

**NORTH EASTERN COUNCIL
PLANS & PROGRAMMES FOR REGIONAL
DEVELOPMENT 1990**

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NORTH EASTERN COUNCIL

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MINISTRY OF I & B
GOVERNMENT OF INDIA

NORTH EASTERN COUNCIL

AN ORGANISATION WORKING FOR INTEGRATED DEVELOPMENT OF THE NORTH EASTERN REGION

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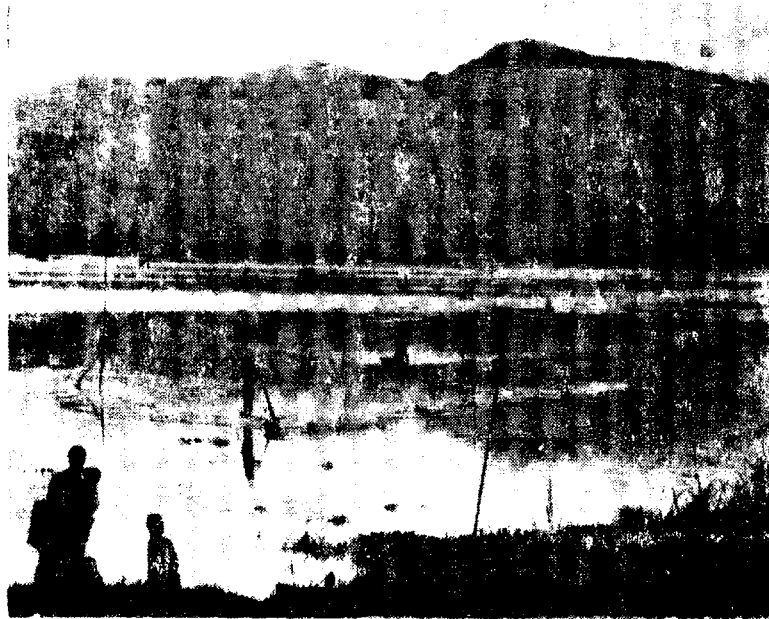
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NORTH EASTERN COUNCIL

AN ORGANISATION WORKING FOR INTEGRATED
DEVELOPMENT OF THE NORTH EASTERN
REGION OF INDIA

INTRODUCTION

The popular proverbial expression "Poverty in the midst of Plenty" does not seem to fit in so appropriately elsewhere in the

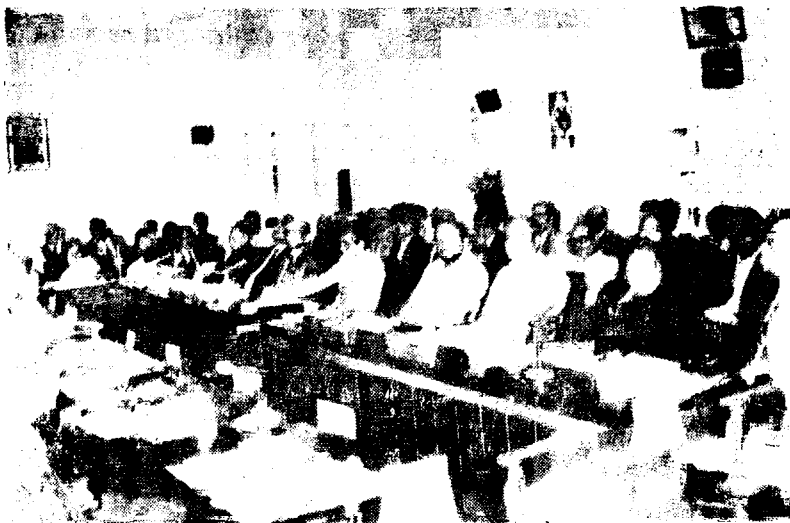


Loktak Lake, Manipur

country, as it does in the North Eastern Region of India. Embracing a land surface of two and half lakh square kilometres, the north eastern region accounts for 8% of the total area of the country and is endowed with an infinite variety of resources including petroleum on the one hand, and rare fauna on the other. More than half a dozen major rivers besides the mighty Brahmaputra and its sources of tributaries, make the soil of this region most fertile, besides providing this region with one of the largest reservoirs of hydel potential.

But the nature which has been so bounteous to this region has, at the same time, proved to be cause of its backwardness. The geographical structure of the region, crisscrossed by numerous lines of hills, and endless streams of river made the communication to and within this region immensely difficult. The geographical isolation coupled with a series of socio-political and historical disadvantages dragged this region out of the caravan of progress. No wonder when freedom dawned, the people of this region were found to be educationally backward, economically impoverished, socially confused and politically frustrated. The rapid expansion in the field of education which took place in the wake of freedom, exposed the people of this region to the glow of new ideas, which was pulsating the rest of the nation for decades earlier. When educational advancement came, a new consciousness for political identity and a new urge was evident for fulfilment of socio-economic aspirations.

The political instability which was witnessed in parts of this country for over a decade led the national leaders to devise certain effective measures as a permanent remedy for socio-political tensions and to accelerate the pace of progress of the hitherto neglected region. The national leaders in their wisdom, decided to reorganise the north eastern region, and to constitute a regional body styled as North Eastern Council, to look after the common economic interests of the different States and Union



NEC Meeting attended by important officials including representatives from the Key Union Ministries of the Government of India

Territories, that have come into being as a sequel to reorganisation. The Constitution of the North Eastern Council in 1972 may therefore be described as one of the most significant events in the direction of planned and co-ordinated development of the Five States and the two Union Territories at that time. Although, at the beginning, there were certain misgivings about the functions and utility of the NEC, the experiences of the last few years have proved beyond any measure of doubt the efficacy of the setting up of such a regional organisation and there has been a growing realisation among the people in the region that

the Council has been able to fulfil the objectives for which it has been set up.

During the last seven and a half year, the NEC has been engaged in identifying the basic problems and assessing the potentialities of the region and in setting in motion the much needed pace for integrated development.

In view of the prevailing handicaps like paucity of locally available financial resources, dearth of trained manpower and uneven development within the region itself coupled with the urgent need for rapid development, it was inevitable to identify the most pressing needs and this to embark upon the process of implementation according to discreetly selected priorities.



NEC Meeting are important forums for reviewing NEC sponsored Projects and Programmes for the development, of North East

TRANSPORT AND COMMUNICATION IN NORTH EASTERN REGION

The North Eastern Region located along India's most strategic and far-flung border presents a baffling challenges to the planners and administrators of the country in view of the bewildering varieties of a racial and linguistic origins of its population coupled with the complexity of their socio-cultural problems. The difficult terrain accentuated by under-developed transport system has made communication of ideas and innovation in this region an extremely difficult task. The region's land link with the rest of the country is confined to the narrow strip of North Bengal. The region is short of foodgrains and many essen-

3 NE Council/89

tial construction stores. The existing transport network both rail and road links is inadequate and beset with many problems/bottlenecks like flood effects/landslides, etc. Inadequacy of transportation facilities acts as an inhibiting factor in the development of the region and has delayed the exploitation of the vast mineral and agricultural

resources with which the region is endowed. The long time span required to build transport capacities calls for advance planning and augmentation in this sector, notwithstanding the fact, that in this field, investments are very heavy.

In spite of the transport bottlenecks, the share of the transport

in the total outlay of the North Eastern States in the State Plan is inadequate. In the entire region the outlay on transport sector is only 15 per cent. The North Eastern Council since its inception has given special emphasis on transport and communication by allocating highest share of outlay in total NEC plan expenditure.

OUTLAYS ON TRANSPORT SECTOR

ROADS :

Special emphasis has been given by NEC from Sixth Plan onwards to improve road communication in the region. In the NEC's programme the following figures indicate the expenditure incurred yearwise on development of roads.

Sl. No.	Year	Expenditure on Transport sector (Rs. in lakhs)
1.	1974-75	48.58
2.	1975-76	312.05
3.	1976-77	508.91
4.	1977-78	788.18
5.	1978-79	934.50
6.	1979-80	857.33
7.	1980-81	1537.11

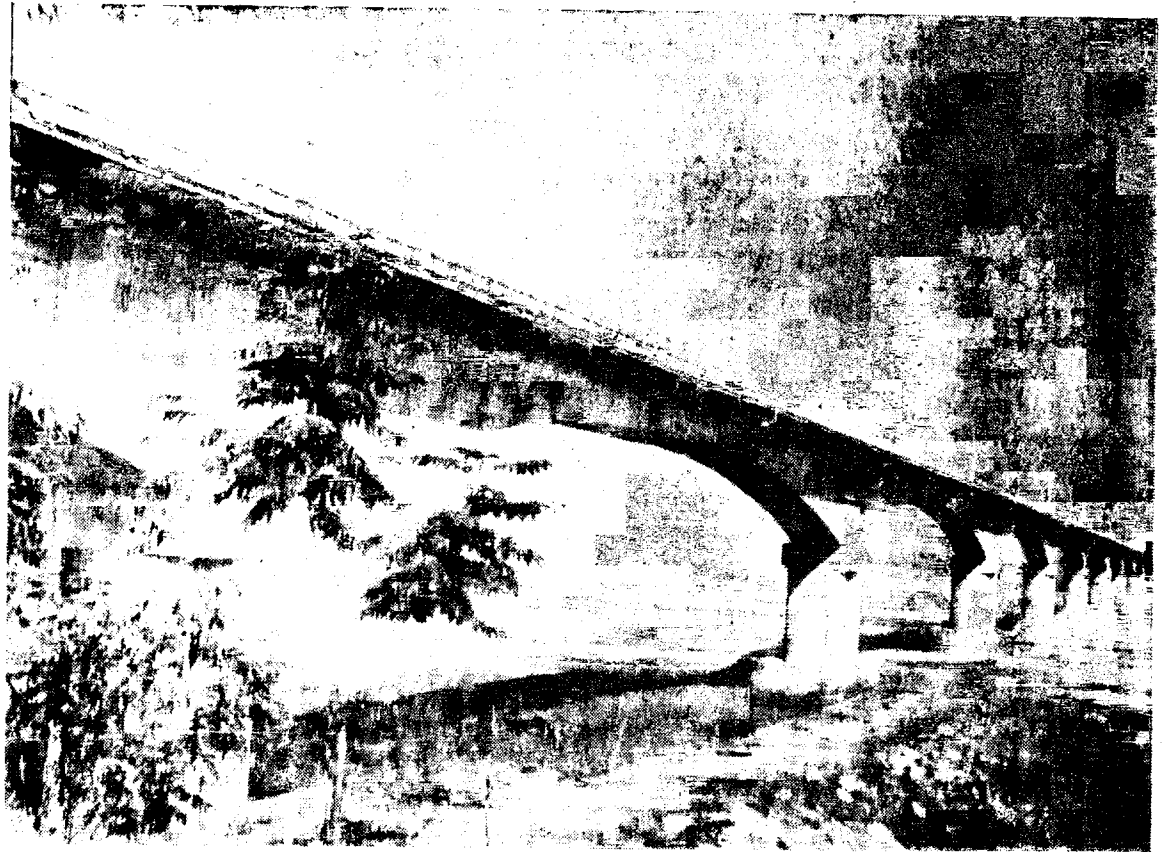


NEC Road Itanagar to Gohpur

Sl. No.	Year	Expenditure on Transport sector (Rs. in lakhs)
8.	1981-82	2955.44
9.	1982-83	3795.49
10.	1983-84	4480.00
11.	1984-85	5998.47
12.	1985-86	4169.35
13.	1986-87	7511.00
14.	1987-88	8310.00
		42,206.46
15.	1988-89	10,838.86
16.	1989-90	12,066.00
		(App. outlay)
Total :		65,111.32

RAILWAYS :

The region is connected with the rest of the country with BG line upto Guwahati and MG line extending upto Dibrugarh via Lumding - Dimapur - Tinsukia with short links connecting Nagaon and Jorhat. The rail link to Cachar Karimganj districts of Assam, Mizoram and Tripura is provided through hilly terrain between Lumding and Badarpur and this portion is subjected to landslides during the monsoon season. Action is on-hand by N.F. Railway to improve the throughput capacity of this line,



Kaliabhomora Bridge, Tezpur

progressively from the earlier potential of about 100 wagons/day to 400 wagons/day.

NEC has requested Railway Board to take up works on extension of BG line from Guwahati-Dibrugarh on parallel alignment along the existing MG line (with BG line extension from Chaparmukh to Nagaon) and also work on rail - cum - road bridge across river Brahmaputra at Bogibil near Dibrugarh at an early date. Surveys for these works have been completed and investment decision is awaited. Construction of rail - cum - road bridge over river Brahmaputra at Jogighopa has already been commenced by NE Railway during 1987-88. Rs. 5.00 crores had been diverted from NEC Plan for this bridge project during 1987-88 so that the progress does not suffer due to paucity of funds in Railway Plan. In 1988-89 NEC Plan also, a provision of Rs. 15.00 crores has been made for financial support to be made available to Railway Board for this project. This bridge project along with the BG rail line from Jogighopa to Guwahati is expected to be



Approach Road to Shergaon (AP)

completed during the 8th Plan period. This bridge project and the rail link when completed will provide direct rail line for Garo Hills district of Meghalaya and a reliable rail link to Guwahati for smooth movement of rail traffic in place of the existing flood prone route between Guwahati and Rangia.

During the Fifth Plan the construction of 6 railway lines was approved in the Railway Plan. Of these works on railway lines Guwahati to Byrnihat could not be taken up as the terminal point had not been decided by the Govt of Meghalaya. Recently Govt. of Meghalaya has approved the terminal point and it is expected that work on this rail line will be taken up shortly by N. E. Railway. Work on construction of Amguri-Tuli line linking Assam/Nagaland had been suspended due to non-availability of land in Geleki Reserve Forest areas (56.3 ha.) bordering Assam and Nagaland. The matter has been pursued with Govt. of Assam/Nagaland by N. E. C. Secretariat for enabling resumption of work by N. E.

Railway and as a result of the efforts of N. E. C. Secretariat it is expected that N. F. Railway will be given possession of the land in question shortly and work on this rail line will continue smoothly.

The present position in respect of the work on 4 railway lines under construction is



Road Built by NFC in Jalukie in Nagaland

shown below :—

Sl. No.	Name of Work	Physical progress	PDC
1.	Dharmanagar-Kumarghat construction of new MG line (33.0 Km.)	78%	December, 1989
2.	Balipara-Bhalungpong construction of new MG line (35.46 Km.)	53%	December, 1989
3.	Silchar-Jiribam construction of new MG line (49.16 Km.)	61%	December, 1989
4.	Lalaghat-Bhairabi construction of new MG line (48.15 Km.)	61.5%	February, 1990

KATIABHOMORA BRIDGE OVER RIVER BRAHMAPUTRA

The construction of the second road bridge over river Brahmaputra at Bhomoraguri near Tezpur was completed in the month of March, 1987, four months ahead of the planned date of completion at a cost of Rs. 92.04 crores. The bridge was dedicated to the nation by the then Prime Minister, Shri Rajiv Gandhi on the 14th April, 1987. The construction of the bridge was financed entirely by the N.E.C. The opening of the road bridge has now added another dimension to the growth of trade and commerce not only in Assam but also in Arunachal Pradesh and Nagaland, as this bridge pro-

vides direct communication link between the north bank and the south bank of the river connecting Nagaon and Sonitpur districts and will boost the socio-economic development of the region.

NEW RAIL LINKS:

The capital towns of Tripura, Mizoram, Arunachal Pradesh, Manipur and Nagaland are not yet connected by rail links. Survey for railway lines from Kumarghat to Agartala has been completed by N. F. Railway with funds from N.E.C. Secretariat. Similarly surveys for railway lines Harmati to Itanagar and Bhairabi to Sairang (near Aizawl) were completed by N. F. Railway with funds from N.E.C. Investment decisions for these rail links are awaited.

There is also persistent demand from Government of Manipur to provide rail link to Imphal. N. F. Railway authority has felt that the preferable alignment of such rail link towards Imphal should be from Dhansiri (near Dimapur) to Kairong (near Imphal). Survey has been approved in Railway Plan.

