properly monitored. It would be better if the existing structure of the schemes is re-examined and smaller schemes are either dropped or integrated/amalgamated with other schemes. For example: all schemes pertaining to fishery development are clubbed as “Integrated Fishery Development Program”. This may have several components dealing with say development of fingerlings, development of ponds, de-siltation, manufacturing and distribution of fish food, sale and marketing of fishes, etc. Similarly, there may be schemes like integrated scheme for Detection and Rehabilitation of Disability, Integrated Handloom Development Program, Integrated Minority Development Schemes, etc.

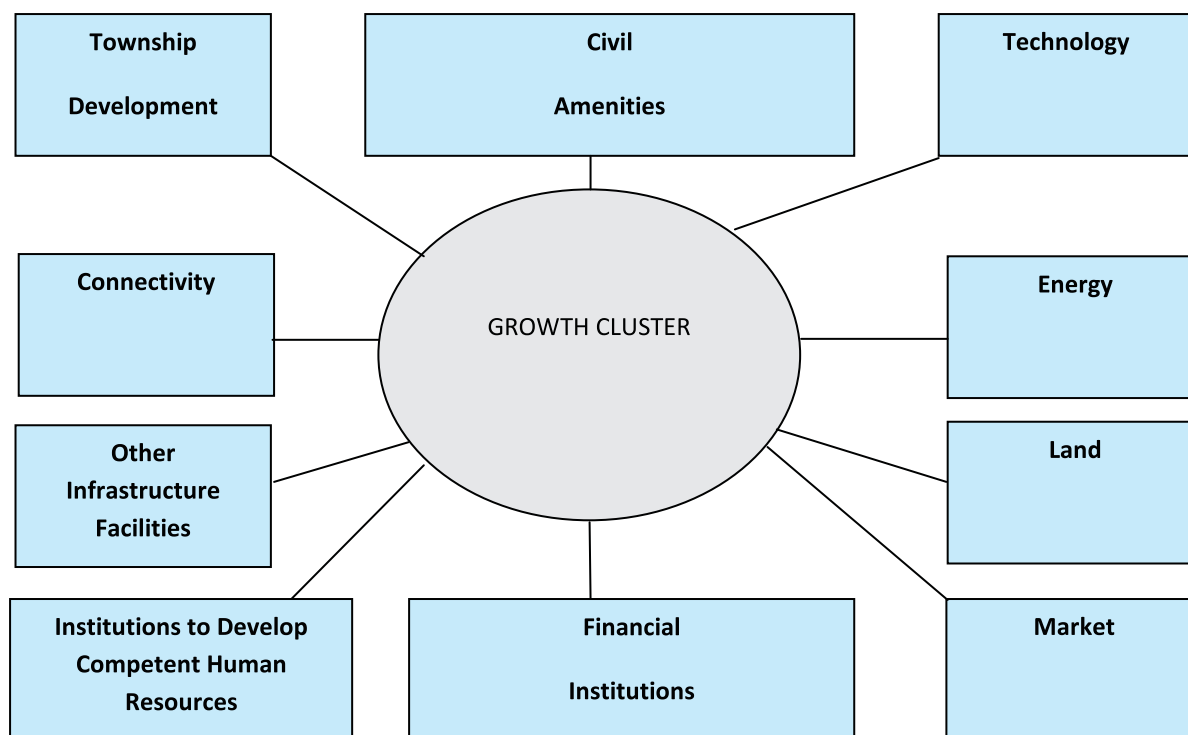
There is also a need to examine the duplication of interventions under various schemes. Integration of schemes or dropping some of them can be thought of for better implementation and monitoring.

The above-cited approach and strategy would help in devising appropriate, adequate and feasible number of schemes. It would also bring about an opportunity to monitor the outcomes of schemes in an integrated fashion.

Growth Clusters

For holistic development, it is important to invest in support systems required for integrated development of an area, institutions, enterprises, etc. Without having the necessary support structures none of the facilities and system can work and deliver services efficiently. It is imperative to roll out the concept of growth clusters during the 12th Five Year Plan as the concept would enable planners to work on a synergistic approach, covering key dimensions of development. These include the following:

- Township Development
- Civil Amenities
- Technology
- Connectivity
- Energy
- Institutions to develop competent human resources
- Financial institutions
- Market
- Other infrastructure facilities



While developing any of the areas or institutions (like schools, health centers, colleges, universities, etc.), or while setting up any enterprise, the state should also look into the aforesaid dimensions of support systems.

Strengthening Mission Manav Vikas

During the 12th Plan, emphasis would be given to track major indicators pertaining to human development. The overall objective is to strategize the efforts to devise interventions in such a manner so that the state can achieve the key development goals like Millennium Development Goals, National Development Goals, etc. The state is in the process to formulate comprehensive guidelines to set goals and finalize relevant indicators, which can be monitored from time to time

AGRICULTURE AND ALLIED SECTORS

Overview

Agriculture is the mainstay of Bihar's economy. The state is endowed with vast natural resources and suitable agro-climatic conditions. Large workforce in rural areas is engaged in agriculture and allied activities. Despite huge potentials, agriculture growth rate has remained sluggish due to low productivity, lack of infrastructure, poor linkages between farm and markets and institutional constraints. Environmental factors like flood and drought cause fluctuations in the agriculture output. Allied sectors are also afflicted with wide gaps in productivity and low realization of potentials.

The 12th Plan will focus on rapid growth in agriculture and allied sectors for substantial increase in agricultural outputs, rise in rural incomes, food and nutritional security and reduction in rural poverty. Ensuring adequate supply of quality inputs, institutional reforms and realignment and strengthening of extension services structure can realize the vision.

Agriculture development plan will entail substantial augmentation of storage and processing capacities. Creating infrastructure for the distribution chain and market linkages should be the thrust area. To increase the profitability, improvement in value chain will be promoted. Expansion of credit availability and insurance coverage will facilitate the processes of agriculture growth. Constructive and effective measures will be taken to improve land use and planning.

Agriculture development plan will require massive rise in investments; private sector participation will be encouraged particularly in establishment cold chains, credit facility and marketing. Acceleration in agriculture growth will be integrated with adoption of sustainable practices to check degradation and restore environmental health. Aligned with the 12th Five Year Plan of GoI, production systems will be strengthened by strategic interventions in seed systems, water management, efficiency in use of fertilizers, facilitating new technologies for the farm sector and promotion of Integrated Pest Management (IPM) and Systems Rice Intensification (SRI).

Harnessing vast untapped resources from allied sectors, particularly animal husbandry and fisheries, will complement the growth of the agriculture sector and ensure inclusive growth. Sustained efforts in expansion of inputs in breed improvement, fish seeds/fingerlings supplies and credit facility will be required to increase productivity in animal and fish products; strengthening of extension service and capacity building of human resources will deliver the change in rural areas. This holistic model can trigger growth and development in agriculture and allied sectors in the state ushering into a Rainbow Revolution. By end of the 12th Five Year Plan, Bihar can lead the expansion of the green revolution in the Eastern region and contribute substantially in national food security and alleviation of rural poverty.

Eleventh Five Year Plan has made significant gains in identification of sectors, preparation of road maps and laying foundation of the growth process.

Vision for 12th Five Year Plan

The 12th Five Year Plan envisions effective utilization of potentials for a major spurt in agriculture growth in the state. states vast resources should be tapped for increased output and productivity, rise in rural incomes, food and nutritional security and growth of vibrant agriculture based industry. This would entail unshackling the low productivity trap, enhancing incomes of farmers and adoption of sustainable

agriculture practices. Keeping up the momentum in input supplies, consolidation of gains made over extension services structure and institutional changes will be required to achieve the vision. Creating infrastructure for distribution chain and market linkages should be the thrust area. Preparedness for identifying and up-scaling the right innovations and models will accelerate the growth process. Harnessing vast untapped resources from allied sectors particularly animal husbandry and fisheries will complement agriculture growth and development. The Twelfth Five Year Plan thus envisions broad based development of agriculture and allied sectors leading to a 'Rainbow Revolution'.

Major Pillars of Agriculture and Allied Sectors

Agriculture: the Vision for Rapid Growth

Agriculture sector will continue to play a major role on economy of state. Growth of agriculture is key to reduction in rural poverty, food and nutritional security and enhancing incomes levels. Despite availability of vast resources State agriculture growth has been constrained by multiple infrastructural, institutional and environmental factors. State's achievements in agriculture have been below national averages and far below the major agrarian states. A major leap will be required to change the agriculture scenario in Bihar.

Realization of the growth potential will not only contribute in state's economy but also play a major role in increasing agricultural output, food security, and reduction of rural poverty in the country. The focus of the Green Revolution in past decades was mainly confined to the regions of Punjab, Haryana and parts of Uttar Pradesh. The benefits of the green revolution were not extended to the eastern region and thus the productivity in this area could not keep match with other regions of the country. Despite vast resources, yield gaps between the state and the national average increased. For food security of the teeming population of the country another step up in food production is required. At the national level, focus has now shifted primarily towards the eastern region, which has got large untapped potential. Bihar, a major agrarian state in eastern India, must experience an accelerated growth to meet the challenge.

Planning Commission, GoI has indicated a growth rate of 4 % in agricultural production for the country. To achieve this target, Bihar should brace up for at least 7% growth in agricultural production. While planning for such growth in food production, there is a need to take up a concept of broad based and holistic view of the entire agro-based production system. Hence in addition to cereals, the central government should also plan for increasing production of pulses, vegetables, fruits, fish, milk and animal husbandry, as the growth of all of these are intimately inter-connected. In this sense, it is better to call it a 'Rainbow Revolution'.

Growth of agri-business and agro-industry should be important component of development of agriculture in the state. Vast potential lies untapped in field of processing food grains, oilseeds, vegetables and fruits. Bihar offers multiple advantages like favorable agro-climatic conditions, low costs and availability of local market for attracting investments in the agriculture based industry. A vibrant agro-industry will enhance farm incomes, energize rural economy and contribute to the state income.

Agriculture Road Map

The challenge of comprehensive development of agriculture in state requires focused strategies across sectors. Programs and policies must be realigned towards this common aim. Realizing the role of multiple sectors, urgency and importance of broad based development of agriculture, a Cabinet Committee has been set-up to prepare a comprehensive plan of action for holistic development of the agriculture sector

and to review and monitor its implementation. A Road Map for 10 years has already been prepared by the state.

Agriculture Road Map 2022 lays out the vision and the specific programs for a Rainbow Revolution in Bihar. To make it inclusive, the definition of a farmer in the Roadmap has been broadened to include all men and women, agriculture labor, sharecroppers, big, small and marginal farmers who depend on agriculture for livelihood. It will also include persons engaged in fishing, poultry, dairy, bee keeping, apiculture, and tribal communities performing shifting cultivation and gathering. Agriculture and home science graduates who depend on cultivation, animal husbandry, fisheries, forestry and others for livelihood will also come under community of farmers.

The Road Map will have six point objectives:

- Food security
- Nutritional security
- Rise in income levels of farmers
- Generation of employment and reduction of migration of laborers
- Inclusive base of agriculture development and comprehensive participation of women
- Conservation of natural resources and sustainable development

Animal Husbandry and Dairy: Strengthening the Base

Animal husbandry and dairy is interwoven in the agrarian life and rural economy of Bihar. Animal husbandry activities offer multifaceted scope –animal protein for human consumption, sufficient and sustainable wealth generation, and creation of self-employment opportunities. However, the sector has witnessed sluggish growth; vast opportunities remain untapped. Per capita availability is low and the state is still not self-sufficient in milk, meat, and egg production. Despite severe constraints, Animal Husbandry contributes about 5-6% of the GSDP.

Harnessing potential of this sector with appropriate policies and programs will have tremendous impact on income generation, maintaining sustainable livelihood of the masses, alleviating rural poverty and ensuring inclusive growth. The Animal husbandry and dairy sector will be promoted to such an extent that the state becomes self-sufficient in demand of these products. It will also provide excellent inputs for agro processing in the form of processed food products so these sectors need special attention for its rejuvenation and revitalization.

Making dairy a more lucrative and income generating occupation for farmers will require an increase in productivity of milch animals and reduction in the costs of production. This would be done by providing better animal breeds, health services and feeds for livestock to milk producers. The overall strategy will be to increase the production of clean milk, enhance the skills of producers for better management of stocks, increase the capacity of milk processing, and set up a marketing chain for the output. Dairy development, in recent years, has witnessed remarkable progress in setting up of cooperative societies, procurement and marketing of milk. Strengthening and expansion of cooperatives will further support growth of dairy in the state.

Fisheries: Harnessing the Untapped Potential

Bihar is endowed with vast and varied aquatic resources in the forms of -rivers, canals, reservoirs, ox-bow lakes, flood plain lakes (chaurs), ponds and tanks. Fisheries are a traditional occupation in rural areas that engage large volumes of skilled and semi-skilled work force. However, co-existence of large, untapped and underutilized water resources for aquaculture along with huge gaps in demand and local production represent the paradox of development of fisheries in Bihar. The annual requirement of the fish within the state is nearly 5.71 Lakh tons, against the present annual production of around 2.88 Lakh tons. Supplies from other states fill the gap; Andhra Pradesh alone meets about 1.5 Lakh tons of Bihar's annual fish demand.

Multiple factors explain huge gap in utilization of resources: (i) Ongoing culture and fisheries management practices are still traditional and of subsistence nature, (ii) Unscientific management of water bodies – production in ponds, tanks, ox bow lakes, and chaurs is constrained by heavy siltation. Most of ponds are in flood and drought prone areas, thus have fluctuating water resource availability. (iii) Lack of availability of quality inputs – inadequate number of hatcheries and seed rearing facilities restrict supply of inputs and (iv) Lack of entrepreneurship.

Fisheries development has huge untapped potential in the state. Vast opportunities are available for substantial rise in output and yield through expansion of culture fisheries with scientific and modern management practices. Bihar has plentiful water resources in the form of ponds and tanks (covering approximately 80,000 hectares) and major flowing rivers. North Bihar also has captive fisheries resources like Chaurs (low lying depressions filled with water) and ox-bow lakes. Converting these captive fisheries resources to culture fisheries could significantly increase output, enhance rural incomes, offer employment for fishing communities, and provide excellent sources of cheaper proteins for the people. Development of fisheries will ensure livelihood and income security in rural areas and add to the food and nutritional basket. A vibrant and growing fishery will make significant contribution to agricultural incomes and economy of the state.

Cooperatives: Vital Nodes for Agricultural Revolution

Cooperative sector has a vital role to play in the overall development of agriculture and in ushering the second Green Revolution in the Eastern Region of the country, in particular. The cooperative organizations with its democratic set up right from the village level to the state and national level are in much better position to assess the felt needs of its vast number of members that constitute farmers, share croppers and even landless rural people and enable them to fulfill their aspirations.

In Bihar, 8434 Primary Agriculture Cooperative Societies (PACS) at Panchayat level, 531 Vyapar Mandal Sahyog Samiti (VMSS) at block level and the apex level Bihar State Cooperative Union (BISCOMAUN) are supporting the marketing needs of agriculture and allied sectors; 22 District Central Cooperative Banks (DCCBs) and apex level State Cooperative Bank (SCB) with wide network of branches (SCB and DCCBs) are catering to the needs of short term credit requirement of the members. Together they offer immense opportunities for effectively meeting the twin objectives of pre/post-harvest marketing management and credit requirements in the state. Presently the cooperative sector has advantages of vast network, large membership base and experienced management structure. However, weaknesses like lack of professional

vision and motivated management, inadequate financial and human resources, lack of training and absence of schemes for inclusive growth has restricted the achievements.

In order to realize the goals of comprehensive agriculture development in Bihar, the current cooperative structure requires institutional reforms and strengthening in terms of upgradation of physical infrastructure, financial support and development of human resources. The 11th Plan has envisaged improved marketing and processing strategy (especially after APMC Act), post-harvest management, cold chain, risk management in the shape of appropriate crop technology and the extension of crop insurance program to diverse crops. Significant progress has been made in the procurement of food grains at Minimum Support Price Rate. This would ensure a remunerative price to farmers and mitigation of risks of crop failure (caused by natural calamities) by covering a large number of farmers (1,019,177 farmers and Rs. 586.53 crores in 2009-10 and as compared to 162,596 farmers and Rs 117.63 crores in 2007-08). However, massive efforts will be required in the fields of pre/post-harvest management, food processing, establishment of cold chain, provision of timely and easy accessible agriculture credit at economical rates, qualitative improvement in the crop insurance and extension of crop insurance benefits to horticulture and cash crops. The cooperative sector has a huge role to play in the development of agriculture and allied sectors and in realising the goals set for Agriculture Road Map for the 2nd Green Revolution and the state's 12th Five Year Plan vision to achieve 'growth with justice'. The vision will be achieved through institutional and procedural reforms in cooperative structure, strengthening of credit facilities, expansion of crop insurance coverage and human resource development.

Key areas of Growth and Development

Issues and Constraints of Agriculture Growth in Bihar

Agriculture in the state has been constrained by low productivity, poor linkages between farm and markets, weak distribution and marketing links. Rice and wheat yields are below national averages, though a significant rise has been registered in the yield of maize. Traditionally major constraints of agriculture in the state have been the supply of quality inputs particularly in areas of fertilizer, mechanization, and credits. Access to assured and economical irrigation is low. Small and fragmented land holdings hinder adoption of modern technology and disfavours economies of scale. Vagaries of rainfall influence agriculture productions; recurrent floods and droughts severely affect the outputs. Weak agriculture extension systems have led to poor transfer and adoption of modern efficient technologies. Poor marketing and distribution chain with inadequate procurement, storage and processing capacities have affected incomes and incentives.

Vast potential in animal husbandry, dairy and fisheries sector has remained unutilized due to low productivity, lack of physical infrastructure, and inadequate skilled human resources at the field level. Growth of fisheries is constrained by inadequate availability of quality inputs (fish seed, fish feed, etc.) and weak fisheries extension system. Poor support from financial institutions and inadequate coverage of insurance has also restricted the growth.

Thrust Areas for Agriculture and Allied Sectors Sector in the 12th Five Year Plan

Development of agriculture and allied sectors in Bihar poses diverse challenges; it requires a comprehensive development strategy involving different components. The agricultural development plan aims at achieving food and nutritional security, enhancing farmer's incomes, providing gainful employment, and ensuring utilization of natural resources for sustainability of production systems. To attain these objectives, major thrust will continue to be on raising productions substantially through spurt in cropping intensity, productivity and land utilization.

The agriculture development in the 12th Five year Plan will emphasise on:

- (i) Broad based agriculture growth – benefits of raising productions and productivity will be ensured to diverse crops, i.e., food grains (rice, wheat, durum wheat, maize, Madua), pulses, oilseeds, horticulture crops, cash crops like sugarcane, Jute, Paan and others through specific strategies.
- (ii) Making agriculture gainful and raising incomes of farmers; stress will be on
 - a. Removing constraints in procurement and market linkages.
 - b. Promoting cost effectiveness, reducing insecurities and expansion of processing capacities.
 - c. Encouraging sustainable agriculture development in the state by
 - i. Reducing fluctuations and uncertainty in productions due to floods, droughts and water logging,
 - ii. Promotion of environment friendly techniques like organic farming, improvement of soil health, reuse of wastes and by- products. Realization of these objectives would require relentless efforts on multiple fronts.
- (iii) Rapid expansion in supply of inputs (seeds, mechanization, fertilizers, credit and others) and quality assurance will play a major role. Impetus to agriculture credit will be a major thrust area to meet essential requirements of farmers.
- (iv) Substantial augmentation of warehousing and storage facility will be carried out for agriculture growth and food security. Marketing of agriculture produces will be promoted through involvement of multiple agencies and innovations in institutional structures. Rapid expansion in infrastructure will be ensured through increased investments.
- (v) Triggering rapid growth in traditional agriculture systems will require institutional changes and realignments. Vastly expanded, strengthened and modernized extension network would ensure benefits of broad based development to farmers of the entire state. To realise the goals the agriculture development plan must accompany establishment of strong information/data base systems and growth of education and research.

For Animal Husbandry and Dairy, the major thrust points would be the following:

- (i) Production and productivity would be raised through improved breed management. Impetus will be given to augmentation of processing facilities (milk and milk products).
- (ii) Rapid expansion of extension network up to the Panchayat level will be carried out. Government aims to act as facilitator for livestock entrepreneurship development in rural areas. Development plan will involve strengthening of veterinary and dairy services network.

- (iii) Establishment and strengthening of institutions for human resource development and promotion of education, training and research will play a major role in the growth of the sector.

Development and management of fisheries will aim for a major jump in fish production and productivity by the end of the 12th Five Year Plan. The major thrust would be as follows:

- (i) Infrastructure facilities will be expanded for availability of quality inputs. Institutional strengthening will be carried out for improved extension services, training and skill development and infusing professional management practices.

Goals of the comprehensive development plan of the agriculture and allied sector will be realized through integrated development of the key sectors and pillars. Specific strategies will be formulated and implemented through policy reforms, specific programs/schemes and procedural changes to facilitate growth in agriculture, animal husbandry and dairy, fisheries, cooperatives, agro-industry and sugarcane. The development plan will also include strengthening land use planning and agriculture statistics.

Strategies in Agriculture Sector

The 12th Five year plan envisages rapid gains in raising productions, enhancing income levels of farmers and making agricultural growth more sustainable. The sector will make strategic efforts on key fronts: ensuring availability of quality inputs to farmers; expanding modern infrastructure and management practices for cost reduction and profit generation; improving extension networks and institutional framework; development of agriculture entrepreneurship; integrating environmentally friendly practices to make production systems sustainable and implementing region specific programs. Following specific strategies will be followed to achieve the above -mentioned objectives:

- (i) Adequate and high quality seeds will be ensured to farmers. Hybrid seed production of maize, paddy, and vegetables will be promoted. Private sector participation in seed production will be encouraged. An integrated Seed Plan will be implemented with help of University/ICAR institutions, government farms and corporations and private seed companies for promotion of breeder, foundation, certified, and hybrid seeds. Bihar Rajya Beej Nigam will be strengthened for handling larger volumes of seeds per annum, processing and marketing. Facilities for certifications, quality control, and testing will be improved.
- (ii) Supplies for fertilizers will be ensured; facilities for buffer stocks in lean seasons will be created. Use of micro nutrient fortified fertilizers will be promoted.
- (iii) To ensure sustainable agriculture, maintaining quality of agricultural inputs is necessary. Quality control of agricultural inputs will be ensured through expansion in facilities for soil testing, pesticide, and fertilizer testing. Laboratory facility for bio-control, tissue culture, and Agmark will be established.
- (iv) Mechanizations will be promoted through establishment of Mechanization Parks and custom hiring centers. Adoption of modern farm tools/machines for specific crops like paddy and maize, and horticulture will be promoted through schemes/programs.

- (v) Multiple agencies/financial institutions will be strengthened and aligned to ensure timely and easily accessible agriculture credit facilities.
- (vi) Crop specific strategies for wheat, paddy, maize, oilseeds and others will be promoted for raising productions and productivity, for example, for paddy and wheat-
 - a. short duration and water stress tolerant varieties;
 - b. improved cropping practices of water management and harvesting;
 - c. SRI technique will be encouraged. For maize crop, area expansion in Kharif/Rabi and Garma seasons and promotion of hybrid varieties will be carried out. Horticulture will be supported through regulating quality of planting material, rejuvenation of old orchards, intercropping and cluster production. High density planting will adopted for expansion of area under Mango, Litchi, and Guava. Special attention will be given to promote drumsticks and mushroom cultivation. Beekeeping, processing and marketing of honey products will promoted through a special program. For different inputs, regional situation will be analyzed and system specific models will be promoted. Agriculture growth plan must accompany adoption of techniques and practices for reduction in loss of agri-production (both pre and post harvesting).
- (vii) Impetus will be given to strengthening of extension networks. Farmer Advisory Committees at the State/district/block/Panchayat level, effective Kisan Call Centers and KisanPathsala will be set up.
- (viii) An E-KisanBhawan will be established in each block that will function as single window delivery system for promotion of agriculture technologies and inputs.
- (ix) Extension network will be equipped with modern information and communication technologies for example, use of community radio services, text and voice messages will be promoted for dissemination of crop advisories.
- (x) Better coordination will be established between Department of Agriculture and Jeevika Livelihood Project, Women Cooperatives and other government agencies for agriculture extension. Farmers' Group will be organized; training and other facilities will be extended to these groups. Private sector participation in agriculture extension will be encouraged.
- (xi) Agriculture development plan will accompany rapid augmentation of storage capacities under different agencies (Bihar State Food Corporation, Cooperative Sector, BISCOMAUN, State Warehousing Corporation and others).Construction of godowns with modern facilities at Panchyat, block and district will be taken up by the agencies on priority basis.
- (xii) Wherever feasible, land may be provided to Central Warehousing Corporation on lease for construction of godowns.
- (xiii) Facilities of marketing of agriculture produce will be expanded through involvement of multiple agencies, i.e.,terminal markets, rural haats, federations for agri-products and promotion of contract farming. Land use on PPP mode for market yard, processing and value addition and cold chains will be promoted.
- (xiv) Providing incentives in fields of cold chains, credit and marketing in the light of post APMC Act and Essential Commodity Act will encourage private investment.
- (xv) Adoption of sustainable agriculture practices will be encouraged. Specific programs and

schemes will be implemented to minimize degradation and restoration of environmental health particularly to maintain soil fertility and promotion of alternative techniques to use of chemical fertilizers and pesticides.

- a. Government will promote Organic Farming in the state for adoption of techniques and practices like use of vermin- compost, bio- fertilizers, green manures, bio-pesticides and integrated pest management.
 - b. Steps will be taken for (a) restoration of micro-nutrients in soil and (b) generation and use of urban compost.
 - c. Facilities for pesticides testing and pesticide residue testing will be established.
 - d. To raise profits from products of organic farming, organic certification will be facilitated.
- (xvi) Agriculture development plan will require massive efforts in creating a pool of skilled and motivated human resources. Capacity building programs at different levels will be implemented through involvement of universities/institutions and exposure visits. Impetus will be given to education, research and extension in continuum for agriculture transformation. Courses will be introduced for education and research in cutting edge technologies of remote sensing, geospatial science, modern post-harvest management and legal frameworks for protection of intellectual property rights and farmers' interests.

Strategies for Animal Husbandry and Dairy Sector

Main focus for the sector would be on increasing the milk production and raising the productivity levels up to national averages. Major strategies for development of animal husbandry resources and dairy will be:

- (i) Establishing and strengthening breeding farms for development of indigenous breeds of cattle, buffalo, goat, sheep, pig, poultry and other animals,
- (ii) Expanding programs for Artificial Insemination,
- (iii) Organizing Fertility camps at block level,
- (iv) Diversifying the product line and upgrading processing technology for dairy products,
- (v) Strengthening and expansion of dairy cooperatives will be carried out. Subsidy will be provided to establish dairies. Training programs for dairy committees will be implemented. To support dairy, milk cooler will established at village level and network of collection centers will be strengthened,
- (vi) Promoting Backyard poultry/goatry/piggery program, and adopting area specific saturation approach for development of poultry, goatry and piggery,
- (vii) Strengthening of Animal Health Services through improved programs for vaccination and infrastructure facilities. Regular vaccination programs against major diseases will be organized.
- (viii) Insurance schemes for milch animals will be implemented.
- (ix) Strengthening of veterinary institutions at Block level with ambulatory services.
- (x) Appointing field level extension workers; PashuMittra will be appointed for all Gram Panchayats.

- (xi) Establishing modern slaughter houses and processing units at district level.
- (xii) Developing a state of art center for diagnostics, quality control, disease surveillance and reporting systems.
- (xiii) Feed and Fodder development will be ensured through setting up of cattle and poultry feed plants in PPP mode at block level and establishing Fodder Development Authority (FDA).
- (xiv) Special programs for Mahadalit families and families below poverty line to encourage goat rearing and poultry.

Strategies for Fisheries Sector

The overall objective is to increase fish production by three fold through the development of ponds, reservoirs, ox-bow lakes and wetland and adoption of technically sound aquaculture practices, rehabilitation of riverine fisheries and restoration of its habitats, strengthen hygienic storage condition, rapid transportation system, and market networks. Specific programs and actions will be undertaken for

- (i) Developing new water areas, renovation and restoration of old water bodies.
- (ii) Bringing water logged areas and wet lands under aquaculture.
- (iii) Encouraging and strengthening both culture and captive fisheries.
- (iv) Promoting establishment of seed farms for ensuring timely and adequate supply of quality seeds at economical rates throughout the year.
- (v) Introducing fast growing fish species in water bodies of Bihar.
- (vi) Strengthening financial institutions for timely and adequate credit facilities.
- (vii) Promoting insurance coverage for fishermen and fish crop.
- (viii) Encouraging new culture technologies, integrated fish farming and post- harvest management.
- (ix) Strengthening institutions for hatcheries, breed bank/seed bank, fish feed mill, disease diagnostic labs, field testing labs and establishment of Fisheries Research Institute.
- (x) Training of fisherman cooperatives along with fish farmers of private water bodies.
- (xi) Establishing cooperative structure for fisheries.
- (xii) Establishing new private fisheries college and new technical courses on fisheries.
- (xiii) Establishment and strengthening of extension system up to village level.
- (xiv) Encouraging public private partnership.
- (xv) Institutional strengthening through organizational restructure and capacity development of personnel/staff by enhancing technical, extension, managerial, social mobilization and leadership skills.
- (xvi) Socio economic upliftment of poor fishermen community.
- (xvii) Assuring water availability throughout the culture period.
- (xviii) Improving data base systems on resources, output, field practices and income/livelihood benefits.
- (xix) Improving monitoring and evaluation for tracking implementation of schemes.
- (xx) Implementation of programs for women empowerment.

Strategies in Cooperatives Sector

The 12th Five Year Plan envisions a self-reliant and vibrant cooperative credit and marketing structure to support the development of agriculture in the state. Steps will be taken to make cooperative structure more effective, focused and economically viable with an aim to substantially enhance the contribution of cooperative institutions in extending credit to agriculture and allied sectors. To achieve this, synergies between policies and programs of agriculture and allied sectors with a cooperative structure will be established. Development of PACs, VyaparMandal and BISCOMAUN will facilitate supply of agriculture inputs and marketing of agriculture produce. Reassessment of legal and institutional framework will be carried out to meet the challenges.

Specific strategies will be implemented to strengthen credit delivery:

- (i) Expansion of Cooperative Banks (3 new banks in Saran, Darbhanga and Madhepura).
- (ii) Branch expansion of existing banks.
- (iii) Promotion of DCCBs for medium and long term financing.
- (iv) Generation of resources by deposit mobilization and better loan recovery.
- (v) Involvement of PACs to issue Kisan Credit Cards (KCCs).
- (vi) Deposit Guarantee Scheme to cover deposits in PACs.
- (vii) Facilitate credit to cooperative and contract farming.
- (viii) Formation of Joint Liability Groups involving share croppers and landless.
- (ix) Removal of operation difficulties by framing rules for smooth flow of credit;
- (x) Revisit and review the existing Cooperative Acts/Rules/Bye laws/Circulars;
- (xi) Assess the relevance of existing Apex level Cooperative Institutions and reviving the desirable institutions.
- (xii) Cooperative structure will be equipped to handle supply of agriculture inputs and marketing of products. Various steps will be taken for:
 - a. Strengthening of PACs,
 - b. Expanding physical infrastructure,
 - c. Augmenting storage facilities under different tiers - (a) Primary Agriculture Cooperatives- 200 MT, (b) VyaparMandal – 500 MT, (c) State ware housing – 10 Lakh MT, (d) Biscomaun - 1 Lakh MT (Additional)
 - d. Providing resources for capital expenditure and working capital.
 - e. Strengthening financial position and preparation of business development plan.
 - f. Channelising agriculture inputs through PACS and VMSS.
 - g. Linking Vasudha Centers with PACs and computerizations.
 - h. Procuring food-grain and distribution through PDS.
 - i. Extending financial support to PACs for involvement in procurement.
 - j. Promoting and regulating Contract farming.
 - k. Encouraging selected societies for seed farming and running agri-clinics.
 - l. Extending support of cooperative banking for animal husbandry and fisheries
 - m. Promoting Fish/goatry/ poultry Co-operative societies' under ICDP.

- (xiii) For human resource development and efficiency improvement, following actions will be taken up:
 - a. Filling of vacant positions at PACs, VMSS, DCCBs.
 - b. Restructuring cadres of different services and creation of additional posts.
 - c. Capacity building of officials/staff and establishing a new Cooperative Training Institute.
 - d. Inducting professionals in the board of banks (as per recommendation of Vaidyanathan Commission).
 - e. Promoting computerization and e- governance in offices at different tiers.
 - f. Installing Management Information System (MIS) for effective monitoring.

Agro-Industry

The growth of a modern and efficient agro industry is indispensable for full utilization of agricultural development potential in Bihar. Vast opportunities are available in processing of food grains (rice, maize, and wheat), pulses, oilseeds, fruits and vegetables, and other products. Agriculture based industries, however, have been constrained by inadequate storage capacity of farm products, very low processing capacity and inadequate storage capacity for processed products and severe lack of appropriate supply chain, quality control, transportation and other facilities. Focused interventions will be made in different fields in the 12th Five year Plan for growth of agro-industry for value addition, raising incomes of farmers and entrepreneurs, providing employment and energizing the rural economy. Thrust will be on increasing processing capacity and reducing wastage.

Following steps will be undertaken to promote agro-industry:

- (i) Reducing agri-losses (post- harvest) particularly in vegetables and fruits.
- (ii) Encouraging value addition in products and diversification in product line.
- (iii) Promoting maize based industries by
 - a. Setting up of corn processing units including products like starch, poultry, cattle/animal feed,
 - b. Utilizing opportunities available in Corn Oil,
 - c. Creating maize warehouse capacity.
- (iv) Developing Paddy/Rice based industries by augmenting capacity for paddy milling and promoting of Rice Bran oil mills.
- (v) Converting agro wastes into energy; vast possibilities are available in power generation through paddy husk based fuel.
- (vi) Supporting wheat based industries in the state by promoting biscuit and bakery factories.
- (vii) For promoting fruit processing, cold storages, IQFs, Ripening Chambers and Multi Fruit Processing units will be established.
- (viii) Establishing Mega Food Parks based on fruits and vegetables.
- (ix) Private sector investment will play key role in growth of agro- based industries. Private sector participation will also be encouraged through PPP mode.

Sugarcane

Development of sugarcane crop and products can contribute immensely in growth of agriculture sector in the State. However, vast opportunities have remained unutilized due to low sugarcane production and low recovery rate. Processing rate is abysmally low as only eleven mills are operational out of twenty-eight. To realize the potentials in growth sugarcane cultivation, the following strategies will be implemented:

- (i) Increasing the production, yield and crop coverage by-
 - a. Providing support to availability of high yielding seeds in mill areas,
 - b. Promoting base seeds for self-use and exchange,
 - c. Facilitating seed availability in non-mill areas also for promotion of Gur and Khandsari industry and
 - d. Promoting modern farming practices like increasing planting spaces and intercropping.
- (ii) Supporting mechanization programs in planting, inter culture and harvesting.
- (iii) Irrigation, major input in sugarcane cropping, will be facilitated by schemes for
 - a. Diesel subsidy in April-May and
 - b. Big diameter tube wells to be maintained and operated by sugar mills.
- (iv) Carrying out drainage of waterlogged areas.
- (v) Enhancing productivity by encouraging contract farming and custom farming.
- (vi) To increase the sugarcane processing capacities, focus will be on reviving the closed sugar mills and establishing new sugar complexes particularly with the help of private sector participation.
- (vii) Necessary steps will be undertaken to increase sugar recovery rate.
- (viii) Incentives will be provided to expand the processing capacity of existing mills.
- (ix) Under Sugarcane Policy various incentives are available for co-generation of power, establishment of distillery, and ethanol unit.
- (x) Diversification of sugar-based production will be encouraged.

Integrated Efforts from Different Sectors to Achieve the Objectives of Agriculture Road Map

Accelerated development of agriculture and rainbow revolution will require integrated efforts in multiple sectors:

Irrigation

Irrigation facility will be improved with use of surface and groundwater. Programs for shallow and deep tube wells will be implemented; agriculture scenario in south Bihar and areas producing sugarcane will particularly benefit from deep tube wells. Water harvesting schemes will help in groundwater recharging. Activities like removal of water logging and rehabilitation of Ahar Pyne irrigation will support in improving cultivation at local levels.

In drought and flood affected regions suitable crop varieties will be promoted to minimize crop losses. Effective and timely availability of agriculture input subsidy and diesel subsidy will be ensured.

Energy

Electrification of private and state tube wells will be carried out and separate feeders for agriculture purposes will be established. Use of energy efficient pumps and non-conventional sources of energy will be promoted.

Connectivity

Improvement in rural connectivity will help in bringing benefits of modern agriculture to farmers. All villages of population above 250 and habitations of population above 100 will be connected by pucca road.

Land management

Upgradation of land records will help farmers in multiple ways. Comprehensive task of land re survey - covering all villages - will be completed in the 12th Five Year Plan period. Modern tools like aerial survey, GIS and Remote Sensing will be used.

Afforestation and Environmental Conservation

Forests are keys for conservation of the environment besides there are immense opportunities available in forestry. Forestry will be carried out in government lands in plateau areas and along canal and embankments. Commercial cultivation of fruit bearing trees, trees used for herbal products, silk worm rearing, fodder products and timber wood trees will be encouraged.

Land Use Planning and Agriculture Statistics

Growth of Agriculture and allied sector will require modern and efficient land use planning for managing competing uses (agriculture, industry, residential, institutional, and others). To improve the land use efficiency, a long term Strategic Land Use Policy will be developed. Bureau for Soil Survey and Land Use Planning will be set up; redefining of land use categories according to current practices will also help in land use planning.

For successful planning and implementation of policies for agriculture and allied sectors, efficient and modern systems of data collection, compilation and dissemination are indispensable. Accurate and timely flow of data on crop coverage, productions are necessary for useful estimations. In the 12th Five Year Plan, agricultural statistics systems will be strengthened and modernized. Collection of statistics at Panchayat level has been started in eight districts. Crop statistics at the Panchayat level should be extended to all the districts of the state during the 12th Five Year Plan period.

To improve collection of weather related data, Automatic Weather Stations will be installed in all blocks in the next five years. Similarly, measures will be taken to improve statistics and information systems relating to horticulture, fishery, animal husbandry, and water bodies.

Multiple approaches will be followed for strengthening of agriculture statistics system:

- (i) Filling gaps in human resources particularly at field level,
- (ii) Imparting training at different levels,
- (iii) Integrating procedural changes and,
- (iv) Encouraging use of information and communication technology.

WATER MANAGEMENT

Overview

Bihar is endowed with rich surfaces and groundwater resources. With efficient and sustainable use, water resources can play a critical role in realizing goals of rapid agriculture development, mitigation of natural hazards like floods and drought and provision of safe drinking water.

The Twelfth Five Year plan envisions development of surface water resources by expansion of irrigation facilities for agriculture growth in the state. New major and medium schemes will be taken up with an aim of timely completion of projects. Effective institutional measures will be taken up to avoid disputes. Creation of new irrigation potentials will be accompanied with strategies for effective utilization of existing irrigation potential as the gap between potential created (PC) and potential utilized (PU) has increased over years. Timely completion of extension, renovation and modernization schemes will be encouraged. In order to promote Participatory Irrigation Management, constructed canal systems will be transferred to Water Users Association (WUAs) and existing WUAs will be strengthened with the help of capacity building programs.

Effective flood management is imperative to achieve the goal of making a developed and prosperous state. Efforts for long term measures like construction of reservoirs in upper catchments of North Bihar rivers with cooperation of Nepal will continue. Short and medium term measures like construction and maintenance of embankments along the rivers, anti-erosion works, raising and strengthening of embankment and Zamindari Bandh will be taken up. Information networks will be strengthened and use of space-based technologies for disaster mitigation and flood management will be encouraged.

Expansions of groundwater resource development and sustainable management practices have immense potential to accelerate agriculture growth in the state.

Additional groundwater irrigation potential will be created and the through execution of shallow and deep tube wells schemes. Extensive renovation program of state tube wells will contribute in restoration of lost potential.

Bihar aims to revive and strengthen traditional water harvesting system of Ahar and Pyne with community participation. The traditional irrigation systems offer multiple benefits including post-monsoon irrigation and replenishment of groundwater.

Water resource management needs different approaches and programs to meet regional requirements of North and South Bihar. Schemes of artificial ground water recharge will be taken up in drought prone and water stressed districts of South Bihar.

Improved water resource management for safe, easily accessible and safe drinking water facility particularly in rural areas will be one of the focus areas. Habitation based planning will be adopted to reach the unreached people for ensuring better quality of life by improving the general health status, and inclusive growth by reducing drudgery of women and unprivileged people (Mahadalit). While expanding the coverage special attention will be given to 'slipped back' and 'quality affected' habitations. Prudent mix of strategies for water resource management will help in realizing the vision

of “fast, sustainable and inclusive growth” delineated by Planning Commission for the 12th Five Year Plan, Gol.

Irrigation

Bihar has primarily an agrarian economy; irrigation is a key enabler for agriculture based growth. With improvement in technical, financial, and economic use of water resources, agriculture development plan in the state could be substantially benefitted. To achieve sustainable growth in agriculture, a thrust must be given to creation and maintenance of irrigation facilities, management of the endemic flood problem, reduction in water logging problem through provision of adequate drainage facilities, Command Area Development and Water Management Works.

Water Resources Department, Government of Bihar is entrusted with the task of development of surface water resources of the State. The department is responsible for creation and maintenance of water resource systems for major and medium irrigation projects, flood control, and Command Area Development. Water Resources Department envisions rise in investments in the 12th Five Year Plan to meet the challenges.

Major and Medium Irrigation Sector

Bihar is rich in surface water resources, however, development of major and medium irrigation systems have been beleaguered by two problems: low development of irrigation potential and low utilization of irrigation potential. As on 31.3.2011 about 54% of the assessed ultimate irrigation potential from Major and Medium Irrigation Schemes has been achieved but the utilization is only 58%. The details are in table 20.

Table 20: Irrigation Potential (Area in Lakh Hectares)

Total Geographical Area	Net Cultivable Area	Total Cropped Area	Irrigation Potential from Major and Medium Irrigation		
			Ultimate Irrigation Potential	Irrigation Potential Created	Irrigation Potential Utilized
94.16	55.63	79.92	53.53	28.86	16.36

Strategy

Creation of additional irrigation potential and restoration of lost irrigation will be key strategies of the 12th Five Year Plan. The tasks would be achieved through completion of ongoing schemes, completion of Extension, Renovation and Modernization (ERM) projects, and start of new schemes. The tasks would be completed through State Plan and Centrally Sponsored Schemes.

Completion of On-going Irrigation Schemes

To fully utilize water resources of Bihar, rapid completion of ongoing projects is indispensable. The additional irrigation potential of the tune of 24.67 Lakh hectares is yet to be created to achieve the ultimate irrigation potential of 53.53 Lakh hectares through major and medium irrigation schemes. Large numbers of schemes are in different stages of implementation; some of them have been

excessively delayed. Their completion would add to irrigation potential. For this purpose the execution of the following ongoing schemes are targeted to be completed during the 12th Plan period (2012-17):

- (i) Durgawati Reservoir,
- (ii) Uderasthan Barrage,
- (iii) Mandai Weir,
- (iv) Kundghat Reservoir,
- (v) Batesharsthan Pump Canal,
- (vi) Punpun Barrage, and
- (vii) Western Kosi Canal Project and
- (viii) Jamania (Karmnasa) Pump Canal Scheme.

ERM Irrigation Schemes

Successive loss of irrigation potential is a major challenge in utilization of irrigation potential. The gap between Irrigation Potential created (IPC) and Irrigation Potential utilized (IPU) has been increasing year by year. At the end of financial year 2010-11 the gap between IPC and IPU was approximately 12.50 Lakh hectares. Siltation and other hydro- geographical reasons are the prime factors causing the reduction of canal capacity, which resulted into loss of irrigation potential. Inadequate maintenance has led to sub optimal utilization of irrigation systems; focused attention would be required to restore the loss of irrigation potential. The following ERM schemes are under execution/to be taken up during the 12th Plan period (2012-17):

- (i) Restoration of Eastern Kosi Canal including Kosi Barrage Head works,
- (ii) Restoration of Eastern Gandak Canal system,
- (iii) Nepal Benefit scheme- Gandak project,
- (iv) Restoration of Western Gandak Canal system, and
- (v) Residual work of Sone Modernization Scheme.

New Proposed Irrigation Schemes

To accelerate the creation of irrigation potential in the State, new projects needs to be developed in a time bound manner. A number of schemes are presently under survey and investigation stage. DPR of these schemes are under the process of preparation. These schemes would be formulated during the 12th Plan (2012-17) period; their execution may spill over the next Plan period. According to the Water Resource Department, for the Government of Bihar approximately Rs. 4,200 Crores would be required to add about 800 thousand hectares of irrigation potential. The proposed irrigation schemes are as follows:

- (i) Extension of Eastern Gandak Canal System (Ph-II),
- (ii) Extension of Western Gandak Canal System (Ph-II),
- (iii) Construction of a Second Barrage on Gandak near Areraj,
- (iv) Development of Bagmati Irrigation and Drainage Project- Phase-I (Barrage near Nepal border at Dheng),
- (v) Drainage Improvement and Best economic use of water in Mokama Tal.

New Proposed Intra-State River Linking Scheme

The Government of Bihar has planned to link the rivers within the state to mitigate the recurrent problems of drought and floods in different parts. For this purpose the schemes like-

- (i) Transfer of Kosi Basin water to Mahananda Basin through Kosi-Mechi Link Canal,
- (ii) Dhanarjay Reservoir Scheme and link to Phulwaria Reservoir Scheme,

and others would be formulated during the 12th Five Year Plan period (2012-17). Survey and investigation have been initiated; on finalization the DPR will be submitted to CWC, MOWR, and GOI for its approval.

Strengthening Participatory Irrigation Management

In order to promote Participatory Irrigation Management, constructed canal systems are expected to be transferred to WUAs. Accordingly, large areas under irrigation systems have been transferred to 52 WUAs, others are in different stages of transfer. There is need to strengthen the existing WUAs through capacity building programs.

Flood Control

Almost every year Bihar faces vagaries of floods and water logging. The problem has been a major hindrance in the economic growth of the state. The recurring floods cause heavy loss to standing crops, life and property and severely damages infra-structure like roads and communication system. Managing floods is imperative to achieve the goal of making a developed and prosperous state. The identified long term measure is construction of reservoirs in the upper catchment of Kosi, Gandak, Bagmati and Mahananda rivers in the territory of Nepal. However, these are dream projects, which can be realized only with Nepalese cooperation. Till such time as the schemes are realized, the state would have to depend on short and medium term measures like construction and maintenance of embankments along the rivers. Till March 2011, the Water Resources Department has constructed 3629 kilometers length of embankment. This has contributed in protecting an area of 29.49 Lakh hectares against floods. Out of a total flood prone area of 68.80 Lakh hectares, remaining 39.31 Lakh hectare area remains to be protected against floods. Roads on embankment are also required to be constructed to facilitate all weather communications in flood affected zones for effectively maintaining the embankments. Types of flood schemes that will be undertaken in the 12th Five Year Plan are as follows:

- (i) Anti-erosion works on different rivers except Ganges,
- (ii) Flood management program,
- (iii) Road embankment,
- (iv) Raising and strengthening of embankment,
- (v) Raising and strengthening of Zamindari Bandh, etc.

Intra – State River Linking: Schemes for Flood Mitigation

In addition to the different conventional flood management measures mentioned above, recent studies made by reputed flood experts of the state have suggested to undertake linking of rivers scheme for flood moderation in North Bihar. The Scheme is based on the concept of diverting the surging discharges

of a particular river in spite to an adjacent river, which may have a normal or less than normal flow at that given point of time and thus have flood moderation benefits. An Expert Team constituted by the Department has identified four such schemes, which are presently under the process of preparation of DPR:

- (i) Kohra-Chandravat Link;
- (ii) Bagamati-Burhi Gandak through Belwadhar;
- (iii) BurhiGandak – None-Baya- Ganga Link and
- (iv) Kosi-Ganga Link (Bagmati).

Their execution would commence after the approval of the DPR.

Flood Management Information Support Center (FMISC)

A FMISC has been established in the state that has helped in flood forecasting and planning for disaster mitigation. In the 12th Five Year Plan FMIS will be up scaled and strengthened by use of latest modern technology. The program would include covering more districts under database.

Drainage

About 9.41 Lakh hectares of land is suffering from the problem of water logging in Bihar. It has been found after study of various expert committees that it would not be economically viable to free 2.5 Lakh hectares of land from water logging due to excessive depth. Against 6.91 Lakh hectares of water logged area, which can be drained out, about 1.50 Lakh hectares, has been made free till now. Remaining 5.41 Lakh hectares of land area needs to be freed from water logging.

Command Area Development and Water Management Program (CADWM)

CAD program has been running since 1975 under the Agriculture Department with Central assistance. In year 2003-04 Bihar Government, transferred CAD program from Agriculture Department to Water Resources Department. From 1st April, 2004 onwards, CAD program was restructured and renamed as CADWM program. Since 2010-11, it has been receiving funds under AIBP.

Minor Irrigation

Minor Irrigation includes all irrigation schemes, surface and groundwater, covering a cultivable command area up to 2,000 hectares, and include minor surface water-flow irrigation schemes, surface water lift- irrigation schemes, and groundwater utilization schemes through open wells, shallow tube wells and deep tube wells. In addition to this, the department also takes up schemes of natural as well as artificial ground water recharging which helps us in sustainable management of water resources.

Major strategies would be as follows:

- (i) Speedy development of potential,
- (ii) Improving the utilization of developed potential,
- (iii) Expanding irrigation benefits to un-irrigated land,

- (iv) Increasing the supply of private electric-based tube wells,
- (v) Increasing subsidies for tube wells and pumps; and
- (vi) Increasing sustainability by strengthening water users associations through proper training programs in the field.

Minor Irrigation Potential is presented in table 21 below:

Table 21: Minor Irrigation Potential under different schemes and utilization

Minor Irrigation Potential in Bihar	Area (Lakh hectares)
Surface schemes including traditional Ahar and Pines	15.44
Groundwater utilization schemes of open wells, shallow tube wells, deep tube wells	48.57
Total:-	64.01
Minor Irrigation Potential Created:	
Groundwater schemes (STW- 6.470; Pvt. T/W- 22.520)	28.99
Surface water schemes (5.191 LH from MI created sch.)	5.191
Total	34.181
Irrigation Potential Utilized	
Surface flow scheme including lift and barge schemes	0.718
Surfacewater (Ahar, Pynesandtraditional systems)	1.640
State Tube-wells and Pvt. T/W	26.75
Total	29.108

Department of Minor Irrigation aims to utilize the vast irrigation potential available. The proposed Irrigation potential to be utilized through creation and restoration in the 12th Five Year Plan is presented in table 22 .

Table 22: Proposed Irrigation Potential to be utilized through creation and restoration in the 12th Five Year Plan period

Proposed Irrigation Potential to be utilized through creation and restoration	
Uncreated Surface Water Potential (Through Including LI/Barge/Ahar/Pyne/Irrigation Ponds Scheme)	10.249 Lakh Hectares
Surface Water Potential already created but not utilized	2.833 Lakh Hectares
Uncreated Ground Water Potential	13.36 Lakh Hectares
Ground Water Potential already created but not utilized (As created 28.99 Lakh Hectares but utilized 27.89 Lakh Hectare)	2.24 Lakh Hectares
Execution of Artificial Recharge Schemes/Check-dams for water conservation as well as irrigation in hilly/water scarce areas of South Bihar districts.	1.680 Lakh Hectares
Total	30.362 Lakh Hectares

The following activities will be carried out to utilize the irrigation potential:

- (a) **Surface Irrigation: Creating and Restoring Irrigation Potential:** Additional irrigation potential of 7.230 Lakh hectares will be created through extensive renovation of traditional Ahar-Pyne/irrigation tanks schemes for which external funding will be required. Executing new surface flow schemes such as weir/slucice gates and MI schemes and new Lift Irrigation Schemes under State Plan/RIDF will create about 3.019 Lakh hectares of additional irrigation potential. Similarly 2.833 Lakh hectares of created potential, which is not being utilized, will be restored. In addition to the above, 1.680 Lakh hectares of potential will be created through execution of check dams and others water conservation schemes in hilly/water scarce areas of South Bihar districts during the 12th Five Year Plan period.
- (b) **Groundwater Resources:** The ultimate potential of annually replenishable ground water resources reserved for irrigation is 48.57 Lakh hectares. Potential of about 28.99 Lakh hectares will be created by the end of 2011-12. This leaves about 19.58 Lakh hectares of unexploited irrigation potential from ground water resources to be developed out of which 13.36 Lakh hectares during the 12th Five Year Plan. There is no immediate threat of over-exploitation of ground water resources although stage of development has been increased from 39% to 43%. About 8.28 Lakh hectares of additional irrigation potential can be created by exploiting the ground water resources through execution of 4.14 Lakh private shallow tube wells under Bihar Ground Water Schemes (BIGWIS). Another 5.08 Lakh hectares of irrigation potential will be created by execution of 12,700 community based/owned electric based medium- duty deep tube wells each having 40 hectares command which will be funded by NABARD, under RIDF, in subsequent phases. About 2.24 Lakh hectares of lost potential will be restored by extensive renovation of 2800 old state tube-wells, which have lost their useful lives.

The life of ground water irrigation structures like tube wells and pumpsets is approximately 20 years, soon average 5 percent of groundwater structures go out of service every year. To maintain the level of created potential, about 50,000 shallow private tube-wells and 100 state deep tube-wells need to be replaced every year during the 12th Five Year Plan period.

- (c) **Groundwater Recharging:** Due to weak as well as erratic monsoon prevailing in the state of Bihar, the dependability on ground water resources has increased. It has been observed that ground water level is depleting day by day and thus it becomes necessary to execute recharge schemes in the stressed areas. It has been proposed to execute 3350 artificial recharge/water conservation schemes such as check dams to provide irrigation in hilly/water scarce areas of South Bihar districts.

Groundwater recharge is required in the drought-prone south Bihar districts on priority basis. Given the current exploitation levels, direct groundwater recharge is not required; government encourages indirect recharge through the percolation of water stored in ponds, Ahars, chauras, and other water bodies. In some stressed areas of the South Bihar Zone, direct ground water recharge will be resorted to. So provisions have been made for adequate artificial recharging in the stressed areas. It is also necessary to explore and continuously monitor the status of the

ground water availability through execution of exploratory tube-well for which provisions have been made. The state government has formulated the Bihar State Ground Water (Regulation and Control for Management) Act, which will help in notifying areas where ground water exploitation has become critical.

In addition it has been also proposed to create a water regulatory authority as per 13th Finance Commission report to monitor the availability of surface as well as ground water resources and their utilization.

Major approaches

- (a) **Subsidies for Tube wells:** The State Government does not give free or subsidized power for operation of tube wells, and in fact, tube-wells function sub-optimally due to non-availability of adequate electric power. Subsidies for private shallow tube-well schemes for general, small, marginal and SC/ST farmers need to be revised.

It has also been found that progress of the scheme BIGWIS is not satisfactory despite regular monitoring and coordination meetings with Banks at high levels. There is a need to redesign the scheme to remove the constraints of financing. One of the approaches may be to consider direct financing to the beneficiaries without involvement of Banks. But in that case due precaution should be taken to plug in the probable areas of leakage.

- (b) **Involvement of Local Bodies:** New schemes need to be executed in a participatory format after the formation of WUAs. At present WUAs are allowed to collect irrigation revenue at state government rates. Further, they were asked to deposit 10 percent of the revenue accrued in the government revenue account and use rest of the 90 percent of the collected revenue to meet operation and maintenance costs. The structure and design of rates needs to be reworked out to give more freedom and flexibility to WUAs. Technical support needs to be extended to WUAs as and when required by them for maintaining the schemes. As active participation of WUAs is necessary for success of schemes; initiative should be taken to promote this by organizing regular training programs. It is proposed to hand over operation, maintenance and upkeep of all the schemes to WUAs by the end of the 12th Plan period.

- (c) **Enhancing Efficiency of Water Use:** The Command Area Development Program will implement the following schemes during the 12th Plan to increase efficient water use:

- (i) **Construction of field channels:** Properly planned, aligned and designed field channels are to be constructed, which originate from Ahar-Pyne system as well as medium minor irrigation schemes, to provide sufficient irrigation within the command of the schemes.
- (ii) **Enforcement of Warabandi (deciding the day and time of delivery of water):** Area-wise Warabandi schedules will be drawn up and implemented. This will help in maintaining peace among beneficiaries and no dispute will arise during using water for irrigation.
- (iii) **Correction of System Deficiencies:** The distribution system of medium minor irrigation schemes as well as Ahar-Pyne schemes have gradually lost their discharge carrying

capacity due to lack of proper maintenance. Capacities of the distribution systems of the schemes need to be restored by re-sectioning and de-silting them.

- (d) **Capacity Building and Training Program:** The capacity building and training programs for beneficiaries, water users associations and CAD personnel will be conducted from time to time through departmental officials, WALMI (Patna) and other government/non-government organizations to impart knowledge about the latest technology available in land and water management. It has been felt that for implementation of the 12th Five Year Plan there is need to enhance human resources by 3-4 times that will include hiring of electricians, fitters, operators, Junior Engineers, and Assistant Engineers. Besides R&D /Documentation/Services of experts for preparation of DPR and pre and post evaluation will be essential to meet the challenge of the 12th Plan period proposal. Provision of capacity building needs to be made for these purposes.

To increase the efficiency and capability of engineers, officials and other staff, it is necessary to organize periodical training programs, refresher courses and technical workshops. They will be encouraged to think of innovative ideas and giving them shape. In a nut shell they will be encouraged to adopt technology and innovation for achieving full creation and utilization of irrigation potential.

Action Points

To implement the above mentioned strategies, the following would be the action points:

- Creation and restoration of irrigation potential of 30.362 Lakh hectares through surface and ground water schemes.
- Extensive renovation of surface irrigation schemes including Ahar/Pynes and irrigation tanks.
- Execution of surface irrigation schemes on priority basis in drought prone districts of the state.
- Execution of community based/owned electric power operated medium duty deep tube wells in South Bihar and Sugar Cane areas.
- Incentivize execution of private shallow tube-wells under BIGWIS especially in north Bihar and non-hilly areas of south Bihar.
- Restoration of old state tube-well and lift irrigation schemes, which have lost their useful lives.
- Promote conjunctive use of surface and ground water to ensure drought proofing and strengthening the mechanism of ground water monitoring.
- Execution of artificial recharges schemes/water conservation schemes such as check dams in ground water stressed areas.
- Capacity building of engineers, officials, operational staff, beneficiaries, contractors and WUAs by
 - Organizing training programs, refresher courses and workshops and
 - Hiring of technical personnel and services of experts for preparation of DPR.

- Infrastructure development: construction of new field office premises, establishment of quality control labs at headquarter as well as field levels, strengthening of monitoring and evaluation wing, provision of third party inspection facility, man power empowerment by upgrading them with latest technology.

Scope of a convergence

As far as the scope of a convergence of a Programmatic Convergence between Integrated Watershed Management Program (IWMP) and MGNREGA and Minor Irrigation Projects is concerned, it has to be mentioned that the scheme of interlining of rivers will be carried after extensive renovation of traditional irrigation systems such as Ahar-Pyne and Irrigation Tanks with coordination of Water Resources Department. Inter lining of rivers basin will be done with modernization of Ahar-Pyne Systems. During extensive renovation of traditional irrigation system such Ahar-Pyne and irrigation tanks, the main conductor channels will be taken up first and the minor conductors with command and less than 40 hectares will be renovated with MGNREGA.

Strategies for Revival of Traditional Water Storage and Minor Irrigation through Ground Water Development and Management

As per M.I. Census conducted in the year 2000-01 with coordination of the GOI, it has been observed that there are about 21000. Ahar-Pyne/Irrigation Tanks in Bihar which were earlier constructed during Zamindari system with the help of Goam and maintained by them, but now a days due to lack of poor maintenance, their capacities have been decreased and almost reduced to about 10% or much below. Hence their revival becomes necessary.