ROAD DEVELOPMENT:

The region being predominantly hilly, there are constraints on the development of railways and hence roads have to play an important role in meeting the transport needs of the area. Road development in this region has been slow on account of the difficult mountainous terrain with a very large number of rivers and streams. In addition to this, the area is geologically unstable susceptible to landslides and many areas in plains are prone to flood during monsoon.

In the NE Region, the importance of road transport has been recognised and given priority as basic infrastructural facility not only to facilitate the easy movement of goods and passenger traffic but also to give thrust to the other developmental activities of the region.

During the Fifth and Sixth NEC Plans construction/improvement of about 5872 Kms. of roads was approved. Of these about 2600 Kms. had been completed by March, 1985 and



NEC Road, Itanagar to Gohpur under construction (AP)

another 2600 Kms. are expected to be completed by the end of 7th Plan period. Details of roads approved in NEC Fifth and Sixth Plans are shown in Annexure I to III. No new roads had been approved in NEC Seventh Plan period upto 1987-88. A draft Master Plan for road development upto 2000 AD in the region had been prepared by NEC in consultation with State PWDs and the same is under

examination of Planning Commission. In this Draft Master Plan construction/improvement of another 6500 Kms. roads, in NEC Plan has been recommended.

Recently, Planning Commission has approved construction/improvement of the following 9 new roads in NEC VII Plan totalling about 654 Kms.

Sl. No.	Name of Road	Length in Km.	State
1.	Umsning Jagiroad	83.70	Meghalaya/Assam
2.	Wokha-Bokajan	91.00	Assam/Nagaland
3.	Amguri-Monkolomba	60.00	Nagaland
4.	Thousem Laisong*	40.00	Manipur/Assam
5.	Marani-Peren	80.00	Manipur/Nagaland
6.	Serkawn Baga Bazar	110.00	Mizoram/Assam
7.	Jagun-Mino	35.00	Arunachal Pradesh/Assam
8.	Dhodar-Ali	110.00	Assam
9.	Agartala-Kumarghat-Mohanpur-Chebri	54.00	Tripura
		653.70 Kms.	

It is proposed by NEC Secretariat to substitute road Thousem-Laisong by road Gamei-Peren (90 Kms.) in Zelian-grong area comprising Manipur/

Nagaland. Thus the total road lengths already approved in NEC VII Plan would work out to about 704 Kms.

Construction of a road bridge at Raniferry across river Barak near Silchar has also been approved in NEC plan by Planning Commission. Work is being taken up by Assam PWD.

Keeping in view of the requirement of continuing thrust in development of road communications in NE Region in the NEC's Plan, NEC Secretariat has reviewed the requirement of new roads to be approved in the NEC VII Plan in consultation with all State Governments of the Region. As a result of this review and also keeping in view the requirements of new roads/

bridges to be taken up in the NEC VII Plan, as highlighted by Members of the Council during the 28th Council Meeting held at Guwahati on 7th June, 1988, new road schemes totalling 1883 Kms. and construction of permanent bridges totalling 2443 m. have been recommended for inclusion in the NEC VII Plan in addition to the 9 new roads already approved during NEC VII Plan. Details of these new road schemes/bridges statewise are enclosed as Annexure IV. The abstract proposed for new roads/bridges Statewise are as under :—

State	Total Length of New Road schemes	Length of permanent bridges	Miscellaneous (Mini Ropeway)
Arunachal Pradesh	330 Km	300 m.	Mini Ropeway in Tawang District
Assam	372 Km.	1968 m.	—
Manipur	239 Km	—	—
Meghalaya	283 Km.	—	—
Mizoram	150 Km	—	—
Nagaland	235 Km	—	—
Tripura	274 Km	175 m.	—
Total :	1883 Km.	2443 m.	18 Km

Waterway was one of the major means of transport from Assam to the sea port of Calcutta via present Bangladesh during the pre-independence stage for transport of various commodities like tea, jute, and also oil products from Assam. But due to the partition of the country this particular economical system of transportation was disrupted. But the waterways continue to be very important system of transportation in the North Eastern Region due to variety of reasons specially the physical geographical conditions obtaining in most of the areas of the region. The river Brahmaputra with tributaries Dhaleswari, Deo, Manu can also be developed for Inland Water Transport. The Central Inland Water Transport Corporation is currently operating cargo services to Guwahati and Karimganj through Bangladesh as per protocol signed between the two countries which is being extended from time to time. Important commodities like cement, steel and foodgrains are some of the items transported by incoming cargo while outgoing cargo comprises mainly tea, jute, bamboo,

timber, coal and fertilizers. There is considerable scope for improvement of mode of transport by developing better infrastructural facilities at river ghats. Schemes for mechanical cargo handling and improvement of jetty and transit storage facilities to river ports of north eastern region have been taken up under Plans of North Eastern Council for development of Inland Water Transport.

Construction of three floating jetties approved during the Sixth Plan of NEC has been completed by IWT Directorate, Govt. of Assam at a cost of Rs. 1.40 crores. These jetties have been earmarked for Tezpur, Jogi ghopa and Guwahati. Construction of 3 Nos. more floating jetties has been approved in NEC Seventh Plan for construction of IWT Directorate, Govt. of Assam, Dibrugarh, Neamatighat and Badatighat at a cost of Rs. 1.80 crores. These are under construction and likely to be completed by 1989.

In addition, NEC has also funded schemes for providing night navigational facilities along

Brahmaputra river in the stretches between Jogighopa and Neamati.

MECHANICAL CARGO HANDLING PLANT AT PANDU, GUWAHATI:

For establishment of mechanical cargo handling facilities at Pandu by M/s. Central Inland Water Transport Corporation Ltd. a scheme costing Rs. 6.56 crore has been approved in NEC Plan. The project is likely to be the biggest of its kind in the North East and envisages improvement of infrastructural facilities, construction of ROC jetty and provision of mechanical equipment including 20 MT crane for handling tea container chests, weighing upto 20 MT. The scheme is targetted for completion by 1990.

IMPROVEMENT OF RIVER TERMINAL AT BADARPUR:

For facilitating transportation of foodgrains and stores to Mizoram, Cachar Valley and part of Manipur, development of infrastructure at Badarpurghat by augmenting Godown space and

provision of jetty has been considered desirable so that incoming and outgoing vessels from and to Calcutta can ply to and from Badarpurghat. Accordingly, M/s. CITWC has prepared a scheme for improving the terminal facilities at Badarpur. This scheme costing approximately Rs. 1.70 lakhs has been cleared by Ministry of Surface Transport recently. The work which has since started is expected to be completed by 1990.

AIR LINKS:

By the end of Vth Plan period, the air links to NE Region were most inadequate particularly for connecting and opening up interior areas of the region. The matter was pursued by NEC with Ministry of Civil Aviation for providing additional air links on priority. The requirement was also emphasised from time to time during the meetings of Committee of Ministers for Economic Development of NE Region and also during the meetings of the NEC. Ministry of Civil Aviation had constituted a National Transport Policy Committee which recommended that

12 number of stations in the region should be connected by Vayudoot service links, viz. Rupsi, Shillong, Kamalpur, Kailashar, Aizawl, Along, Daporijo, Itanagar, Passighat, Sadiya, Tezu and Zero.

The matter was pursued actively by the NEC Secretariat with Ministry of Civil Aviation and as a result Vayudoot service links have been provided for 8 of these stations and in addition IAC link has been provided for Tezu. Vayudoot service link to Itanagar has not yet been possible pending construction of airport there. In addition, Vayudoot links remain to

be provided for Sadiya and Rupsi.

Though a number of airlinks through Vayudoot services have been introduced, there is substantial requirement for further improvement.

CONSTRUCTION OF RAIL-CUM-ROAD BRIDGE AT JOGIGHOPA :

The NEC has already made an achievement by extending financial support towards construction of Kalia Bhomora Bridge near Tezpur. This has now given a great boost to the socio-economic development of the North Eastern Region. The

construction of another rail-cum-road bridge over river Brahmaputra at Jogighopa has been started by N.F. Railway during 1987-88. In order to help the N. F. Railway in immediate commencement of the construction work as a part of the fulfilment of the socio-economic aspirations of the people of the NE Region, the NEC has provided financial assistance to the tune of Rs. 5 crores at the first instance during the year 1987-88 and in 1988-89 a sum of Rs. 15 crores has also been released by the Railway Board for financial support to be made available to this project. In early 1988-89, an amount of

Rs. 20 crores has been made in 1989-90 NEC Annual Plan.

Moreover, the NEC had also arranged the survey for another bridge at Bogibil near Dibrugarh and that was undertaken during the Sixth Five Year Plan at a cost of Rs. 65 lakhs. However, the financing of this Project was to be done by both NEC and partly by NF Railway on 50:50 basis. This survey for the rail-cum-road bridge has now been completed. The NEC is therefore committed to help construction of bridges over the river Brahmaputra at different important places with a view to augmenting the socio-economic development of the region.

POWER AND WATER DEVELOPMENT

The North Eastern Region is endowed with enormous hydro potential besides availability of rich reserves of coal, oil and natural gas which are all fuels for power generation. Despite such a favourable situation for generation of power, the power development in the North Eastern Region has so far been slow. At the end of the Sixth Five Year Plan, the total installed capacity in the North Eastern Region stood at 627.70 MW excluding diesel and micro hydel power installation. Out of these, hydro power stations accounts for 295.20 MW including 50 MW from Kopili Hydro Electric Project and Thermal Power Stations 332.50 MW. With the commissioning of the projects sanctioned under implementation at installed capacity of power generation in the North Eastern Region will increase. The projects which have so far been sanctioned and are

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Kopili Dam

currently under implementation are Bongaigaon Thermal Power Station Stage-II (2×60 MW) in Assam, Lakwa Thermal Power Station extension (1×15 MW) in Assam, Namrup Waste Heat Project (1×22 MW) in Assam, Karbi Langpi (1B) Hydel Project (100 MW) in Assam, Chandrapur Thermal Extension Station (30 MW) in Assam, Borogolai Thermal Power Station (60 MW) in Assam, Umiam-Umtru Stage-IV (60 MW) in Meghalaya, Gas Turbine in Tripura (10 MW), Kopili Power House of Kopili Hydro Electric Project (100 MW), Garo Hills Thermal Power Station (60 MW) in Meghalaya and Doyang Hydro Electric Project (105 MW) in Nagaland. The completion of all these Hydel and Thermal Projects will vastly improve the situation of power generation in the North Eastern Region.

In the meantime, the Kopili Hydel Project which envisages construction of two Power Houses — Khandong Power House (2×25 MW) and Kopili Power House (2×50 MW) has

since been commissioned. The North Eastern Electric Power Corporation has implemented this project with an estimated cost of Rs. 149.02 crores. The first unit of Kopili Power House was made ready for commissioning in October 1986 but due to certain mishap that occurred in the Umrangshu HP tunnel in September, 1986, the commissioning could not materialise and necessary repairing work had to be undertaken for restoring the unit to the working condition. This repairing work involved an additional expenditure of Rs. 21 crores.

The Khandong Power House which started generation from early 1984 was shut down in February, 1987 for strengthening of Khandong tunnel system and after necessary works were completed, the Unit-I of Khandong Power House was re-commissioned in December, 1987 and Unit-II was commissioned in the same month and these two Units are currently operational.

The 150 MW of Kopili Power House was rotated in February

1988 while the other unit in March, 1988 but due to various technical snags, commercial generation could not be started immediately but these problems have since been sorted out and 150 MW of Kopili Power House was put into commercial operation w.e.f. 22nd June, 1988 and the other Unit from 21st July, 1988. The North Eastern Council has made an amount of Rs. 22,549.00 lakhs available with NEEPCO. The Khandong and Kopili Power Stations have so far generated 860.87 MU.

Another important Hydel Project in the Doyang Hydel Project has been sanctioned by the Government of India at an estimated cost of Rs. 128.61 crores and the NEEPCO is entrusted with the task of implementing this Project. The project cost estimates were based on the Project Report prepared by the Government of Nagaland on the basis of investigation carried out by them. After a series of consultation with the Central Energy Authority and the Central Water Commission by the Project Authorities, it has been decided that most suitable

proposal to go for the project having an installed capacity of 3×25 MW. The NEEPCO has framed a revised Project Report for Doyang Hydel Project in Nagaland envisaging an installed capacity of 105 MW and submitted to the Government of India. The Central Energy Authority is considering the question of issuing technical clearance to the project at an estimated cost of Rs. 166.66 crores.

In the meantime infrastructural works are being undertaken in the project site in Nagaland and an amount of Rs. 1,725 lakhs has been made available to NEEPCO which comprises LIC loan component of Rs. 500 lakhs raised by NEEPCO.

The Government of India has also approved the construction of Ranganadi Hydel Electric Project Stage I (3×135 MW) in Arunachal Pradesh in 1987 and the task of executing this project has been entrusted with the NEEPCO at an estimated cost of Rs. 312.78 crores.

Meanwhile, infrastructural works have been started for

construction of the project in the project site near Kiwin in Arunachal Pradesh for all the infrastructural and initial work-a undertaken by the NEEPCO an amount of Rs. 1400 lakhs have been made available to NEEPCO by NEC which includes a loan component of Rs. 550 crores as raised by NEEPCO as LIC loan. The provision of Rs. 1,500 lakhs in 1988-89 was to be raised by NEEPCO as LIC Loan and NEEPCO has since raised the entire amount of loan during the current financial year for meeting the expenditure. The NEC has approved an outlay of Rs. 2,000 lakhs for the project during the year of 1989-90. The Government of India has also sanctioned installation of third 5 MW Unit at Baramura Gas Thermal Station at an estimated cost of Rs. 520 lakhs during March, 1987 under NEC Programme. The Power Department of the Government of Tripura while executing the Project has started taking preliminary action and building up of necessary infrastructure for project implementation. The Government of India

has given sanction to the revised estimate of Rs. 1,118 lakhs for the project which is expected to be ready by the end of 1989.

The Government of Tripura has also submitted a Project Report to the Government of India for installation of 75 MW Power Station near Rokhia at an estimated cost of Rs. 6,747 lakhs. This Project Report has however, been revised subsequently to Rs. 14,391 lakhs. This revised Project is, however, not yet approved by the Government of India.

The question of arranging proper transmission of power has also given proper attention by NEC in the process of execution of various Hydel Projects. Accordingly the number of transmission lines projects have been undertaken for effective transmission of power to the various States of the North Eastern Region.

A Project for additional transmission lines was taken up in

Mizoram for supply of power from Kopili Hydel Project to different parts of Mizoram, Manipur, Tripura and Assam which involves laying of 132 KV single circuit line from (a) Khandong to Haflong (b) Haflong Jiribam (c) Jiribam-Aizawl (d) Aizawl-Kumarghat including a look-in and look-out of existing 132 KV line from Aizawl to Dharmanagar at Kumarghat. The scheme also involves construction of 132 KW Sub-stations Switching Stations at Haflong, Jiribam and Kumarghat and with the conclusion of the 132 KV Jiribam-Aizawl during September, 1988 the entire project has been completed.

Another similar project of construction of 132 KV Luangmual-Zamabawk line was approved and an amount of Rs. 73.95 lakhs has been released to NEEPCO for undertaking this Project. The NEEPCO has since completed implementation of this scheme.

The Project Report for Dovang Transmission Line was approved by the Government of

India by March, 1985 at an estimated cost of Rs. 4,087 lakhs. This Project was taken up for execution by NEEPCO. This Project also envisages evacuation of power from Dovang Hydel Project besides enabling the flow of power from Kopili and Loktak Projects. This Project envisages three main transmission lines and they are 132 KV double circuit Dovang-Dimapur line with Imphal line and 220 KV double circuit Dimapur-Mizoram line. The preliminary survey of these lines have been completed and are in progress in two of these three lines.