Survey has been carried out and a preliminary project for 1637 schemes as integrated schemes has been prepared, codified and marked on a cadastral map.

The revival of such traditional schemes will recharge ground water, restrict the depletion of ground water levels as dependability has risen due to less as well as erratic monsoons in previous 2-3 years, and also reduce the flash flood in seasonal rivers of south Bihar.

Rural Drinking Water Supply

Improvement in drinking water and sanitation facilities is the key component of water resources management. Providing safe and adequate drinking water to the people adopting entitlement based approach of planning and implementation is one of the top priorities of the state. The objectives are to provide safe, accessible, and adequate drinking water to all rural areas especially to reach the unreached people by adopting the policy of taking habitation as the basic planning unit. The outcomes of this objective would be better quality of life by improving the general health status, reducing drudgery of women and unprivileged people (Mahadalit) and meeting the requirements of good governance.

Major Goals of Drinking Water for the 12th Five Year Plan

As far drinking water supply is concerned, following goals will be set for achieving the objective of providing safe, adequate, and sustainable drinking water supply to all habitations:

- Cover all the partially covered habitations with sustainable and stipulated supply of drinking water.
- Quality issues continue to be major concern. In the 12th Plan, it would be taken up as urgent priorities to cover habitations facing a severe water quality problem with safe drinking water facilities on a sustainable basis.
- Cover newly emerged habitations and those which have slipped back to 'partially covered' or not covered status due to a variety of reasons.
- Cover schools in rural areas with safe and sustainable drinking water on priority basis.
- Ensure social equity in distribution of assets for drinking water so that SC/ST population and other poor and weaker sections including minority communities are covered fully.
- Tackle problems of seasonal shortage and natural calamities and taking appropriate measures for flood prone areas.
- Ensure water sustainability and security.

Strategies for 12th Five Year Plan

The following strategies will be adopted to attain the objectives set in the drinking water sector for the 12th Plan:

- Completion of spilled over sanctioned drinking water supply schemes of 11th Plan to cover the slipped back and quality affected habitations.
- Supplementing with new schemes.
- Rejuvenation of outlived schemes.
- Replacement of ordinary shallow hand pumps by sustainable IM II/IM III hand pumps.
- Installation of hand pumps and drinking water schemes in urban areas.
- Water security planning and implementation at village and district levels for water scarce difficult areas of the state.
- Planning and implementation of drinking water schemes with conjunctive use of surface water, ground water, and rain water harvesting.
- Planning and implementation of drinking water safety plan for source protection, water quality monitoring and surveillance and cost effective treatment solutions to mitigate water quality problems. The district laboratories will be strengthened, sub divisional laboratories will be set up and community based water quality monitoring and surveillance will be established. R&D projects under collaboration with research/educational institutions will be taken up to develop cost effective treatment solutions.
- Adoption of integrated approach by combining in-site treatment with alternate safe sources, recharging and roof-top rainwater harvesting.
- Formulation and implementation of comprehensive mass awareness campaign and IEC strategy.

- Exploring and promoting Public Private Partnership for water scarce/water quality problem areas.
- Adoption of appropriate institutional arrangements for bulk water production, bulk water distribution, and in-village water management.
- Adequate numbers of production centers (PC) and Rural Sanitary Marts (RSM) will be established as an alternate delivery mechanism for Rural Sanitation Project.
- Innovative Concepts like Community Led Total Sanitation (CLTS), ECOSAN, etc. will be introduced as a catalyst in the Rural Sanitation Program.
- Convergence with concerned departments. E.g., Health, Water Resources Education, Social Welfare, Environment and Forest, Panchayati Raj for better planning and implementation of water supply schemes.
- Entrusting the ownership of Rural Water Supply infrastructure to PRI/User groups for operation and maintenance with implementation of capacity building/training programs for PRIs, NGOs, and other stake holders.
- Formulation and Implementation of state operation and maintenance policy for drinking water supply.
- Formulation and implementation of state drinking water policy.
- Development and implementation of Standard Operating Procedure (SOP) for implementation of drinking water projects.
- Adopting improved, transparent and effective monitoring, reporting and evaluations systems focused on outcomes. Web based monitoring system will be introduced.
- Effective Public Complaints Redressal System will be set up.
- E-Procurement will be introduced for rural water supply projects.
- Engineers will be trained in efficient design of new schemes and in rehabilitation and restoration of old schemes capacity building and training to other support staffs will be taken.
- Adopting Public Private Partnership for implementation of drinking water projects.

Monitorable indicators

The following monitorable indicators will be used to measure the achievements:

- a. Percentage of household having safe and adequate drinking water facility.
- b. Percentage of habitations having safe drinking facilities.
- c. Percentage of habitations covered by piped water supply scheme.
- d. Percentage of habitation having traces of contamination (Arsenic, Fluoride, and Iron) in drinking water facilities.

With sustained efforts and improved management, water resources can contribute immensely in growth and development of the state.

ENERGY

After bifurcation of Bihar, the major power generating stations were transferred to Jharkhand and Bihar was left with a meager generation capacity of only 493 MW (2x110 MW at Barauni in State sector, 2x110 MW at Kanti in Joint Venture with NTPC and 53 MW from Hydel projects). The generating capacity of Bihar is the lowest in the country. The state is predominantly dependent on allocation of power from the central sector generating stations to meet its demand.

The peak availability is about 1000 MW against the peak demand of 2500 MW, causing a peak shortfall of about 1500 MW, which results in widespread power shortage in Bihar.

The per capita consumption in Bihar is 122.21 units as against the present national average of 778.71 units. Bihar has targeted to achieve per capita consumption of electricity at least 731.66 units by the end of the 12th Plan. This per capita consumption translates to a staggering 11,650 MW of power generating capacity for Bihar.

The financial performance of the Bihar State Electricity Board (BSEB) has declined steadily over the years mainly due to substantial increase in cost of power (on account of use of imported coal by NTPC and increase in price of indigenous coal) and establishment cost (because of implementation of the 6th Pay Commission Report) with negligible increase in tariff.

The annual subsidies supporting BSEB have become unsustainable financially for the state government and for which reforms in distribution are in progress, with emphasis on augmenting revenue and bringing about operational efficiency.

Bihar has already issued an order for operationalization of five companies (one holding, one generation, one transmission, and two distribution companies) in connection with restructuring of BSEB.

The 12th Plan Approach for Energy Sector

Enhancing generation capacity

During the 12th Plan, peak demand for electricity is expected to surge in Bihar owing to electrification of villages and setting up of many industries. Industrial demand for power is also expected to pick up substantially in the wake of new incentives for investment provided by the Bihar Single Window Clearance Act, 2006; the Bihar Infrastructure Development Enabling Act, 2006 and the State Government's Industrial Policy, 2011.

A target of per capita consumption of about 731.66 units by 2016-17 has been set. The state plans to achieve this target in the phased manner detailed in Table 23 :

Table 23: Target Achievement by Bihar in the energy sector

Year	Per capita consumption (Kwh/annum)	Estimated Generation Capacity including Central allocation + Medium Term procurement + Long Term procurement (Case - I and Case - II) in "MW"
2012-13	162	2720
2013-14	197.6	3506
2014-15	224.3	4056
2015-16	357	6162
2016-17	731.66	11650

The state government considers the involvement of the private sector in the development of thermal power projects in the state, as an important aspect of the Power Policy. As an initial measure towards meeting this objective, the state government has identified three sites at Kajra (2x660 MW) at Lakhisarai, Pirpainti (2x660 MW) at Bhagalpur, and Chausa (2x660 MW) at Buxar where necessary groundwork is being completed. All three Case - II projects at Buxar, Kajra and Pirpainti will be developed through tariff- based competitive bidding under Case - II. In this regard, NIT has already been issued for call of RFQ/RFP for all the three Case- II projects coming up in Bihar.

- Land acquisition is under process through IDA. Section 4 and 6 Notification under the LandAcquisition Act has been issued for the above three projects. Govt. land transfer is under process.
- CEA has recommended for allocation of coal linkage for Barauni, Stage-II (2x250 MW) project and 2x660 MW Case-II projects at Chausa, District-Buxar under the early 12th Plan.

Additionally, some Independent Power Producers (IPPs) projects are expected to be added in the 12th Plan and for which the state government and BSEB is committed to extend the following support to IPPs:

- Off take of power at 400 kV
- Various clearances including recommendation of coal and water linkage for projects in Bihar
- Various benefits under the State Industrial Policy

The state government encourages captive power generation by industries using any of their waste, by-product or similar substances like bagasse-based co-generation in the sugarcane industry, provided that for continuity of generation in the off-season, any other substance could be used for generation. The state government shall provide all such co- generation plants similar incentives as available to captive power plants outlined in the Policy.

Procurement of power through Case -I Bidding

The State has planned to procure 1500 MW Power through Case - I bidding. The Power purchase agreement (PPA) for 450 MW has already been made and the power will be available from July, 2014. For the remaining 1050 MW +20% Power, bids have been invited and procurement process is likely to be finalized by September, 2011. The availability of power is expected from September, 2015.

In addition, restoration of Unit No. 6 of BTPS, the only generating plant owned by BSEB, was done in the year 2007 and renovation and modernization of 2x110 MW units each at BTPS and MTPS was approved by Planning Commission with limited scope of work.

To derive full benefit and ensure sustenance of desired PLF, certain essential infrastructural requirements are needed, which have not been included in the scope of repair and maintenance work awarded to BHEL under RSVY. So, under BRGF scheme for the 12th Plan remaining works have been proposed.

Bihar State Electricity Board is availing 300 MW Power under Short Term from September, 2011 to November, 2011. BSEB has initiated bidding process for procurement of 450 MW+20% under Medium Term for 3 years 10 months with effect from March, 2012. While allocation from Central Sector needs to be increased, there should be commensurate enhancement in availability of power.

Strengthening Transmission

Phase-1 of investment projects to strengthen the transmission system under the Rashtriya Sam Vikas Yojna has been completed. The augmentation of transmission system in the remaining part of the State is under progress in phase - II of the same scheme. Major works will be completed by March, 2012. Out of sanctioned amount of Rs2246.58Crores, Rs1886 Crores has been spent so far for strengthening of transmission works of Phase I and II.

During the 12th Plan period, the state government will provide active support to ensure the financial viability of developing new transmission capacity in the state, and the SIPB will give priority to the clearance of new transmission systems. Wherever required, the state government will also provide counterpart funding and guarantees for obtaining loans from central financial institutions and international funding agencies like ADB, World Bank, JBIC, etc. Support from central government for transmission networks as proposed under the 12th Plan under BRGF is essential to meet the huge investment required.

Existing transformation capacity with expected upcoming addition by March, 2012 is 220/132 KV- 4650 MVA and 132/33 KV-5423 MVA. The transmission capacity would therefore require massive strengthening to support the projected growth.

Asian Development Bank has prepared a Master Plan for transmission through its consultant SNC LAVLIN. They have recommended year-wise enhancement of capacity of existing G.S.S. and installation of reactors, etc. at voltage level 400 KV to 132 KV level. The total capacity after aforesaid addition shall be 3320 MVA at the level of 400/220 KV and at level of 220/132 and 132/33 KV would be 9800 MVA and 13023 MVA, respectively. The above works have been proposed under BRGF.

In order to create the new infrastructure in the state transmission system and to augment the existing capacity of the transmission system, Bihar will follow the model of Public Private Partnership developed by the Planning Commission, Gol. This would help in improving efficiency and reducing tariff. The above mechanism will also attract private investments in the development of state transmission system.

Distribution Reforms

The real challenge of reforms in Bihar's power sector lies in improving the efficiency of distribution. The current power distribution system is characterized by huge Aggregate Technical and Commercial (AT&C) losses of approximately 45 percent, which calls for a radical change in the way electricity distribution is managed. Fundamental restructuring and institutional development of distribution operations is crucial to the reforms planned for the power sector as a whole.

Distribution reforms will contain the following elements:

Distribution Reforms will contain the following elements:

- New distribution licensees formed as successor entities of BSEB will begin operations afresh, and without the burden of past losses, unserviceable liabilities and unrecoverable arrears.
- Feasibility of adoption of PPP Model for distribution management of Patna is being studied in collaboration with the Planning Commission. After feasibility study, PPP Model will be tried for four major cities viz., Patna, Gaya, Muzaffarpur and Bhagalpur.
- Under distribution reforms, NIT has been floated for awarding input based franchisee for rural and urban feeders. Hundred and seventeen bidders have participated for rural Feeders and 11 for urban feeders. The tender is in the stage of finalisation for the award.
- DPR for full scale electrification of villages and *Tolas* of all districts in Bihar is under preparation. The project is aimed at electrification of balance BPL Households left uncovered under RGGVY scheme as well as creation of robust and adequate electrical infrastructure to provide electricity to APL households on demand and other productive rural loads including agriculture. Out of 38 districts, DPR of 9 districts have been submitted to REC for approval and balance DPRs are under preparation.
- As most of the small capacity DTs (16 and 25 KVA) have failed within a short span of installation under the present RGGVY scheme, large capacity DTs (63 KVA and 100 KVA) along with proper strengthening of distribution network have been proposed in the scheme considering the population density of villages in Bihar and requirements of rural loads.

A restructured RGGVY Plan with an estimated cost of Rs 11,181.00 Crores has been prepared and submitted to the Gol for inclusion in the 12th Plan, whose salient features are as follows:-

- Tolas/habitations to be treated as units for rural electrification.
- 100% electrification of BPL households and connection on demand to APL households.
- 63 KV and 100 KVA transformers to be used along with robust HT/LT network to meet domestic and productive loads of the village.
- Provision of at least one PSS in each block.
- Special financial package and incentive for Bihar under Restructured RGGVY.
- Strengthening of distribution network of 49 towns (not covered under R-APDRP) whose population is more than 5000, has been proposed under BRGF for the 12th Plan. A total of Rs 245.47 Crores has been proposed for strengthening of 49 non-R-APDRP towns.
- Presently there is only one rural feeder supplying power to rural areas which cater to agricultural requirements, lighting load, and other rural loads, etc. resulting in frequent tripping, low voltage profile and overloading. So segregation of rural domestic and agricultural feeder has been proposed under BRGF to improve quality of supply and better load management in rural areas.

In the context of Bihar, where there is shortage of power, this arrangement will have incidental advantage of rotating the same quantum of power for different durations exclusively for rural supply as well as agricultural proposes.

- Segregation of feeders supplying to agricultural loads and other rural loads has been planned. An estimated cost of Rs 1990.37 crores has been proposed under BRGF for the 12th Plan for the purpose.

Intensive Checking and Raid against Pilferage of Energy

"Special Task Force" (STF) has been constituted by the BSEB for intensive checking and raid against pilferage of energy under Anti Theft Act. Electricity dues from the consumers are being recovered and certificate cases are also being filed against the defaulters. Special Courts have been set up at Patna, Gaya and Muzaffarpur to deal with theft cases on fast track.

Cent percent Metering

Presently there is huge deficiency of both system as well as consumer meters. Fifty five thousand seven hundred and twenty six system meters and 3,361,967 consumer meters are to be provided. In addition, 1222 system meters and 127,763 consumer meters are defective which need replacement. Annual growth of consumers is expected to be 10%. A time bound metering plan has been prepared.

APDRP

During the 10th Plan, APDRP Scheme was started for strengthening of Distribution network of 12 Circles viz. PESU (East), PESU (West), Patna, Muzaffarpur, Bhagalpur, Purnea, Saharsa, Darbhanga, Rohtas, Chapra, Gaya and Munger. The Cost of the Scheme was Rs 1066.58 Crores. Out of which, the work for Rs 986.18 Crores was executed under the Scheme. Construction of 36 Nos. New P/S/S, R&M of 219 Nos. P/S/S, Construction of New line - 33 KV - 558.7 KM, 11 KV - 306.10 KM, LT Lines - 269.61 KM and R&M of Lines - 33 KV line - 859 KM, 11 KV - 3055.3 KM, LT line - 655.81 KM as well as installation of 2220 Nos. of New DTs, R&M of 6367 Nos. DT's, 33 KMs of 33 KV underground cabling (in PESU West), 32 KMs of 11 KV underground Cabling (in PESU West), 25 KMs of LT Cabling (in PESU West), Street lighting in Harding Road and Bailey Road (in PESU West), Installation of Consumer Meters 494579 Nos., System Meters 14853 Nos., and SCADA in PESU, etc. were done.

The APDRP Scheme was short closed on 31.03.2009. However, some important leftover works like UG cabling in NC division, Metering, SCADA were taken up under the State Plan.

R-APDRP

After the short closure of APDRP, R-APDRP was launched during 11th Five Year Plan as a central sector scheme. The focus of the program is on actual demonstrable performance in terms of sustained AT&C loss reduction, establishment of reliable and automated systems for sustained collection of accurate base line data and the adoption of Information Technology. It will enable objective evaluation of the performance of utilities before and after implementation of the program and will enforce internal accountability leading to better performances. The project covers towns and cities with a population of more than 30,000. Seventy one such towns have been selected.

R-APDRP was launched in September, 2008 by the Gol to achieve 15% AT&C loss in the distribution system. It is to be implemented in two parts.

1. IT Application for energy accounting/auditing, establishment of baseline data and IT based Consumer Service Center. Gol approved Rs 194.58 Crores as loan for Part-A projects and IT Implementing Agency has been appointed. The works of Part-A is in progress and to be completed by December 2012.
2. Projects have been taken up for strengthening of distribution system network in 64 selected towns of Bihar having a population above 30,000. Total cost involved is Rs. 1500.00 crores to be arranged by PFC as a loan, which will be converted into a grant after achieving a target of AT&C losses up to 15%. DPRs of Part-B have been submitted to PFC, the work will be started after approval of DPRs by MoP, Gol.

Hydro Power

The lack of any medium or large hydropower plants in Bihar restricts its ability to meet peaking requirements or to have the flexibility to meet intra-day changes in system demand. Bihar has a current installed capacity of about 53.30 MW from small hydro power (SHP) and 27.00 MW is under construction with the potential for 250 MW more. SHP for 3.70 MW is likely to be added by March 2012. The State also has large hydro power generation potential in Dagmara 125 MW (Kosi) and Indrapuri 450 MW besides five pumped storage projects, pre-feasibility for which have been established by the Bihar State Hydroelectric Power Corporation (BHPC).

The DPR of Dagmara HEP (125 MW) has been prepared by M/s. WAPCOS and the same is being modified to address international issues before its submission to CEA for approval.

The state government intends to complete Dagmara HEP (125 MW) during the 12th Five Year Plan. The installed capacity of Bihar is likely to be around 209 MW by the end of the 12th Plan.

The State Govt. intends to develop large hydropower projects and the pumped storage schemes either through loans from bilateral and multilateral funding agencies or as joint ventures with central government generating companies like the National Hydroelectric Power Corporation (NHPC), and the private sector.

BHPC has been also allotted village electrification work in 820 villages out of which 624 villages are un-electrified and 196 villages are Left Wing Extremist affected under the Decentralized Distribution Generation (DDG) scheme.

Renewable Energy Sources

Bihar has high potential of generation of renewable energy especially in the field of solar as well as biomass. The renewable energy production in the field of wind energy however is limited to some riverine and hilly regions only. The energy production through solar photovoltaic as well as solar thermal has immense potential in the state for power generation.

It is expected that the plateau and hilly areas as well as the riverine belts in Bihar have sufficient wind speeds suitable for wind power generation. Wind energy potential in Bihar is being assessed by C-WET, a

GoI undertaking which has so far established 3 high mast stations at Adhaura (District Kaimur),Lalganj (District Vaishali) and Simultala (District Jamui). Three more places have been identified and are being assessed for their potential at Bodhgaya (District Gaya), Pirpahari (District Munger), and Ruxaul (District Motihari).

Rural electrification plays a vital role in all economic activities; it provides for a better quality of life and may be considered as an instrument the socio-economic development of remote areas. The State has good opportunity to cover these villages under Rajiv Gandhi Gramin Vidutikaran Yojna (RGGVY) for Decentralized Distributed Generation (DDG) in the 12th Plan in a big way. For these, a large scale survey of concerned villages is required and other preparatory works are also to be undertaken. This will facilitate the action plan and estimate of the costs. Primary work for preparing action plan has started.

The New Renewable Energy Policy, 2011 has come into being which has several incentives, some of which are as follows-

- Single window clearance of the renewable projects through SIPB.
- State Government would facilitate land availability through State Land Bank whenever necessary.
- The Bihar Electricity Regulatory Commission has fixed the purchase rate of the energy produced through renewable as well as the procurement quota year wise.
- The state government will facilitate loan from banks and other financial institutions to the project developers. Moreover wheeling facilities have been adequately defined and explained for all grid connected sources of renewable energy electricity generation projects up to 25 MW.
- Provision for waiver of entry tax on equipment and electricity duty apart from other incentives available under the industrial incentive policies of the State.
- BREDA as a nodal agency for the implementation of the renewable energy projects will co-ordinate with the provide project developers.
- The renewable energy production through biomass is another potential area for the state and to encourage investment in these projects special concessions are envisaged.
- The state government shall encourage project developers to install mechanisms such as Clean Development Mechanism (CDM) for leveraging funds for renewable energy-based power projects. BREDA is a nodal agency for helping private developers to apply for CDM benefits. Bundling of projects shall be encouraged for CDM application to make the initiative viable.
- Bihar State Energy Conservation Fund has been constituted for the promotion of efficient use of energy and conservation. The state has three type of projects for consideration:-
- Grid connected renewable energy projects based on biomass.

- Co-generation of renewable energy through bagasse in sugar mills and rice husk in rice mills.
- Off-Grid renewable energy distributing projects based on biomass. The investment of the private sector and cooperative sector is very important in the field.

Energy conservation

Given the significance of energy conservation, the state government shall prioritize it. There is an urgent need to have a system that encourages energy conservation and provides disincentives for inefficient use of energy. The state government shall promote measures for economy and efficiency in energy consumption. The state government also proposes to implement the provisions of the Energy Conservation Act, 2001 and to set up the State Resource Fund to promote activities for energy conservation. In co-ordination with BEE, PESU has planned to facilitate 'Bachat Lamp Yojna' in Patna on experimental measure. Demand side management will also be given emphasis.

For addressing the needs of the energy sector in Bihar, the state government is expecting the following support from the Gol:

1. Coal linkages
2. Allocation of power from Barh unit.
3. Allocation of power from Subhanshiri HEP (2000 MW).
4. Allocation of firm power from Bhartiya Rail Bijlee Company Limited (BRBCL), Nabinagar (4X250 MW).
5. Allocation of Power from DVC.
6. Assured power as per Bihar Central allocation; Bihar central allocation is increased by at least 500 MW; allocating maximum power from the hydel project being developed in Bhutan by the Gol; allocation of at least 1500 MW power from Punatsangchu I and II (2500 MW) to Bihar. The State Govt. may be allowed to join hands with the Gol/PSUs for execution of hydel projects in Bhutan. Bihar will even invest in equity in these hydel projects despite meager state resources to get better deal for the state in power allocation.
7. Allocation of power to Bihar from 15% unallocated quota of MoP, Gol.

Energization of Irrigation pumps through conventional sources of energy

There is a compelling need for second Green Revolution for Bihar, which has a three crop land and its crop intensity is only 1.52. 90% of the total energy required for irrigation purposes is expected to be met through conventional sources. To meet requirements of Green Revolution, there will be an additional requirement of electrical energy to the tune of 3000 MW to be met through conventional sources, which is primarily to meet large scale requirements (almost 10 Lakh pump sets of individual farmers) of electrical energy for irrigation pump sets operated by electric motors. In the present electricity scenario we are almost completely dependent on central sector. After meeting the emergent requirement and minimum requirement of urban sector, meager power is available for rural sector. Hence, it will not be possible to energize all the estimated 10 Lakh private tube wells in one go. It will take considerable time

for creating the necessary infrastructure to cover all the private tube wells through electrical networks from dedicated/ independent agriculture feeder through our existing and proposed 33/11 KV Power sub stations. As such with increase in power availability along with increase in electrical network to provide connectivity, the large number of private tube wells will be shifted in phases from diesel operating pump sets to electrically operated pump sets in the 12th and 13th Five Year Plans (Ten years) i.e., on an average, one Lakh tube-wells will be electrified per year. Based on projections, table 24 presents the year-wise energy required in 12th Plan:

Table 24: Power Sector requirement for the 12th Five Year Plan

Year	Requirement of power for irrigation purposes (In MW)	Projected Power availability of the State (In MW)
2012-13	2333	1467
2013-14	2655	2190
2014-15	2945	3015
2015-16	3238	4754
2016-17	3608	7472
Total for 12th Plan Period	3608	7472

INFRASTRUCTURE DEVELOPMENT

The state government has given top priority to the road sector in order to achieve its stated objective of bringing it at par with the national level and reducing travel time from the remotest part of the state to the state capital to less than six hours. In keeping with this objective, the state government has focused its efforts on improvement of road infrastructure during the last five years. This massive effort encompasses upgradation / improvement of all categories of roads in the state including construction / rehabilitation of bridges. The task has been enormous and consummate planning, effective strategies and logistic excellence has been the key to success. Table 25 highlights the 11th Plan figures.

Table 25: Infrastructure Development: Highlights of the 11th Five Year Plan

Year	NH			SH			MDR	Total
	NHO	State Fund	Total	RSVY	ADB	Total		
2007-08	191.00	510.00	701.00	-	-	00.00	1212.00	1913.00
2008-09	216.00	364.59	580.59	542.67	-	542.67	1983.00	3106.26
2009-10	378.17	297.66	675.83	921.63	6.42	928.05	1870.00	3473.88
2010-11	383.35	516.16	899.51	367.88	212.97	580.85	1410.00	2890.36
2011-12*	14.18	164.10	178.28	99.60	112.29	211.89	326.06	537.95

* upto August, 2011

In continuation of the momentum attained in the 11th Five Year Plan period, the Government of Bihar has amplified its road infrastructure development efforts with a view to upgrade roads of all categories in the state to the best national standard. A holistic approach based on well conceived strategy of financing and sequencing has been adopted so that this endeavor reaches fruition. Despite tremendous growth in the last five years a lot still remains to be done. Facilitation and cooperation of the central government is crucial for achievement of the objectives aspired for.

Expanding and Upgrading the Road Network

The state has successfully attracted public private partnership for investment in the road sector. In the 11th Plan period, the state has also obtained external funding from ADB, World Bank and JICA for development and upgradation of this sector. Funds under newly created heads are being attracted under the state budget to meet the need for accelerated growth. E-tendering has been introduced to ensure transparency and competition. A program for construction of small / medium bridges in roads under MMSNY (Mukhya Mantri Setu Nirman Yojana) is in full swing and it is intended to extend this scheme well into the 12th Five Year Plan period. Major bridges and other un-bridged gaps have also been proposed under NABARD Loan Scheme for effective connectivity of road network.

12th Five Year Plan: Thrust Areas

- In 12th Plan period, thrust would be given to bring the road density of Bihar at par with the national average.
- Upgrading National Highways networks in the state. This will include 4-laning of all major routes
- Construction of East-West Corridors
- Upgrading selected important State Highways into 4 lane standards
- Upgrading newly declared State Highways
- Upgrading Major District Roads to 2 lane standards
- Improving connectivity in LWE areas
- Strengthening Indo-Nepal Boarder road
- Strengthening rural connectivity under PMGSY

Eastern Economic Corridor and Dedicated Port

During the regional consultation held in Patna, it was highlighted that there is a need to create Eastern Economic Corridor from Raxaul to Paradeep port through the upcoming bridge on Ganga at Bakhtiarpur and a dedicated port on Eastern coast. In addition to this it was also raised that the state is willing to establish a dedicated port on the eastern coast and establish a dry ports within the state. State government would explore the possibilities to actualize the establishment of dry port and a dedicated port in the eastern coast during 12th Plan period and for which the State government would try to mobilize resources and convince Gol for provisioning special license to establish ports by the land locked states like Bihar.

Rural Roads

Rural Road connectivity is a key component of rural development. It promotes access to economic and social services, thereby generating increased agricultural productivity, non-agriculture employment as well as non-agricultural productivity. The government of Bihar has a mission to connect all the habitations having population above 250 in the next five years. At present population above 1000 is being connected under PMGSY (except 7 IAP districts where habitations above 250 are being connected under PMGSY). Remaining habitations having population 250-999 are to be connected by the state government. At present habitations having population 500-999 are being connected under MMGSY by state plan fund. Still there are many roads which have not been taken up under any above schemes but are very important and have been surveyed and found approximately 36000 KM. (Of the total rural roads of 95,800 km, roads taken up under PMGSY and State plan amounts to 59,800 km). Apart from this, bridges having length about 25000 meters are to be constructed for this connectivity. So to achieve the above target in the next five years, funds would be required for construction of rural roads and bridges.

Strategy

- Public–Private–Partnership
- Effective functioning of a flexible autonomous body for project development/management
- Implementation of proper maintenance policy
- Online monitoring of the project progress
- Strengthening quality control laboratories
- Expediting the process of appraisal and approval of DPRs for PPP projects by Special Project Cell
- Drawing up regulation under an enabling act to take immediate action to stop temporary/permanent encroachments, and regulate construction along and access to the right of way.

RURAL DEVELOPMENT AND PANCHAYATI RAJ

According to the report of Expert Group set up by the Planning Commission to review the methodology for estimation of poverty (November 2009), Bihar's Poverty Headcount Ratio stands at 53.5% for 2009-10 (with rural Poverty Headcount Ratio estimated at 55.3% and urban Poverty Headcount Ratio at 39.4%).

Poverty Eradication

About 90% of the total population of the state lives in rural areas with large dependency on agriculture and allied activities. The expansion of income opportunities in the agriculture sector and a progressive absorption into non-agricultural activity may be the most powerful tool for reducing poverty. Expansion of non-farm income opportunity in rural areas also has enormous potential and a great deal of this is related to farm activity – such as post-harvest operations, maintenance of farm equipment, etc. There is therefore a virtuous cycle inter-connecting the expansion of farm economic activity and that of rural non-farm income opportunities. The development of rural society needs holistic development of farm and non-farm activities.

The 12th Plan will aim at reducing the Poverty Headcount Ratio by at least one-third of the current level. This will be achieved by a combination of strategies relating to strengthening of the agricultural as well as non-farm sectors; reducing inter-district disparities in per capita investments; ensuring formulation of suitable schemes and greater allocation of resources under Scheduled Caste Sub-plan and Tribal Sub-plan; and strengthening of participatory planning processes at all levels, among others.

Landlessness

As per estimates of Bihar Land Reforms Commission, there are 16.68 Lakh landless households in Bihar. According to published estimates of the 59th round of 'land and livestock surveys' carried out by NSSO (for the reference year 2003--04), nearly 31.1% of households in Bihar neither own any land other than homestead nor cultivate on owned homestead land. If the proportion of households owning less than 0.4 hectares of land is taken into account, then the cumulative proportion of households owning less than an acre of land in Bihar amounts to 73.5%.

Disputes relating to dispossession of landless people from the allotted land of nearly 1.6 Lakh acres of land were sub-judice at the beginning of the new millennium. The 12th Plan will accord high priority to speedy resolution of land disputes pending in various courts in the state. Effective administrative measures will be initiated to facilitate secure possession of land allotted to the beneficiaries from socially and economically disadvantaged sections. The 12th Plan will also initiate measures to protect the interest of share-croppers, by introducing measures to cover their risks and to entitle them to relevant credit facilities.

Identification of the Poor

The above programs are BPL based. Therefore, an objective and full proof procedure for identifying BPL families is required. Hence, it is suggested that BPL Census should be conducted by a national commission to be setup along the lines of the Election Commission of India.

Rural Employment

There will be twin approach to handle the issue of rural employment. On one hand we have to work on enhancing wage employment, on the other we have to focus on increasing opportunities of self-employment.

Rural Employment

MGNREGS will be the major program for enhancing the opportunity of wage employment in rural areas. It is a demand based program with the objective to guarantee wage employment up to 100 days in a year to any desirous household.

At present it has been covering around 6% -7% of rural households in Bihar. The 12th Plan will aim at ensuring provision of 100 days of employment to at least 10% of all rural households in a year. In case of households of Scheduled Castes and Scheduled Tribes, the target will be raised to 20%.

During the 12th Plan wage employment through MGNREGS will be substantially stepped up to ensure at least 50 days employment per household per annum as against about 31 days per household per annum at present.

Bihar has registered a moderate rise in inflated adjusted real wages rate of unskilled laborers in recent years. The 12th Plan period will aim at ensuring a steady growth rate of real wages of at least 6% during the 12th Plan.

Bihar Rural Livelihood Project (BRLP), a state government initiative with a loan from The World Bank has been found to be quite effective in tackling rural poverty. During the 11th Plan, BRLP was limited to 6 districts. During the 12th Plan it shall be expanded to all districts of Bihar. GoI has launched the National Rural Livelihood Mission (NRLM). Learning from BRLP would be incorporated in NRLM to facilitate substantial growth of the non-farm sector along with agricultural development. In order to make NRLM more effective, purchase of land by SHGs funded from SGSY/NRLM may be identified as a key economic activity. Greater thrust will be given on increasing productivity of land holdings especially of small and marginal farmers.

The 12th Plan will ensure earmarking of relevant schemes and adequate funds under SC sub-plan and Tribal Sub-plan, relating to rural development, as per norms convergence of all schemes may be done while planning at district level.

Rural Housing

Housing has remained an important ingredient in rural development schemes. A major program for providing shelter has been the centrally sponsored scheme of Indira Awas Yojana (IAY). The program would continue to be the major intervention for tackling houselessness. However, the amount of assistance needs to be upgraded keeping in view the rise in costs of construction.

The 12th Plan will aim at provisioning of 43.5 Lakh additional houses to homeless families by the end of the Plan period through IAY, taking into account the current rate of provisioning of IAY houses.

One of the major constraints in providing shelter to a large number of families is the non-availability of house sites. The state government has started a program of providing assistance to families without house sites for purchase of land to the extent of Rs 20,000 per household in case of non-availability of government land. The central government also provides assistance to the extent of 50 % (subject to the maximum assistance of Rs 5,000) of the purchase/acquisition price of land for house sites for landless families. During the 12th Plan it would be ensured that all households are given assistance for land purchase for house-sites.

It is obvious that poor beneficiaries are vulnerable to calamities and diseases. Hence, provision should be made to provide insurance coverage for IAY houses and beneficiaries.

One of the major lacunae in the development of rural planning is lack of vision for proper habitat. It would also be necessary to prepare a policy for Rural Housing. During the 12th Plan such policy shall be prepared, which would lay down the basic thrust areas of requirement of rural habitations, construction materials, funding, alternative technologies, and designs for affordable housing, etc.

Food Security

Ensuring food security is necessary for poverty reduction. The 12th Plan will seek to address the issues in a more effective way. Public Distribution System would continue to serve as an effective instrument of food security. However, reforms based on decentralized, transparent and accountable mechanisms of service delivery would be carried out for improved targeting of beneficiaries, effective grievance redressal systems and smoother flow of subsidies. An alternative strategy in the form of cash transfer would also be explored for ensuring food security.

Rural Sanitation

Promoting the use of sanitation facility amongst community is one of the top priorities of the state. Nirmal Bihar is a dream of a clean and healthy state that contributes to the well-being of the people of Bihar. The objective is to eliminate the practice of open defecation in rural areas and to ensure safe disposal of human excreta, domestic liquid waste, and solid waste. The expected outcomes would include improved health, decrease in incidence of water and sanitation related diseases and provide dignity and privacy to rural women and also improve enrolment and attendance of girls in school. It would bring about an improvement in the general quality of life in rural areas.

An investment of Rs.526.83 Crores has been made in the 11th Plan (till 31.08.2011). During the 11th Plan (up to 31.08.2011) 28, 64, 907, Individual Household Latrines (IHHL) have been constructed out of which 21, 52,251 IHHL are in BPL and 7, 12,656 IHHL are in APL (Above Poverty Line) families. Forty two thousand eight hundred and one School toilets, 1,422 AWC (Anganwari Center) toilets and 218 community toilets have been constructed during the 11th Plan.

Goals for the 12th Plan Period

During the 12th Plan to improve the rural sanitation, 100% coverage of individual households shall be covered with sanitation facilities. All schools and Anganwari centers will also be provided with toilet facilities. Cost effective and appropriate technologies will be encouraged. Solid and liquid waste management in villages would be introduced. Access to safe sanitation at public places, e.g., markets, bus stand, and religious/tourist sites would be provided. In order to generate demand campaigns shall be launched for awareness and health education.

In addition to the centrally sponsored programs of Total Sanitation Campaign, the initiative taken by Bihar, under Lohiya Swachhata Yojna, to provide incentive to APL families for construction of IHHL would be continued in the 12th plan period.

Key strategies for the 12th Plan in this sector would be as follows:

- Formulation and implementation of comprehensive mass awareness campaigns and Information Education and Communication (IEC) strategy.
- Adequate numbers of production centers (PC) and Rural Sanitary Marts (RSM) to be established as alternate delivery mechanisms for the Rural Sanitation Project.

- Innovative concepts like Community Led Total Sanitation (CLTS), ECOSAN, etc. to be introduced to work as a catalyst in the Rural Sanitation Program.
- Convergence to be attempted with concerned departments. E.g., Health, Water Resources, Education, Social welfare, Environment, and Forest Panchayati Raj Departments for better planning and implementation of water supply schemes.
- Entrusting the ownership of Rural Sanitation infrastructure to PRI/User groups for operation and maintenance with implementation of capacity building/training programs for PRIs, NGOs, and other stake holders.
- Formulation and implementation of State Sanitation Policy.
- Development and implementation of Standard Operating Procedures (SOP) for implementation of sanitation projects.
- Effective Public Complaints Redressal System to be set up.
- E-Procurement to be introduced for rural sanitation projects.
- Adopting Public Private Partnership for implementation of sanitation projects.

Water Quality and Sustainability

Water quality and sustainability issues continue to be a major concern for the state. Looking over the huge water quality problem in major parts of the state due to contamination of water by the presence of traces of Arsenic, Fluoride and Iron, there is a need to develop appropriate, cost effective, user-friendly technological options. There is a need to procure Hydro-Geo-Morphological (HGM) Maps on priority basis for better ground water aquifer management.

Panchayati Raj

The role of the Panchayat government is quite crucial for ensuring people's participation and empowerment. Steps have already been taken in Bihar to strengthen the roots of the decentralized governance. The Bihar Panchayati Raj Act, 2006 was enacted after replacing and repealing the Bihar Panchayati Raj Act, 1993. It took a historical decision of providing 50% reservation to women in all the Panchayat governments. In August 2011, the cabinet of Bihar took another historical decision of devolving 7.5% of state's net tax revenue to Panchayat governments and Urban Local governments in Bihar. The 12th Plan will further strengthen Panchayat governments in Bihar by formulating rules to accompany the Bihar Panchayati Raj Act 2006, thereby enabling PRIs to initiate measures in the following direction:

- Stipulation of maximum rates of taxation of Gram Panchayats, Panchayat Samiti, and Zila Parishads in line with section 27, 55, and 82 respectively of Bihar Panchayati Raj Act 2006;
- Specifying the domain of authority of various standing committees of Gram Panchayat, Panchayat Samiti, and Zila Parishad to enable them to discharge their responsibilities;
- Specifying directives to ensure administrative control of all state government institutions, projects, schemes and offices located within the territory of a Panchayat to be vested in the Panchayat in line with Bihar Panchayati Raj Act 2006;

- District Planning Committee (DPC) has been established in all the districts of the state. The 12th Plan will aim at strengthening DPCs as well as Gram Panchayats, Panchayat Samitis, and Zila Parishads with provision of fully equipped secretariats, including full-fledged office buildings, competent support functionaries and convergence facilitation units;
- The 12th plan will aim at streamlining the planning process in the Panchayat governments at various levels, by ensuring timely stipulation of resource envelopes for steering the process of entitlement based decentralized district planning process. Parallel duplicative planning exercises often bypassing the Panchayat governments will be emphatically discouraged;
- Amending Bihar Panchayati Raj Act, 2006 to include a clear stipulation of the need of formulation of Entitlement Based Integrated Plans at the level of planning units which are Gram Panchayat, Panchayat Samiti, and Zila Parishad;
- The 12th Plan will ensure immediate preparation of District Planning Entitlement Handbook (a comprehensive guideline for district planning) to set up a clear domain of responsibilities of the Panchayat governments;
- The Panchayat governments and key functionaries are provided with opportunities of enhancing their capacities related to planning, monitoring, and governance of development processes based on values of equity, social justice and accountability.

URBANIZATION AND CHALLENGES

Background

Although Bihar continues to be the second lowest urbanized state for three successive decades (separating out Jharkhand from 2001 Census), its percentage decadal growth of urban population at 35.11 against 31.80 for the country as a whole (it is also higher than as many as eighteen states/UTs) speaks of its urban growth. The state offers a unique case of nearly constant urbanization with significant urban growth.

From a population of less than a million residing in urban areas in 1911, urban Bihar now is the home to nearly twelve million people. The absolute urban population of the state at 1.17 Crores is more than the urban population of all the eight North Eastern states together!

Despite having a solid urban base, the urban affairs in the state are yet to be streamlined on a sound footing. Not only did the state have an appalling deprivation as evident from its deprivation index at 19.71 (as against the national average at 16.79), its urban governments are also at a nascent stage resulting in huge governance deficit and confusion as to who governs the urban settlement.

Urban Agenda

To take care of a whopping 11,729,609 urbanites living across 1,800 sq. Km is not an easy task. Let alone the need for a vast army of trained municipal officials, a pragmatic urban strategy, strict adherence to time line in project preparation and execution, formulation of various rules and regulations required under different urban statutes, the state needs a huge investment of nearly Rs 70,530 million as per an estimate based on Zakaria Committee norms with the price index adjusted to 2010 prices and population estimated at the exponential rate of growth observed between 1991 and 2001.

Given the urban scenario in the State, the following strategies would be adopted in 12th Five Year Plan:

- Building up of a comprehensive and consistent municipal database. A well-structured uniform format needs to be prepared to compile urban datum and update it periodically across all the ULBs.
- Mapping of municipal areas must be digitized in GIS enabled framework. It need not necessarily be done with aerial imageries (CARTOSAT II) given the huge cost implication. The most cost effective way would be to digitize the cadastral maps and attribute the spatial features (through GIS – MIS integration) in it including the contouring with total station survey as done by many ULBs across the States of the country.
- Pending the preparation of master plans, a uniform set back, height, and coverage regulation may be enforced across the urban settlements where the master plans have not yet been prepared. No building plan is sanctioned unless the same conforms to the coverage, height, and set back regulations.
- Land being a principal constraint in project implementation, securing land availability free from any encumbrances must be ensured before formulating any project.
- Community participation (Area *Sabhas* for UIDSSMT and IHSDP and neighborhood groups, neighborhood committees, CDS for SJSRY) would be ensured.

- For disaster preparedness and mitigation, an extensive screening of buildings must be done across the urban settlements; retrofitting or reconstruction would be carried out by modifying the Building Byelaws.
- Poverty mapping would be done across the urban areas by clubbing together the formats as indicated in the guidelines of Rajiv Awas Yojna and Revamped SJSRY.
- Two programs namely, SJSRY (for poverty alleviation) and IHSDP (for slum improvement) should be fully handed over to ULBs. ULBs should converge the two components of SJSRY, - training and self employment for mutual benefit of the beneficiary as well as the ULBs. Best practices of several ULBs in this regard in other states should be adopted.
- Rules and regulations would be framed immediately for taxes, user charges, fees that can be levied by the ULBs as given in the Bihar Municipal Act. For example, the rules on Toll Bar may fetch significant revenue for the ULBs given the burgeoning growth in both passenger and freight traffic provided such imposition does not generate unmanageable traffic jams.
- Along with developing satellite townships to counter the unabated growth of large cities, a well thought out plan should be formulated for the integrated development of small and medium towns by accessing funds under UIDSSMT as suggested by various committees. The plan of provision of urban services for rural areas (PURA) may be revived to halt the continuous rural – urban migration.
- Uniform staffing pattern, varying across the class of municipalities (Section 37 of Bihar Municipal Act does not specify the strength of officials across category 'A', 'B', 'C', and 'D' posts) would be put in place.
- ULBs would plan for the convergence of all government programs being/to be implemented within their jurisdiction in consultation with the District Collector by synergizing the efforts of all stake holders till the activation of DPC. The respective priorities, agenda and strategy of different departments/institutions involved in urban development should be consolidated through coordination and cooperation amongst the concerned institutions/organizations.
- Ward index would be prepared to prioritize the schemes across a municipal area.
- Dumping ground must be delineated for all the 139 ULBs where such a dumping ground is not yet available. Vermi-composting or bio composting should be popularized by each ULB at ward levels so far as practicable. Local clubs/NGOs should be engaged to popularize and implement door to door garbage collection and garbage segregation at source.
- Projects like construction of whole sale market, cold storage, godowns, truck terminal would be prepared in view of their high demand and sustainable remunerative aspects.
- Instead of 24 x 7 water supply projects requiring huge cost implication, piped water supply to households through metering be planned for. Given the experience of low recovery of water charges from individual connections, water charge may be imposed on the neighborhood overhand tank, the payment of which would be collected from the respective neighborhood committees (Area Sabhas). Adequacy of water should be weighed against the cost implication and the willingness to pay of the consumer to reduce the quantum of non-revenue water. Care should be taken to reduce the unaccounted flow of water (transit loss of water). The soft path water demand management in residential cluster may include three water demand management techniques – economic, structural and operational, and socio political. Although a

minimum/subsidized domestic tariff for life line consumption up to a modest quantity should be levied, telescopic tariff should be followed for consumption beyond life line supply and up to a limit. Linking of tariff with variations in cost of energy and raw water quality should guide the fixation of tariff.

- PPP approach would be adopted wherever feasible from water treatment down to water billing and collection.
- Better coordination between national and state level organizations dealing with water would be ensured to avoid duplication and ambiguity of functions that discourages unitary analysis of this scarce resource and preempt vague decisions taken in isolation.
- Micro business center as proposed under SJSRY along with the subsidiary network would be set up across the towns.
- Sewage treatment by growing non-edible crops such as trees (Eucalyptus, Poplar, and Subabul) on raw sewage would be popularized. Sewerage would be planned for only those towns where urban water supply and electricity could sustain the system since it requires enough electricity to pump voluminous water for flushing.
- Natural water bodies/wetlands and natural waterways (other than rivers) would be protected through a detailed rehabilitation plan for discharging treated sewage water into them.
- Behavioral changes towards scientific sanitation habits should be inculcated through IEC.
- Well integrated multimodal public transport system would be planned for seamless travel across modes by designing a sound interchange infrastructure and introducing a single ticket over all such systems.
- Urban transportation would be incorporated as an important parameter at the urban planning stage rather than being a consequential requirement. Different types of public transport for different segments of commuters would be planned for. Smaller buses along arterial roads may be a good substitute for private vehicles.
- Intermediate public transport (IPT) would be promoted to cater intra urban mobility mostly along arterial/low density principal roads. Fare structure of IPT modes should be properly framed and strictly enforced.
- Working hours of offices, educational institutions, and commercial establishments would be staggered to avoid the conflict of traffic movement dedicated to these activities.
- Municipal e-governance would be concurrently implemented with intense e-participation, the latter through IEC.
- Gender planning would be accorded top priority. Working women hostel, crèche for working mothers at work places, legal literacy for women victims of different social evils, off peak hour MRTS for women exclusively, etc. would be ensured for urban women. Care would also be taken to see such gender planning takes care of group and age specific differences amongst women themselves.
- To cash in on the huge demographic dividend (7 million young populace across the urban settlements of the State are in the 15 – 59 age group), skill formation and skill upgradation have to be taken up on a massive scale by strengthening the capacities of the State's technical institutions.

- As regards to situating the urban street vendors in a planned manner, mono functional use of urban space has to be discarded by accepting its multi functional use. The spatio-temporal attributes of urban land use needs to be acknowledged. It must be recognized that urban land has got secondary and tertiary functions.

Urban planning (especially traffic management) has to be resorted to for re-solving 'livelihood – congestion trade-off'. The natural propensity of the street vendors to hawk in certain places at certain times in response to the demand for their goods/services would also be ensured. There is a need to acknowledge the importance of pedestrian traffic in urban transport system.

In addition to the above strategies, the state also aims to prepare a comprehensive framework of urban policy and planning in view of the recommendations of the Report on Indian Urban Infrastructure and Service. The key elements of this framework are:

- Increasing investment in urban infrastructures from 0.7% of GDP in 2011-12 to 1.1% by 2031-32
- In association, increasing spending on maintaining assets – old and new
- Engaging in renewal and redevelopment of urban areas including slums
- Improving regional and metropolitan planning with integration of land use and transportation
- Ensuring access to services for all including the poor to meet the recommended norms
- Reforming system for service delivery
- Improving governance of cities and towns by unified command under a Mayor
- Strengthening and securing the financial base of ULBs
- State Governments providing an enabling environment for ULBs to discharge their enhanced responsibilities
- Central Government launching a New Improved JNNURM (NIJNNURM) that focuses on capacity building and support urban reforms within a program approach

Before bifurcation the erstwhile state of Bihar was far behind other states in terms of industrialization even though it was a mineral rich state. One of the reasons of this inadequate industrialization was freight equalization policy. After the bifurcation, industrialization of the residual state was pushed still to a lower level as compared to Jharkhand and rest of India. After bifurcation, Bihar became a pure agricultural state with some minor minerals like sand, pyrites, etc. Due to this queer situation Bihar become an importer of consumer goods and exporter of manpower.

It is pertinent to note that there is no major industry in the state. The small industries in the state are dominated by tiny enterprises and artisan based industries and its share is as high as 99.9 percent among all the Medium, Small and Micro Enterprises (MSME) units. According to Economic Census 2005, out of a total of 12.25 lakh enterprises, only 7 percent were financed by banks, 80 percent enterprises did not have power linkage, and 11 percent functioned without premises. The dismal scenario of industrial sector is also shown by the comparative figures of the Annual Survey of Industries in the table below:

Table 26: Annual Survey of Industries (2007-08 and 2008-09)

Characteristics	2007-08			2008-09		
	India	Bihar		India	Bihar	
		Total	Percentage		Total	Percentage
Number of Factories	146385	1785	1.22	155321	1777	1.14
Fixed Capital (Rs lakhs)	84513209	301470	0.36	105596614	303254	0.29
Working Capital (Rs lakhs)	31695306	163563	0.52	31123298	147072	0.47
Total Persons Engaged (No.)	10452535	73676	0.70	11327485	73659	0.65
Value of Output (Rs lakhs)	277570904	2187362	0.79	327279786	2953967	0.90
Net Value Added (Rs lakhs)	48159268	115947	0.24	52776558	3183796	0.60

Huge investment either public or private or in PPP mode is required to trigger industrial activities in the State. Keeping this in view Government of Bihar has tried its best to attract investment through its State Investment Promotion Board (SIPB) and Industrial Incentive Policy, Food Incentive Policy, Price Preference Policy, Single Window Act, Infrastructure Development Authority Enabling Act, etc. It has also proposed Industrial Inclusive Land Acquisition policy which is fair and transparent for both stake holders. But Bihar is yet to attract adequate appropriate investment to accelerate the momentum of industrialization.

After formation of SIPB it has concurred to a total of 529 proposals with investment prospects of Rs 253,942.20 Crores with employment prospects for 170,869 persons. But due to various reasons till date only 55 units have become functional and 150 units are under pipeline in which the total investment is about Rs 3134.88 Crores which is quite evident that pace of industrialization in the state is very-very slow due to lack of power, roads, and other infrastructures. It is generally said that slow pace of industrialization of Bihar has a pulling effect on national growth, so very special and critical circumstances created for Bihar needs extraordinary efforts and special status, if we want the growth of nation with peace and equity. If the nation does not pay attention to the needs of Bihar, the state shall remain permanently undeveloped, impoverished and its population restive.

In the 12th Five Year Plan focus will be on intensive efforts to promote industrial growth in areas where the state has comparative advantage such as agro and food processing, tourism, healthcare industry, higher and technical industrial education, FMCG and other consumer goods, secondary steel sector, textiles, power and renewable energy generation. Growth of the manufacturing sector in the 11th Plan is likely to remain at 8.2%. There is need to raise this growth to 11-12% per year in the 12th Plan period to create more jobs for our growing labor force. This has become an urgent need, since it is now clear that agriculture will no longer absorb more workers. The manufacturing sector (industry) performance is weak at the present scenario. Hence it has to perform better in investment, production and creation of jobs.

Strategy

- To improve the business environment and reduce the overall cost of existing business.
- Land and infrastructure constraints must be addressed effectively.
- Promoting MSMEs 'cluster'.
- Thrust on skill upgradation/Skill development Institutions.
- To adopt and encourage PPP mode of investment.
- Revival of PSUs of the state.
- Rehabilitation of sick units.
- To promote value added production (food Processing)
 - Diversified products- milk, fish, meat and poultry.
 - Agro based wealth- consumer products.

Short Term Strategy

1. A new purchase preference policy to promote MSMEs.
2. To facilitate the modernized technology to MSMEs
3. Simplification of labor laws
 - a. MSMEs enterprises to be exempted from all labor laws except the Minimum Wages Act.
 - b. A separate and simple law on labor related matters should be enacted for MSMEs employing less than 100 workers.

Medium Term Strategy

1. Strengthening power distribution and transmission system to reduce distribution losses
2. Dedicated freight corridor from the ports in Orissa or West Bengal to major commercial cities/towns in Bihar, i.e., Patna, Gaya, Bhagalpur, Muzaffarpur, Begusarai, Katihar, Raxaul and other.
3. Dedicated Industrial Corridor.
4. Development of waterways navigation system on river Ganga to reduce the cost of transportation.
5. Establishment of dry cargo terminal to promote silk, handlooms and handicrafts sector.
6. Provision of gas pipeline for industries to switch over to cleaner and cost efficient mode of fuel supply especially for industrial units located in Begusarai, Bhagalpur, Muzaffarpur, Patna, Ara and Gaya.

Approach to Land Acquisition and Land Use

Land is a prime input for industrial and urban growth. Efforts would be made to facilitate land acquisition for various public purposes including infrastructure development, industrialization and Urbanization. Concurrently, the concerns of the Project Affected Families and those whose livelihoods are dependent on land being acquired would also be addressed in a meaningful and pro-active manner.

The process of land acquisition would be made easy, transparent and fair for both sides; whether the land is acquired for the Government or for the private players. A new institutional mechanism would be put in place to ensure the Resettlement and Rehabilitation (R&R) provisions are implemented affectively as an integral part of land acquisition.

There is a need to ensure that in respect of private companies, lands will be acquired only for stated public purposes; whether the same are for immediate or ultimate attainment.

Land Use Planning

In the overall context of land acquisition it will be pertinent to point out those issues of food security and environmental concerns are also being raised in various fore. It seems essential to evolve a country planning and land use policy for a rational and efficacious utilization of available land, balancing and harmonizing the needs of agriculture on the one hand and industrial and urban growth on the other.

Revival of Sick Units

Under the guidelines of RBI/SIDBI for the sick units in MSME sector, an agency will be identified for preparation of rehabilitation package. Those sick units which have availed the benefits of any Industrial Policy may avail the facilities under a new policy even for a second time. If any sick unit wants to avail the benefits under the Industrial Policy for the second time it will avail only the difference between the prior availed amount and the proposed amount under new policy. But this facility for rehabilitation to the unit will be made available only on the recommendation of the concerned committee constituted

by the state government. Such facility to the unit can be made available for a maximum of two times only.

For a Sick Industry in the large sector, which has been registered by the Board for Industrial and Financial Reconstruction (BIFR), the relief and concession to the unit will be provided from the cut-off date mentioned in the Draft Rehabilitation Scheme (DRS) circulated by BIFR.

Creation of Parks

According to the availability of resources, there is a possibility of industries mainly based on fruit and vegetable, leather, Jute, handloom, and other industries like power, minerals, etc. Mega industrial Park would be established at Bihta and Hajipur. Similarly Food Parks would be established at Muzaffarpur-Vaishali, Samastipur, Begusarai and East Champaran as Zone-I and Bhagalpur, Katihar, Khagaria, Madhepura and Saharsha district as Zone-II. Jute Park (Maranga, Purnea), Leather Park (Muzaffarpur) and Handloom Park (Bhagalpur and Gaya) are proposed.

Tourism Industry

Bihar has great potential in the tourism sector. Keeping in view the importance of tourism, Bihar government has also given tourism the status of an industry and development works in this pursuit have been undertaken.

- The state government and private sector will collaborate for development of tourism infrastructure. The state government will prepare an area-based Master Plan for developing infrastructure as necessary for the respective areas and regions. Efforts will be made to dovetail external assistance, central assistance, and the state plan resources with private investments to attain the set goals as under the Master Plan.

Bihar has a population of 10.38 million. The population growth rate is 28.43 percent as compared to the national growth rate of 21.34 percent. There has been an increase in health sector allocation by 87 percent from Rs.1, 066 crores in 2005-06 to Rs.1, 991 crores in 2008-09 including untied funds, to facilities at all levels. Several new initiatives such as Janani Evam BalSuraksha Yojana (JBSY) that has resulted in a tremendous increase in institutional deliveries, Muskaan- EkAbhiyaan that increased the rate of immunization, 1911 Helpline and 102 and 108 Ambulance network services to name a few have been successfully implemented. An increase in the free availability of drugs and diagnostics has resulted in an increase in OPD attendance by 3 to 10 times over the past 2-3 years. Working with development partners such as UNICEF, NIPI, DFID etc., to address health related issues in a concert and integrated manner has been a priority of the health department in the recent times.

Achievements in Health Sector

Following are some of the notable developments that have taken place in the health sector in the last few years:

- Mothers having at least one antenatal check-up have increased to 59.3 percent (up from 31.4 percent in DLHS2) and mothers having 3 or more ANC's are up from 16 percent (DLHS 2) to 26.4 percent at present. Institutional delivery rate is 27.7 percent as compared to 18.8 percent in DLHS2.
- The proportion of children breastfed within the first hour of birth has increased from 5.7 percent in DLHS2 to 16.2 percent at present. 41.4 percent of children (between 12-23 months) are fully immunized compared to 20.7 percent in DLHS2.
- In comparison to 39 patients visiting Primary Health Centers for treatment in the year 2006, 2010-11 saw an average of 3500 to 5000 patients registering at the health centers per month. In year 2010-11 around 4 crore people got treatment at the Government Health facilities whereas in 2011-12 approximately 2.45 crores people got treatment till August 2011. About 7.98 Lakh patients were admitted in Government Hospitals for treatment in year 2007-08. In the year 2010-11 this number increased to 24 Lakh.
- After four decades a medical college with a capacity of 100 students has been opened in the state at the Indira Gandhi Institute for Medical Sciences. Besides, enrolment capacity at Nalanda Medical College, Patna has also been increased from 50 to 100. Two nursing colleges have been established for BSc nursing study. India's first nursing skill lab has been set up at Guru Govind Singh Hospital, Patna City. In order to establish new medical colleges, Vardhaman Mahavir Medical College, Pawapuri, Nalanda is being constructed at the cost of 630 crores. The construction of medical colleges and hospitals are also proposed at Bettiah and Madhepura.
- With the purpose of strengthening health system of the state, basic infrastructure and human resource are being developed. The construction of new health sub center, additional PHC, Block level PHC, SDH and District hospital are being carried out. ICUs have been set up for new born at DMCH and NMCH. Similarly, Nutrition Rehabilitation

Centers is being set up in all 38 districts. As a sequel to healthy Bihar, Nayi Peedhi Swasthya Guarantee Yojna (NPSGY) was initiated on 22nd March, 2011. This program is an integrated program mainly for all boys and girls studying at government school between the age group of 0-14 and 14-18 respectively. The basic objective of this program is to make the children aware of the importance of safe drinking water, personal and community hygiene.