The project of 132 KV Gohpur-Itanagar line envisages construction of 132 KV lines from Gohpur Sub-Station (Assam) to Itanagar (Arunachal Pradesh) and establishment of a 132 KV Sub-station at Itanagar. The sanctioned estimated cost of the project is Rs. 239.22 lakhs. Though initially this scheme was decided to be implemented by Assam and Arunachal Pradesh Governments through their respective

agencies within their respective territories. But on a review of related issues, the scheme was entrusted to NEFPCO for implementation during February, 1987. NEFPCO has completed the survey of the line. The project is expected to be completed in 1989-90. The implementing agency has revised the project cost estimated to about Rs. 416 lakhs and the estimate has been sanctioned.

There is an approved provision of Rs. 100 lakhs for 1988-89 for construction of transmission system in Meghalaya, Mizoram and Manipur. In line with the suggestion of the Planning Commission to identify important transmission lines with reference to a perspective transmission system plan for N E C funding, the assistance of a Consulting firm had been sought by Council Secretariat in reviewing transmission need of the N E Region. All the Constituent Units of the N E Region, CEA, NREB, have been associated in helping Council Secretariat in this exercise by inviting their comments on pre-

liminary draft report submitted by the consulting Engineer firm. Taking into account the comments of all concerned, consulting engineer firm has submitted a modified draft report. Pending finalisation of modified report steps are being taken to identify certain transmission system in the N E Region for N E C funding and an outlay of Rs. 100 lakhs is approved for 1989-90 for funding of important transmission system in the N E Region

North Eastern Council has taken a decision that Load Despatch facilities will be created in the N E Region for which a Regional Load Despatch Centre (RLDC) in Shillong and three State Load Despatch Centres (SLDC) in Assam, Meghalaya and Tripura will be set up. Composite report of RLDC and SLDC's has been revised and the revised estimated cost now stands at about Rs. 68 crores—RLDC—Rs. 29.70 crores and three SLDCs — Rs. 38.58 lakhs including on demand display and printing

facilities for Manipur, Mizoram, Nagaland and Arunachal Pradesh (Assam Rs. 1993, Meghalaya Rs. 1,172 lakhs, Tripura Rs. 663 lakhs) facilities to other N E States as referred to Rs. 24 lakhs.

The revised project report for the composite project is yet to be approved by the Government of India. An outlay of Rs. 30 lakhs approved for 1989-90 for this project.

SURVEY AND INVESTIGATION:

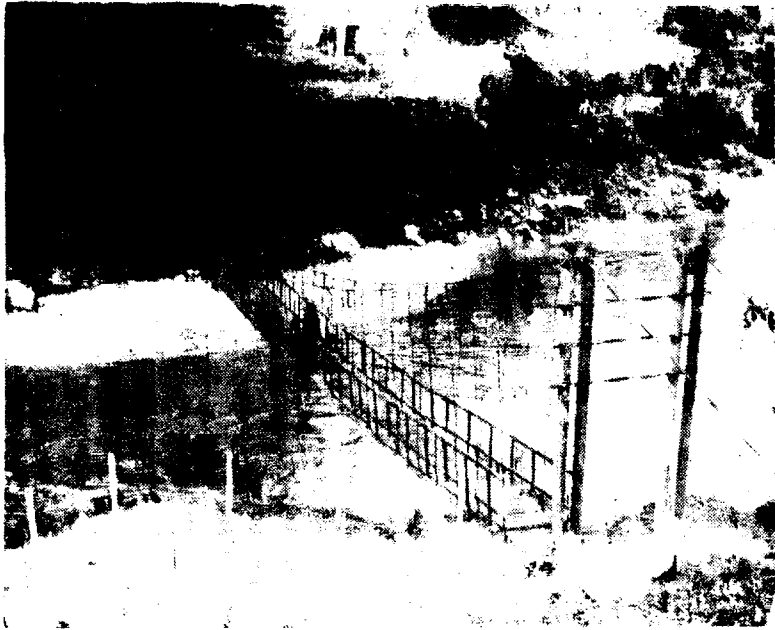
For development of power in the Region a number of surveys and investigations have been undertaken to ascertain the potential of hydel power as also the feasibility of undertaking power generation projects in various places of the North Eastern Region.

The Government of Manipur has taken up investigation projects for investigating the Loktak Down Stream and Tuivai Hydel Projects. The NEC has given

financial assistance to the tune of Rs. 146.83 lakhs for Loktak Down Stream Project and Rs. 138.40 lakhs for the Tuivai Project. Meanwhile, project report of these projects have been prepared. For Barak Stage-I another investigation scheme was approved by NEC for Rs. 101.59 lakhs and for Irang Hydel Project Rs. 132.27 lakhs was approved. The Government of Manipur has taken up these two projects. Both the projects are almost in the completion stage and by the end of the year 1990 these two projects will be completed.

In Mizoram also the Central Water Commission has taken up for investigation the Tuivai Hydel Project with an approved estimated cost of Rs. 356.26 lakhs. The field investigation works have been completed and it is expected that the entire project will be completed by the end of the year 1989-90.

In Meghalaya preliminary investigation of Kynshi Hydel Project has been taken up for Rs. 96.18 lakhs.



Ranganadi Dam (AP)

The North Eastern Electric Power Corporation Limited which is the agency for investigation of these Hydel Projects of Ranganadi, Damwe and Papu in Arunachal Pradesh, have taken up investigation of these projects with an approved esti-

mated cost of Rs. 283.53 lakhs, Rs. 211.30 lakhs and Rs. 57.94 lakhs respectively. These projects will be completed by the implementing agency although there might be some delay because of some critical nature of investigation works.

The NEEPCO is also investigating the Dikrong Hydel Project in Arunachal Pradesh. Rs. 54.54 lakhs have been approved for this project. This project is expected to be ready by the end of the year 1989-90.

The NEC has also approved Rs. 15 lakhs for undertaking a few Micro-hydel sites in Arunachal Pradesh and the Arunachal Government themselves will undertake implementation of these investigation projects. Similarly in Manipur also a few Micro-hydel sites are also to be investigated and for that Rs. 15 lakhs has been approved by the NEC.

In Nagaland also investigation of a few mini micro-hydel sites have been undertaken and for that Rs. 17 lakhs has been sanctioned by the NEC. In Meghalaya similar mini micro-hydel sites are taken up for investigation and the Government of Meghalaya has already taken preparatory steps for investigation of such sites. Rs. 15 lakhs has been approved for investigation works, within the

year 1989-90 another Rs. 16 lakhs was approved in the Annual Plan 1989-90.

The NEEPCO has also taken up another scheme for continuation of hydrological survey for Kameng Hydel Project at an estimated cost of Rs. 26.50 lakhs while the Central Water Commission has completed the investigation of the project for Residual Investigation of the Kameng Hydel Project.

The Central Water Commission has also completed the investigation of the Tipaimukh High Dam Project and the Project Report has already been prepared and submitted.

In the Eighth Five Year Plan Second Phase of Kopili Hydro Electric Project is supposed to be taken up because to update the project report, etc. for raising the existing dam height some investigation are necessary for which too NEC has approved an amount of Rs. 10.00 lakhs during the year 1989-90.

WATER DEVELOPMENT

Development and utilisation of Water Resources for Irrigation is one of the most important inputs for increasing Agricultural production and thereby Economic Development. This Irrigation Projects to utilise surface and Ground Water are an urgent developmental necessary. The NEC is funding a few programmes in this Sector :

MICRO-HYDEL-CUM IRRIGATION PROJECT IN MIZORAM:

1. At the request of the State Govt. NEC has funded the Investigation of eight nos. Microhydel-cum-Irrigation Projects at a cost of Rs. 74.25 lakhs. So far four Projects have been completed and are awaiting implementation. The other four Reports are expected to be ready during 1989-90.

2. A multipurpose Project to control slowly in Longai valley

and for Irrigation is under investigation by C. W. C. funded by NEC.

3. Ground water Exploration Studies in Mizoram are under progress.

4. For imparting proper training to farmers as well as Irrigation and Agricultural Department Officers of the constituent States in uniform development, Water Management, Command Area Development, etc. the North

East Regional Institute for Water and Land Management has been set up at Dholabari near Tezpur. This Project expected to cost about Rs. 4.70 crores has already started getting implemented during the current year and the institute is functioning now.

In addition, NEC has also got Project Report prepared for Rejuvenation and Development of Loktak Lake in Manipur which is now being processed for implementation.

FLOOD CONTROL ACTIVITIES IN THE NORTH EASTERN REGION

The North Eastern Region is the Drainage area of the Brahmaputra River System (including the Barak valley) in India. The Brahmaputra is one of the largest river systems in the world and is also notorious for the recurring flood havoc it causes in Brahmaputra valley and Barak valley in Assam. The Brahmaputra emerges out of the eastern most ridge adjoining the Manas lake in Inner Himalayas as Tsangpo. After flowing in an easterly direction almost parallel to the Indo-Tibetan border, it takes a sharp south westerly direction and enters India upstream of Sadiya town. The rivers Dihang, Dibang and Lohit join the Tsangpo and the river

is known as Brahmaputra from here. The Brahmaputra then flows through the central portion of the Assam valley for a length of about 900 kms. in the easterly direction and then enters Bangladesh below Dhubri. During its course in India, it drains the entire region—the major tributaries being the north bank ones coursing down the Arunachal and Bhutan hill ranges. Dihang, Dibang, Lohit, Subansiri, Ranganaidi, Kameng and Puthimari are some of the major tributaries that join the Brahmaputra from the Arunachal Hills. Pagladiya, Manas Beki, Aie and Sankosh are the major tributaries that outfall into the Brahmaputra down the Bhutan Hills in the N. E. Region before it enters Bangladesh. On the southern side, Dhansiri, Dikhow, Digaru, Kulshi and Rongai rivers draining the Nagaland and Meghalaya hill ranges join the Brahmaputra. The river Brahmaputra is a very wide river with widths between 13 kms. and 2 kms. during its course in Assam. The braided channels with meandering tendencies create much of problems due to channel changes, rise in river beds levels.

The Barak river rising from the Naga Hills above Tamenglong courses through the Cachar valley draining Nagaland, Mizoram (part), Manipur (part) and Tripura States, apart from the Cachar valley of Assam. It joins the Brahmaputra after leaving India below Karimganj.

The combined river system is then known as Meghna and after the confluence with Ganga, called Padma, forms one of the largest river Deltas in the world. The river Barak has very flat slopes and causes large sized flood congestion in the Cachar valley almost annually. Actually, the river Barak has 4 to 5 flood stages every year disrupting communication, causing large size destruction of standing crops, human and cattle life, etc.

The problem of solving the flood havoc caused by these river system in the N. E. Region, especially Assam, has been engaging the attention of the Govt. of India since Independence. Many works such as Embankment, Anti-erosion and bank stabilisation measures have been executed. Also for the last decade, the Central Water

Commission have established a wireless network system for the entire River System and have been issuing flood forecast warning which have gone a long way in mitigating the flood disasters by early alerts.

The Brahmaputra Board, established in 1982 as the apex organisation for considering and implementing all developmental activities for the entire basin has prepared the Master Plans for the main Brahmaputra-Barak rivers. Creation of storage reservoirs on the various tributaries is the only ultimate solution, in the opinion of many experts. The N. E. C. funded the investigation for a high storage Dam at Tipaimukh on the river Barak. The investigations were done by the Central Water Commission and the Project Report is now under examination for implementation. This envisages a multipurpose project involving the construction of a 153 M. high dam on the river Barak at Tipaimukh, where the 3 States of Assam, Manipur and Mizoram have their boundaries, and envisages power generation of installed capacity

1500 M W, Irrigation to the entire Cachar Valley, etc. It is now proposed to implement this project in two stages- in the first stage, a lower dam will be built only for flood control purposes which will be raised to the ultimate height in the 2nd Stage. This project is estimated to cost about Rs. 165 crores and the N E C will implement this project through the Brahmaputra Board. Another Flood control

reservoir project on the river Pagladiya in the Nalbari District of Assam costing about Rs. 95.00 crores is also under examination as N E C funded project. Sub-basin drainage schemes in the Barak and Brahmaputra basins are also under processing for implementation by the N E C.

The Brahmaputra Road Bridge near Tezpur connecting the North and South across the

river Brahmaputra is another N E C project. In the floods of 1987, the river eroded the South bank 3 Kms upstream of this bridge and as per the advice of an Experts' Committee constituted by the N E C, immediate protective measures in the form of Bedbars and porcupines were got executed through the Flood Control Department by N E C funding. These have helped in stabilising the Bank and now

model experiments are underway in the River Research Station, Guwahati.

Thus, the N E C has been playing an important role in the field of Water Resources Development. Secretary, N E C has also been officiating as the Chairman, Brahmaputra Board and this has helped very much in activating the Brahmaputra Board and ensuring good co-ordination.

AGRICULTURE

According to 1981 census, the total population of North Eastern Region comprising States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura is 26.58 million. Nearly 90 per cent of this population live in villages. Approximately 52.63 per cent of the population in the rural area and 33.37 per cent in the urban area are living below poverty line as compared to national average of 50.82 per cent and 38.19 per cent in rural and urban areas respectively. The per capita income of the States of the Region is also lower than all India average. Furthermore, substantial share of per capita income originates from primary sectors namely, Agriculture, Animal Husbandry, etc.

With a view to improving the socio-economic conditions of the North Eastern Region, the NIC has taken up the following schemes during 7th Five Year Plan. 3 NE Council/89

I. *Foundation Seed Production Farm for Major Field Crops, Manipur*

This scheme was sanctioned during the year 1987-88 with an estimated cost of Rs. 46.15 lakhs. The Seed Production Farm has been established in an area of 100 ha. at Kharungpat in Thoubal district of Manipur after acquiring of the land and taking over of the possession. The primary objective of the farm is to produce foundation

seeds of major field crops like paddy, maize, pulses, oilseeds, etc with a view to meeting of requirement of such seeds for the State of Manipur and Nagaland in particular and other remaining States of the Region. Construction of functional and residential buildings and development of land already started. Raising of the crops for seed production particularly paddy have started since Kharif of 1988-89.



II. *Regional Centre for Bio-Fertilizer Production in Assam Agricultural University, Jorhat*

This scheme was sanctioned during the year 1982-83 at an estimated cost of Rs. 14.93 lakhs. Production of Bio-Fertilizers (Rhizobium cultures) already undertaken for meeting the requirements of such cultures for NE Region States and Institutions. So far 1,20,704 packets of bio-fertilizer (Rhizobium cultures) were produced by the end of 1987-88 and distributed to different States/Organisations of the North Eastern Region.

III. *Joint Input Testing Laboratory, Tripura*

This scheme is designed to ensure supply of quality agricultural inputs like seeds, etc. as also to stop adulteration of fertilizers and plant production chemicals. It was sanctioned during the year 1986-87 at an estimated cost of Rs. 29.35 lakhs. The Laboratory when fully developed will have capacity to test and analyse 6000 seed samples, 1200 fertilizer

samples and 1200 plant protection chemical samples per year. Purchase of laboratory equipment, chemicals and construction of laboratory buildings are in progress.

IV. Regional Sub-Centre for Training-cum-Production of Mushroom, Mizoram :

The objective of this scheme is to train farmers/growers in scientific mushroom cultivation, production of mushroom spawn as well as mushroom and was sanctioned during the year 1985-1986 at an estimated cost of Rs. 15.80 lakhs. By the year 1987-88, 50 persons have been trained, 906 spawn bottles produced and distributed and also 43.15 kg. of mushroom was produced. Selection of the site for construction of a new mushroom house/laboratory has been finalised.

V. Regional Farm for Production of Pulses and Oilseeds, Manipur :

This scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 54.40

lakhs. 40 ha. farm has been opened/established at Gamphajol in Sanapati district of Manipur. The main objective of the scheme is to produce pulses and oilseeds like arhar, pea, soyabean, groundnut, mustard, sunflower, etc. for meeting requirement of such seeds for the States of Manipur and Nagaland in particular and other remaining States of NE Region. Construction of functional and residential buildings, internal roads, erection of fencing, land development, etc. are in progress. Production of the seeds of arhar, pea, soyabean, mustard and sunflower have already been started.