- For providing first aid to the common people of the state and making medicines available at the community level all the ASHAs have been provided drugs kits. Replenishing medicines in their kits is to be done by concerned PHCs from time to time.
- With the objective of making doctors and health services available to rural inhabitants, Healthy Bihar Campaign initiated through Swasthya Chetna Yatra was successfully implemented within defined time line.
- Social marketing of contraceptive program by ASHAs has been initiated wherein contraceptives have to be made available to beneficiaries at their homes..
- With the aim of reducing MMR, Yukti Yojana scheme is initiated by accrediting private institutions for providing quality abortion care services to the willing women.
- Ultra Modern life saving ambulance service has been made available at each of the district headquarters for providing better services to the common people.
- Dhanvantari Rath (Mobile Medical Unit) is being run in all 38 districts under Public-Private Partnership mode to provide health services to people living in far flung and remote rural areas. Free health services like check up and counseling, medicines, X-ray, pathological services, ante natal test and immunization services are being provided to dalits through this mobile medical unit.
- Post natal family planning strategy has been initiated which aims at providing family planning counseling and services to all eligible couples after delivery of the child.
- As a sequel to "Healthy Bihar Campaign" grievance redressal system has been started by health departments with a view to making health services more transparent. By using this service any one can register his/her complaints and access information related to health department and medical advice.
- Construction of special new born care unit in 11 Sadar hospitals in 2011-12 has been sanctioned.
- Village Health and nutrition day is being observed once a month at each Anganwari Center where services like health, nutrition and safe drinking water are being provided.
- Health facilities and medicines are being made available under Allopathic along with AYUSH to common people at all hospitals of the State. Approximately 1384 AYUSH Doctors have been appointed on contractual basis for Additional Primary Health Centers. AYUSH Medicines have also been made available to AYUSH doctors.
- Family planning efforts have gained momentum and the fertility rate is expected to decline in the state shortly. Family planning has been given priority in year 2010-11.
- In the year 2004-05 total number of APHC was 1243. Based on the population, a

decision was taken to create and construct 1544 new APHC. There are 534 community development blocks in the state. Till 2004-05 total number of functional Primary Health Centers (PHC) was 399. The construction of another 135 Primary health centers was sanctioned so that every block should have one PHC. In year 2004-05 there were 25 districts (Sadar) hospitals. The Government has sanctioned construction of 11 new District Hospitals out of which 9 have been completed. However, construction is in progress at Khagaria district. Renovation work had been sanctioned for 25 district hospitals against which 22 have been completed till date. There were 23 sub divisional hospitals in the state in 2004-05. The building construction for 21 new sub divisional hospitals was sanctioned in 2005-06. In addition to this, 14 referral hospitals were upgraded to sub divisional hospitals. The 22 sub divisional hospitals are also being renovated. In 9 subdivisions building construction for sub divisional hospitals have been created and sanctioned for which construction work is in progress. This will take the total number of SDHs to 67.

- Different pathological services are being made available at the government approved rates at all PHCs FRUs and SDHs through setting up of sample collection centers at SDHs and testing centers at DH under PPP mode.
- With the help of Integrated Disease Surveillance program timely identification and remedy of infectious diseases is being done in coordination with the concern departments. In addition to this, data is regularly collected related to certain diseases which indicate the level of intervention that is needed to control these diseases. Under this program Department of Microbiology, PMCH, Patna is being strengthened to work as IDSP and as a nodal lab. At present facility for Dengue and Chikungunya testing is also available here.
- A large number of doctors have been appointed and the process for recruiting additional doctors has been initiated. In the last year different types of contractual appointments have been made.

Approach

- The health infrastructure in Bihar is way below the national standard norms due to poor funding in this sector. The 12th Plan should explore the possibility of establishing government medical colleges as per the National Commission on macroeconomics and Health norm for 50 Lakh populations. By this norm Bihar should have 20 medical colleges. It currently has 10 medical colleges (3 of which are newly established and have not be granted the permission to undertake MBBS courses yet) in the government sector and 3 in the private sector. The newly established medical colleges requires on an average, an investment of Rs. 600–700 crores each.
- The results of NRHM are very positive in Bihar and the state needs to sustain the momentum during the 12th Plan period. Further there is a need to start a National Urban Health Mission to improve public health infrastructure and services in urban areas, especially for slum dwellers and the urban poor.

- Two bills namely – (1) Bihar Clinical Establishment (Registration and Regulation) Act and (2) Bihar Medical Service Institution and Individual Protection Act have been passed by the state government. With the enactment of Bihar Clinical Establishment Act, qualitative health services will be made available at government and private health hospitals. At the same time registration will also be essential. Bihar Medical Service Institution and Individual Protection Act ensure security to doctors and health personnel at one end and on the other hand also ensure that the poor and the common people are experiencing excellent services at the health facility.
- By making Bihar Medical Services and Infrastructure Corporation limited functional steps are being taken for purchasing of equipment and construction of buildings. Setting up of Advance Trauma Center is being taken care of by State Health Society, Bihar. ANM and GNM Training Schools will be strengthened after increasing the number of seats as well as setting up new nursing colleges. Private players will be especially encouraged to establish such schools and colleges.
- The 12th Plan should promote a wider public health approach rather than simply a 'medicalized' approach. This will entail a focus in other areas such as - clean water, sanitation, nutrition, women's empowerment, etc.
- There is a shortage of 49 ANM/GNM schools for which financial assistance is required in the next plan. There is also a shortage of about 550 CHC, 7000 Health Sub Centers, 1450 APHC in the state, which is posing an acute challenge to render the health services to all areas of Bihar. The lack of institutional infrastructure in health sector is one of the main reasons for an increase in family expenditure. There are 3 super specialty hospitals sanctioned in addition to a Mother and Child super specialty hospital. But due to financial constraints, the construction could not take place. Hence, there is a need to establish these Super Specialty Hospitals to meet the health care needs of the people.

Objectives

- The recent years the Maternal Mortality (2002-04, released in 2008) show a substantial reduction in MMR for Bihar. Due to the recent initiatives such as JBSY there has been an increase in institutional deliveries, the continuum of good ante-natal and post-natal care still eludes the majority of women.
- Shortage of skilled frontline health personnel (ANM, LHV) to provide timely and quality ANC and PNC services is another problem confronting the state. Besides, public health facilities providing obstetric and gynecological care at district and sub-district levels are inadequate.
- There is shortage of specialists such as anesthetists, gynecologists, and pediatricians to provide maternal health services, especially in rural areas. High prevalence of malnutrition (anemia) among women in the reproductive age group still continues to daunt the state.
- The child health indicators of the state reveal that the state's IMR and NMR are close to national levels. Morbidity and mortality due to vaccine-preventable diseases still

continues to be significantly high. Similarly, child health care seeking practices in the case of common childhood diseases such as ARI and diarrhea are not satisfactory.

- The child health scenario is worse for specific groups of children, such as those who live in rural areas, whose mothers are illiterate, who belong to SCs, and who are from poor households is particularly appalling.
- High levels of maternal malnutrition leading to increased risk of low birth weight and sub-optimal breastfeeding, are both key causes of neonatal mortality, which today constitutes the main cause of child mortality is an issue of concern.
- Although the total fertility rate had declined by about half in the six-year period between NFHS-1 and NFHS-2, it has increased in NFHS-3. Furthermore, certain groups such as rural, illiterate, poor, and Muslim women within the population have even higher fertility than the average. The major issues affecting the implementation of the Family Planning program in Bihar are – the lack of integration of the family planning programs resulting in dilution of roles, responsibilities and accountability, inability of the program to alter fertility preferences of eligible couples through effective Behavior Change Communication, overemphasis on permanent family planning methods such as sterilization compared to other reversible birth spacing methods that may be more acceptable to certain communities and age groups, weak public-private partnerships and social marketing to promote and deliver family planning services, high gender disparity leading to weakening of women views and their consequent non-involvement in decisions about family size and planning.
- Bihar also has a high burden of diseases which arises from natural calamities (such as floods), poor environmental conditions (such as water and vector borne diseases), poor nutrition status and acute poverty in which a day's wage is a significant incentive to skip treatment. Appropriate investment is needed to expand medical education infrastructure and ensure quality, through private sector involvement. Such investment is not available through NRHM funds. In addition, forward looking and transparent HR policies should be developed for the health sector workforce in the state.
- The state plans to move ahead with five primary objectives that are going to define its guiding principles in the sector in the coming years.
 - 1 Reduce maternal deaths
 - 2 Reduce infant deaths
 - 3 Reduce Total Fertility Rate
 - 4 Increase availability of medical professionals
 - 5 Reduce barriers to access health services
- Efforts will be made to strengthen the health systems to be efficient, accountable and transparent services. There is also a need to develop a comprehensive health sector strategy in order to; consolidate the gains made and provide focus on health as a core issue linked to poverty and overall development of the state. To develop a sector-wide

approach to health issues would entail involving other departments in a convergent manner to maximize impact, invite all partners including the community, civil society organizations, PRIs and the private sector to come together and make a joint effort for a healthy Bihar by 2015. Also provide a document for development agencies to understand the state's prioritization and partner with the state in its quest to strengthen the health systems.

- For TB control in the next 5 years, 300 more Designated Microscopy Center is required as per population norms as well as the establishment of Intermediate Reference Laboratory for and DST of MDR-TB, DOTS plus services in all the district of Bihar, identification and up-gradation of minimum 3 DOTS plus site and implementation of Intensified TB-HIV Collaboration.
- For Kalazar Elimination program, the year 2017 is set as the target for complete eradication (1 case in < 10,000 population). The other targets in this program are making available New Tools i.e. rK39 -diagnostic kit and oral drug miltefosine in epidemic districts, management and planning strategies significantly strengthened by positioning of Consultants and KA Technical Supervisors in all epidemic districts, free diet to patient and one attendant, incentive to patient at Rs. 50/-per day towards loss of wages during treatment, incentive to ASHA for referring a case and ensuring complete treatment.

Guiding Principles

In order to achieve these objectives, the state will have the following guiding principles:

- Health as a matter of right
- Health as a sector-wide issue
- System approach to health improvement; and
- Partnerships and community involvement

Strategy

- Coordination with other departments would be a key strategy towards seeking a comprehensive health plan within the state. Towards establishing this a state level coordination committee comprising of members from ICDS , Panchayati Raj, Education, Water and PHED under the chairmanship of Development Commissioner would jointly work to seek support from other development departments in improving the quality of service delivery is proposed.
- Inter- connectedness i.e. inter sector collaboration such as departments dealing with health, ICDS, education, PHED should converge effectively so that indicators of health that rely on drinking water, female literacy, nutrition, early childhood development, sanitation, women empowerment etc. are strengthened at village/Tola level committee.
- Considering Bihar's rich strength of human resources, Mission Manav Vikas can be implemented with full vigor for the achievement of key measurable targets. A hub at the Panchayat level is proposed that could provide various entitlement based facilities to people.

- For achieving efficiency, accountability and providing transparent services focus would be on developing the capacity of the departments; improving the direction, utilization and effectiveness of budget spending; enhancing the availability of skilled medical, nursing and support professionals; strengthening information, monitoring and evaluation systems; enhancing the capacity for strategic planning and evidence based decision making and improving governance, social accountability and transparency.
- Some of the concrete steps that is planned to be undertaken as key strategies for achieving these goals can be listed as follows:
 - Strengthening Nursing Services
 - Following protocols for quality control
 - Thrust on multi-skilled doctors.
 - Concerted Behavior Change Campaign
 - Anti-tobacco drive.
 - Nayee Peedhi Swasthya Guarantee Program
 - Covering Non Communicable diseases.
 - Strengthening Arogya – Monthly Village Health and Nutrition Days.
- It is necessary to get non-institutional delivery supervised by female health worker in order to reduce the number of delivery deaths. Delivery can be made safe and healthy through this method. In 56 government hospitals of Bihar (except Medical College) caesarean section service is available. Efforts are being taken for expansion of this service to other hospitals.
- Muskan Ek Abhiyan program will be run as a mission in Bihar to ensure better immunization percentage as compared to national average. Preparation of special program for school children to encourage health check up, distribution of child wise health card and to provide facilities like vitamin A De-worm medicines will be distributed once in every three months.
- After intensifying implementation of Polio Eradication program, all possible efforts will be made for its complete eradication in the next year.
- Similarly, Copper-T insertion is getting momentum with 3,45,590 Copper-Ts inserted among targeted female. All the ASHAs have been provided with condoms and contraceptive pills.
- All health centers in the state will be made to work for 24 hours in order to provide primary health care.
- There were 8858 health sub center in the year 2004-05. Based on population, decision has been taken to construct additional 7765 new health sub centers. Fund has been made available to the district health societies for the construction of 758 health sub centers. Installation of solar water heater has been sanctioned for 148 health institutions. Keeping in view the dearth of Super Specialist Hospitals in the state, at least one Super Specialist Hospital would be established for each main disease in next five years.

- In order to reduce the number of patients going outside for treatment, quality changes are being made in health facilities located within the state. Efforts are being made to enhance facilities provided by Mahavir Cancer Sansathan so that number of patients moving out of state for treatment can be reduced.
- The proposals to build three medical colleges in the state and its proper functioning will be ensured. Besides, investors will be encouraged to invest for private medical colleges. With the vision to strengthen the present medical colleges of the state, facilities like building, specialized equipment, trained doctors and para-medical doctors will be provided. In order to bring better health facilities to the present medical colleges, efforts for improvement are being made by contacting Public Service Engineering Department for building and electricity. Steps to improve all the medical colleges will be planned.

The quality of human resource is critical for development of a state. The state can take advantage of its demographic dividends only by increasing access to education and enhancing the quality of its young citizens.

Overview

Although the state has shown good results in the various indicators of education, still much requires to be done. There has been a significant improvement in the literacy rate in last decade as it moved from 47.53 percent (2001) to 63.82 percent (2011). There was a jump in the literacy rate of females from 33.57 percent (2001) to 53.33 percent (2011).

Elementary Education

There has been some significant improvement in the area of elementary education in the state.

- More than 12 percent of children in the age group of 6 to 14 years were out of school in 2006, which has reduced significantly to 3.5 percent in 2010.
- The gender gap between boys and girls in out of school category has become almost non-existent.
- More than 1 Lakh class rooms have been added in existing schools. 18,000 new primary schools have been opened.
- More than 2 Lakh teachers have been recruited.
- Increased investment in elementary education has resulted into 90 percent of children being enrolled in government schools in 2010.
- According to ASER Report-2010 only 5.2 percent children in the age group of 6 to 14 years are in private schools in Bihar, whereas, the all India figure for children in private schools according to same report is 24.3 percent. This indicates regained faith in government school system in Bihar.
- The situation of pre-primary school has also improved significantly. More than 30 percent children of 3 to 6 years age group were not availing any pre-primary education three years ago. To-day, that percentage is below 20 percent.
- The number of school, having two or less than 2 teachers, are reduced significantly and teacher student ratio has improved from 96:1 to 57:1 in 2010. This has been made possible after the process of recruitment of teachers was decentralized and given to the Panchayat governments.
- Earlier Sarva Shiksha Abhiyan was not providing for the repair of class rooms. The state government took initiative and spent Rs 108 crores for repairing 22350 elementary schools and 40,000 schools were given Rs 607 crores for boundary wall, 13042 schools were given Rs 86.53 crores for developing their playing grounds.

- To reduce the gender gap and to arrest the serious drop out level of girls at upper primary level a scheme called 'Mukhya Mantri Balika Poshak Yojana' was started. Under this scheme all girls in class-VI to VIII are given Rs. 700/- each for dress, shoes and school bag. This brought significant result. This led to launch of another scheme called 'Mukhya Mantri Poshak Yojana' under which each child in class 3 to 5, whether boy or girl gets Rs 500/- for dress, shoes and school bag. These schemes played a huge role in improving retention and bringing down the number of drop out at primary level.
- Significant improvement has been registered in closing the gap among social category. The enrolment of scheduled caste, scheduled tribe and minority children has improved significantly. A focused strategy to bring these children to school was developed. Under "Sankalp" various types of bridging centers were opened. In these bridging center children were taught using bridge courses and then enrolled in appropriate classes. 'Talimi Markaj' centers were opened for minority children and Uthan Kendras were opened for Scheduled Caste children.
- As children should also be given vocational skills besides formal education, two schemes -. Gyan Jyoti and Hunar were started for the girls between 10 to 14 years age group. Under Gyan Jyoti girls were given skills that were current and have a market base. Mithila painting, Sikki making art etc. was the popular vocations under these schemes. The Hunar scheme started for minority girls. To begin with they were given courses like tailoring and embroidery, beautician course, computer courses, various repair jobs etc. The courses were running under the aegis of National Open School. NIOS also took their examination and gave certificates. The scheme was later expanded to 50,000 girls in 2010-11 and now girls belonging to minority community, scheduled caste, scheduled tribe and other backward caste are also participating in the scheme.
- **Mid-day-Meal:** At present Mid-day-Meal Scheme covers all children between class-I and VIII. Bihar has three models of Mid-day-Meal implementation. In the cities and urban areas the mid-day-meal scheme is implemented through non-governmental organizations. In the blocks where Mahila Samakhya has its presence, they implements mid-day-meal. In all other places mid-day-meal scheme is run by Vidyalaya Shiksha Samities. Various surveys suggest that on an average about 2/3rd children get mid-day-meal. Four years ago only 1/3rd of the children were availing mid-day meal. Thus there is an improvement in implementation, but still 1/3rd of children are not getting mid-day-meal because of various reasons. There is a serious problem of supply from Food Corporation of India, because they do not have sufficient storage capacity and sometimes there is shortage of rice. Every day more than one crore children are fed at 80,000 locations and managing such a huge scheme is a gigantic task. The community involvement in implementation of this scheme is still lacking. A system for better flow of fund and intensive monitoring of the scheme is being developed.

Secondary Education

- There are about 4000 secondary schools (both government and non- government) available for pass-outs from more than 26000 upper primary schools. Pupil teacher ratio is also poor and currently there is one teacher for 62 students.
- The GER at the Secondary School stage (class 9 and 10) of Bihar is approximately 35 percent which is very low as compared to the national level (around 60 percent).
- With the schemes like RMSA, the state is introducing some constructive measures. 53 percent schools have toilet facility and only 1/3rd of secondary schools have separate toilet for girls. 43 percent schools have library facility and 36 percent schools have integrated science lab.
- Earlier the state government used to allow setting up of secondary schools without any commitment of fund. Now that policy has changed and schools are being given grant on the basis of the success of their students in the Board examination. This has revived many private schools which were facing fund problem and they were not able to engage good teachers.
- The scheme of state government pertaining to distribution of bicycles to boys and girls studying in class IX and uniforms to all boys and girls from class III to class XII have been a great success. This has been able to reduce the number of dropouts and out of school children.
- The state government has already introduced vocational courses in +2 schools such as fishery, electric technician etc. The teachers have also been trained in vocational courses.
- To attract girl students in secondary education a scheme called Mukhya Mantri Cycle Yojana was launched, wherein girl students are given money to purchase cycles. In the first year of its launch there were only 1,70,000 girl students in class-IX. At present the number has reached up to 5 Lakh. This scheme became so popular that boys in class-IX are also given money for buying a cycle now. The scheme has been extended from fully funded government schools to schools that are also receiving grant from the state government.
- Teacher recruitment has also been decentralized in secondary sector. +2 education is being delinked from the university and now secondary schools are being prepared to undertake +2 education.
- All 2900 government secondary schools have been upgraded to senior secondary level. Fund has been provided to add additional class rooms, for setting up of library and establishing laboratory facilities.
- 1000 secondary schools have been provided computer education facility under ICT at school scheme under BOOT model. A massive scheme has been launched for upgradation of upper primary schools to secondary schools. The aim is to provide at least one secondary school within 5 kilo meter radius so that students do not have to travel for more than 5 kilo meter for their secondary education.
- The state government is also establishing one model school in each block of the state. Similarly one girl hostel is also being established in each block of Bihar on the pattern of Kasturba Gandhi Balika Vidyalaya. These girl hostels for class-IX to class XII students will be a great benefit to the poor students who were not able to pursue their studies in the absence of such facilities. To encourage girl students, the state government provides Rs 10,000/- to each girl, who pass class X examination in first division. Those students who score top rank in various streams in the Board examination are also rewarded.

Higher Education

- Bihar has 9 universities and 500 colleges for higher education. Out of these 500 colleges about half of them are constituent colleges and the rest are private colleges affiliated to various universities.
- After separation of Jharkhand from Bihar no national level institution was available in the state. In the above background the state government felt that unless we establish modern institutions for technical and professional courses the out of state migration of students cannot be checked. The state has set up Chanakya National Law University, Chandragupta Institute of Management, National Institute of Fashion Technology, Arya Bhatt Knowledge University, Birla Institute of Technology, Indian Institute of Technology etc in the last 5 years.
- The state has taken steps to revive famous Nalanda University. The state government has given 463 acres of land for the establishment.
- Bihar is way behind in higher education institutions per million of population. (table27) In particular, the availability of engineering colleges, medical colleges, polytechnic colleges, teacher training colleges is seemingly low.

Table 27: Higher Education Institutions per million population

State	No. of colleges (Arts, science, commerce)	Engineering colleges	Medical colleges	Education / teacher training colleges	Others	Total	Poly-technic
Bihar	73	1	3	3	10	90	1
Andhra Pradesh	237	55	39	63	107	501	19
Karnataka	50	21	62	0	2	134	27
Madhya Pradesh	98	20	12	13	18	161	5
Maharashtra	171	26	14	37	42	290	18
Odisha	151	10	14	3	16	195	7
Rajasthan	132	12	7	14	28	193	22
UP	105	9	5	6	13	137	6
All India	105	18	17	24	29	192	13

- There is an extreme pressure of senior secondary graduates who want an entry into higher education institutions. Due to insufficient capacity many of them migrate to other states for admission in the higher education institutions. At the national level the gross enrolment ratio in higher education is 14.6 percent whereas in Bihar it stands at 8.6 percent as per the statistics of higher and technical education of 2008–09, HRD, Government of India.

Adult Literacy

- Bihar has the lowest adult literacy rate in the country. Female literacy rate is even lower in the state. A scheme called *Mukhya Mantri Akshar Anchal Yojana* was launched to reach out to 40 Lakh illiterate women. For this campaign 2 Lakh *Akshar Doot* (literacy volunteer) were mobilized and in a year this campaign was successful in converting 24 Lakh illiterate women into literates.
- According to the Census 2011, the overall literacy rates improved from 47.53 percent in 2001 to 63.82 percent. Female literacy rate has also increased from 33.57 percent to 53.33 percent.
- Now *Sakshar Bharat* scheme has been launched in all districts of Bihar. Under *Sakshar Bharat*, Panchayati Raj Institutions (PRIs) have been given responsibility for improving literacy levels.

State Open School and Infrastructure Corporation

- A State Open School has been established to develop syllabus, conduct examinations and to provide certification in the field of formal and vocational education. It will be a great help for drop outs and adult literates who want certification of their skill and educational attainment.
- A Bihar State Educational Infrastructural Development Corporation has been established to deal with the huge infrastructure gap in secondary and higher educations. A large number of schools, girl's hostels, degree colleges are to be set up. This corporation will create their physical infrastructure. This dedicated Corporation will not only develop physical infrastructure but will also do procurement in the field of education.
- A holistic approach for development of school infrastructure has been taken under the scheme named '*Mukhya Mantri Samagra Vidyalaya Vikas Yojana*'. Under this scheme it has been decided to have minimum of 5 rooms for a primary school and 10 rooms for upper primary school, besides a boundary wall, improved play ground, kitchen shed, drinking water facility and separate toilets for boys and girls.
- Bihar had 391 *Buniyadi Vidyalayas* which were started on Gandhian philosophy. In the last two decades these schools went out of the mainstream elementary school system. The state government is planning to revive these schools and make these schools as role model schools.

Approach

- Bihar has made satisfactory progress in the indicators of access to elementary education. Now there is a need to focus on quality indicators during the 12th Plan. The focus should be on improvement in infrastructure, appointment of additional teachers, teachers training, curricular reforms and improvement in delivery systems related to free distribution of text books, uniforms, mid-day meal etc.

- To ensure the accountability to the local authorities, the decentralized recruitment process of teachers is being followed in the state. For management and ownership of the schools, the state is going to ensure a better community involvement through election process which can bring a remarkable change regarding absenteeism of teachers and lack of accountability. It will benefit the students by doing away with private tuitions. .
- There is a proposal to develop about 15 'Centers of Excellence' across the state. The state government is also planning to convert good colleges into 'centers of excellence' so that quality education is available at the district level. Financial support for upgrading and improving physical infrastructure in colleges has also been started on a large scale.
- There is a need to work out proper incorporation of creative learning strategies in the pedagogy of our education system. Bihar has encouraged pre-school education by an innovative system of pre schooling of children by starting the *BalVarg*.
- In order to achieve better access to higher education, we have to ensure that all subdivisions have adequate centers for higher learning. The issue of quality in higher education in Bihar also needs to be addressed during the 12th Plan. The academic reforms initiated during 11th Plan at the national level needs to be firmly addressed during 12th Plan in Bihar. All universities and colleges should be accredited by NAAC.
- Credit system and semester system which is on the national agenda would also be introduced in the colleges and universities of Bihar. Universities need to evolve a system of annual academic audit for colleges. All colleges and universities would be affiliated under 2F and 12B of UGC in order to attract centrally planned funding on a large scale.

Objectives

- Though the number of out of school children has reduced significantly, Bihar still has more than 7 Lakh out of school children. These children are of older age and come from Scheduled Caste and minority community. Reaching out to children will be more difficult and will require higher level of funding.
- Bihar still needs more than 2 Lakh class rooms according to its child population and national norm.
- Large numbers of institutions are needed in the state for teachers training to meet the requirements under RTE Act.
- There is an urgent need to open new high schools in large numbers within the state.
- Lack of secondary schools results in high dropout rates especially among the girls in rural areas. It has been estimated that Bihar requires around 14,000 secondary schools to accommodate its students. Similarly there is a dearth of class rooms in most secondary schools. The success in elementary education has led to great pressure on the quality of secondary schools.
- As far as higher education is concerned there is serious need of expanding the infrastructure of higher education to meet the growing demand in the society.
- During the 12th Plan the government of India might target the GER above 20 percent in higher education. It is necessary to raise the GER in higher education in Bihar to a level of 17 to 18 percent in order to keep parity with other states at the end of the 12th Plan. This requires that a large number of institutes are established in the State.

- Bihar has a very strong base of young population. This can be converted into major demographic dividend, if this population is linked with employable skill sets. Thus, there is a need to stress upon marketable vocational skills beside formal education. This will also help in reducing unemployment rate as the working age population will have appropriate skills to suit the needs of the market.

Strategy

- The strategy of giving assistance for school dress and bicycle would continue in the 12th plan also.
- In fact, this scheme would be strengthened further to enable the provision of school uniforms to all students up to class VIII and for all girl students up to XII.
- Bihar has to recruit 3 Lakh teachers to meet the requirement of Right to Education Act. As the state does not have persons with required qualification for appointment, untrained teachers would be appointed after seeking exemption from Government of India. Separate program would be formulated for training them in a given time frame. The decentralized recruitment process of teachers through PRIs is an important step in the better management of schools and the monitoring of teaching methods of the teachers.
- To implement the RTE in its true spirit the state requires a huge budget which works out to be Rs 43,000 crores every year as per a conservative estimate which cannot be met out of the state budget. Innovative ways of raising resources by including participation of non- governmental agencies in the management of schools needs to be worked out.
- In view of the success in elementary education, the pressure on secondary education is going to be very high. There is a need to meet the huge deficit in number of secondary schools, particularly the issue of providing a secondary school within a radius of 5 kms. In this regard, all options like including up-gradation of elementary schools, opening of new schools and support to voluntary agencies to open schools would be attempted along with augmentation of their infrastructure. In this context, RMSA (*Rastriya Madhaymik Shiksha Abhiyan*) needs to be strengthened.
- The revived scheme in vocational institutions of secondary education would be made industrially oriented so that some jobs can be guaranteed to the students.
- Agriculture would be taught as a subject from high school onwards.
- The high importance being given to all stages of education in Bihar, it is well worth thinking of an educational TV channel in Bihar which would transmit programs for all levels - from the Anganwari level to secondary school level.
- In order to ensure equal access to education and educational institutions at all levels for differently abled children (i.e. special needs children), it is necessary to make adequate provision and resources under the 12th Five Year Plan. Provisions like tricycle, school text books and other teaching materials must be made for these special children.
- In order to improve the overall educational standard it is necessary to conduct and run regular training programs for effective quality education. The training institutes and colleges would be revived and their syllabus must be updated. For training of teachers Bihar has adopted the

distance mode of training like Nalanda Open University, SCERT and Bihar Open School. Existing constituent colleges would run as pre service training courses.

- Apart from revival of all PTECs and establishment of DIETs, in the university system assistance would be provided to set up new institutions and request would be made to design new courses by the academics.
- Along with this, training in physical education would be regularized and encouraged.
- All premier colleges would be encouraged to prepare for the autonomous college status or college with potential excellence status from UGC. So far, quality in higher learning centers of general education has not been addressed properly. The 12th Plan must articulate the need to improve the quality of higher education and strengthen their infrastructure.

The gender parity index in higher education in Bihar is 0.49 whereas at all India level it is 0.70. It shows that the participation of woman in higher education in Bihar is quite low. Effort will be made to increase the number of woman colleges to raise the participation of woman in higher education.

EMPLOYMENT, VOCATIONAL TRAINING AND SKILL DEVELOPMENT

In Bihar, 58 Industrial Training Institutes have been sanctioned with capacity to train over 15,000 youth per year in long term trades. This number is inadequate, keeping in view the potential requirement of skilled manpower in the market. Due to high dropout rates in schools, work participation rate is very high among the age group of 15-29 years. High dropout rate and low infrastructure of formal vocational training in the state compels a large proportion of persons in the age-group of 15-29 to join the work force without any skill training. In the year 2004-05, only 0.3 per cent was receiving formal vocational training, 0.2 per cent was reported to have received formal vocational training and another 2.3 per cent reported to have received non-formal vocational training. This means that more than 97 per cent of the persons in this age-group had neither received nor were receiving any vocational training (whether formal or non-formal). Conceding that a number of them may be engaged in non-vocational pursuits, it is still believed that a large percentage still needs to undergo some vocational training.

Table 28: Bihar's pie in the Nation's Technical Institutions

State	Percentage of Polytechnic Institutions	Percentage of ITIs	Percentage of Engineering Colleges
Bihar	0.76	0.05	0.56

Bihar has a negligible or a small number of technical institutions, only 0.56 per cent engineering colleges, 0.76 per cent polytechnic institutions and 0.05 percent ITIs of the country. So it requires quantitative expansion along with bringing qualitative and innovative change in its technical institutions. This would help the state to bridge the gap between demand and supply and would also ensure high quality, innovative and demand driven technical/professional education to all sections of society at affordable cost.

Need

It is now widely recognized that skills and knowledge have become the driving forces of economic growth and development of the country and the region. The economy becomes more productive, innovative and competitive through the existence of more skilled human capital and potential. Major changes in the Indian economy and the accelerated rate of Industrial growth imply a large demand for vocational skills. Rapid urbanization has also created a demand for trained people to meet the needs of urban services. A variety of new services have emerged in financial, health, media, advertising, urban utilities, agro-food processing and telecom sectors. With a view to accelerate and sustain growth in these various sectors there is an urgent need for massive initiatives in the development of skills through training intervention by developing appropriate curricula and creating models for offbeat and innovative skill areas. In the changed scenario the challenge before Bihar is to develop a sustainable quality based vocational education and training system that will enable employers to find the skilled labor inputs they need. At the same time currently unskilled workers must also be empowered to develop skills in a trade and become upwardly mobile participants in the economy. Enhancing the employability quotient of the youth is reckoned to be one of the biggest challenges confronting the state.

Approach

In line with the norms to establish medical colleges (one medical college per 50 Lakh population), central government should also devise a formula for establishing engineering colleges and polytechnic institutions considering the Gross Enrolment Ratio (GER) of 20 percent in higher education, which is to be achieved by the end of the 12th Plan period.

As has been witnessed elsewhere in the country, growth in organized sector, high as it is has been unable to create jobs. So, there is a need to identify an appropriate combination of sub-sectors from the unorganized sector where potential for employment growth is higher than that of organized sector. It is important, therefore, that unorganized sector gets the qualified manpower with appropriate skills. But most of the skills this sector gets are traditional in nature that is weaving, cutting, tailoring, construction activities, and motor vehicle driving, etc, which are acquired through non-formal training. Industrial Training Institutes have been set up by the respective state governments under Craftsman Training Program of Government of India. These Institutes aim at meeting twin objectives of creating skilled manpower to enhance the employability of the youth and meet the industry demand for skill sets. Students are imparted long term and short term vocational trainings in various trades in these institutes, presuming that it would enhance their employability, build their capabilities for self-employment avenues and supply quality skill sets to the industry. The state is fully responsive to the need of supplementing traditional education with skill based studies. Skills such as critical thinking, communication, collaboration and creativity are now important in more and more jobs. Special emphasis on verbal and written communication skills, especially in English would go a long way in improving the employability of the large and growing mass of youth.

During the 12th Five Year Plan, the central/state government has to focus specially on creation of employment. National and State Skill Development Missions need to be strengthened to critically analyze sectoral skill gaps, formulate proper skill development policy and implement action plans to meet sectoral skill requirements of the state. The schemes of establishment of ITIs and polytechnics in private sector need to be continued in order to meet the growing needs of technical education. There is a pressing need to ensure establishment of ITI/ITC in each of the blocks of Bihar. ITI/ITC courses should also be revamped (adequate blending of long term and short term courses on the potential sectors and state's requirements) to meet the changing needs of the industry and technology. Bihar has very strong base of young population. This can be converted into major demographic dividend, if this population is linked with marketable skill sets. Thus, there is a need to stress upon marketable vocational skills beside formal education. This will also help in reducing unemployment rate as the working age population will have appropriate skills to suit the needs of the employer.

We have seen that, in most cases, the lack of demand-oriented vocational training and skill development projects often resulted in unemployment, while at the same time a large number of activities could not grow because of lack of appropriate skilled manpower. Keeping these facts in view, it is very important to assess the demand for these skill sets for the future in different markets, such as, domestic, national and international. For this a demand-oriented approach to vocational training would be adopted giving due weight to general development activities in these markets. Thus, high poverty and surplus labor in the state cannot be tackled by simply emphasizing on vocational training and skill development unless the products that these people are capable of churning out satisfy the demand pattern of market. Different

skill-sets/trades have been identified by a study of Indian Institute of Public Administration (IIPA) keeping in view the market demand pattern of the state which is helpful in this regard.

School education needs to be used as a tool to increase vocational awareness among the young people. School drop-outs (leaving the schools before completing XII standard), child labor and out-of-school youth need to be given alternative education, coupled with skill development opportunities to bring them into the economic and social mainstream. Approximately 93 per cent of the India's workforce is in the unorganized sector. The sector cuts across all economic activities and includes rural and urban areas. Hence, separate institutional mechanism needs to be explored which will, inter-alia, plan, implement and monitor the skill development efforts for the unorganized sector.

Employment led Growth

The central objective of development activities and efforts should be employment generation, and growth will be its by products. The state aims at creating institutional mechanism for research development and quality assurance. In order to encourage quality and productivity in science and technology, mobility of scientist and technologists between industry, academic institutions and research laboratories must be ensured. Special emphasis is required in the field of R&D and the technological factors of innovation. Also emphasis is required to other equal important social, institutional and market factors that are needed for adoption, diffusion and transfer of innovation to the productive sectors.

Strategy

- **Establishment of New Technical and Vocational Institutions:** Every district must have at least one engineering college. Accordingly it is proposed to establish at least one engineering college in the remaining uncovered 32 districts in government sector and through PPP mode. Every subdivision must have at least one polytechnic institution in government sector or under PPP mode. The target will be to churn out 100000 vocationally trained persons annually in long term trades and 500000 annually in short term market driven trades. It is proposed to establish at least one ITI/ITC in each Block and Skill Development Center in every Panchayat of the State. At least one region specific training centers for Madhubani paintings, bamboo work and traditional skills are also proposed to be established. A holistic and balanced expansion approach would be adopted to-open new ITIs to target uncovered areas. Thrust would be on consolidating and improving the capacity and quality of the existing institutions. New institutions would be set up to bridge the imbalances and disparities across state and to address special economic, social and technological needs of the state as well as country. There is an urgent need to step up both public and private investment in Technical institutions, and increase the efficiency of its utilization.
- Training of trainers (TOTs) to create new knowledge and improve teaching standards would be ensured. This would require funding for establishment of training institutions. Refresher courses for trainers are also necessary. Initiatives to improve the quality and availability of instructors in training institutions need to be launched in a mission mode. All effort will be made

to create effective convergence between school education, various skill development efforts of government and between government and private sector initiatives. Focus of modular courses would be on short, relevant and effective courses that would get candidates into the workplace. The placement ratio will be monitored and placed in the public domain by agencies involved in skill trainings. Skill development centers at village and block level will be promoted to provide skill development opportunities as well as to act as one-stop kiosks with information on the local labor market/employment, vocational learning opportunities and support schemes. Panchayats, municipalities and other local bodies will be involved in skill development and employment generation at the local level. In order to promote skills and employability of women, the sectors which employ a large number of women will be identified. These may include construction, home-based traditional crafts or piece rate work, financial, media and health service as well as agricultural sectors. Establishment of private sector training institutions will be promoted through a package of suitably designed incentives such as provision of land and financial assistance.

- **Optimum utilization of existing resources:** Comprehensive detailed project report of existing institutions with futuristic and holistic approach will be prepared to leverage the maximum output of infrastructure of existing institutions. Well reputed and experienced private players will be involved.
- **Strengthening Institutions to produce high quality products for better employability:** Various steps will be taken for modernization and strengthening the laboratories/workshops as per latest technology. New laboratories will be established. Modernization of class rooms/computer centers and libraries will be carried out.
- **Improvement in faculty competence and quality of teaching:** Currently there is a huge shortage of quality faculties. The quality of training depends upon the quality of trainers. Trainers are needed to be trained regularly to enhance their technical knowledge. So it is proposed to establish two state- of-the-art technical teacher's training Institutes; one for ITI instructors and other for polytechnic/engineering teachers training Institute. For improving the quality of faculties of universities, each university should have its own academic staff college with core faculties in addition to UGC academic staff college where regular training/refresher courses will be conducted.
- **Capacity building to strengthen management of delivery:** Following measures will be taken in this regard: (i) establishing a well structured sector specific Labor Market Information System (LMIS); (ii) Planning and Development Council will assist planning and delivery of technical training/vocational training; (iii) sharing of best academic, administrative and good practices through workshop, seminars, symposia etc.; (iv) sharing of best practices with other technical/vocational institutions of other states and (v) establishing Institutional mechanism (like single window system) for effective system governance and quality assurance. for effective system governance and quality assurance.
- **Enhancing Interaction with Industry:** of utmost importance is creating infrastructure for on-the-job-training and to encourage apprenticeships. The enabling infrastructure for large number of

formal apprentices needs to be built. Apart from this some of the other proposed important steps are providing industry input to curricula development; providing opportunity for students group to undertake problem solving projects; industry exposure for faculty; creating avenues for earning by learning; establishment of industry- institute interaction cum placement cell; greater and wider acceptance of the course and institute and other steps deemed necessary for heightening such interactions.

- **Special Training Scheme for Rural Youth:** Some need-based training program, such as, rural engineer or barefoot engineer scheme, will be started to train the rural youth in those skills which may assist in self employment. Such skills may be repair and maintenance of agriculture implements such as hand pumps, plumbing, electrification works, TV and mobile repairs etc. This will particularly help in employment generation in rural areas. For this purpose, *Mukhyamantri Rural Kaushal Vikash Yojna* will be started .
- **Establishment of State Institute of Fashion Technology:** Apparel sector is fast growing sector in domestic and National/International markets .There is one NIFT in Patna so there should be a State Institute of Fashion Technology (SIFT) in Bhagalpur on the pattern of NIFT.
- **Mobile Training Institute:** The objective to start mobile Vocational Training Center is to reach the masses who cannot afford to come to the main campus for training purposes. The center will be mobile in nature.
- **Training for Informal Sector:** Majority of workforce now is engaged in self employment both in urban and rural areas. It is, therefore, important to focus on skills useful for harnessing self employment /entrepreneurship potential of the youth. Thus, there is a need to increase the number of training courses in service sector or traditional handicraft sector in skill development programs. Employment potential is much higher in areas such as construction, electrical trades, plumbing, printing, computer hardware, paramedics, etc and training in these areas should be given special attention. People in rural- areas are by and large from weaker section of the society and cannot afford high cost of training. For this section, training for short duration can play a very important role.
- **Re-branding of Vocational Training:** There is need to undertake a re-branding exercise so that prestige is attached to vocational training which is currently treated as some kind of inferior job.
- **Formulation of Policy for Vocational Education and Training:** Bihar has walked some considerable miles in relation to improving training and skill development so that the growing youth population can get job oriented training and education. For this there is a need for vocational training/education policy. Bihar Skill Development Mission need to be strengthened to critically analyze sector skill gaps, formulate proper skill development policy and implement action plans to meet sectoral skill requirement of the State.
- **Encouragement to Research and Development in Universities/Colleges:** The University/college faculty will be rewarded by giving incentive to take up research projects. This is necessary to attract good faculty. To start postgraduate education and demand driven research and development, innovation in collaboration with industry and other knowledge

users in existing institution is necessary. Faculties will be encouraged to take up projects from various stakeholders for technological solution. Other steps in this direction are establishing Center of Excellence (COE) for focused applicable research in collaboration with well reputed industrial houses and initiation of Research Promotion Scheme for students/faculty members. Funding support should be taken care of by the government for this purpose. Funding in this regard should be generous to attract talent. University should be encouraged to promote research in areas related to skill formation. Making research compulsory for every Institute/ university and the creation of a "**Research Fund**" must be made available by the state government. Also, tie ups with leading industry bigwigs for research sponsorship in their related fields of operation must be made possible. These ideas could be explored after setting up of an empowered committee consisting of senior bureaucrats, academicians, professors and technocrats as well as taking inputs from experts and resource persons.

- **Strengthening of Employment Exchanges:** To provide assistance to the unemployed for utilising job market, strengthening and modernization of employment exchanges would be taken up. It would include, inter alia, well equipping the exchanges to become counseling and guidance centers and in providing on-line registration services. Globalization has opened the gates to the globe market that employs people with right kind of skills, provided the information is made easily accessible to the youth. Thus role of the employment exchanges has undergone a sea change.
- **Organizing Job Fairs and strengthening Placement Services:** Job fairs would be organized at district/sub-district and State level to provide a platform to the job-seekers and job-givers to meet and facilitate recruitment. Endeavour would be to place about 1 Lakh youth every year through job fairs. The placement services at the technical and other academic institutions would be streamlined to attract job seekers. A state level job portal will be created where job providers and job-seekers can exchange information and which assist them in their talent/job hunt.

SCIENCE, TECHNOLOGY AND INNOVATION

Bihar has to take significant steps during the 12th Plan period to meet the growing demand of technology in various sectors. Innovation and improvement in existing technologies are crucial for growth of the state. In process of economic development, science and technology is an important component. Its contribution in progression of standards of living and state's economy is indisputable. It is essential to use replicable technology in all sectors of economic development. To cater the need of technology transfer, universities, institutions and extensions facilities have to be revitalized. State has to purposefully upgrade standards and performance level in institutions using innovative solutions and delivery systems that would effectively bridge the knowledge gap to achieve the desired growth rate in different sectors.

It is a proven fact that social, economic and overall development of state cannot be achieved without technical institutions. Industries require, among other things, a workforce having a scientific bent of mind and possessing the much desired temperament and skills essential to maintain the high quality and productivity at par with international standards. Technical educational Institutions have, therefore, to respond to these emerging challenges by taking the responsibility of developing and nurturing the world class engineers, technologists and managers. Bihar has small number of technical institutions, only 0.56 percent engineering colleges and 0.76 percent polytechnic institutions of the country where as it accounts for 9 percent share of population. So it requires quantitative expansion along with bringing qualitative and innovative change in its existing technical institutions. This can help the state to become the knowledge base economy to meet the rapid challenges of the worldwide competition. In order to encourage quality and productivity in science and technology, mobility of scientists and technologists between industry, academic institutions and research laboratories must be ensured.

The vision of the government both at macro and micro level is inarguably to produce quality products marketable anywhere in the world. In order to be globally competitive we have to refurbish the pattern, structure and content of technical education. There is a need to encourage consultations, linkages and networking among all S&T players including universities, research institutions, industry, multilateral organizations, professional associations, donors, non-governmental organizations and government departments and the community to maximize efficient use of resources.

Technology is all about using the science to make life better for the people, to reduce cost, to improve comfort, to improve productivity etc. So, science and technology has to be infused with new vitality if it is to play a decisive and beneficial role in advancing the well being of all sections of the society.

Indian experts today derive their comparative advantage through resource and labor rather than through the power of technological innovation. The transformation of new ideas into commercial success is of vital importance to the nation's ability to achieve high economic growth and global competitiveness. Accordingly special emphasis is required in the field of R&D and the technological

factors of innovation as well as also to the other equally important social, institutional and market factors needed for adoption, diffusion and transfer of innovation to the productive sectors.

Thus, realising the potential of sustained innovative and systemic quality improvement in the scientific and technological development within socio-political and economic development of the state, the 12th Plan aims to bridge the gap between demands and supply to the extent possible and to ensure high quality, innovation, dynamic and demand driven technical/professional education to all sections of the society at affordable cost and plans to foster scientific research.

State will promote the research and development in frontier areas of science and technology, foster excellence and innovation in teaching and learning methods, by adopting most innovative and participatory practices to help consummate knowledge and skill and its transmission to the larger community.

Government -Industry interface will promote enhanced interaction with industries for inputs on curriculum development, internships for students, providing opportunities for student groups to undertake problem-solving projects, providing assistance for improving employability including entrepreneurial trainings, specialized skill trainings, and training in softer skills required by the industries. It will also give exposure to teachers about the present practices done by the industries. It will further assist institutions in establishing new laboratories, providing literature on new technologies and offering their shop floors as substitutes for laboratories.

The Bihar government will also devise a formula for establishing engineering colleges and polytechnic institutions considering the Gross Enrolment Ratio (GER) of 20 percent in higher education, which is to be achieved by the end of the 12th Plan period.

During the 12th Plan period, the state will focus on maximum utilization of the existing resources to increase the intake capacity in existing institutions which is a cost effective method of meeting the immediate demand. It will be based on comprehensive detailed project report on existing institutions with futuristic and holistic approach to leverage the maximum output of the infrastructure of existing institutions.

The existing institutions need to be upgraded to produce high quality graduates for better employability. The focus would be on the establishment of new laboratories and modernization and strengthening of existing laboratories, modernization of classrooms, updating the learning resources, establishment/ Up-gradation of central and departmental computer centers, modernization and strengthening of libraries and increasing access to knowledge resources to cater to the growing needs.

State would establish **Centers of Excellence (CoE)** for focused applicable research in collaboration with well reputed industrial houses. It will start the demand driven research and development and

innovation in collaboration with industries and other knowledge users in existing institutions. These CoE would also take up post graduation courses in bio-technology and nanotechnology and also encourage its faculties to take up projects from various stake holders for technological solutions. Regular capacity development of faculties is needed to improve the learning outcomes. The detailed capacity development plan for technical teachers (faculty) would be made to include pedagogical and, industrial trainings, in thematic and multi-disciplinary areas by establishing state of the art technical teacher's training institute.

In the view of above, it is required to provide adequate support to 'Bihar Council of Science and Technology' and Bihar Remote Sensing Agency to get its mandate implemented effectively during the 12th Five Year Plan Period. It will ensure that the message of science reaches every citizen and foster scientific inclination to attract the brightest of young persons to take up a career in science and technology.

The state would strongly promote scientific research in universities of other academic, scientific and engineering institutions in the relevant areas for the economy and society. It will establish the state of the art instrumentation center for raising the level of work to the highest international standard. Focus would also be given to establishing an Intellectual Property Right (IPR) system to maximize the incentives for the generation and protection of intellectual property by all type of inventors.

Strengthening and modernization of "Bihar Remote Sensing Agency" for the purpose of research and application of forecasting, prevention and mitigation of natural hazards, conducting surveys of natural resources and to leverage the full advantage of the new satellite technology in the formulation of development policy of the state.

Bihar would constitute a state level Innovation cum Intellectual Property Right Council for validating and promoting the research related to innovation at institutional and non- institutional levels. This will secure the work done by innovators in the state.

SOCIAL WELFARE

Overview

Social welfare in Bihar has multiple and complex dimensions involving caste, occupation, age and gender. The social structure has had important bearing on the welfare of weaker sections of the society. Despite decades of implementation of government programs, various sections of society have remained untouched by the benefits. Besides development and modernization process too have contributed in creating groups of disempowered and destitute population, for example beggars, transgender, groups depending on traditional skills for livelihood and others. A focused attention would be required to identify, reach and empower the vulnerable population of the state.

Vision

The overarching vision of the social sector is to ensure full empowerment of all people belonging to the vulnerable groups specially children, women, disabled, old and others such as beggars, transgenders, etc., so that their quality of life can be enhanced and they can fully participate and contribute in the development of the society.

Objectives

The key objectives of the sector under the 12th Five Year Plan would be:

- To cover all those segments of population which have so far remained uncovered in the development process
- To take specific efforts to enhance women's participation in the development process
- To identify the age specific and disability related needs of such groups and make suitable interventions

Approach

The objectives of the social sector for the 12th Five Year Plan are:

1. To ensure inclusiveness in all programs for greater access to schemes and services.
2. To initiate entitlement based planning in all the socio economic programs
3. To cater to the special needs of women and children
4. To protect the legal rights given to women particularly for reducing violence against women
5. To focus on integrated development Schemes/approach for the most disadvantaged

Strategy

Following strategies would be followed in 12th Plan-

- State would make comprehensive policy interventions in form of preparation of:
 - (i) State Nutrition Policy
 - (ii) State Policy for Children and
 - (iii) State Policy for Women.

(iv) Life Cycle Approach

- As different interventions are required at different stages of the life of men and women, schemes would be designed keeping in view different requirements of different age groups following a life cycle approach from birth to death. So the programs would be designed keeping in view this approach.
- Supportive structure and mechanism would be strengthened for providing better protection and care for children, women, elderly and other weaker sections of the society.

Integrated Child Development Services

- Integrated Child Development Services (ICDS) would continue to be the major program for addressing issues related to child development.
- For a comprehensive coverage and reach, it is important that ICDS projects are universalized by expanding them throughout the state, so that all targeted beneficiaries can be provided with the mandated services. As of now, Bihar has 91,677 approved Anganwari Centers (AWC) out of which 80211 are operational and the rest are being operationalized. On the basis of revised guidelines for setting up of one AWC for every 800 people (on an average), Bihar, with a population of around 10.38 crores, would require around 1.30 Lakh AWC.
- It would be necessary to cover all children through ICDS services. In this connection the state would try to have AWCs on the basis of known identified areas. For example, AWCs can be co-terminus with the wards of the Panchayats. It is also desirable that AWC-wise cap on the number of beneficiaries to be covered be removed, so that demand-supply mismatch of number of beneficiaries at AWC level could be checked. As many other health, nutritional and educational intervention for young children are being introduced through ICDS channel, it becomes even more important that all target beneficiaries have access to AWC.
- There is no denying the fact that AWC can be much more productive and effective with having their own infrastructure building along with sanitation and safe drinking water facilities. There have been various programs for construction of buildings for AWC through different agencies from time to time. Construction of building for AWC would be taken up in a big way in the 12th Plan.
- It is advantageous, if it is made mandatory for each (primary) school to have attached AWCs in the campus itself and its status be raised as pre-primary school. This will help smooth transition of children from pre-primary level. On the pattern of schools, the norms for opening of AWCs should be modified.

Training and Capacity Building under ICDS

- Training of various field level functionaries, especially Anganwari Worker (AWW) and Helper (AWH) is very important to make the programs effective.
- In this context the state would gradually develop an organized training infrastructure for AWCs on the pattern of teachers training infrastructure viz. SCERT at state level, DIET (District institute of Education and training) at district level and BRCs (Block Resource Centers) at block level. At the Cluster level convergence of AWCs with CRCs (Cluster Resource Centers) will help a lot.
- The 12th Plan should come up with a scheme where the target group is also provided with various types of nutritional support (liked cooked meal, micronutrients etc) at the AWC.

- Nutritional day care center can also be established within an AWC for this purpose or this program can be run in mission mode within overall ICDS structure with active support of health department for early childhood and pregnancy care. In any scenario, raising the present monetary ceilings for providing nutritional supplement is very much needed, which must be done during the 12th Plan.

Convergence and Restructuring

- Another critical area for ICDS program is its integration and convergence with related programs on health and sanitation and the question of restructuring of ICDS organizations. Convergence of the activities of different department like ICDS, PHED, and Education at the AWC, demands that these departments should formulate their policies in a comprehensive way. It is being felt that a cluster/Panchayat level monitoring mechanism, under the CDPOs, in collaboration with Panchayat functionaries may lead to better field level supervision and control. Further, convergence of different services, especially on health care provided by health sub-center through ASHA and ANW and the services provided by AWC through AWW and AWH is very important.

Strengthening of CDPO Office

- CDPO office has become the prime center at the grassroots for the delivery of child development programs. Thus, strengthening of CDPO office – providing computer, computer operator, nutritionist and other personnel, would be taken up during 12th Plan. Building of CDPO offices has been undertaken under different schemes but it is essential that all CDPO offices should have their own building by the end of 12th Plan.

Special Program for Ultra- poor

- There are many vulnerable groups in the society which have remained totally excluded from the developmental process. These groups are backward not only economically, but also have severe social handicaps. In fact, many of them are excluded that they have serious social identity crisis and at times they have to bear the burden of severe social stigma. For example, transgender or kinnars are not welcome even in their own family. Even in social discourse such as in admission in schools/colleges, application for jobs they cannot be identified as kinnars. Similarly, beggars, de-notified tribes, traffic victims, etc. are the left-out communities in the development process and have not been given focussed attention for inclusion. As they are different from normally classified groups of poor and need special attention due to the special nature of their socio-economic vulnerability, they should better be classified as Ultra Poor and separate strategy needs to be evolved for their financial, social, cultural and economical inclusion. State government has already taken an initiative to rehabilitate these left-out communities through a dedicated agency called State Society for Rehabilitation of Ultra Poor. This needs to be further strengthened and appropriate policies and programs can be implemented by this agency.

Beggar Free Bihar Mission

- There is a strong need for an integrated program / scheme for the Rehabilitation of Ultra Poor including beggars. It should have special provisions for shelter homes, Drop-in-Centers,

Rehabilitation Centers, survey and awareness, etc. In fact, as the state is moving towards a higher growth trajectory, it should ensure that society becomes totally beggar free. In this connection **Beggar Free Bihar Mission** would be set up during 12th Plan.

0-3 Mission

- It is gradually being realized that the first three years of a child's life are quite crucial from the viewpoint of brain development. If the brain development does not take place during this period, it becomes very difficult to recoup in later phases of life. Similarly, if the child remains malnourished in this period, the conditions remain irreversible in later period of life. At present initiatives to address the needs of the child's first three years of life is being done through ICDS program. However, this is grossly inadequate. ICDS does not fully take care of the total needs of children of age group of 0-3 years. Hence, the state would set up a dedicated **Zero to Three Mission** to take care of the physical, health, educational, social, emotional concerns of children below three years. It would also take care of the concerns related to training of parents, exclusive breastfeeding, enhancing parent child interaction, facilities related to infantile diseases and such other issues that may have an impact on the young children below three years.

State Nutrition Mission

- Malnourishment is one of the most serious concerns of the social administration. More than half of the children are malnourished. As malnourishment in early life is irreversible and leads to about 10 percent loss in wages during life time, it requires to be attended with more care and concern. In view of the fact that malnourishment also leads to 2-3 percent loss in GDP, there is a need to consider setting up of a **State Nutrition Mission** to address the severe issue of malnourishment. This Mission will coordinate with all the government departments and NGOs engaged in fulfilling the nutritional necessities of the beneficiary groups. This would take care of the issues related to producing and distributing nutritive food, food fortification, dietary habits, etc.

SABLA and IGMSY

- These two central government program aimed at adolescent girls and pregnant mothers respectively are being implemented in Bihar in pilot phases. SABLA is implemented in 12 districts of Bihar. These two programs have substantial potential for improving not only the health but the overall social status of the districts and similarly IGMSY is being operationalized in 2 districts. Both of these programs should, therefore be universalized quickly during the 12th Plan and required grants be given to the state for their implementation.

Disability Rehabilitation Sector

- The needs of the disabled and old are unique. In order to meet the needs of disable persons **Disability Policy** would be framed at earliest.

Establishment of District Disability Rehabilitation Centers

- At present District Disability Rehabilitation Centers (DDRCs) are sanctioned in 26 districts by Ministry of Social Justice and Empowerment. These centers are basic center for providing most of

the facilities to persons with disabilities. These centers should be sanctioned in all districts of the state. The ministry should sanction the grant directly to the state government i.e. Department of Social Welfare so that functioning of these centers should continue without any hindrance. At present most of the DDRCs are non-functional or not up to the mark due to unavailability of funds. State Government should be empowered with financial powers also. Options should be open for state government to take up the operations of the DDRCs through their department, state society or district administration or in collaboration with NGOs, whichever is suitable.

- Special steps would be initiated to help the children with Learning Difficulties as Autism, ADHD and Dyslexia. For this purpose learning centers would be established at district level.

Special Focus on Mental Health / Mental Disability

- Ministry of Social Justice and Empowerment is implementing various schemes through NGOs, PRIs or DRDAs for disability but at present there is only one component named "Drop-in-Centers" for mentally ill persons and special school and vocational training centers for MR. There is no provision / scheme for running of homes for mentally ill / disabled. This large group is being completely ignored and left out. National Trust implemented a scheme named "Gharaunda" only for adult with cerebral palsy, autism, mental retardation and multiple disability for which availability of land is a must.
- There would be specific provision for running of a home for mentally ill / mentally disabled.
- The children suffering from mental health problems and living-in children or Observation Homes are the most neglected lot. Separate provision would be made to take care of their special needs.

Establishment of Old Age Homes

- At present ministry of Social Justice and Empowerment is implementing a scheme named "Integrated Program for Older Persons" (IPOP) through NGOs, Panchayati Raj Institutions and DRDAs, in which grant is sanctioned for running of Old Age Homes, Mobile Medicare Units, Day Care Centers, awareness etc components. The present situation in the state is that only two NGOs are getting grant-in-aid from Ministry of Social Justice and Empowerment. The scheme IPOP needs to be revised and community based centers should be included in IPOP. More emphasis would be given on non-institutional care like help lines as well as community based program for older persons.

Security Pension Schemes

- Apart from National Security Pension Schemes, the state government is running Laxmibai Widow Pension Scheme and Disability Pension scheme. These pension schemes would continue. At present all such pension schemes provide Rs 200/- per month. These pension needs to be revised in view of rise in consumer price indices.

Homes for Care and Protection

- The state has taken steps for effective implementation of Juvenile Justice Act. Observation homes have been opened in all districts. 3 Children homes are also operational. One special home is also working at Patna. In the 12th Plan such homes would be further strengthened.

- Juvenile Justice Boards have been constituted in all districts. The training of the members of the Board would be made more systematic.

Women Empowerment

- It is now an agreed concept that gender equality should be made a central concept in the planning, designing and implementation of the state programs. While promoting gender equality the central theme is to bring women in the forefront and specify commitments, targets, accounting mechanisms, planning and monitoring mechanisms across all areas of focus.

There are four dimensions to the Approach Paper:

- A rights based approach be adopted securing particularly the rights of women and young girls in the state.
- Incorporation of the element of gender while addressing issues of vulnerability and marginalization
- Institutionalizing gender into particular issues concerning employment, health, education with an effort to change institutions (household, community, markets and the government)
- Focus on the woman as an individual as well as foster their collectivities such as SHGs etc.
- A broad strategy has been outlined under integral empowerment strategy for Women, with a time-bound action plan, wherein measures are worked out to tackle the situation through a flagship program of the state known as Mukhya Mantri Nari Shakti Yojana, one among similar efforts put in by the state government. In this regard, need of a comprehensive **Women Policy** is being felt.