VI. Mushroom Development Centre, Arunachal Pradesh :

This scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 13.25 lakhs with the primary objectives of cultivation of mushroom on scientific line, its demonstration, imparting training to interested growers, production and supply of mushroom spawn and sterilised compost. Procurement of equipment/appliances have

been started and construction of mushroom house/laboratory is undertaken by the State P.W.D.

VII. Regional Bio-Fertilizer Production Centre, Tripura :

This scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 24.90 lakhs and located in the existing Agricultural Research Complex at Arundhutinagar near Agartala with the objective of production and supply of Bio-fertilizers in the State of Tripura, Mizoram, Assam (Cachar District), etc. Construction of office and laboratory buildings taken up by State P.W.D., procurements of equipment, appliances and chemicals are in progress.

VIII. Regional Breeder Seeds Production Farm, Tripura :

This scheme was sanctioned during the year 1987-88 at an estimated cost of Rs. 23.64 lakhs with the main objective for production of breeder seeds for paddy, jute, mesta, kharif and rabi pulses, oilseeds, maize and sugarcane. The land com-

prising 10 ha. has been identified and selected at a place near the existing farm for Major Field Crops at Jirania. Preparation of layout plan of the farm, land development for raising crops, construction programme and farm roads are being undertaken.

IX. Regional Mushroom Spawn Production Centre, Tripura :

With a view to encouraging scientific mushroom cultivation, its demonstration, production and supply of mushroom spawn and the sterilised/prepared compost, this scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 12.75 lakhs. Procurement of laboratory equipment, appliances, chemicals, etc. are in progress. Construction of mushroom house/laboratory is undertaken by the State P.W.D.

X. Pilot Project on Dryland Agriculture, Nagaland :

This scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 26.75 lakhs. This project is in full

swing of implementation. Nearly 150 ha of land already developed/bunded and crops like paddy, maize, colocasia, etc raised in the developed land. Planting of Albezia plants to rejuvenate the jhum land has also been undertaken. 16.5 tonnes of fertilizers, 1.50 tonnes of pesticides and 534.5 kg. of improved seeds have been distributed to the beneficiary farmers. In addition, considerable quantities of improved agricultural tools and implements have been procured and distributed to the beneficiary tribal farmers.

XI. *Regional Cotton Seed Multiplication and Development Centre, Tripura*

With the objective of production of good cotton seeds, supply of improved strain of cotton seeds to the farmers of Tripura and other neighbouring States of the Region, to select, purify and stabilise improved strains, collection evaluation, isolation and final seed bulking, the scheme was sanctioned at an estimated cost of Rs. 48.58 lakhs during the year 1986-87. Collection of the germplasm seed materials for sowing in the

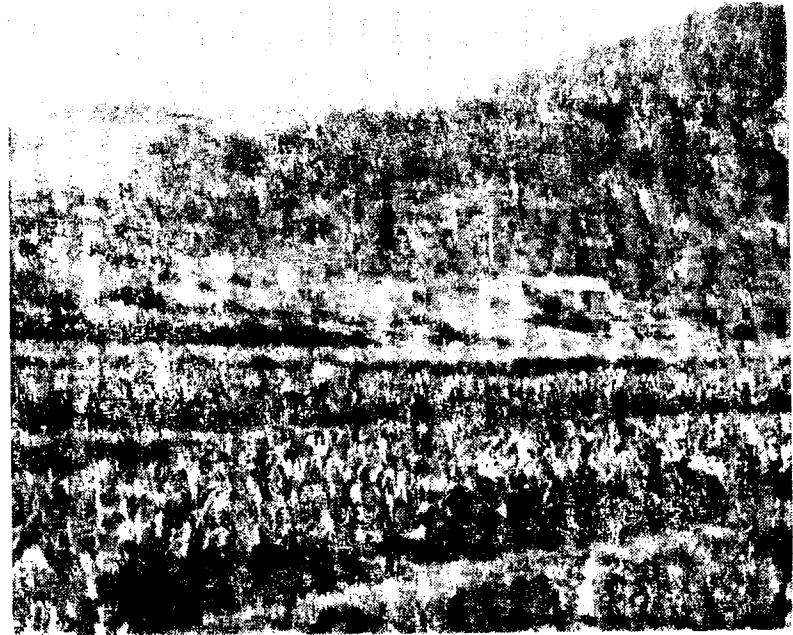
farm is in progress. Arrangements for procurement of equipment and appliances for the farm are in progress.

XII. *Establishment of North Eastern Regional Seeds Corporation :*

With a view to strengthening production, distribution and supply of quality seeds to the farmers of N. E. Region, Seeds Corporation is being established from the year 1989-90. The preparation of the Project Report and other related documents are in advance stage of completion.

XIII. *Pilot Project on Watershed Managements :*

With a view to wearing away of Jhumias (Shifting Cultivation) from jhum cultivation and encourage them to take up permanent type of cultivation, 9 W. S. M. Projects are under execution during the 7th Five Year Plan. Out of these, two Projects, viz., Tsinga-Tsusang in Nagaland and Maharancherra in Tripura have been completed and normalised. Projectwise



Agriculture Farm, Salan (AP)

detail of the remaining 7 projects are given below : -

a. ARUNACHAL PRADESH

(a) *Popumpoma (Phase II):*

The Popumpoma (Phase II) W. S. M. Project was sanctioned during the year 1987-88 at an estimated cost of Rs. 15.43 lakhs, out of which share of the N.E.C. is Rs. 7.99 lakhs. This

project covers/benefits 65 families in the project area. Construction of irrigation channels, development of land for crops raising and plantation of horticultural crops are in progress. Establishment of orange and pine-apple orchards among the jhum farmers are also encouraged.

b. ASSAM

Hivihiri-Barpajan :- This project was sanctioned during the year 1986-87 at an estimated cost of Rs. 100.19 lakhs, of which NEC's share is Rs. 40.08 lakhs. The project covers an area of 2300 ha. comprising 324 households with 2020 population. Major portion of the irrigation works for the project has already been completed. Minor construction works and functional - cum - Residential buildings Phase-I also already completed. Cultivation of both Kharif and Rabi crops started in the developed land. Further works for the development of land, plantation of horticultural crops, development of waterbody for fishery programme, construction of internal roads, etc. would be taken up during the year 1989-90.

c. MANIPUR

Luwangleima :- This project was sanctioned during the year 1986-87 at an estimated cost of Rs. 151.80 lakhs, of which NEC's share is Rs. 75.90 lakhs.

The project covers 2030 ha. and would benefit 1035 families. Construction of terraces, land development for crop raising, growing of paddy in the developed land, construction of irrigation channels are in progress. Fishery ponds have been developed and fish fingerlings have been released. Distribution of poultry birds have also been taken up.

d. MEGHALAYA

Umtongphar :- This project was sanctioned during the year 1986-87 at an estimated cost of Rs. 134.91 lakhs, of which Rs. 67.46 lakhs is the share of NEC. Construction of terraces, development of land, raising of the crops like paddy, maize and potato on the developed land are already in progress.

e. MIZORAM

Teirei :- This project was however sanctioned during the year 1985-86 at an estimated cost of Rs. 169.365 lakhs, out of which NEC's share is Rs. 84.68 lakhs. The project extends to an area of 5676 ha. and will cover 374 families in the

project area. Land development works, raising of crops like paddy and maize and vegetables like cabbage, brinjal, potato, etc. in the developed land are in progress. Raising of nursery plants for horticultural plantations are also in progress. Fishery ponds have been developed.

f. NAGALAND

Dikhu :- This project was sanctioned during the year 1986-87 at an estimated cost of 107.58 lakhs with NEC's share of Rs. 53.79 lakhs. The project covers 3500 ha. to benefit 310 families inhabiting in the villages of the watershed area. Terrace making, land development, construction of irrigation channels are in progress. Raising of the crops particularly maize and paddy on the developed land are undertaken. Raising of horticultural crops like orange, pineapple, lime, lemon, etc. are in progress.

g. TRIPURA

Rangacherra :- This project was sanctioned during the year 1983-84 at an estimated cost of Rs. 121.52 lakhs, out of which

NEC's share was Rs. 47.265 lakhs only. This project covers an area of 2200 ha. and would benefit/cover 2273 families. Graded bunding in 40 ha., lunga reclamation in 78 ha. for agricultural purpose have been completed. 240 ha. of land has also been brought under horticultural plantations. Further construction of terraces, development of land, minor irrigation facilities are in progress. Animal husbandry and fishery programmes are also being taken up.

XIV. *Strengthening of Survey, Investigation and Planning Cells in Constituent Units :*

This scheme was taken up for strengthening the Survey, Investigation and Planning Cells already established and normalised in respective States of NE Region by addition of two more qualified and trained staff having knowledge about remote sensing. Creation of infrastructures for implementation of the scheme, procurement/purchase of equipment/appliances like Multicolour View Finders, etc. are in progress.

XV. *Regional Soil Conservation Training Centre, Meghalaya :*

This scheme was revised in the year 1986-87 at an estimated cost of Rs. 79.50 lakhs. Construction of classrooms, hostels for trainees, residential quarters, land development, playground, etc. are in progress. Training of first batch completed and second batch training from middle level officers in progress.

XVI. *Survey of Catchment Area of Hydel Projects —Ranganadi, etc. in Arunachal Pradesh :*

This scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 10.178 lakhs. Survey and investigation of Ranganadi river watershed in Arunachal Pradesh is carried out by the Survey and Investigation Cells under the Rural Works Deptt., Govt. of Arunachal Pradesh. Purchase of equipments, appliances, etc. for the Survey and Investigation are in progress.

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B. DETAILS OF THE PLAN EXPENDITURES

The following amount shown against each scheme has been released/expended till the end of 1987-88 :-

Sl. No.	Name of the Scheme/Project	Amount released/ expended till the end of 1987-88 (Rs. in lakhs)	Remarks
1	2	3	4
1.	Foundation Seed Production Farm for Major Field Crops, Manipur	10.00	
2.	Regional Centre for Bio-Fertilizer Production in A.A.U., Jorhat	5.00	
3.	Joint Input Testing Laboratory, Tripura	13.00	
4.	Regional Sub Centre for Training-cum-Production of Mushroom, Mizoram	17.00	
5.	Regional Farm for Production of Pulses and Oilseeds, Manipur	14.00	
6.	Mushroom Development Centre, A.P.	6.16	
7.	Regional Bio-Fertilizer Production Centre, Tripura	6.00	
8.	Regional Breeder Seeds Production Farm, Tripura	10.00	
9.	Regional Mushroom Spawn Production Centre, Tripura	5.00	
10.	Pilot Project on Dryland Agriculture, Nagaland	20.00	
11.	Regional Cotton Seed Multiplication and Development Centre, Tripura	20.00	
12.	Establishment of NFR Seeds Corpn.	—	
Total		C.O.—126.16	

B DETAILS OF THE PLAN EXPENDITURES

Sl. No.	Name of the Scheme/Project	Amount released/ expended till the end of 1987-88 (Rs. in lakhs)	Remarks
1	2	3	4
			B F 126.16
13.	PILOT PROJECT ON WATERSHED MANAGERMENTS :		
	a. Popumpoma (Phase II) in A.P.	22.67	
	b. Hirihiri Barpajan in Assam	25.70	
	c. Luwangleima in Manipur	10.00	
	d. Umtongphar in Meghalaya	25.00	
	e. Teirei in Mizoram	20.00	
	f. Dikhu in Nagaland	33.68	
	g. Rangacherra in Tripura	66.00	
14.	Strengthening of Survey, Investigation and Planning Cells in Constituent Units	19.66	
15.	Regional Soil Conservation Training Centre, Meghalaya	29.53	
16.	Survey of Catchment Area of Hydel Project— Ranganadi, etc. in Arunachal Pradesh	8.95	
	Total :	387.35	

PERSPECTIVE ON 8TH PLAN :

The most formidable constraint in the agricultural development programmes in the NE Region is non-availability of major inputs like quality seeds and fertilizers. Without making improvement in the availability of these inputs, increase in production and productivity would not be possible. With a view to accelerate supply and distribution system of seeds, North Eastern Regional Seeds Corporation is being established during the year *i.e.* 1989-90 and then would continue during the 8th Plan also. For making availability of the fertilizers and that too on time, storage facilities are to be created for stocking of fertilizers in different centres of the Region so that even when roads from the producing source to the centres in the N E Region are blocked due to the natural calamities or otherwise, farmers need not suffer due to want of fertilizers required by them.

In most of the areas of the N E Region, agricultural operations including land preparation and tillage are done mostly by



Agriculture Farm, Salan (AP)

human muscle power. Use of animal powers for agricultural operations are considered amongst certain communities as social taboo. However, for economically viable agricultural operations use of the machinery power is essential. As such, to start with and considering topography of the Region, introduction of small land tilling machine like power tillers in the hilly areas of the region may be taken up during the 8th Plan.

For increasing production and productivity and also for increasing cropping intensity, a healthy co-relation should exist between user agency and potential creation agency of irrigation

HORTICULTURAL DEVELOPMENT

Horticulture conjures up a vision of juicy and vitamin rich fruits, mineral rich vegetables and beautiful flowers. Abundance of these provides a yardstick to the nations' health standards. The congenial soil and climatic conditions of the North Eastern Region makes it ideally suited for extensive cultivation of fruits, vegetables and flowers. One has to move around the region to see a wide variety of fruits from typically tropical types like coconut in valleys of Assam to temperate types like apple and walnut growing in high altitudes. This region has been considered a home for some of the important species of citrus. Even mandarin orange is believed by some taxonomists to have originated from this region. Bhasi mandarin is one of the leading mandarin varieties in the world because of its superior quality and distinct fruit characters. Large belt of

this fruit are a common sight particularly in Meghalaya and Assam. Assam lemon is seen growing everywhere and has become part of the daily life of the people here. Cultivation of pineapple has been an age-old profession. Apple is now flourishing in rain shadow belt of Kameng district of Arunachal Pradesh. Stone fruits of pears are catching up in Meghalaya and Manipur. Tripura can boast of fine liches and prolific jackfruits, besides best quality mandarins of Jaspui hill range. Excellent banana is available from Mizoram and Assam. For lovers of orchids, it is a paradise besides being an untapped treasure.

This region is equally rich in vegetables. One finds several kinds of vegetables growing throughout the year. Maximum area is presently covered under potato, while fresh vegetables are mostly confined to areas around cities and towns. Ginger and turmeric are extensively grown in Mizoram, Manipur and Meghalaya. Temperate areas

provide sufficient scope for seed production of cole crops.

The region's potential for horticultural development, particularly fruits, has been well exploited in the control of shifting or jhum cultivation schemes. The successful utilisation of jhum lands, and control of soil erosion has been demonstrated through the North Eastern Council's pilot schemes of jhum control under operation since the last few years in the region at a total cost of Rupees four and half crores. These schemes involve an integrated programme of land development, terracing for field crops, afforestation and horticultural plantation. Given adequate infrastructure facilities and support, horticultural plantation programme would ultimately provide a viable solution to the problems of shifting cultivation. It will permit coverage of a large area at low investments towards land development generally required for terraced cultivation, and at the same time make an impact on the overall economy of the region in course of time.

The topographical variations and altitudinal differences coupled with fertile and well drained soils in North Eastern Region provide a unique diversity of agro climate for cultivation of large number of fruits, vegetables, spices and ornamental crops. The vast area available in the hill slopes currently used for 'jhum' cultivation offers an unlimited scope for the expansion of horticulture crops in the region.

Various types of fruits grow in the region include orange, lemons, pineapple, banana, lichi, apple, pear, plum, mango, guava, jackfruits, coconut, arc-canut, with a predominance of banana, pineapple and orange (mandarin). Among vegetables potato occupies an important place. Other vegetables grown includes cabbage, cauliflower, capsicum, beans, peas, brinjal, tomato and gourds, etc. Important tuber crops include colocasia, tapioca, sweet potato besides potato. The spices like turmeric and ginger are grown on large scale and black pepper is gaining popularity. The re-

gion is also famous for beautiful orchids and more than 500 species are found growing wild.

The horticulture industry till recently remained as a backyard practice and large estates were not planted. This has resulted in low yields. Besides this, availability of genuine planting material, lack of improved technology for fruits and vegetable production, timely application of plant protection measures have also contributed in slow development of horticulture. Proper transportation and marketing was another problem to fruit and vegetable growers besides dirth of processing units to utilize the surplus. The State Governments have been implementing various schemes to develop horticulture but lack of sufficient funds remained major constraint. Keeping in view the above facts North Eastern Council, Shillong started financing several schemes in 6th Plan to various states, some of which continued in 7th Plan. Many new schemes were also formulated in the 7th Plan and are under implementation.

3 NE Council[89

Vlth Plan Schemes :

1. Regional Foundation seed Potato Farm, Arunachal Pradesh
2. Development of Temperate Nut and Almond Crops Arunachal Pradesh.
3. Scheme for Survey of Area and Production of Horticultural Crops (in all the States of NE Region).
4. Regional Orchard - cum Nursery for Citrus, Mynkre, Meghalaya.
5. Regional Vegetable seed Farm at Maicherra, Tripura.
6. Regional Coconut Seed Garden, Tripura.
7. Regional Seed Garden for Spices and Betel leaf, Tripura.
8. North Eastern Regional Agricultural Marketing Corporation (NERAMAC).
9. Regional Tuber Crops Farms, Tripura.
10. Regional Vegetable Seed Farm in Arunachal Pradesh.
11. Establishment of Clonal Seed Garden for Banana in Tripura.
12. Scheme for Rejuvenation of Old Orange Orchards in Tripura.
13. Establishment of Citrus Demonstration and Development Centre, Mizoram.
14. Temperate Fruit and Nut Nursery for Arunachal Pradesh.
15. Introduction of Saffron in Arunachal Pradesh.
16. Establishment of Large Cardamom Nursery in Mizoram
17. Promotion of Floriculture in Tripura.

VIIth Plan New Schemes .

1. Foundation Seed Farms for Potato (for Manipur, Meghalaya and Mizoram).
2. Establishment of Seed Farm for Production of Certified Seeds of Potato in Tripura.

BRIEF DESCRIPTION AND PROGRESS OF DIFFERENT SCHEMES .

1. *Regional Vegetable Seed Farms—Maicherra, Tripura:*

The scheme was sanctioned, during 6th Five Year Plan and was spilled over to 7th Plan. Originally the scheme was sanc-

tioned for Rs. 19.70 lakhs which was revised to Rs. 44.95 lakhs in 1986-87 year, Rs. 21.90 lakhs were spent by 6th Plan and Rs. 23.05 lakhs were balance from 7th Plan. The Farm is established in 24 hectares of which 10 hectares developed and has started the production of vegetable seeds for Brinjal, Carrot, Onion, Bottle gourds, Ladies finger, etc.

2. *Regional Orchard - cum - Nursery for Citrus Mynkre, Meghalaya :*

The scheme has been taken up in 10 hectares in Jowai, with sanctioned cost of Rs. 12.71 lakhs, of which Rs. 3 lakhs were spent by the end of 6th Plan and the approved out lay for 7th Plan is Rs. 5.21 lakhs. Mother trees of mandarins, sweet orange, lemon and lime have been planted.

3. *Regional Coconut Seed Garden, Tripura:*

This is spilled over scheme from 6th Plan. Originally the scheme was sanctioned for Rs. 33.77 lakhs in 7th Plan.

Rs. 18.55 lakhs were spent in 6th Plan and Rs. 39.42 lakhs, an approved outlay for 7th Plan will be utilized for development of Garden.

4. *Regional Seed Garden for Spices and Betel Leaf, Tripura :*

This scheme has been sanctioned during last part of 1986-1987 at an estimated cost of Rs. 51.46 lakhs which is also approved out lay for 7th Plan. 50 hectares of land has been selected and the development of the land and other infrastructural facilities are in progress. The Farm proposes the growing of Spices like Clove, Nutmeg, Cinamom, Black pepper, Turmeric, Ginger and Betel Vine, and distribution of superior planting material to the farmers of Tripura and other adjoining states.

5 *Development of Temperate Nut and Almond Crops, Arunachal Pradesh :*

This scheme is formulated for raising of Community plantations of Walnut, Chestnut, Peca-

nut, Almond, etc. in abundant Jhum land, with a view to have compact plantations of the nut crops in Tawang, Bomdila and Ziro areas. The scheme is being implemented from 1989-90.

6. *Regional Temperate Fruits and Nut Nurseries, Arunachal Pradesh :*

The scheme to set up Horticulture nursery in about 50 hectares in existing orchards at Shergaon, West Kameng District, was sanctioned during 1986-87 for Rs. 38.60 lakhs. The existing 5000 mother apple plants as well as those of Pear, Plum, Peaches, Walnut, Chestnut, etc. growing at present are being utilised for raising nursery and further distribution.

7. *Survey of Area and production of Horticulture Crops in NE :*

In order to find out the area and production of various existing fruit trees to establish reliable data for useful future planning for horticulture and plantation development in NE Region, the scheme has been taken up in all 7 States. The work in

Mizoram, Nagaland, Manipur, Tripura and Arunachal Pradesh is almost completed. Mizoram and Nagaland have already printed the report, and submitted to NEC. The work in Assam and Meghalaya are still in progress and are expected to be completed by the end of 1989-1990.

8. *NE Regional Agricultural Marketing Corporation*

The NERAMAC, was set up during 1982-83 for making regular and systematic marketing arrangement to provide the facilities to the farmers and other growers to get remunerative prices for their produces of agriculture and horticulture. The corporation has arranged the marketing of Ginger from Mizoram and Citronella oil from Assam and Nagaland. It has established one fruit juice concentrate plant, particularly for pineapple and orange in Tripura and has also arranged export of canned pineapples out side the country. The corporation has also chalked out a programme to spread its activities to cover a large area of NE Region states

by setting up a number of zonal and sub-centres and establishment of processing units.

9. *Expansion of Regional Foundation Seed Potato Production Farm Mao, Manipur :*

The scheme was sanctioned for Rs. 30.16 lakhs in 1986-87. 40 hectares of land contiguous to the existing potato farm at Mao, has been acquired of which 35 hectares are reclaimed.

10. *Regional Foundation Seed Farm for Potato in Meghalaya :*

The scheme was sanctioned during the year 1987-88 at an estimated cost of Rs. 40.10 lakhs as against approved VII Plan outlay of Rs. 50.00 lakhs. Implementation of the scheme has been deferred due to non-settlement of land for the farm site which is expected to be finalised early.

11. *Foundation Seed Farm for Potato, Mizoram :*

To establish a Regional Foundation Seed Potato Farm in

Mizoram, the scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 40.05 lakhs. The earlier site selected was not recommended by the Scientists since it was not free from the disease "Brown Rot". A new site proposed by the State Govt. still need to be certified for being suitable to foundation seed multiplication.

12. *Establishment of Seed Farm and production of certified Seed of Potato, Tripura :*

The scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 61.00 lakhs. 110 ha. land at Ramdayabari has been selected to establish the farm to produce disease free seed potato. Two year crop rotation would be practised to keep the soil free from disease built up.

13. *Regional Tuber Crops Farm, Tripura :*

The scheme was sanctioned during the year 1986-87 at an estimated cost of Rs. 37.25 lakhs to establish a farm on 60 ha land at Sarasema for pro-

ducing quality planting material of various tuber crops, like sweet potato, tapioca, calocasia and dioscorea.

14. *Regional Vegetable Seed Farm, Arunachal Pradesh :*

The farm, sanctioned during 1986-87, at an estimated cost of Rs. 20.52 lakhs, has been set up at Salari in an area of 20 ha. The construction works of farm buildings and irrigation channel has been taken up and is under progress. The production of vegetable seeds like Radish, Carrot and Cauliflower has started

15. *Regional Vegetable Seed Farm, Manipur :*

The state has vast potentials for vegetable production. Hence to boost the production of vegetables in the states of Manipur, Nagaland, and Mizoram, by adopting and polarising the improved and high yielding varieties of specific vegetables, the scheme to produce and to meet the requirement of vegetable seeds, has been sanctioned during 1986-87 for Rs. 13.12

lakhs. The Farm has been established at Layai in Senapati Dist. in an area of 40 hectares, of which 30 hectares have been brought under bench terracing.

16. *Establishment of Clonal Seed Garden for Banana, Tripura :*

The scheme was sanctioned in the year 1986-87 at an estimated cost of Rs. 40.84 lakhs to establish clonal seed garden in 50 hectares. The varieties like Champa, Malbhog, Cherrapunjee, Cavendish type and Local Garo Hills have been planted to raise suckers for distribution and establishing banana plantations in other areas of the state. The farm is well established and has started the production of suckers.

17. *Rejuvenation of old Orange Orchards, Tripura :*

There are many old orange orchards in the Jampui Hills of the state which have started declining due to poor management practices and need to be rejuvenated. An area of 200 ha. in

Sakhang and 50 ha. in Lungtharai of Jampui Hills ranges have been taken for rejuvenation by providing inputs like fertilizers and plant protection chemicals with expert guidance to apply these inputs in modern scientific way. The scheme has been sanctioned in 1986-87 for Rs. 18.12 lakhs and till now 120 ha. old orange plantations have been rejuvenated. Remaining work are under progress.

18. *Establishment of Citrus Demonstration Centre, Mizoram :*

Mizoram is bestowed with ideal climate for the cultivation of orange and other citrus fruits. Large areas have been planted with Khasi orange plants. However, these trees are not giving satisfactory yield due to poor management practices and sizable percentage of them have started declining. In order to demonstrate scientific technology for raising citrus orchards, the scheme was sanctioned in 1986-87 for Rs. 15.68 lakhs, to cover 11 ha. of land under demonstration. The planting of citrus

trees have been completed and nursery seedlings are being raised.

19. *Establishment of Large Cardamom Nursery, Mizoram :*

Considering the congenial climate available for growing large cardamom (*Amomum subulatum*) in some states of N.E. Region and non-availability of healthy disease-free planting materials, the scheme to establish the nursery for large cardamom in 10 ha. at Thingsulthlah in Mizoram was sanctioned for Rs. 26.60 lakhs in 1986-87. The seeds and chips of large Cardamom were procured from Cardamom Board of India and the raising of seedlings in 2500 nursery beds has been taken up.

20. *Promotion of Floriculture— Establishment of Floriculture Seed Garden, Tripura :*

The scheme was sanctioned in February 1987 for Rs. 13.33 lakhs to establish the Floriculture Seed Garden in 5

hectares land. It will have 2 hectares under perennial flowering trees and shrubs to serve as mother plants to obtain seeds for propagation purpose and 2 hectares for raising planting material in nurseries.

21. *Introduction of Saffron, Arunachal Pradesh :*

The saffron with its high value and low volume together with its non-perishable quality has high medicinal value, specially in Ayurvedic and Unani system. It is very much important and has quite high export prospects. In India it has been growing at high altitudes of Kashmir and hence completely a new crop for N.E. Region. Arunachal Pradesh has almost similar lands and Agro-climatic conditions at high altitudes of Bomdila, Tawang and Dirang in Kameng dist. In the first, instant Tawang area has been considered to conduct preliminary trials and to cultivate saffron on demonstration basis. 2.50 hectares would be covered gradually, starting from 0.25 ha. The scheme has been sanctioned at

an estimated cost of Rs. 8.24 lakhs in February 1987. By procuring planting materials from Kashmir 0.60 hectare have been covered under saffron and is under maintenance.

PERSPECTIVE OF EIGHTH PLAN :

The horticulture in North Eastern Region has not yet taken the shape of an industry and has been the case in some other States of India. Examples may be quoted for apples in Himachal Pradesh and Kashmir, Mango in Uttar Pradesh, Maharashtra and Tamil Nadu, Grapes in Hyderabad, Banana in Maharashtra and vegetable seed industry in North Indian Hills. On one hand the production of horticultural crops has not achieved the desired status, their transportation and post-harvest utilization need much to be done. The full potential of fruit crops, potato, turmeric, ginger and orchids has not yet been exploited fully. In order to bring the horticultural industry of N.E. Region on sound footing and to raise the eco-

nomy of the farmers, following items of work need to be given priority in the 8th plan by State Govt. and N. E. C.

FRUITS :

- (i) *Bud wood certification* :—The mandarin is the major citrus fruit grown in the region. However, the plantation are suffering from citrus decline due to a complex of problems. One of the major cause is non-availability of disease free planting material. The nurseries producing planting material of mandarin need to introduce bud wood certification scheme to guard against virus and mycoplasma.
- (ii) *Multi-tier Horticultural system* :— In order to get maximum production per unit area and also to safeguard against failure of a particular crop in a year, multi-tier horticultural crop combination need to be adopted.

- (iii) *Farming systems on Watershed Management basis* :— To replace Shifting (Jhum) cultivation with permanent cultivator system the existing technologies available need to be adopted for a particular watershed. An integrated approach of Agri-horti-sylvipastoral system may lead to achieve the goal which may also include livestock as subsidiary source of income.
- (iv) *Development of vegetable around the cities* :—The North Eastern Region is highly deficient in vegetable production and availability leading to malnutrition. Main reason being lack of proper transportation and climatic influences. The consuming centres are

the cities. As such cultivators may be encouraged to produce more vegetables around big cities for immediate returns.

- (v) *Strengthening vegetable seed industry* :— The Region is still getting large quantities of vegetable seed from other States of India. The region holds potential to produce sufficient quantities of vegetable seeds which need to be developed to remove dependency on outside sources.
- (vi) *Development of spices and medicinal plants* :— Ginger, turmeric, black pepper and large cardamom are potential spice crops of the region. Derth of quality seed and lack of scientific

approach is required to be removed to enhance production. Several tree and minor plants of medicinal value can be grown to feed material to pharmaceutical industries.

- (vii) *Plant protection measures* :—Lack of application of suitable plant protection chemicals to combat diseases and insect-pest need to be emphasised for better production of all types of crops.
- (viii) *Storage, transportation, processing and marketing* :—To utilize marketable surplus, the facilities of storage, quick and timely transportation, processing and proper marketing of horticulture produce is of utmost importance. The whole sys-

tem need to be tackled as an integrated strategy.

- (ix) *Trainings* :— The scientific training in horticultural crop production from the level of Males (Gardeners) to the Managerial positions will only pave the way to achieve desired targets and upgrade the industry.
- (x) *Development of specialized cadre* :—The future strategy to sustain horticulture industry will depend on the deployment of subject matter specialists to look after and manage any horticulture system. In Government Department a specialized cadre of horticulture experts need to be developed and their postings and job assignment should be for relevant crops.

SERICULTURE

The North-Eastern region, supposed to be the cradle of sericulture in the country, comprises the culture of all the four varieties of silk worms viz. : Muga, Eri, Mulberry and Oak Tasar, which is a recent introduction in the region. Muga culture is the exclusive prerogative of this region particularly Assam and the golden silk of muga is highly esteemed due to its brilliance and majestic look.

Sericulture is being practised in this region since time immemorial and it could sustain itself in the region inspite of various destabilizing factors, due to the fact that it is very intricately interwoven in the life style and culture of the people of this region. The irony of fate is that

inspite of the congenial thermo-hydrographic conditions it is still practised casually and has yet to become a commercial proposition. Since sericulture is labour intensive the North-Eastern Council since its inception, recognised it to be a very potential source for the socio-economic development and the upliftment of the tribal people living in the remote areas in the region. Since then NEC has steered it through various plans by allocating substantial funds for the development of infra-structural facilities for laying a solid base on which the industry could develop on modern lines.