Strategy

- MukhyaMantri Naris Shakti Yojana which encompasses social, economic and cultural empowerment would be further strengthened. It would also focus on life skill education for drop out (adolescent girls). State Resource Center on women would be made fully functional.
- The guidelines related to Domestic Violence Act, Child Marriage Prohibition Act, Prohibition of Dowry Act, PCPNDT Act, Prevention of Sexual Harassment at workplace act, Daain (witchcraft) would be revisited to make it more effective, the detailed protocol for rehabilitation of the victims would be required in these cases.
- Women Development Corporations would be strengthened to develop employable skills of women and adolescent
- MukhayaMantri Kanya Vivah Yojana would be continued to discourage child marriage and to promote registration of marriage.
- MukhayaMantri Kanya Suraksha Yojana in which a Deposit Certificate is given to the parents in BPL family on registration of birth of a girl child would also be continued.
- Involvement of women in governance would be further enhanced at all levels.
- Gender advocacy, gender training and gender sensitization
- Institutionalizing and monitoring gender budgeting .
- Recognition and convergence support to women managed community based organizations.

DEVELOPMENT OF WEAKER SECTIONS

Overview

The SCs, STs, EBCs, BCs and Minorities together constitute almost 63 percent of the state's population. The state is committed to the development of the weaker sections and has been consistently channelizing its energies and resources in this direction. Some of the key figures relating to the population of weaker sections in Bihar are shown below:

SCs in Bihar

- The Scheduled Castes (SCs) population in Bihar is 13 million as per the 2001 Census constituting 15.7 percent of the total population (83 million) of the State.
- The state has a total of twenty-three (23) sub-castes under SCs, which are spread across all the districts of the state.
- 36 percent of the BPL (below poverty line) population of the state comes from SC category (against their population share of only 16 percent)
- The literacy rate among SCs of Bihar is 28.5 percent which is nearly half of that recorded for all SCs at the national level (Census 2011).
- Female literacy of SCs in Bihar is 15.6 percent as compared to the national level of 41.9 percent (Census 2001)

STs in Bihar

- The Scheduled Tribe (ST) population constitutes 0.9 percent of the total population of the state.
- The decennial growth of ST population has been 32.4 percent, which is 3.8 percent higher than the state's total population.
- The state has a total of twenty-nine (29) Scheduled Tribes and all of them have been enumerated during the 2001 census.
- The Scheduled Tribes are overwhelmingly rural as 94.6 percent of them reside in villages. The overall sex ratio of the ST population in Bihar is 929 females per 1000 males, which is considerably lower than the national average of 978 for the total ST population. The literacy rate among the STs has increased from 18.9 percent registered at the 1991 census to 28.2 percent at the 2001 census. About 10 districts of Bihar have major concentration of the tribal population. These districts are Katihar, Purnia, West Champaran, Rohtas, Kaimur, Banka, Jamui, Lakhisarai and Bhagalpur. These districts constitute almost 80 percent of the total tribal population.

Minorities

- According to the 2001 Census, Muslims constitute 16.5 percent of total population of the state.
- Christians, Sikhs, Jains and Buddhists are the other minority groups in the state.
- Muslims are admittedly the most backward among the minority population. There are seven Minority Concentrated Districts in Bihar where the share of Muslim population is much higher

than the average 16.6 percent. These are Kishanganj (67.5 percent), Katihar (42.5 percent), Araria (41.1 percent), Purnia (36 percent), Darbhanga (22.1 percent), Sitamarhi (21.2 percent) and Paschim Champaran (20.6 percent). An overwhelming 87 percent of Muslim population in Bihar lives in the rural areas.

- Poor Muslim families are mainly engaged in low-paid occupations and they fall in the lower castes category according to the provisions of law.

Backward Castes

- Bihar has 116 EBCs and 44 BCs having considerable population share. Nearly 18 percent of the population belongs to the EBCs and another 12 percent belongs to BCs.
- Although not much data is available on the status of OBCs in the state, it is widely believed that their status is worse than the status of higher castes in most socio-economic indicators.
- EBCs are very similar to the SCs so far as their socio-economic status is concerned. The state government has established a dedicated department for development of BCs and EBCs which works exclusively for the development of these castes. The department has a dedicated corporation for implementing income generation schemes for this population and it also runs a number of educational schemes for the children belonging to this community. The schemes are mainly related with providing scholarships, running residential schools and hostels for the children and youth.

Urban Poor

- Urban population in Bihar is around 10 percent of the total population. There is no formal count of urban poor and the homeless in the state, however, informal estimates suggest that communities such as beggars, pavement dwellers, destitute, street children, mentally retarded, mentally ill, etc are in sizeable numbers (running into Lakhs) in Bihar.
- They face all the odd situation of weather and denial of basic living. Particularly in winter and rainy seasons their conditions become very pathetic.

Present Policies and Programs

- A number of policies are in place in Bihar targeted specifically at socially excluded groups. Also there are policies that are meant for universal coverage having a special focus on socially excluded categories.
- The Bihar state policy for inclusion of socially excluded groups focuses on education. A large number of targeted schemes are in place for education of SCs, STs, OBCs, Minorities, girl children, and CWSN. Children from excluded groups are also being reached through universal schemes of SSA.
- There are a substantial number of universal schemes for health, child nutrition, water and sanitation, rural development, housing and employment generation. In many, there is a special thrust on sections of society who are poor (BPL), in which majority of the target population belong to SC, ST, EBC and minorities.

- Of special mention of some of these policies are the ambitious step of the Government of Bihar by establishing “Bihar Mahadalit Development Mission” (BMDM) for planning and implementation of a number of schemes targeting the Mahadalit population (consisting of most marginalized scheduled castes). A number of schemes have been sanctioned by the state government for the development of these castes. A comprehensive project was formulated during the 11th Plan for the overall development of Mahadalits. The Mission has designed many schemes and programs for the upliftment of Mahadalit Communities.
- In order to link up the schemes with the target population, a total of 9662 Vikas Mitras have been already recruited by the Mission. The Vikas Mitras come from Dalit community and have been positioned at Panchayat level in rural areas, and at ward level in urban areas. The State government has initiated the capacity building program for Vikas Mitras.
- Of the educational schemes, the SC/ST Welfare Department implements schemes for educational development for the socially excluded groups' children.
- A number of schemes for welfare of minorities provide scholarships, improved and modernized teaching in madarsa as well as help to mainstream the children into formal schools. In addition, there are several ongoing schemes that provide scholarships, loans and arrange for book banks targeting children from weaker sections.
- KGBV (Kasturba Gandhi Balika Vidyalaya) Scheme is designed to bring girls from deprived social groups into the educational ambit. It is being implemented in EBBs where the female literacy rate is below the national average of 46.85 percent, and gender gap in literacy is more than the national average of 21.7 percent. The objective is to ensure access and quality education to girls of disadvantaged social groups, by providing residential schools with boarding facilities at the elementary level.
- 51 residential schools are being run for SC students, in which 10696 students study and 15 residential schools are being run for ST students, in which 2512 students are studying. Another 14 residential high schools have been sanctioned. In addition, 150 hostels for SC students, and 13 for ST students, are being run. The government is trying speedy construction of these hostels in all the districts of the state.
- Education in modern subjects is being included in the Madarsas and Sanskrit schools. During 2006-07, 10,457 new Urdu teachers were appointed by the state government.

Approach

- In Bihar, as mentioned above a project for the development of Mahadalits has been taken up under the aegis of Bihar Mahadalit Vikas Mission. It aims at providing land for house sites to all landless people, road, houses, water, toilet, vocational training etc. Such schemes need to be extended and supported.
- For the inclusive growth of the deprived and vulnerable groups it is imperative to follow the concept of Broad-streaming instead of Mainstreaming. Mainstreaming approach somehow presumes that the excluded or marginalized are moving in some of the sub-stream from where they have to be taken out and brought to the mainstream. This uprooting may not be feasible in many cases. Once they are uprooted from the present context, the strength of their past is lost

and they become vulnerable once again and their growth is stunted. The concept of Broad-streaming visualizes the development of sub-streams by its broadening at par with the mainstreams so that they may be considered as one entity.

- The existing programs related to SC, ST and other weaker sections need to be re-engineered to align with the concept of Broad-streaming.
- Pre-matric scholarship should be universalised. The central government should remove the state-wise cap on numbers pertaining to scholarship and maximum income limit of the minority students should be the only criteria for selection for the scholarship.
- Since Tharu has been recently incorporated in the list of STs, special scheme should be taken-up to improve their socio-economic status.
- In Bihar, 36 Residential High Schools are sanctioned. There is a need to upgrade the existing Residential High Schools to 10+2 residential schools. Such schools will require additional financial assistance for construction of new buildings and infrastructure for modernization.
- Bihar has 80 residential schools (66 existing SC and ST residential schools and 14 new sanctioned residential high schools) besides the 163 hostels for SC and ST. To renovate and modernization of the schools, financial assistance is required.
- Use of technology in identifying the real poor and efficient methods of ensuring food security to them could bring about a significant change in the situation of weaker sections.
- Employment creation is an important channel through which benefits of economic growth are redistributed. Apart from efficient implementation of MNREGS, investment in infrastructure in backward areas aimed at generating productive employment would create employment opportunities for weaker sections.
- The SC population, though mostly landless, have skill in agriculture related work and any intervention to upscale or attract significant public investments in agriculture with a focus on small agriculture holders' and allied sector will certainly improve the opportunities of work for SCs.
- A major thrust is needed for improving the nutrition status of children and women in order to reduce malnutrition. Implementation of ICDS-4 provides an opportunity to bring about such a change. It is proposed to establish a State Nutrition Mission to achieve rapid progress on this front.
- Mahadalit Mission visualizes that Mini Anganwari Centers will be established in all Tolas of Mahadalit. This scheme should be implemented on a priority basis during the 12th Five Year Plan with an aim to cover all Mahadalit habitations within next few years. Apart from Mahadalit Mission all the hamlets consisting of considerable SC population will be targeted under ICDS program with a focus on the girl child.
- Inequities in health and health care can be effectively reduced by improving the quality and accessibility of health services at public health centers.
- There appear to be a need for re-strategizing drinking water and sanitation program in the rural areas, especially among the weaker sections.
- For the benefit of women from the weaker sections, who have to work for their daily livelihood, crèche facility, can be of great help. This can either be linked with ICDS centers or separate crèches to be established.
- The state has initiated the process of implementation of SCSP and TSP and the feasibility of routing these funds through a nodal agency will be explored.

- The Prime Minister's Adarsh Gram Yojna (PMAGY) is to develop villages having more than 50 percent SC population deemed as ideal villages by the scheme. That ensures infrastructure and service provision covering up to 225 villages. However, there should be flexibility in the scheme especially in selection of the villages/hamlets.

Objectives

- There is a pressing need for capacity building among PRI members from Dalit community to understand the power and functions of Panchayats and how best it can be used for extending services to the weaker sections. There is need to invest in awareness programs both among the community as well as the duty bearers for proper appreciation of the entitlements flowing from government schemes like food security schemes, social security schemes etc., designed for the socially excluded group.
- A priority area for both the SCs and STs is to ensure improved access to schools, health centers, and other entitlements meant for them. The issues resulting in land alienation and rampant money lending also need to be addressed.
- Major challenge related with development of tribals is to prevent the loss of identity of the tribal community due to erosion of language, dialects, cultural practices and erosion of traditional tribal social institutions. Tribal development programs – MDA and TSP cover only 10 districts having significant tribal population, it is needed to extend the benefits of these programs to districts with scattered tribal population.
- Concerted efforts to bring minority population from the morass of poverty and deprivation through various schemes is already going on, the scope of these targeted policies will be broadened to have a more rapid impact on improving the conditions of minorities in general and Muslims in particular.
- For an integrated development of the minorities, it is better to merge all minority welfare schemes as an Integrated Minority Welfare Schemes (IMWS). It should be implemented in a decentralized mode giving full autonomy to the state in selection and implementation of the scheme.
- Multi- sectoral Development Program (MSDP) of the Ministry of Minority Affairs deserves to be restructured and implemented in a new form so as to deliver more benefits directly to minorities in the selected districts. The scheme, in its present form implemented as inclusive area development program has been reduced to a brick and mortar (building construction) focused activity. The skill development of minorities in order to increase the employability of youth should be the key sub-component of this program with maximum share of the total outlay.
- The other flagship central scheme of minority scholarship also needs simplification and better delivery mechanism.
- National Urban Housing and Habitat policy (NUHHP) 2007 promises “the provision of affordable housing for all, with special emphasis on vulnerable sections of society such as SC/ST, backward classes, minorities”. With single, deserted and widowed women, these vulnerable sections together constitute over 90 percent of the slum dwellers and urban homeless population. It is important that the 12th Plan focuses on the provision of basic services such as drinking water, hygiene, environment, electricity, approach roads etc. in the urban slums.

Strategy

Scheduled Castes

- It is envisaged to adopt Comprehensive Village Development Plan for villages that have SCs as majority population. The villages will have provision of link road, PCC lane, drainage facility, safe drinking water, sanitation facilities, housing, street lights, Anganwari Centers, crèches, health facilities and education facilities.
- Development of entrepreneurship capacity among the Dalit youths with emphasis on area specific and need based entrepreneurial activities will be made a priority.
- Efforts will be made to make provision of distributing red cards to all Dalit households without exception, with Antyodaya and Annapurna cards given to deserving families of the community.
- Efforts would be made to create mechanism to safeguard the interests of small scale farmers and agri-workers, including the Dalits. The reach of technical / financial inputs will be ensured to those people who are tilling the leased land. Credit support for the landless SCs who are willing to go for cultivation for leasing land, agricultural inputs - seed, fertilizers and other equipment related to agriculture will go a long way in creation of enabling environment for these groups.
- Efforts will be made to initiate quality residential schools in all CD blocks of the state with ensuring high accountability mechanism for ensuring quality.
- It is felt that the budgets for the sanitation program needs to be revised keeping in view of the land availability and inflation factor. Community toilets can be provided in areas where the land availability becomes a constraint. A decent community bathing spaces in all SC habitations have to be provided to protect the dignity of the women.
- Capacity building of PRI members from weaker sections is a crucial task and Civil Society Organizations (CSOs) can play crucial role in it.
- Additional PHCs will be made functional to increase access to quality health care by the weaker sections. Qualified doctors will be ensured at all health centers.
- The importance of CSO's is fully realized and their involvement in planning, implementation and monitoring of all the programs will be ensured.

Scheduled Tribes

- Apart from MADA and TSP districts, districts having scarce population of tribals will be given Cluster based support.
- Efforts will be made for the total coverage of all the children in primary education and provision of residential schools for girls at the block level as well as providing for hostel facilities for girls and boys at the district level.
- Essential coverage of all the tribal mothers and children under ICDS will be ensured. Special provisions and schemes for PTGS will also be a priority. Measures will be taken for appropriate

credit linkages with institutions with special focus on PTGS. Essential coverage of all the PTGS and families under BPL under Antyodaya will be ensured.

- Apart from this, provision of Health Sub Centers for the tribal hamlets according to the NHP norms, social mobilization for implementation of FRA with adequate budget provisions and release of alienated land of tribal will be looked into.
- Development of cooperatives for minor forest produce and skill development for processing of forest produce will be of great advantage to the tribal population.

Minorities

- Efforts will be made to designate the Minority Welfare Departments in the state as nodal department for the formulation and implementation of Minority Sub Plan with full autonomy in the selection of schemes, allocation of resources, etc.
- Effective and special measures for girl's education are much needed. Wide scale skill development, vocational training programs and linkages with financial institution and market will be ensured.
- Credit programs to be initiated and linkages with different institutions will be attempted.
- Efforts will be made for modernization of Madarsas with modern education in consultation with the community members.
- Provision for quality residential school in all blocks and budgetary provision for supporting the Minority students for study in government and private technical/professional institutions will also be ensured. Effective monitoring of the implementation of various schemes under MSP of all departments will go a long way in achieving these targets.

Homeless Population

- Efforts are already afoot for provision of shelter homes for the beggars and street children with necessary facilities required for living.
- It is felt to provide these homes with skill building facilities and forward linkages with the potential employers or self employment. Efforts will be made for greater involvement of CSO's in these schemes and also explore possibilities of developing Public-Private Partnership to address the problems of homeless and destitute.
- It will be ensured that various social security schemes like social security pension, old age pension etc are provided to this section of the population as well.

BCs and EBCs

- There is a need for universalizing scholarship for children of BCs and EBCs in elementary schools.
- Efforts will be made for strengthening provision of credit for entrepreneur development, education, agriculture, development of kitchen gardens and other livelihoods.

ENVIRONMENTAL AND FOREST - OPTIMIZING ECO BALANCE

Environmental and ecological degradation has serious implication both at the local and global level. The protection of the environment is necessary to make economic growth sustainable.

Forestry and Wildlife

- Notified forest areas in the state is 6.78 percent of the geographical area whereas the total tree cover in the state is approximately 10 percent. Nearly half of the forest land supports degraded forests. The National Mission on Green India aims at increasing their capacity for carbon sequestration as well as increase the area of tree cover. Another important aspect of the mission is to preserve the bio diversity of the forests and hence discourage pure plantation models.
- As the area under forests cannot be increased it is proposed to increase tree cover in the state by plantation in non forest lands. A robust social forestry program is being proposed to encourage farmers to plant trees on their lands. A pilot project for introducing Poplar in Vaishali district has yielded encouraging results and it will be replicated in 24 other districts of the state at an estimated cost of 260 crores during the 12th Plan Period. To achieve 15 percent forest/tree cover social forestry and agro forestry as well as schemes under MNREGA need to be intensively and extensively implemented. Farm nurseries in the private sector need to be promoted and encouraged as the Environment and Forest Department cannot by itself fulfill the needs of the state.
- The state has taken a very important decision to free 10 species of trees from transit rules, which will act as an incentive for the farmers to grow trees as they will be freed from procedural hassles for disposing off their produce.
- The rehabilitation and enrichment of these forests will be done with the cooperation of the local people through Joint Forest Management. The Joint Forest Management will be strengthened by doubling the number of Village Forest Management and Protection Committee (VFMPC) in the state.
- Intensification of Forest Management Schemes during the 11th Plan has given a fillip to strengthening of infrastructure like communication, roads, free surveillance etc in the forests. However, there is a need to change the mode of funding under the scheme. Currently the scheme is straight-jacketed by the guidelines of Ministry of Environment and Forests (MoEF) and each of the items of work needs the sanction of MoEF. It is necessary to let the states decide their priorities for utilization of these funds within certain broad parameters.
- 50 percent of forest area of the state is notified as Protected Areas (sanctuaries and National Parks), management of these areas needs special emphasis and specialized approach. The state has taken up preparation of the management plans for these areas. These management plans will provide the necessary baseline data for finalizing the management practices to be adopted for wildlife and biodiversity conservation.

- Protection mechanism of the Protected Area is being upgraded by providing more vehicles and communication systems. The firepower of staff engaged in protection, needs enhancement through provision of arms and requisite training to use them effectively. Protection of wildlife and its habitat will be done with the active participation of people through eco-development committees.
- Man-animal conflict issues need redressal. The State has enhanced the compensation packages for damage by wild animals and for the first time has introduced a compensation package for crop damage. Relocation of habitations of Valmiki Tiger Project on lines of the recommendations of the Tiger task Force is desirable. Where this is not possible, an effective co-existence plan will be put in place.
- The Gangetic River Dolphin has been notified as the National Aquatic Animal. A robust plan for the protection of the Dolphins and its habitat will be put in place during the 12th Plan period which will be placed before the National Ganga River Basin Authority for funding.

Land, Mining and Forest Right Act

- The process of settling the claims under the Forest Right Act is in progress. A total of 1600 cases have been received and the Gram Sabhas have passed orders in most of the cases which are to be ratified by the district level committees
- With a view to prevent environmental degradation, the State Mining Policy has been revised wherein a decision has been taken in principle that no new mining leases will be granted or existing mining leases will be renewed unless the state feels that it is absolutely necessary. With this decision the mining activities in the state will be limited resulting in improving the environmental conditions.

Sustainable Management of Water Resources

- Bihar is a paradox in the matter of water resources. The northern portion of the state is chronically flood prone whereas the southern parts of the state faces sever water shortages. Major issues relating to water resources have been discussed in the chapter devoted to this issue.
- One of the major problems being faced in the state in the matter of sustainable management is the fast depleting ground water resources with a sharp decline in the water table across regions. However, one of the important issues is improving the water harvesting potential in the state. There is plenty of scope for conserving water in the forest areas. The guidelines as laid down by the National Rain-fed Area Authority will be followed and water conservation methods will be adopted for conserving water with funds from MGNREGA. This will help in recharging the ground water resources of the state which had considerable dependence on this resource.

Waste Management and Pollution Abatement

- Improving Air Quality: Presently, Bihar State Pollution Board has been monitoring the Ambient Air Quality at 2 monitoring stations at Patna only. The process of establishing Continuous Ambient Air Quality Monitoring Station at Patna is almost complete and will be operationalized

shortly. It is necessary to establish stations at least in all the Divisional Headquarters in the state for improving the monitoring which is prime requirement for keeping the pollution levels at desired levels.

Water Quality Monitoring

- The existing 36 stations for monitoring of the quality of surface water and ground water are not adequate. Considering the need of safe drinking water and maintaining the wholesomeness and pristine quality of all water resources, the broad purpose is to increase the water quality monitoring network from 36 to 60 sampling stations. Water quality monitoring network will also be extended to the areas where Arsenic, Fluoride, Nitrates and Iron contamination of ground water is assuming serious proportions. Most of the rivers are highly polluted. Discharge of raw sewage is common. Treatment of sewage and industrial effluents will be linked to urban and industrial development planning. The National Ganga River Basin Authority has sanctioned schemes for sewage treatment at Arrah, Chhapra, Patna, Hajipur, Munger etc., when implemented will help in reducing the pollution levels in the Ganga and its tributaries.

Solid Waste Management (SWM)

- The state has 7 Municipal Corporations and 30 Nagar Parishads. Currently, Solid Waste Management System is not in place for any of these urban bodies. The Pollution Control Board will coordinate with Municipal Corporation, Nagar Parishad and Nagar Panchayats and the respective departments of the state government to ensure that the facilities for treatment and disposal of solid waste are developed. Cities and towns will be encouraged to evolve systems to segregate waste at the point of origin with the participation of citizens. Door to door collection of garbage has been started in some part of Patna which will be extended to other urban bodies during the 12th Plan period.

Industrial Hazardous Waste Management

- The provision for treatment, storage and disposal facility has not yet been developed in the state. It is necessary to develop these facilities in the state for safe disposal of hazardous waste.

Bio-Medical Waste Disposal

- Patna has the facility for the disposal of bio-medical waste and facilities are being created in Muzaffarpur and Bhagalpur. It is necessary to provide these facilities in all urban centers.

Mitigation Strategies for Climate Change

Environmental stability has its impact on the climate which will impact the livelihoods of the national population. Every human activity has some impact on the environment. The issue of climate change has to be seen in a holistic manner and cannot be compartmentalized to certain areas. GoI has launched National Action Plan on Climate Change with a view to mitigate the impact of various development activities on climate. The Action Plan has identified eight National Missions for addressing issues relating to climate change.

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Mission for Sustaining the Himalayan Ecosystem
- National Water Mission
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

The state government has initiated the process of preparing the state level action plan for mitigating the effects of climate change. The recommendations of the committee will form the basis for developing strategies to combat climate change.

Background

Disasters slow down the progress of any nation. Evidently they play a precarious role in the socio-economic growth of a nation. Thus, for all nations the concern remains with the efficiency of response management along with the old notion of mere response. An efficient Disaster Management (DM) cycle has not only percolated from national level to district level but also to the Panchayat level which ensures capacity building to the grass root level. Apparently, the process is a reaction to the increasing frequency and intensity of disasters during the recent times.

The vision in the 12th Plan for disaster management sector in Bihar will be DRR for all. The Disaster Risk Reduction (DRR) will besiege the safety and security of all, especially focusing on vulnerable groups like women, children, elderly, Dalits and Mahadalits. Since the built-up environment is crucial in safety of life and property therefore associated vision will be to promote '**Safer Development in Bihar**'. The 12th Plan will aim at reducing areas susceptible to different kinds of the disasters by a factor of 2, through appropriate risk reduction measures, planning of responses and adequate public awareness campaigns.

State Profile

Bihar is located in the eastern part of the country (between 83°-30' and 88°-00' longitude). It is an entirely land-locked state and lies mid-way between the humid West Bengal in the east and the sub humid Uttar Pradesh in the west which provides it with a transitional position in respect of climate, economy and culture. It is bounded by Nepal in the north and by Jharkhand in the south. The Bihar plain is divided into two unequal halves by the river Ganga which flows through the middle from west to east. There are 38 districts in the state having 8,442 Panchayats and 853 of Thana (police stations). The total population of the state is crossing 10,38,04,637 as per 2011 Census (Provisional) which is equal to 8.58 percent of the total population of India.

Hazard Profile of Bihar

Bihar is the third most populated state in the country with population crossing 83 million people. The state faces flood, earthquake, drought, cyclones, heat waves, and cold wave as well as recurrent fires in the villages during summer. 33 percent of the state receives less than 750 mm rainfall, making Bihar chronically drought-prone. Bihar accounts for 16.5 percent of the flood-prone area and 22 percent of the flood-affected population in India (which can be analyzed as more than a fifth of India's population, who are affected by floods, live in Bihar). Further aggravating is the fact that more than half the population of Bihar lives under potential risk of flooding during the annual monsoon. This adds to their existing vulnerability and pushes them deeper into poverty.

The 2008 Bihar flood was one of the most disastrous floods in the history of Bihar. The flood killed 250 people and forced nearly 3 million people from their homes. More than 300,000 houses were destroyed and at least 340,000 hectares (840,000 acres) of crops were damaged.

Bihar is not only prone to floods and droughts but also is highly vulnerable to earthquakes being

situated in the seismic zone IV and V. The recent destructive seismic jolts (of magnitude of 6.8) in Bihar exposed the socio-economically, politically, ecologically and culturally vulnerable groups and bring fears to the fore about similar or a higher magnitude catastrophic earthquake.

Review of 10th and 11th Plan

Over last decade, there has been a paradigm shift in India's response to disaster management from the relief-centric approach to a more proactive, holistic and integrated approach to strengthen disaster preparedness, mitigation and emergency response.

For the first time, the disaster management appeared in planning process in the 10th Plan as a separate chapter. This epitomizes the country's commitment to mainstream disaster-risk reduction into the process of development planning at all levels so as to achieve sustainable development, which is yet to be carried forward across sectors through actionable programs for achieving the disaster free development.

The 10th Plan emphasized that ,while hazards, both natural or otherwise, are inevitable, the disasters that follow need not be so and the society can be prepared to cope with them effectively whenever they occur. The plan called for a multipronged strategy within the total risk management that comprised of prevention, preparedness, response and recovery, on the one hand, and for initiating development efforts aimed towards risk reduction and mitigation, on the other.

The 11th Plan aims at consolidating the process started in the 10th Plan, by giving impetus to projects and programs that initiate and nurture the culture of preparedness and the integration of disaster prevention and mitigation into the development process. The guidance and direction to achieve this paradigm shift will need to flow from the NDMA, and in the true spirit of the Disaster Management Act, to all stakeholders including the State Governments and the Union Territories, right up to the Panchayati Raj institutions. The plan has also recognized communities as victims of disaster as well as first responders therefore emphasizing on their capacity building for effective disaster management.

Existing Legal and Institutional Arrangements

The Disaster Management Act 2005 defines disaster as a catastrophe, mishap, calamity or grave occurrence affecting any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to and destruction of property, or damage to, or degradation of, environment, and is of such a nature magnitude as beyond the coping capacity of the community of the affected area.

Before this Act the disasters were defined only in terms of their natural origin but this definition widened the scope of disaster management by bringing all types of disaster including man-made under its ambit. The Disaster Management Act lays down legal, financial, institutional and coordination mechanisms at the National, State, District and Panchayat levels. These institutions will work in a close coordination with existing mechanism and will support in disaster management related activities. The new institutional framework is expected to guide involving a paradigm shift from relief-centric approach to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation.

- **National Disaster Management Authority (NDMA)**

The NDMA, as the apex body for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for disaster management. They are also involved in coordination of implementation and enforcement so as to ensure timely and effective response to disasters. The guidelines will assist the Central Ministries, Departments and States to formulate their respective disaster management plans. It will approve the National Disaster Management Plans and disaster management plans of the Central Ministries/Departments. It can take measures, which are appropriate, for the prevention of disasters, or ensuring mitigation, preparedness and capacity building. The general superintendence, direction and control of the National Disaster Response Force (NDRF) are vested in powers of NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and guidelines laid down by the NDMA.

- **National Disaster Management Policy, 2009**

The National Disaster Management Policy provides a framework of existing institutional arrangements and thus exposing an overall scenario of the disaster management in India. The policy has endeavored to capture, in its essence, the vigorously enabling environment, which the body politic has put in place through an Act of Parliament. It also illustrates realization of the fact that disasters not only cause a setback to economic and developmental growth, but also seriously affect the national security environment. Evidently, the policy focuses on sustainable development as key to disaster mitigation.

- **State Disaster Management Authority (SDMA)**

At the State level, the SDMA, headed by the Chief Minister, will lay down policies and plans for disaster management in the State. For its day to day functioning, CM appoints Vice- Chairman of the state cabinet minister rank and other members of the minister of state rank. Bihar SDMA was constituted on 6th November 2007; at present it has a Vice Chairman and other 2 members. SDMA will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures.

- **Bihar State Disaster Management Policy, 2007**

The Bihar government recognizes disaster management as an inseparable entity in all sectors. Thus State policy had laid the goal of establishing effective systems, structures, programs, resources, capabilities and guiding principles for reducing the vulnerability of the people, especially the poor. The policy laid down the legal, institutional and coordination frameworks in pre, during and post disaster scenarios.

- **District Disaster Management Authority (DDMA)**

The DDMA's are headed by the District Collectors. As per the provisions of Disaster Management Act 2005, Chapter IV, Clause 31(1), the District Disaster Management Authorities (District Authorities) should have a plan for disaster management in the district. The DDMA's act as the District planning, coordinating and implementing body for disaster management and will take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by NDMA

and SDMA. The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures lay down by the NDMA and the SDMA are followed by all the departments of the state government at the district level and the local authorities in the district.

- **Local Bodies**

The local authorities will include Panchayat governments, municipalities, district and town planning authorities which are responsible for controlling and managing civic services. These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare disaster management Plans in consonance with the guidelines of the NDMA, SDMAs and DDMA.