It was in this context that during the 5th plan period NEC financed 37 schemes in all the seven states at a cost of about 2 crores of rupees. The details of which are as follows :

Sl. No.	States	5th Plan Period	
		No. of Schemes	Allocation (Rs. in lakhs)
1.	Tripura	4	18.99
2.	Nagaland	5	15.43
3.	Mizoram	5	16.81
4.	Manipur	5	41.47
5.	Meghalaya	7	43.90
6.	Assam	7	46.63
7.	Arunachal Pradesh	4	17.23
Total		37	200.46

Similarly, during the 6th Plan period 39 schemes were financed by NEC at a total cost of about Rs. 3.14 crores. The details of which are given below :

Sl. No.	States	6th Plan Period	
		No. of Schemes	Allocation (Rs. in lakhs)
1.	Tripura	6	31.33
2.	Nagaland	4	35.92
3.	Mizoram	5	50.00
4.	Manipur	3	57.79
5.	Meghalaya	6	30.88
6.	Assam	9	58.33
7.	Arunachal Pradesh	6	49.52
Total		39	313.77

The sub-group on sericulture (for VIIIth Plan) in its report had stressed on the need for establishing Reeling Units in the states Accordingly during the VIIIth Plan period scheme for Reeling, Spinning & Weaving Units were sanctioned by NEC in different states as follows :

These units are at present in different stages of completion and are expected to be productive by the end of 89-90. Since during this plan period more stress has been laid on mulberry culture and with the introduction of Bivoltine rearing in the region it is expected that sufficient

quantity of cocoons would be available for these establishments.

PERSPECTIVE ON VIII TH PLAN

During the Eighth Plan period it is proposed to give more stress on increasing the availability of food plants by covering an additional area of 1700 ha. under mulberry for this purpose it would be essential to establish Mulberry nurseries for raising sufficient number of saplings for distribution to individual rearers.

Similarly, with the increased plantation the requirement of silkworm seed for rearing would accordingly increase. At present

itself there is great dearth of silk worm seed which is being procured from outside the region, in order to make the region self sufficient in quality silkworm seed It is proposed to strengthen the silk worm seed organisation in the states by establishing modern grainages so as to increase the availability of quality seed locally.

It is also proposed to take up extensive training programmes for farmers to make them familiar with the modern technique and package of practices, for silkworm rearing and mulberry cultivation for increased productivity.

Sl. No.	States	7th Plan Period	
		No. of Schemes	Outlay (Rs. in lakhs)
1.	Tripura (Reeling)	1	12.43
2.	Nagaland (Reeling & Twisting)	1	28.58
3.	Mizoram (Spinning & Weaving)	1	13.341
4.	Manipur (Weaving)	1	12.494
5.	Meghalaya (Reeling & Twisting)	1	18.05
6.	Assam (Reeling & Twisting)	-	20.635
Total		6	105.00

FISHERIES

(a) North-east region of the country comprising seven land locked states offers scope for only inland fishery development. Owing to diversity of topographic and climatic features, the fishery resources of this region are also diverse and varied. Potential of fish production in the area is immense. The fishery resources of the region comprises of two major river systems (Brahmaputra and Barak), a number of their tributaries and distributaries, rivulets and hill streams besides reservoirs, beels/lakes, ponds and paddy fields. Resources for warm as well as cold water fisheries exist in the area. But the level of exploitation/utilisation of the resources for fishery purpose is generally low due to various reasons.

An exact enumeration of the resource is a must for any developmental planning. The next essential step is to make provisions for enough seed supply. Keeping these two points

in view, the emphasis of NEC schemes in this sector till Seventh Plan has been mainly on survey of resources and production of fish seed. A complete list of these schemes till Seventh Plan and their financial outlay is given in the table appended.

(b) As would be evident from the appended table the total plan expenditure in this sector till end of Seventh Plan would be Rs. 461.53 lakhs. Of this the expenditure during Seventh Plan period would be Rs. 297.88 lakhs.

(c) A clear, properly catalogued picture of fishery resources of the region and their present level of utilisation/production would emerge on completion of schemes at the end of Seventh Five Year Plan. Moreover, it is expected that the region would become self sufficient with regard to the primary input fish seed. With the fulfilment of above-said two pre-requisites, efforts during Eighth Plan need be directed towards such schemes which

would actually result in increase of fish production in the region. They can be for :

(i) *Development of Beel/Lake Fisheries*

Beels and lakes constitute approximately 1.43 lakhs ha. of water area in the region. Most of them are presently lying in derelict unutilised stage. Their present day production is quite low (average 180 kg/ha/yr in Assam). Scientific technologies for beel development have been worked out by scientists. They need be employed to develop this resource for fish production.

(ii) *Development of Reservoir Fisheries*

This region is presently estimated to have 58,628 ha. of reservoir area. The same is expected to increase manifold in near future with construction of a number of hydro-electric projects which have been planned in the region and are in various stages of construction. These all can prove to be a potential rich source of fish if their fishery is

developed on scientific lines. Technologies for reservoir fishery development are available. The same may be utilised in selected reservoirs of the region with the help from Research Organisations.

(iii) *Development of Integrated Fish Farming*

The scope for integration of fishery with live stock management and paddy cultivation in the region is immense. Live-stock population of the region is indeed large, with pigs being 53|100 persons (All-India average 1|100 persons) and poultry birds 63|100 persons (all-India average 24|100 persons). Paddy being main crop of the region is cultivated in vast stretches (approximately 32,98,500 ha.). Undermentioned integrated farming technologies are available.

- (i) Pig-cum fish culture
- (ii) Poultry-cum-fish culture
- (iii) Duck-cum-fish culture
- (iv) Paddy-cum-fish culture.

These technologies can be utilised for fish production in the suitable areas of the region with minimum input and high rate of expected return. Integrated farming technologies are specially suited for rural set up where one component is already being practised. The component of fish farming, to be introduced, requires minimum additional input. It would be able to create additional self employment opportunities for rural youth and may thus lead to diversification of rural economy. Integration of fish culture with live stock would be of much use

especially for abundantly present tribal areas in this region as tribals traditionally rear pigs and poultry birds.

(iv) *Bundh Breeding for Fish Seed Production*

Increased fishery activity would necessitate further expansion of fish seed production programme. For this, the available technology of bundh breeding, in areas having suitable topography, may be introduced in the region in addition to already introduced induced breeding programmes. The undulating terrain and abundant

falls/hill streams in the region are ideally suited for such a programme. Laterite soil of Garo and Khasi Hills (Meghalaya) are added favours

(v) *Running Water Culture*

The abundant hill streams of the region provide ample opportunity for introduction of running water culture. Suitable areas in the vicinity of hill streams may be utilized for the purpose. This technology is capable of yielding high per ha fish production.

Of the above suggested five areas of stress during Eighth

Plan, few schemes have already been initiated (in N.F.C or State sector) on first three aspects of development of beels/lakes, reservoirs and integrated farming. But these schemes are mostly in a very small scale due to paucity of funds or less priority. It need be intensified further in such states and taken up afresh in those where not already initiated. The aspects of bundh breeding and running water culture are new to this region but if implemented, would go a long way in bulk increase in fish seed production.

TABLE
N.F.C. Sponsored Schemes/Projects in Fisheries Sector till Seventh Five Year Plan

Name of State/Implementing Agency	Name of the Scheme	Approved Outlay (Rs. in lakhs)
1	2	3
<i>Till Sixth Five Year Plan</i>		
Arunachal Pradesh	1. Regional High Altitude Fish Seed Farm, Tarin	23.00
	2. Survey of Derelict Fisheries (Boheel)	1.65
	C.O. Total :	24.65

TABLE contd,
N.E.C. Sponsored Schemes/Projects in Fisheries Sector till Seventh Five Year Plan.

Name of State/Implementing Agency	Name of the Scheme	Approved Outlay (Rs. in lakhs)	
1	2	3	
Assam	3. Survey of beels	24.65 6.50	
	4. Regional Air Breathing Fish Seed Farm, Amranga	16.00	
	5. Demonstration of aquatic weed control and development of beels	13.10	
	6. Refresher Training programme for fish farmer and officers	10.00	
	7. Regional Air Breathing Fish Seed Farm, Silchar	2.00	
	Manipur	8. Survey of Beels.	2.60
		9. Regional Grass Carp and Exotic Fish Seed Farm, Walthou	14.30
10. Demonstration of culture potentialities of Takmu lake		8.50	
Mizoram	11. Regional Fish Seed Farm, Thenzawl	15.00	
Tripura	12. Regional Fish Seed Farm, Kumarghat	22.00	
	13. Regional Fish Pituitary Gland Bank, Dhanisagar	20.00	
Nagaland	14. Regional Fish Seed Farm, Thezema	9.00	
Total :		163.65	

TABLE - *conold*

N.F.C. Sponsored Schemes/Projects in Fisheries Sector till Seventh Five Year Plan.

Name of State/Implementing Agency	Name of the Scheme	Approved Outlay (Rs. in lakhs)
1	2	3
<i>During Seventh Five Year Plan</i>		
Arunachal Pradesh	1. Reclamation of Beel Fishery Module-A	35.05
Assam	2. Regional Fishery Institute	54.41
Manipur	3. Regional Freshwater Carp Seed Farm	25.00
	4. Regional Pengba Fish Seed Farm	25.00
Meghalaya	5. Reclamation of Beel Fishery Module-A	16.00
	6. Regional Fish Seed Farm	18.00
Mizoram	7. Regional Fish Seed Farm	20.00
Nagaland	8. Regional Carp Fish Breeding and Culture Farm	50.00
Tripura	9. Regional Air Breathing Fish Seed Farm	48.97
Agricultural Finance Corporation Ltd., Calcutta	10. Integrated Inland Fishery Development in North Eastern Region	5.00
	Total	297.88

*Scheme under Manpower Development Sector.

LIVESTOCK PRODUCTION

Improvement of livestock production in the North Eastern Region is of considerable importance to support the economic activities of the livestock owners who generally belong to the weaker sections of the society. Local breeds of livestock existing in the North Eastern Region are generally low-yielding and un-economical. However, there are immense possibilities and potential for improving livestock production in the region. This could be done by improving the existing low-yielding and un-economical local breeds by scientific methods of breeding, multiplication of improved varieties of livestock, providing health cover of animals and increasing fodder production by making available necessary qualities of seeds of improved and suitable varieties of fodder crops and grasses for growing in the various areas of the region.

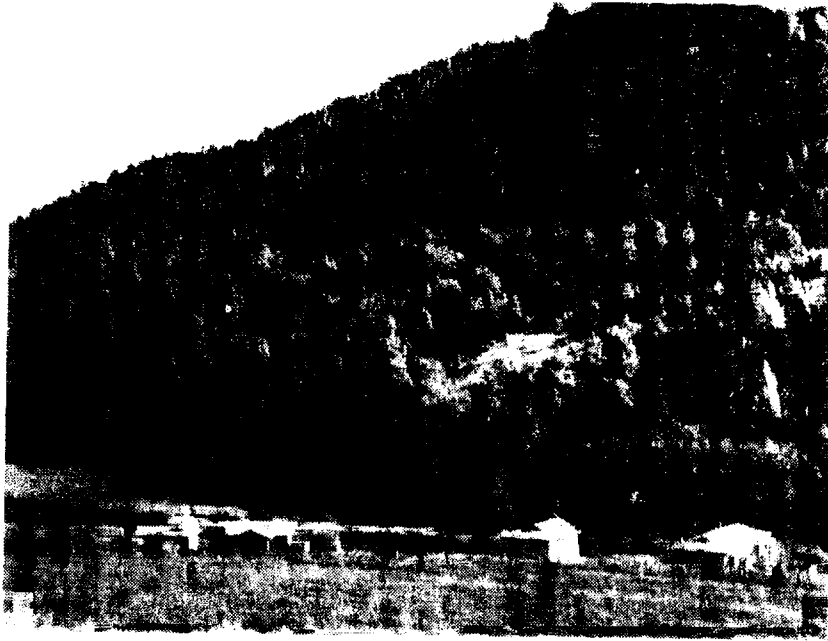
The North Eastern Council is sponsoring a number of schemes and projects for improving livestock production in North Eastern Region. These schemes are the need-based programmes for establishment of livestock breeding farms, for production of improved germplasm of various breeding farms for production of improved germplasm of various species of domestic livestock including cattle, buffalo, goats, mithun, pony, poultry (broiler chicks) and pigs with the ultimate objective to utilise the same for improving the indigenous stocks and their production. Some other schemes have been sanctioned with the objective of investigating diseases in domestic birds like ducks etc and enhancing production of vaccines against various animal diseases to meet the requirement of various States for providing adequate health cover to the animals. Schemes for establishing Regional Frozen Semen Project and Artificial Insemination Training Centre-cum-Cryogenic Laboratory have been sanctioned to provide ade-

quate facilities and man-power for strengthening the artificial insemination programmes to support the intensive cattle development programmes in the North Eastern Region. Several schemes have been sanctioned for increasing production of different kinds of meat such as pork, beef, goat meat, chicken, rabbit meat etc. Some schemes have been sanc-

tioned with the objective of increasing production of quality fodder of suitable varieties by establishing Fodder Seed Farms and for quality control of feed ingredients through the Feed Testing Laboratory. A scheme for improving the important transport animal, namely the Manipuri Pony, has also been sanctioned. A scheme has been



Cattle Farm, Kyrdem Kulai



Sancti Fodder Cultivation at Sancti Sheep Breeding Farm (AP)

sanctioned for establishing a Regional Pork meat processing centre in Nagaland.

A total of 27 schemes, sponsored by the North Eastern Council are being implemented by the various State Govern-

ments/Agencies during the Seventh Plan period. A list of the various schemes being implemented during the Seventh Plan period is enclosed (Annexure I).

As regards the financial support, the North Eastern

Council is sponsoring all the 27 schemes on 100% basis for implementation during the Seventh Plan period by the various N. E. States and Agencies. Total provisions of Rs. 1,589.16 lakhs have been made by the NEC for implementation of the 27 schemes during the Seventh Plan period (including the ongoing schemes continued from the Sixth Plan)

During the Eighth Plan period it is proposed to make provisions for strengthening/expansion of some existing schemes and for some new schemes with the objective of producing improved germplasm of various species of livestock and supplying the same for improving production of indigenous stocks in the various areas of the North Eastern Region, increasing production of vaccines and veterinary biologicals to provide adequate health cover to animals of various domestic species, producing seeds of suitable varieties of fodders and supplying the same to farmers for increasing fodder production, for enhancing production of frozen semen to provide support to intensive

cattle development programmes etc.

Animal Husbandry Schemes sponsored by the North Eastern Council for implementation by the various State Governments/Agencies in the N. E. Region during the Seventh Plan period.

ANNEXURE-I

Sl. No.	Name of the Schemes
1.	Regional Temperate Fodder Seed Production-cum-Demonstration Farm, Arunachal Pradesh.
2.	Regional Broiler Chick Production - cum - Demonstration Farm Assam
3.	Regional Feed Testing Laboratory, Assam.
4.	Regional Integrated Farming Systems, Instructional Project, AAU, Assam
5.	Regional Cross-bred Cattle Breeding Farm, Mizoram.
6.	Regional Goat Breeding Farm, Tripura.
7.	Regional Pig Breeding Farm, Tripura.
8.	Regional Mithun Breeding Farm, Arunachal Pradesh.



Piggery Farm, Kyndem Kulai, Meghalaya

ANNEXURE-I—*contd.*

Sl. No.	Name of the Schemes	Sl. No.	Name of the Schemes
9.	Regional Fodder Seed Production Farm, Assam.	10.	Regional Frozen Semen Project, Assam.

ANNEXURE-I—*contd.*

Sl. No.	Name of the Schemes
11.	Regional Buffalo Breeding Farm, Assam.
12.	Mechanisation of Institute of Veterinary Biologicals, Assam.
13.	Regional A. I. Training Centre-cum-Cryogenic Laboratory, AAU, Assam.
14.	Regional Buffalo Breeding Farm, Manipur.
15.	Regional Pony Development Project, Manipur.
16.	Regional Composite Livestock Farm, Manipur.
17.	Regional Pig Breeding Farm, Meghalaya.
18.	Regional Fodder Seed Production-cum - Demonstration Farm, Mizoram.
19.	Regional Broiler Chick Production cum - Demonstration Farm, Mizoram.

ANNEXURE-I—*contd.*

Sl. No.	Name of the Schemes
20.	Regional Cross-bred Cattle Farm, Nagaland.
21.	Regional Exotic Pig Breeding Farm, Nagaland.
22.	Expansion of Regional Broiler Chick Production-cum - Demonstration Sub-Centre, Kohima.
23.	Regional Veterinary Biologicals Production Centre, Tripura.
24.	Regional Centre for Investigation of Diseases of Ducks, Tripura.
25.	Regional Pig Breeding Centre, Manipur.
26.	Regional Rabbit Breeding Centre, Nagaland.
27.	Regional Pork/Meat Processing Centre, Nagaland.

WILD LIFE

The unprecedented floods in the sub-continent in the recent years have caused extreme concern among all the planners, politicians and administrators. The loss of life and properties has been colossal. Extensive damage to the natural forests in the region by way of shifting cultivation and the effect of increasing population pressure are responsible for the degradation of the environment. The need for an integrated and co-ordinated approach for reforestation of the denuded hill slopes in the shortest possible time is a matter of prime importance. The emphasis during the 7th Five Year Plan has been on afforestation of denuded hill slopes specially in the catchment areas of hydro electric projects in order to reduce soil erosion and prolong the life of the reservoirs. In the light of the worsening floods year after year, this emphasis has to be further accelerated. There is now a greater awareness that afforestation of the hill slopes

in the catchment areas is a much more viable and environmentally sound proposition apart from being economical for the long term control of floods. Much more importance to afforestation of catchment areas has therefore been given a couple of new schemes are being taken up in Arunachal Pradesh, Assam and Mizoram in addition to the on-going schemes of afforestation, propagation of tissue culture technique for rapid multiplication of selected species for forest trees, establishment of a sub-tropical Botanical Garden in Nagaland, development of minor forest products and medicinal plants, tree improvement and establishment of a Regional Forest Rangers College for the North Eastern States.

AFFORESTATION OF CATCHMENT AREAS

(a) *Umiam Hydro-electric Project in Meghalaya.*

The objective of the scheme is to afforest 2000 ha. out of 300 sq. kms. (approx.) of the

total catchment during the 7th Plan period. The approved outlay for the scheme for the 7th Plan period is Rs. 75.00 lakhs. The scheme has been revised to cover an increased area of 3117 ha. at a revised cost of Rs. 110.81 lakhs. In 1986-87 advance work over 719 ha. was completed against the target of 569 ha. 719 ha. have been planted in 1987-88. Further, advance work over 1436 ha. was completed in 1987-88 against the target of 0179 ha. This 1436 ha. has been planted up in 1988-89 in addition to the maintenance of the afforestation over 719 ha. created in 1987-88. Advance work over 800 ha. is being taken up during 1988-89 which will be planted up in 1989-90. The work programme for 1989-90 comprises creation of plantations over 800 ha. maintenance of previous year's plantations over 719 ha. and 1436 ha. and advance work over 519 ha. Actual expenditure upto 1987-88 was Rs. 40.82 lakhs. Revised expenditure in 1988-89 is anticipated to be Rs. 32.89 lakhs against the approved out-

lay of Rs. 25.00 lakhs. The approved outlay for 1989-90 is Rs. 33.00 lakhs. The scheme benefits the States of Meghalaya and Assam.

(b) *Loktak Hydro-electric Project in Manipur*

The objective of this scheme is to plant up 1500 ha. of the catchment areas of the Loktak Lake which is spread over 1850 sq. km. (approx.). The approved outlay of the scheme in the 7th Plan is Rs. 75.00 lakhs and the revised cost is Rs. 97.25 lakhs. During the 6th Plan period, an area of 1100 ha. was covered under afforestation. During 1986-87 advance works over 700 ha. was completed and this 700 ha. was planted up in 1987-88. Advance work over 1200 ha. was completed in 1988-89 in addition to maintenance of the 700 ha. plantation already established. Advance work over 900 ha. is to be completed in 1988-89. The work programme for 1989-90 comprised creation of plantation over 900 ha. and maintenance of 1200 ha. of plantation established earlier.

The actual expenditure on this scheme upto 1987-88 was Rs. 47.17 lakhs. The approved outlay of Rs. 30 lakhs for 1988-89 will be utilised fully. A provision of Rs. 20.00 lakhs is approved for 1989-90.

Heavy siltation of the Loktak Lake due to soil erosion from the catchment areas is threatening the life of the hydro-electric project apart from upsetting the ecological balance due to shrinking of the area under water. NEC entrusted M/s. Water and Power Consultancy Organisation Ltd., New Delhi to make an in-depth study of the problems and they have submitted a detailed report for protecting the Lake by taking up massive afforestation of the catchment area. In the light of this report the afforestation efforts will have to be stepped up in the very near future.

(c) Doyang Hydro-electric Project in Nagaland :

This scheme has been approved with an outlay of Rs. 75.00 lakhs for the 7th Plan period.

So far Rs. 17.21 lakhs have been released by NEC to the Govt. of Nagaland upto 1987-88 but it could not be utilised by the State Govt. as land for afforestation could not be identified. It is now reported that identification of land has been done and the work of afforestation in the catchment will be taken up from 1988-89 onwards

to complete the target of covering 1600 ha. by 1989-90. The approved outlay of Rs. 20 lakhs for 1988-89 will be utilised fully. The outlay proposed for 1989-90 is Rs. 30.00 lakhs.

(d) Kopili Hydro-electric Project in Meghalaya :

The catchment of Kopili river

is spread over 1622 sq. kms. out of which 1410 sq. kms. lie in Meghalaya and 212 sq. kms. lie in Assam. A total area of 1325 ha. was planted up in the Meghalaya portion of the catchment during the 6th Plan. The scheme has been sanctioned with a total outlay of Rs. 50.27 lakhs. The approved outlay of Rs. 12.00 lakhs for 1988-89 will be utilised fully. The outlay proposed for 1989-90 is Rs. 28 lakhs. The work programme consists of advance work over 1344 ha. in 1988-89 to be planted up in 1989-90. A further 840 ha. will be taken up under advance work in 1989-90 to be planted up in the following year.

The Agricultural Finance Corporation Ltd. was commissioned by NEC to prepare a report for the comprehensive afforestation of the entire Kopili catchment. The report which is now in the draft stage indicates the necessity for taking up afforestation over 37,500 ha. in Meghalaya and 15,000 ha. in Assam out of the critical areas identified. Evidently, much greater inputs will be required in the very near



Diroung toddler Nursery and Demonstration Centre (AP)

future to tackle this important catchment

(2) *Afforestation of Wastelands in Tawang, Arunachal Pradesh*

A new scheme has been received from the Arunachal Pradesh Government for afforesting 1000 ha. of wastelands in Tawang area which was visited by the Prime Minister during April, 1988. He had desired that all wastelands in Tawang should be afforested at the earliest. According to the scheme received from the Arunachal Pradesh Govt. the area in question has been badly degraded on account of extreme shortage of wood. Being a sensitive border area the presence of Army necessitates exploitation of the forest to meet their day to day requirement of fuel wood and small timber. The entire land belongs to the tribal community inhabiting the area. As it is not possible to acquire land for afforestation purposes due to the existing land tenure system, the Arunachal Pradesh Govt. proposes to request the local people to take up afforestation on their lands with the

technical guidance and help of the Arunachal Pradesh Forest Corporation and finance from the NFC. This will be a new kind of afforestation scheme with greater involvement of the local people who will be motivated to take up afforestation on their own lands. The scheme submitted by the Arunachal Pradesh Govt. envisages a total expenditure of Rs. 102.32 lakhs over 6 years. It is proposed to start the scheme from 1989-90 with an outlay of Rs. 20.00 lakhs. The scheme will benefit Arunachal Pradesh and Assam.

(3) *Teak Plantation Scheme:*

A new scheme for taking up teak plantation on suitable lands in Mizoram as a measure for controlling shifting cultivation has been taken up. It is quite well known that a large number of families in the North Eastern Region practice shifting cultivation as their way of life. 50,000 families in Mizoram alone are known to the practising shifting cultivation. Under various other schemes of the Central Govt. about 15,000 families are covered and are expected to be settled

in a 5-year period. That still leaves about 35,000 families continuing with this destructive practice. Ministry of Agriculture has earmarked Rs. 6.25 crore for settling 2,100 families in Mizoram.

(4) *Scheme on Tissue Culture for Rapid Multiplication of Selected Clonal Stock of Forest Species:*

Tissue culture is one of the latest bio-technologies which can revolutionise production of biomass qualitatively and quantitatively. So far, tissue culture as a technique has not made much headway in forestry though it has proved its worth in agriculture and horticulture. It helps in identifying promising clones and propagating the selected clone by vegetative means, thereby minimising the risk of genetic variation which is unavoidable in case of natural regeneration through seeds.

The Seventh Plan provision under this scheme is Rs. 1.00 crore after having approved by the Planning Commission the merger of the scheme—Social

and Agro Forestry to this. It has been decided that tissue culture work in respect of forest tree species will be confined to basic research on methodology alone to be conducted by Universities and Research Organisations during the 7th Five Year Plan. Practical application in the field can be taken up during the 8th Plan depending upon the success achieved in the basic research. So far schemes from Gauhati University and North Eastern Hill University have been sanctioned for Rs. 8.31 lakhs and Rs. 11.37 lakhs respectively. A proposal from Tocklai Research Institute is under examination. The approved outlay for 1987-88 was Rs. 25.00 lakhs. The actual expenditure upto 1987-88 was only Rs. 11.85 lakhs. Against the approved outlay of Rs. 10.00 lakhs for 1988-1989, a sum of Rs. 3.38 lakhs will be utilised. The approved outlay for 1989-90 is Rs. 3.00 lakhs.

(5) *Sub-Tropical Botanical Garden, Nagaland:*

The scheme for establishment of a Botanical Garden at

Pulieze in Nagaland has been sanctioned in February, 1987 at an estimated cost of Rs. 135.23 lakhs. The 7th Plan approved outlay for this scheme is Rs. 175.00 lakhs. In 1986-88, Rs. 9.50 lakhs were made available to the State Govt. for this project. The State Govt. is expected to take up the work in full swing so as to complete the scheme in the remaining period of the 7th Plan. Revised outlay for 1988-89 is Rs. 15 lakhs against the approved outlay of Rs. 35 lakhs. The approved outlay for 1989-90 is Rs. 15.00 lakhs.

(6) *Development of Minor Forest Products including Medicinal Plants :*

The North Eastern Region is rich in its flora. The forests in this region produce not only valuable timber but a large variety of herbs and shrubs, grasses, climbers, cane and bamboos and non-timber tree species of immense economical and ecological value. The destructive practice of shifting cultivation followed by the tribals in this region has threat-

ened many a valuable species towards extinction. In order to conserve and grow some of the more important minor forest products including medicinal plants, a scheme has been taken up during the 7th Plan period with a total approved outlay of Rs. 140.00 lakhs. All the seven constituent States of N.E. Region are implementing the scheme. The expenditure during 1986-88 was Rs. 43.42 lakhs. The sanctioned schemes are as follows:

Meghalaya	Rs. 4.37 lakhs
Nagaland	„ 5.21 „
Assam	„ 20.00 „
Mizoram	„ 18.24 „
Tripura	„ 20.00 „
Manipur	„ 21.00 „
Arunachal Pradesh	„ 17.64 „

During 1986-87, 140 ha. of plantation of various minor forest products, e.g., cane, dalchini, thatch, myrobalans, dioscorea, mentha, agarwood, cardamom, raufwolfia, lemon grass, smilax, etc. were raised 312 ha. of such plantations was raised during 1987-88. An area of 320 ha. is expected to be

brought under different minor forest products and medicinal plants during 1988-89. The anticipated expenditure for 1988-89 is Rs. 25.21 lakhs against the approved outlay of Rs. 25 lakhs. The approved outlay for 1989-90 is Rs. 28.00 lakhs.

(7) *Tree Improvement Schemes for Selected Forest Species :*

Massive afforestation schemes have been launched all over the country under the new 20 point Programme. The N.E. Region is also keeping pace with the National Programme. For raising large plantations, good quality seeds become a limiting factor. In order to produce sufficient quantity of seeds of proven quality it is essential to identify healthy tree stands of important species, conduct provenance trials for selecting the better ones, and establish 'seed orchards' to produce large quantities of seeds of good quality. During the 7th Plan period there is an approved outlay of Rs. 80.00 lakhs for this purpose. An amount of Rs. 24.95 lakhs were spent during 1986-

88 plan period. The following schemes have been sanctioned as shown below :

Assam	Rs. 13.14 lakhs
Arunachal Pradesh	„ 7.85 „
Manipur	„ 15.25 „
Meghalaya	„ 5.90 „
Nagaland	„ 8.23 „
Mizoram	„ 9.90 „

A total of 17.5 ha. of seed stands and 295 plys trees of important species like Teak, Semul, Bonsum (*Phoebe goal parensis*) and Champa have been identified. Seed orchards of 17.5 ha. have been raised during 1987-88. The revised estimate for 1988-89 is Rs. 16.48 lakhs against the approved outlay of Rs. 18 lakhs and the approved outlay for 1989-90 is Rs. 14.00 lakhs.

(8) *Regional Forests Rangers College :*

After the official level discussion on N. E. C. Plan 1988-89 in the Planning Commission on 16th November, 1987, the Deptt. of Forest and Environment, Govt. of India intimated

that the Central Government have decided to discontinue the responsibility of training of Forest Rangers and would soon be closing down the four Forest Rangers Colleges run by them from the next year and this responsibility would rest with the respective State Governments. The Department of Forest and Environment had also intimated that while considering the issue, they had considered the problem of N. E. Region where the annual requirement of individual State is small and it might not be viable for any State to set up and run Rangers College to meet the needs. The Council Secretariat, therefore, was requested to consider setting up of a Regional Forests Rangers College. The Council Secretariat accordingly, convened a meeting of the Chief Conservators of Forests of the N. E. States during December, 1987 wherein, it was unanimously resolved for setting up of the Rangers College in the region.

Concurrence of the Ministry of Environment and Forests for



Equatic Sheep Breeding Farm (AP)

establishing the College has been received. Against the approved outlay of Rs. 10.00 lakhs for 1988-89, a sum of Rs. 1 lakh is expected to be utilised. However, since construction of buildings and development of other essential infrastructure will need greater

inputs, an outlay of Rs. 53 lakhs is approved for 1989-90.

(9) *A Study of Demand and Supply of Fuel and Fodder in Tripura and Mizoram:*

North Eastern Council entrusted M/s. Physical Planning

Consultants (India) Limited, Calcutta to study the demand and supply of fuel and fodder in Tripura and Mizoram at a cost of Rs. 2.04 lakhs (Rs. 1.02 lakhs for each State).

The study reveals that upto 2011 AD the State of Mizoram and Tripura will require 43 lakhs tonnes of fuelwood and 1.4 lakhs of tons of fodder for their population of 66 lakhs and livestock of 30 lakhs. In order to meet these demands Tripura and Mizoram will have to plant fuelwood and fodder trees over an area of 4,40,000 hectares of land categorised as degraded forests, barren and not cultivated, permanent pastures, cultivable wasteland, and fallow other than current fallows at the rate of 40,000 hectares per year for eleven years at an annual expenditure of about Rs. 20.00 crores.

The principal beneficiary of fuel and fodder forestry will be the shifting cultivators who now live below the poverty line. His poverty has its roots in the low productivity of his cultivable

land while his prosperity depends on his ability to—

- (i) increase the period of fallow, or
- (ii) increase the productivity and income per unit of land and time through an appropriate mix of farming trees and animals, or land
- (iii) increase the productivity and income per unit of land and time through permanent agriculture.

To constitute with the demands for fuel and fodder an appropriate strategy for cop-

ing effectively should be done on the following basis :

—curbing population growth the lower estimate of 55 lakhs or 46 lakhs.