Institutional Strengthening

A) Capacity Building of Disaster Management Institutions

In a broad sense, capacity development is a process by which individuals, groups, institutions, organizations and societies enhance their ability to identify and meet challenges in a sustainable manner. The 12th Plan Approach Paper provides the ideal opportunity to mainstream capacity development in order to better address the disaster risk management challenges. Capacity development at the organization or institution level determines how individual capacities are utilized and strengthened. It refers to anything that will influence the organization's ability to meet disaster risk reduction objectives and includes human resources, physical resources, intellectual resources, process-management, inter-institutional linkage, incentive and reward systems, organizational culture and leadership.

- **Department of Disaster Management (DMD)**

The DMD is responsible for coordinating effective, speedy and efficient response. The capacity building at DMD requires a 24 X 7 modern high tech EOC. This will facilitate response during disaster. Another area for attention is to make rehabilitation and recovery approach comprehensive so as to convert adversity into opportunity. Incorporating disaster resilient features to 'build back better' will be the guiding principle. DMD will lay emphasis on the restoration of permanent livelihood to those affected by disasters and special attention to the needs of women-headed households, artisans, farmers and people belonging to marginalized and vulnerable sections.

- **State Disaster Management Authority (SDMA)**

The capacity building of SDMA is relevant as it play a role in organizing the Training of Trainers (ToT) at state, district and block levels to enhance the capacity and efficiency of disaster management committees and prepare a core team of trainers. The SDMA indicating its strengthening has decided to train masons, architects and engineers in safe construction practices. This program aims to train masons up to Panchayat level.

Regular studies, research and workshops will be conducted at state level on the vulnerability analysis, existing coping mechanism, HRVA, revision and reforms in the existing administrative, legal, techno-

legal and institutional systems for mainstreaming DRR in all the development policies. SDMA will develop training manuals, standard operating procedures and documentation of the best practices, which are important components of disaster preparedness programs. Undoubtedly, it will be developed for different levels for easy adoption, replication and sharing. The SDMA in this plan period will conduct programs for mass awareness generation, support development of State Preparedness and Response Plan, facilitate amendments of Building Bye-laws to ensure structural safety and will ensure coordination through developing a network of knowledge. The BSDMA, recognizing importance of DM plans has already initiated concept of 'Office Disaster Management Plan' to make every office of the Bihar safe. The vision is not limited to offices but next step will to reach each and every household in the society with DM plan.

- **District Disaster Management Authority (DDMA)**

District level preparations will provide the cutting edge to all response activities. DDMA will ensure implementation of mainstreaming disaster risk reduction in the developmental agenda of all existing as well as new developmental programs and projects which will incorporate disaster resilient specifications in design and construction. The DDMA will be strengthened by upgradation of their EOCs, which will be helpful in reduction of loss of life and injuries during disasters. The following points are recommended to strengthen the DDMA.

- Enhancing the capacity of the DDMA to respond properly during the time of emergencies.
 - Increasing awareness and participation of stakeholders (from village, blocks and district)
 - Networking DDMA for sharing of information and helping each other during the time of crisis
 - Strengthening district level EOCs (24X7) with trained human resource, equipment and operational manuals to function as disaster management information centers.
 - Setting up training wing in each DDMA for regular trainings.
- **Bihar Institute of Public Administration and Rural Development**

The BIPARD will play an important role in developing and facilitating the implementation of the state training schedule for disaster management. It will also be the nodal institution for Regional and National cooperation for training. The capacity of BIPARD needs to be upgraded in accordance with Regional and Local requirements. BIPARD can also play crucial role in sensitizing the trainee officials in disaster management and developing their capacities to deal with it. There is also need for modern high state level EOC inside the BIPARD, which will help in training young officers and other stakeholders in managing and understanding modalities of EOC.

- **State Disaster Management Institute**

It is proposed to establish a dedicated center to train professionals and student, to conduct seminars, to document best practices and lessons learned in and around the globe, to boost the researches and field

studies related to disaster management. The creation of State Disaster Management Institute in the Bihar is to build capacity of various stakeholders' right from the state up to village level. However, more emphasis will be given to training of vulnerable groups like women, children, pensioners, dalits and Mahadalits volunteers in development of disaster management skills and capacities.

- **Center of Excellence**

Today's complex challenges demand new ideas and partnerships. States like Bihar are facing many disasters on regular basis. There is need to study these disasters from closure settings. Few national institutions cannot cater the needs of state like Bihar closely, so local strategy, local plan can be created. Therefore it is proposed to establish '**Center for Excellence**' within the education institutes and Universities to educate, train, conduct research, and assist in the state disaster preparedness, risk mitigation, disaster management and response, health security, and humanitarian assistance.

B) Capacity Building for Emergency Responder

Prompt and effective response minimizes loss of life and property. Capacity building is an endogenous change process. Any meaningful capacity building support needs to start from existing capacities and work with the assets that any country brings to the table. It should support and engage with processes that ensure local ownership and that, as much as possible, are driven by country level initiative. The existing as well as the new institutional arrangements needs to ensure an integrated, synergized and proactive approach in dealing with any disaster.

- **Police**

The police force is the symbol of state authority and tool for implementing state policies. There is no defined role of Police in disaster management, Police is always first to reach the site of disaster to provide security and maintain law and order at disaster location, to prevent commission of cognizable offences against life, property and public tranquility. The police force is the crucial responder in the time of disaster. Global terrorism has posed new challenges like CBRN disaster, bomb blast etc. the modernization of police force, in terms of human and other support system is inevitable step towards dealing with global challenges. To upgrade the skills, the know-how, training facilities and knowledge of the State Police Personnel, through the training of Master Trainers in Collapsed Structure Search and Rescue (CSSR), Medical First Response (MFR), and Flood Rescue Training (FRT) is needed in the state.

- **Medical**

Medical response has to be quick and effective. The execution of medical response plans and deployment of medical resources warrant requires special attention at the State and District level during most of the situations. The voluntary deployment of the nearest medical resources to the disaster site, irrespective of the administrative boundaries, will be emphasized. Post-disaster management of health, sanitation and hygiene services is crucial to prevent an outbreak of epidemics. Therefore, constant monitoring of any such possibility will be necessary. The Health department is working towards pooling of medical resources at block level, so that people can be benefitted from availability of doctors and other paramedics on 24 X 7 basis.

The department is also identifying strategies for setting up referral mechanism (transportation, communication, support of referral hospital). The Department is in need of the State of art trauma center providing tertiary care to trauma victims in all government medical colleges and in each district hospital, ambulance services (similar to 108 services in state of Gujarat and few other states), Medical kits for the management of mass casualty in each district.

- **Fire Brigade**

When it comes to the first response on site for emergencies the Fire Services of the state play a vital role. There is immense need of training and capacity building in terms of human and material resources. The Government of Bihar is working towards installing fire station up to block level which will ensure speedy response. The existing fire brigade will be modernized by installing better equipment and vehicles. There is a proposal in pipeline so as to convert the Fire Services into multi-hazard task force.

C) **Creation of Cadres of Volunteers**

Over the last decades, The Bihar Government has recognized the growing importance of volunteers in this arena. Volunteers who have not previously affiliated with a disaster response agency can be seen as a tremendous resource for a community that's been hit with a disaster. Well-coordinated volunteers can ensure benefit for all stake holders. The Bihar SDMA with the support of NGO partners like IAG, UNICEF and UNDP has become critical player in the field of emergency management for disaster volunteer coordination in the state. A strong pre-disaster partnership between BSDMA and other supporting partners for spontaneous volunteer coordination translates to more effective response and recovery. As a sign of strengthening coordination, the BSDMA has decided to observe its foundation day i.e. 6th November as 'State Volunteer Day'.

D) **Capacity Building of Communities through pro-active role of PRIs/ULBs**

The role and importance of the community, under the leadership of the local authorities, PRIs and ULBs, being the bedrock of the process of disaster response, is well recognized. There are 8,442 newly elected Panchayats in Bihar and half of the Panchayat members are women, BSDMA wants to utilize these new faces to bring culture of preparedness to the remotest areas. The BSDMA is also closely working with ULBs and Nagrikparishads for awareness generation and reforms in building bye-laws for promoting safer construction in the state. At present, there are seven Municipal Corporations, 42 Nagar Parishads, and 75 Nagar Panchayats in the State. In view of the construction boom and rapid urbanization, municipal regulations such as development control regulations, building bye-laws and structural safety features need to be revisited. These regulations will be reviewed periodically to identify safety gaps from seismic, flood, landslide and other disasters and suitable modifications will be made to align them to the revised building codes of the Bureau of Indian Standards (BIS).

- **Civil Defense**

The Government of India, considering the changing global geo-political scenario, reducing the chances and occurrence of traditional wars, and steadily increasing threats from natural and man-made disasters, has envisaged greater role on the part of the Civil Defense (CD) from merely act-centric responsibility to a holistic role in all the facets of disaster management in the country. The Civil Defense being a community-based voluntary organization can, in addition to rescue, relief and rehabilitation, also play a stellar role in the field of community capacity building and public awareness to face any

disaster situation, as is being done by civil defense set-ups in many other countries. The Civil Defense set up can play a major role in assisting the District Disaster Management Authority, (DDMA) with the help

Mainstreaming DRR in Development Policy

Mainstreaming risk reduction efforts within government, NGOs and private sector is viewed as the key to achieve sustainable multi-hazards risk reduction across the whole state. Mainstreaming DRR into development process entails considering and addressing the risks emanating from natural hazards in (i) medium-term strategic frameworks and institutional structures, (ii) sectoral strategies/policies and (iii) design of individual projects in hazard-prone countries.

While government recognizes DRR to be integrated across and in all sectors and departments, the 12th Plan focuses initially on sectors like infrastructure, health, education and housing for mainstreaming of DRR.

- **Housing**

To promote the increased use of hazard-resilient designs (e.g. flood proofing and seismic safety) in rural housing programs in hazard-prone areas and utilization of national building codes that have special provisions for enhanced design standards for buildings in areas affected by natural disasters especially in North Bihar.

A multi approach has been initiated by BSDMA along with Urban Development Department and BIPARD for modifying building bye-laws on one hand and training of engineers and architect at state level along with training of masons up to Panchayat level to promote safer constructions and to ensure promotion of hazard resilient designs in rural Bihar.

- **Infrastructure**

The primary aim is to reduce the risk of injury and death to the population. Secondary aim includes reducing damage and economic losses to both public and private sector infrastructure. As state is moving towards development with justice, this cannot be ensured until or unless the development is secured. The public infrastructure becomes crucial during response. So to incorporate disaster risk impact assessments in part of the planning process before the construction of new roads or bridges and to promote use of hazard risk information in land-use planning and zoning programs in state is crucial step towards securing development.

- **Health**

There is immense need of analyzing the internal and external vulnerability during emergencies, and thus subsequently increasing the hazard resilience of these hospitals. There is need to prepare and implement a Hospital Preparedness Plan for all such health facilities within State. There is also need to plug gaps and tackle challenges like inadequate health infrastructure, and lack of trained staff to provide quality services during mass casualty incidents, lack of networking between public and private partners in health sector, lack of mobile medical hospital for instant and effective response.

- **Education**

The education is most crucial medium to induce culture of preparedness. The aim is to incorporate disaster risk reduction modules in school curriculum for the entire state. It is desirable to construct new schools keeping in concern the local hazard so as to ensure a higher standard in hazard resilience

throughout the state. Additional advantages can be utilized as these schools can act as emergency shelters in hazard prone areas provided they are well-equipped with facilities of water supply, sanitation and cooking. To add features in schools in hazard prone areas for use as emergency shelters such as facilities for water, sanitation and cooking.

Public Awareness

Public awareness campaigns play a pivotal role in disaster risk mitigation strategies at all levels. Raising awareness among political, senior policy and government department officials, media and academic institutions is a priority strategy for building knowledge and understanding the benefits of risk reduction and the roles these organizations play in implementing risk reduction programs.

The initiatives like Jhanki on the Republic Day, awareness stalls on occasion of Bihar Divas, annual essay and slogan writing competition are taken on regular basis. It is also proposed to target the melas, fairs, religious festivals like Chhat, Durga Puja, Sonepur Mela through Chetna Rath for sensitizing masses and generation of mass awareness.

Various short-term projects have been undertaken to sensitize the rural and urban community like screening of short films, leaflets, social media etc. However soon after the project gets over all awareness and communication activities come to a standstill and are abandoned and thus lose objectivity. Experiences from across the world have demands that regular and sustained activities are needed with the community to ensure their adherence and preparedness to risk mitigation measures. Creating awareness about the issue has to lead to the encouragement of inquisitiveness to seek more information and knowledge about it from the target audience. Once equipped with knowledge, the target audience needs to be persuaded to bring a shift in behavior. Awareness campaigns broadly need focus on the following:

- Preparedness programs should be in place for all stakeholders to address actions before, during and after disasters, along with roles and responsibilities of all stakeholders.
- Need to incorporate disaster resistant design and construction practices in curriculum and agenda of professional bodies should be articulated,
- Knowledge and information should be made available for risk reduction of life line support systems be it buildings, houses, multi storied buildings, essential infrastructure such as schools, hospitals, bridges, etc.; and
- Need for developing knowledge, and sharing case studies and best practices for advocacy with decision makers, media, opinion formers and general public should be articulated.

Media

Media plays an important role in national life today, especially during times of disasters. An appropriate publicity management plan/media publicity plan for disaster management will be very useful in imparting timely and correct information to the public. The role of this growing sector needs to be tapped for disseminating preparedness and mitigation aspects of disaster management among all sections of society and making special provisions for the more vulnerable sections of the community viz. women, dalits, elderly and children. Media should play a responsible role not only in terms of

awareness but also in terms of accurate and informed reporting of events to control panic and chaos during disaster. The media could establish dedicated channels during the aftermath of a calamity to provide specific information about the local people and conditions.

Cross Cutting Issues

In view of the diverse forms of vulnerability to disasters in the state, the government recognized that every policy, legislation and directive related to disaster management in Bihar shall be adequately toned to reflect the context-specific realities and needs of different disaster prone communities, particularly dalits, minorities, scheduled tribes, children, women, the elderly, and the differently-abled people residing especially in susceptible areas.

- **Gender**

Gender roles and relations influence the capacity of women and men to respond to disaster. Women are seldom represented on disaster management decision-making bodies and their needs and interests were rarely addressed. Women are responsible for taking care of small children, the elderly, and the disabled, which adds to their vulnerability. Relocation after disasters increases women's workloads, decreases their control over food and income, and disrupts their social support networks. Women bring valuable management capabilities to the disaster context that are rarely tapped because people view them as weak and poor crisis managers. Convincingly in Bihar, these women represent half of the new faces in 8,442 panchayats. Thus, the state recognizes the presence of this potential at grass root decision level making and is working towards tapping this resource.

- **Vulnerable Groups – Dalits And Mahadalits**

Dalits suffer discriminatorily more because of their sociologically influenced geographical locations, poor infrastructure in the locality and inaccessibility to their habitation. To reduce the effect of this discrimination, one of the measures government proposes and imposes frequently is the vulnerability mapping of an area which is a pro-active mitigation measure. The block authorities as nodal officers are custodian of entire knowledge and hold the responsibility of inclusiveness of all areas.

The disaster management policy guidelines and minimum standards for relief and rehabilitation, needs to recognize the reality of exclusion of Dalits and other vulnerable groups. The state of Bihar has third largest dalit population in the country with 15.7% of the total population of Bihar. The guidelines thus need to explicitly acknowledge and imbibe the same. It is beneficial for officers to recognize the societal processes of caste-based exclusion at work in communities. Hence, advised to directly reach out to the Dalits and vulnerable groups, avoiding any mediation of people from the powerful dominant communities.

- **Children**

Disasters can leave children frightened, confused, and insecure. Children may respond to disaster through manifestation in form of perpetual scare, depression, or other behavioral problems. One way to establish a sense of control and to build confidence in children before a disaster strikes is to engage and involve them in preparing a family disaster plan. The children can be champion of culture of preparedness, by giving them proper training, education and developing their capacities to deal with disaster. One way is to introduce disaster awareness education in school curriculum with some practical taste.

- **Elderly**

Many elders are economically and socially secluded; they have no friends or family and consequently, they are debilitated. They could not advocate for themselves or access the on-site services. There is necessity for special planning to accommodate the needs of frail elders who required health services that could not be provided on site or who could not access the medical services in the shelter due to mental and physical impairments. There is also need to identify the vulnerabilities of elderly during disasters, and to develop strategies to address these vulnerabilities.

- **Differently-abled**

Differently-abled people may encounter physical barriers or experience communication difficulties that prevent them from reacting effectively to crisis situations and hinders them from using the facilities. Disasters do tend to discriminate against disabled people. For example, in earthquakes, people in wheelchairs cannot take refuge under desks and tables, and neither can they rapidly exit a building down stairs. People who are deaf or have defects of vision may fail to recognize danger or not hear verbal orders to evacuate. We can conclude that major emergencies may put disabled people more at risk than other members of the general population. So government needs to work on all the services offered to people in disasters and crises like transportation for evacuation, shelter, counseling, and so on need to be made accessible to disabled people.

- **Animals**

Animals are exposed to the effects of natural and man-made disasters. It is necessary to devise appropriate measures to protect animals and find means to shelter and feed them during disasters and their aftermath, through a community effort, to the extent possible. It is pertinent to note that many communities have shown compassion to animals during disasters, and these efforts need to be formalized in the preparedness plans. The major portion of rural economy is dependent on the animal husbandry, therefore there is strong need to incorporate this section in disaster management planning and implementation.

Knowledge Management

Building a robust and sound information database, a comprehensive database of the land use, demography, infrastructure developed at the state and local levels along with current information on climate, weather and man-made structures is crucial in planning, warning and assessment of disasters. In addition, resource inventories of governmental and non-governmental systems including personnel and equipment help in efficient mobilization and optimization of response measures. The 12th Plan shall accord due emphasis on involving diverse stakeholders, particularly elected representatives, government functionaries, civil society organizations, corporate bodies, media houses, community-based organizations and large-scale networks and associations in disaster response processes at all levels, towards building a capable knowledge-based society around issues of disaster management.

- **Documenting and Sharing of Best Practices**

Exposure visit of the government officials, PRIs and emergency responders will be arranged to the best practice areas in sustainable recovery and preparedness on disaster risk management for capacity building.

In the immediate aftermath of any disaster, field studies, researches will be carried out, with the help of experts, as an institutional measure. These studies will concentrate on identifying gaps in the existing prevention and mitigation measures and also evaluate the status of preparedness and response. Similarly, the lessons of past disasters will also be compiled and documented. The recovery and reconstruction process will also be analyzed for further refining the disaster management processes and training needs.

- **Promoting Research and Development**

The entire disaster management architecture can only be supported by a solid foundation of frontline R&D efforts. The research on cross-cutting themes including technological and man-made disasters will be promoted in addition to natural disasters. Research and Development in areas such as micro-zonation and scenario development based on simulation studies will also be encouraged to assess the short-term and long-term consequences of these disasters.

State Specific Programs

These programs are specific to Bihar in addition to central schemes.

- **Earthquake**

Major part of Bihar lies in seismic zone IV and V, and has faced sever quakes in 1934 and 1988. The recent earthquake having a epicenter in Sikkim did make impact in parts of Bihar, therefore further aggravated necessity to promote safe construction along with mass awareness in do's and don'ts in case of quakes. Keeping the seismic sensitivity of the state, the BSDMA has decided to observe the Earthquake Safety Week in the state every year from 15th January onwards, the day on which 1934 earthquake occurred.

- **Flood**

Geographically Bihar lies in flood prone area. The Kosi floods of 2008 are an unforgettable event in history of Bihar floods. Evidently, special attention in terms of mitigation strategy is a required consequence. It is also required to have an effective early warning system for speedy evacuation and protection of life and property. Empathizing with the recurrent flood, the BSDMA has decided to observe every year first week of June as “**Flood Safety Week**”. There is also need to built flood safety shelters for vulnerable and affected people.

- **Cyclone**

The cyclone mitigation strategies are to be focused on proper infrastructure development for providing accurate and prompt cyclone warning, design and construction of robust buildings, roads, bridges along with the promotion of cyclone proof buildings, which have storage and sleeping areas high off the ground and are made of water-resistant materials.

- **Drought**

Droughts are recurrent phenomena in Bihar; 33% of the state receives less than 750 mm rainfall, making Bihar chronically drought-prone. Even the 35% of Bihar that receives 750-1125 mm rainfall suffers drought once in four to five years. Thus 68 per cent of the total sown area is vulnerable to drought conditions. The drought management strategies need to be reframed for mitigating its long term impact on communities and their livelihood.

- **Fire**

The Bihar with its ever-increasing population in far-flung new settlements and crowded localities and unplanned growth has become a state with heavy fire risk. The incidence of big fires in rural Bihar is common in the month of May and June. The Fire Services have proposed to open fire booths at Panchayat level with basic fire fighting instruments and training. The state has also envisaged the fire stations at the sub-division and block level. Further the Fire Services have proposed to open the small fire booth at Panchayat level with basic firefighting equipment and training to communities.

Financial Mechanisms

There is a long felt need for financial discipline within disaster management financial arrangements. It is recommended that at least 10% of the total outlay of all schemes of Center and State needs to be earmarked towards integrating DRR component or risk reduction aspect in the scheme.

The Road Ahead

For addressing natural calamities such as floods and drought, there already exist a number of plan schemes under which a lot is being done and can be done. state governments need to make full use of the existing plan schemes and give priority to implementation of such schemes that will help in reducing vulnerabilities created by the calamity. In some cases this implies possible diversion of the funds from other schemes to those schemes the implementation of which will help meeting the situation. There may also be need in a crisis situation for certain re-appropriations/ reallocations among the different departments.

The message for the 12th Plan should be to move towards safer national development. Development projects should be sensitive towards disaster mitigation. With the regular economic losses and developmental setbacks that the state has been suffering year after year, it makes rational economic sense to spend a little extra presently in a planned way on steps and components that can help in prevention and mitigation of disasters, than be forced to spend multiple times more later on restoration and rehabilitation. The design of development projects and the process of development should take the aspect of disaster reduction and mitigation within its ambit; otherwise, the development ceases to be sustainable and eventually causes more hardship and loss to the nation.

ANNEXURE 1: INDICATORS FOR AGRICULTURE DEVELOPMENT

Table 29: Utilization of Land Resources (In Lakh Acres)

Land Categories	Details	Current Status	2017	2022
Total Land	-	234	234	234
Forests	-	15.55	15.75	16.25
Area under Non- agricultural Uses	Buildings, Roads, Rivers, Canals, etc	41.15	43.75	44.25
Barren and uncultivable land	Hills and others	10.90	8.75	6.25
Permanent pastures and other grazing land	Pastures etc.	0.425	0.425	0.425
Land under miscellaneous tree crops and groves	Bamboo, bushes, grassland	5.975	750	935
Cultivable Wasteland	Land not under cultivation for more than five years	1.15	0	0
Fallow land	Land not used for cultivation in the observed year	3.30	1.25	0.925
Other Fallow Land	Fallow land for more than one year but less than five years	15.075	7.5	2.50
Net Area Sown	Land used for crop and horticulture	140.475	156.5	156.525

Table 30: Production of Food stock (Lakh MT)

Items	Food Production	2017 (Target)	2022 (Target)
Rice	55.90	93.73	126
Wheat	49.75	65.75	72
Maize	19.00	63.43	90.65
Pulses	5.14	29.20	36
Food grain	129.81	252.01	324.65
Oilseeds	1.49	3.14	4.5
Fruits	38.53	60.37	80
Vegetables	136.27	186.11	225

Table 31: Productivity of Major Crops (MT per Ha)

Crops	Current Productivity	Target 2017	Target 2022
Rice	1.60	3.00	3.50
Wheat	2.30	3.10	3.10
Maize	2.80	4.20	5.20
Pulses	0.80	1.00	1.00
Oilseeds	1.10	1.20	1.50
Fruits	13.50	18.60	20.50
Vegetables	23.62	28.60	30.00

Table 32: Cropping Intensity

Year	Cropping Intensity (%)
Current	151
2017	191
2022	243

Note: Current figure is based on maximum achievement in previous 5 years

Table 33: Availability of Milk, Meat and Eggs

Animal Husbandry Products	Current availability	2017	2022
Milk (Grams/capita/day)	175	200	225
Meat (Kgs./capita/year)	2.10	5	8
Eggs (No./capita/day)	11	55	275

Table 34: Agency Wise break up of Storage Capacity in Bihar: Current Status

Agency	Coverage	Number of Units	Capacity (Lakh MT)
Bihar State Food Corporation	Blocks	387	1.35
Cooperative Sector	Panchayats – PACS	200	2.40
	Block	40	
BISCOMAUN			2.42
SWC			2.70
Total			8.87

Table 35: Storage Capacity to be created by 2017

Agency	Capacity (Lakh MT)
Primary Agriculture Cooperative (PACS)	31.36
State Food Corporation (SFC)	17.49
SFC Steel Silo	1.50
SWC	5.45
BISCOMAUN	4.52
Under PEG Scheme	3.57
Total	63.89

Table 36: Current Scenario of Electricity in Bihar

Particulars	Value
State Installed Capacity	220 MW
Share of C. G Stations	Max. 1772 MW Min. 1726 MW
Short term Purchase	300 MW
Present availability of Power	1500 MW
Base Energy shortage	500 MW
Peak Energy Shortage	1500 MW
Per Capita Consumption	122.21
National Per Capita Consumption	778.71 Kwh

ANNEXURE 2: PROJECTIONS FOR 12TH FIVE YEAR PLAN

Table 37 : Projections for 12th Five Year Plan 2012-17

(Rs. in crore)

Sl. No.	Items	XI Plan (2007-12) Projections at 2006-07 prices	XII Plan (2012-17) Projections at 2011-12 Prices	Annual Plan Estimate				
				2012-13	2013-14	2014-15	2015-16	2016-17
0	1	2	3	4	5	6	7	8
A.	State Government							
1.	State Government's Own Funds (a to e)	41530.46	159519.75	14958.66	21832.69	29993.20	40595.47	52139.73
a)	Balance for Current Revenues (BCR)	40332.86	146626.98	13044.70	19582.06	27372.14	37735.68	48892.40
b)	MCR (exlcuding deductions for repayment of loans)	364.88	-2195.91	-377.78	-405.56	-436.12	-469.73	-506.70
c)	Plan grants from GOI (12th/13th FC)	555.00	7454.45	1362.69	1490.69	1533.69	1533.69	1533.69
d)	ARM	277.72	6661.63	615.45	895.50	1278.49	1651.84	2220.35
e)	Adjustment of Opening Balance							
f)	EAP Grant Back to Back		972.60	313.60	270.00	245.00	144.00	0.00
2.	State Government's Budgetary Borrowings (i-ii)	16129.27	53544.74	6135.01	7974.67	9921.40	12796.46	16717.19
(i)	Gross Borrowings (a to i)	25456.70	69198.30	9182.65	11043.19	13319.34	16110.79	19542.32
a)	Net Accretion to State Provident Fund	1851.50	1437.87	222.83	249.28	281.19	319.46	365.11
b)	i) Gross Small savings							
	ii) Net Small savings	11991.20	9159.00	1500.00	1650.00	1815.00	1997.00	2197.00
c)	Net market borrowings (i to vi)	4448.09	42565.35	4249.62	6318.69	8438.41	11529.61	12029.02
	(i) LIC							
	(ii) GIC							
	(iii) NABARD	3962.48	5801.08	950.20	1045.22	1149.74	1264.72	1391.19
	(iv) REC							
	(v) IDBI							
	(vi) Others (HUDCO, PFC, NCDC etc)**							
e)	Bonds/Debentures							

Sl. No.	Items	XI Plan (2007-12) Projections at 2006-07 prices	XII Plan (2012-17) Projections at 2011-12 Prices	Annual Plan Estimate				
				2012-13	2013-14	2014-15	2015-16	2016-17
0	1	2	3	4	5	6	7	8
f)	Loans portion of NCA	2424.43						
g)	Loans portion of ACA for EAPs							
h)	Loan for EAPs (back to back)	700.00	10235.00	2260.00	1780.00	1635.00	1000.00	3560.00
i)	Other Loans	79.00						
(ii)	Repayments (a to d)	9327.43	15653.56	3047.64	3068.52	3397.94	3314.33	2825.13
	a) Repayment of GOI Loans		2366.42	465.70	465.79	465.55	465.45	503.93
	b) Repayment to NSSF		4137.41	712.64	754.97	794.62	887.20	987.98
	c) Repayment of Negotiated Loans		2225.93	323.25	485.35	495.12	485.62	436.59
	d) Repayments--Others		6923.80	1546.05	1362.41	1642.65	1476.06	896.63
3	Central Assistance (a+b+c)- Grants	18822.04	56394.01	8132.03	9351.83	10754.60	12797.98	15357.57
a)	Normal Central Assistance	4478.76	9017.36	1300.31	1495.35	1719.65	2046.39	2455.67
b)	ACA for EAPs	900.00						
c)	Others	13443.28	47376.65	6831.72	7856.48	9034.95	10751.6	12901.91
	Total A: State Government Resources (1+2+3)	76481.77	269458.50	29225.70	39159.19	50669.21	66189.91	84214.50
B	Resources of Public Sector Enterprises (PSEs)							
1	Internal Resources							
2	Extra Budgetary Resources							
3	Budgetary support							
	Total B: PSEs (1+2+3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C	Resources of Local Bodies							
(i)	Urban Local Bodies							
	(a) Internal Resources							
	(b) Extra Budgetary Resources							
	(c) Budgetary support							
	Total i: (a+b+c)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sl. No.	Items	XI Plan (2007-12) Projections at 2006-07 prices	XII Plan (2012-17) Projections at 2011-12 Prices	Annual Plan Estimate				
				2012-13	2013-14	2014-15	2015-16	2016-17
0	1	2	3	4	5	6	7	8
(ii)	Rural Local Bodies							
	(a) Internal Resources							
	(b) Extra Budgetary Resources							
	(c) Budgetary support							
	Total ii: (a+b+c)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total C: Local Bodies (i+ii)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D.	AGGREGATE PLAN RESOURCES (A+B+C)	76481.77	269458.50	29225.70	39159.19	50669.21	66189.91	84214.50
E.	STATE PLAN OUTLAY	76481.77	269458.50	29225.70	39159.19	50669.21	66189.91	84214.50