—promoting ecological consciousness through consistent programmes of development communication at an annual investment of twenty lakhs for eleven years, and

—making the land, seedlings, systemance (during the period of gestation) available for fuel and fodder forestry to the villagers of 150 villages every year for eleven years and then

sharing the benefits of fuel and fodder forests with them.

(10) *Study of Demand and Supply for fuel and fodder in the North Eastern Region (other than Tripura and Mizoram) :*

At the instance of North Eastern Council the Physical Planning Consultant (India) Ltd., Calcutta have submitted two proposals for fuel and fodder study for the whole N.E. Region (other than Tripura and Mizoram). The study will be done in two phases :

—firstly, Arunachal Pradesh, Assam and Meghalaya in 1st phase ; and

—secondly, Manipur and Nagaland in 2nd Phase.

The study will be done at the following rates :

	Rs.
Arunachal Pradesh	1.02 lakhs
Assam	1.02 „
Manipur, Nagaland, Meghalaya	0.92 lakh (for each State)

The proposals are under examination in the Council Secretariat for entrusting the study to the Consultants.

PLANTATION CROPS

The North Eastern Council is playing a great role in developing the Plantation crops in the N.E. Region. Apart from tea which has been growing in N.E. Region for a long time, a number of other Plantation crops like Rubber, Coffee etc. have great scope due to favourable agro-climatic condition in the N.E. Region. The N.E.C 6th Plan included a number of schemes, which are of pilot nature, aimed at promoting such plantation crops as have potential for growth in the region. These included Tea, Coffee and Rubber. It is primarily felt that revamping of agriculture sector in NER would depend on diversification and, in this, the plantation sector can play a key role. The primary objectives of the pilot schemes were to demonstrate improved methods of cultivation of these crops so that the State Govts. could replicate the same in respective area for spread of such crops. A big out-

3 NE Council|89

line of the schemes implemented during 6th Plan are as follows .



Rubber Plantation of Jalukie, Nagaland

1. TEA

1. Tea Demonstration Plot Nos. 1 & 2, Nagaland :

Total Sixth Plan outlay for Tea Demonstration Plot Nos. 1 & 2 was Rs. 14.21 lacs. An

amount of Rs. 0.86 lakh was released to the Govt. of Nagaland during 1981-82 which remain unutilised. The approved outlay for 1982-83 was Rs. 2.17 lakhs and for 1983-84 the requirement was Rs. 0.50 lakh taking into account the unspent balance. The Govt. of Nagaland had earlier decided not to take up the scheme but in the last year of the 6th Plan they intimated that they would be implementing the scheme. For 1984-85, the approved outlay was Rs. 5.00 lakhs. By the end of the 6th Plan period, the Scheme's implementation had been completed and the normalisation stage had begun.

2. Tea Demonstration Plot in Manipur :

The scheme was sanctioned in 1981-82 at an estimated cost of Rs. 8.16 lakhs which was the 6th Plan outlay. A total amount of Rs. 2.16 lakhs was spent upto 1982-83. An outlay of Rs. 2.19 lakhs was provided during 1983-84 which was expected to be utilised in full to complete the scheme. The implementa-

tion of the scheme came to an end at the end of 6th Plan.

II COFFEE

1. Coffee Nurseries :

These were being implemented by all 7 States/UTs of the region. The 6th Plan outlay was Rs. 99.45 lakhs out of which Rs. 23.13 lakhs were spent in 1980-81, Rs. 25.67 lakhs in 1981-82 and Rs. 18.79 lakhs in 1982-83. For 1983-84, the approved outlay was Rs. 18.10 lakhs and for 1984-85 an outlay of Rs. 28.50 lakhs was provided. The scheme was closed at the end of 6th Plan.

2. Opening of Shade Tree Nurseries :

This scheme envisaged setting up of shade tree seedling nurseries in all the seven units. The nurseries were started and were progressing satisfactorily during the 6th Plan. The approved Sixth Plan outlay was Rs. 35.00 lakhs and upto 1982-83 Rs. 16.14 lakhs was utilised. The approved outlay for 1983-84 was

Rs. 4.90 lakhs and for 1984-85 an amount of Rs. 6.00 lakhs was provided. The scheme was successfully implemented by the end of the 6th Plan period.

3. *Establishment of Coffee Processing Unit, Assam*

This scheme was sanctioned in 1981-82 at a cost of Rs. 33.42 lakhs and the 6th Plan outlay was Rs. 20.00 lakhs. An amount of Rs. 12.13 lakhs and Rs. 20.40 lakhs were spent during 1981-82 and 1982-83 respectively. The approved outlay for 1983-84 was Rs. 0.43 lakh as against this anticipated requirement of fund was assessed at Rs. 4.00 lakhs. For 1984-85 an outlay of Rs 0.50 lakh was provided to complete the scheme under NEC programme. The scheme was implemented by Govt. of Assam through the Assam Plantation Crops Development Corporation

III. RUBBER

1 *Rubber Bud-wood Nursery in Assam and Tripura:*

The nursery in Tripura was started in 1979-80 and that in



Regional Apple Nursery, Dirang (AP)

Assam in 1980-81. The 6th Plan approved outlay was Rs. 1.15 lakhs for each scheme. During 1984-85, Rs. 1.00 lakh was provided to each scheme to complete the scheme. These schemes were closed at the end of 6th Plan.

2 *Bud-wood Nurseries in Seven States/UTs of the Region*

The scheme was sanctioned in 1981-82 for all the constituent units except Arunachal Pradesh at an estimated cost of Rs. 77.16 lakhs as against the 6th Plan approved outlay of Rs. 100.00 lakhs. Actual expenditure upto 1982-83 was Rs. 42.00 lakhs. The approved outlay for 1983-84 was Rs. 13.02 lakhs as against the anticipated requirement of fund was Rs. 16.25 lakhs. For 1984-85 an outlay of Rs. 25.00 lakhs was provided. This scheme was closed at the end of 6th Plan.

CONTINUING SCHEME

The following three schemes spilled over in the 7th Plan and

the committed expenditure thereon was being provided under the 7th Plan.

I. TEA

1. *Tea Nursery-cum Mother Bush Farm, Tripura.*

The scheme was sanctioned in December 1981 at an estimated cost of Rs. 50.00 lakhs.

The target proposed was to have nurseries of 98 lakhs cutting/planting material over a period of four years. The scheme started dated and it was revised at a cost of Rs. 100.00 lakhs. The total expenditure at the end of 6th Plan was Rs. 49.51 lakhs. An outlay of Rs. 74.00 lakhs was approved for 7th Plan. The scheme has since been completed in 1986-87.

2. *Factory for Small Farmer's Tea Estate, Tripura.*

The scheme was sanctioned in September, 1981 with an estimated cost of Rs. 120.00 lakhs. The objective of the factory is to process tea leaves that will be produced. The

project was delayed and it was revised at an estimated cost of Rs. 268.00 lakhs. Upto the end of 6th Plan, a sum of Rs. 80.50 lakhs was released and Rs. 204.00 lakhs was the outlay during 7th Plan. The State Govt. has made an agreement with M/s. Britannia Engineering Products and Services Ltd., a West Bengal Govt. Undertaking for implementation of the project on a turnkey basis and it is proposed to complete the project within September, 1989. The proposed outlay for 1989-90 is Rs. 12.50 lakhs. Meanwhile the State Govt. has revised the scheme at an estimated cost of Rs. 546.00 lakhs and increased the capacity of the factory. The revised scheme is under examination. This scheme is being implemented by Tripura Tea Development Corporation.

II. COFFEE

1. *Detailed In-situ Survey of Land suitable for Coffee in the NE Region.*

The scheme was sanctioned in March 1981 at an estimated

cost of Rs. 21.20 lakhs. Under the scheme 44,000 ha. were proposed to be surveyed. But the actual implementation of the project was delayed by about two years due to unavoidable technical difficulties. The approved outlay for 7th Plan was Rs. 10.00 lakhs. The scheme was revised in Aug. '87 at an estimated cost of Rs. 29.07 lakhs. Upto December 1988, an area of ha. has been completed. For 1989-90 an outlay of Rs. 2.00 lakhs has been approved. The scheme is expected to be completed by March, 1990.

NEW SCHEME IN 7TH PLAN

III. RUBBER

1. *Rubber Processing Factory, Tripura.*

The establishment of a rubber processing factory in Tripura was sanctioned in 1986-87 at an estimated cost of Rs. 137.00 lakhs with the same outlay for 7th Plan. According to the project report it is indicated that the first stage will be on

ground in 1987-88 and the factory can process upto 3,000 kgs DRC of field latex/Dry. By 1989-90 the factory can process upto 6000 kgs DRC of latex/Dry. During 1986-88 an amount of Rs. 85.00 lakhs was made available to the State Govt. for purchase of equipments and construction works. Anticipated expenditure for 1988-89 was Rs. 50.00 lakhs against the outlay of Rs. 70.00 lakhs. An outlay of Rs. 2.00 lakhs has been approved for 1989-90.

2. *Raising of Dioscorea Floribunda Plantation and Processing for Manufacture of Diosgenin/16 DPA, Tripura :*

The scheme is included in the NEC approved 7th Plan with

an outlay of Rs. 151.00 lakhs for the whole plan period. The TEFR is in 2 parts—cultivation of *Dioscorea Floribunda* and extraction of diosgenin. The scheme was sanctioned at an estimated cost of Rs. 142.90 lakhs. During 1987-88 an amount of Rs. 50.00 lakhs was spent. For 1988-89 the anticipated expenditure was Rs. 30.00 lakhs against the provision of Rs. 50.00 lakhs. The money has been utilised for development of land including construction of road, purchase of vehicles, office equipment, survey equipment, pumpsets, procurement of plant protection chemicals, etc. An amount of Rs. 45.00 lakhs has been approved for 1989-90,

Both the above schemes are being implemented by T.F.D. D.C. Ltd., Tripura.

3. *Establishment of Rubber Demonstration-cum - Training Centre :*

The scheme was prepared in consultation with the Rubber Board at an estimated cost of Rs. 446.80 lakhs. Under the scheme, small demonstration-cum training centres in 15 selected districts covering Assam, Meghalaya, Mizoram and Nagaland are proposed to be established which will serve as demonstration and practical training centres for the local planting community as the farmers are not familiar with the crop. The land required would

be provided by the respective State Govts. and NEC will provide rest of the financial assistance in setting up the centres.

During finalisation of 1988-89 Annual Plan, Planning Commission suggested to take up the schemes in respective State Plan. But later on Rubber Board as well as Ministry of Commerce advised not to make State-wise fragmentation of the scheme because of lack of expertise at the State level. During 1989-90, Planning Commission has agreed for an outlay of Rs. 25.00 lakhs for this scheme. Accordingly, NEC has requested Rubber Board to prepare a revised scheme which has been recently received and is under scrutiny.

NEC IN THE REALM OF SCIENCE AND TECHNOLOGY

The North Eastern Council is essentially a catalytic agency for promoting integrated development of the North Eastern Region and as such, its role is promotional in nature. Infra-structural inadequacy being the major handicap towards development of the N. E. Region, the bulk of NEC's plan expenditure has been earmarked for the development of infrastructure such as, Transport and Communication and Power generation. The various schemes of NEC incorporate a multi-disciplinary and multi-level scientific and technological inputs with appropriate technology for attaining maximum efficiency. This necessitates a coherent approach for application of Science and Technology in the scheme proposals. From time to time, NEC has taken up a number of research and development projects in the form



School Children of the Kopli Hydro Electric Project

of surveys and investigations in the plan to promote appropriate technologies for higher production and better resource management. So far, about 100 such studies have been completed. They encompass such varied and diverse fields as Transport & Communication, Agriculture & Allied Fields, Water & Power

Development, Industries & Minerals, Manpower Development, Social & Community Services, etc.

North Eastern Regional Committee on Science & Technology :

In order to assist the Council Secretariat in the matter of

Science & Technology, the North Eastern Regional Committee on Science & Technology (NERCST) was set up in 1981. The Committee has, so far, met four times and has recommended formation of a strong Science & Technology Cell in NEC in order to co-ordinate the Science & Technology activities in the various States of the region as well as the S & T activities under various development schemes of NEC. Co-ordination with the Central departments and agencies concerned with promotion of S & T is also considered an important activity of the proposed S & T Cell. Additionally, the S & T Cell continues to look after the routine activities of NEC in processing proposals towards support for research and development and towards holding of seminars, workshops, training programmes, etc. in the field of science and technology. Monitoring the progress of various NEC funded S & T Schemes is another important routine activity of the S & T Cell. All these activities are carried out under the overall guidance and supervision of NERCST.

S & T Components in Development Schemes :

The various development activities common to most of the States of the N. E. Region are promoted through different schemes under several development Sectors operating in the NEC Secretariat. These Sectors include : Transport & Communication, Power, Agriculture, Horticulture, Sericulture, Animal Husbandry, Industries & Minerals, Irrigation, Soil Conservation, Fisheries, Earthquake Risk Evaluation, etc. There are S & T components in the various schemes being supported under these Sectors. One of the major responsibilities of the S & T Cell of NEC is to co-ordinate the S & T activities under these Development Sectors.

S & T in the Field of Earthquake Studies :

At present, in the NEC, we have an Earthquake Risk Evaluation Cell headed by a Director and consisting of one Extension Officer and four Senior Technical Assistants trained in Seismology. This Cell

is currently engaged in investigations concerning two major schemes of NEC—(i) Seismological Studies under a network of about a dozen seismic stations, in collaboration with NGRI, Hyderabad ; (ii) Radon Monitoring Studies in Shillong Plateau and Upper & Lower Assam areas in collaboration with RRI, Jorhat. The investigations on these two major schemes involve field survey, data collection, seismograms analysis, data processing and data sheet preparation. A HCL System-2 Computer installed in the Secretariat is being utilised in these studies. In addition to these studies, where the EREC Staff are directly involved in experimental work, it is also the responsibility of this Sector to examine and monitor several other research projects concerning earthquake studies which are being implemented by other agencies with financial support of NEC. Two such ongoing schemes in these areas are :

- (i) Repetitive Geo-detic Survey for monitoring land deformation as precursor of earthquake.

- (ii) *In-situ* Stress Measurements towards investigation for stress condition of the seismic gaps in the N. E. Region.

In addition to these, several studies on earthquake have already been conducted by the University of Roorkee and University of Poona, with financial support of NEC. Moreover, NEC has sponsored and organised several Workshops and Training Courses for generating awareness about the earthquake risk and precautionary steps needed to be taken in the event of an earthquake, particularly in the matters concerning the design and structure of buildings and bridges. NEC has also sponsored fellowship in the local Universities for training persons in the matters of seismology and earth science at post graduate level. Several Training Courses have also been organised for appropriate utilization of Computers in the field of Science & Technology.

Support Towards R & D Projects :

In addition to the regular activities in the matter of Earth-

quake Risk Studies, the NEC is engaged in supporting quite a number of research and development projects in various other scientific disciplines. Some of the important S & T Schemes, presently being implemented under NEC's Sponsorship and support, are as follows :

- (i) Tissue culture for rapid multiplication of selected clonal stock of various forest species.
- (ii) Development of minor forest products including medicinal plants.
- (iii) Induction of mutation by Gamma Radiations & Chemicals in seeded banana cultivars and isolation of desirable lines for economic use.
- (iv) Development of Fluidized Bed Technology for high sulphur coals of N. E. Region.
- (v) Low-temperature carbonisation of N.E.R. Coals.
- (vi) De-sulphurisation of flue-gas generated in Beehive Coke Ovens.

- (vii) Study of suitability of different types of coal/coke for cement manufacture in VSK process.
- (viii) Development of bio gas production system utilising water hyacinth and other plant resources.
- (ix) Studies on some important Legumes of North Eastern Region with special reference to nitrogen fixation and productivity.

Besides, several objective-oriented basic R & D Schemes sponsored by NFC have already been completed. Two such projects, namely, "Study on Uranium content in water from hot springs, ground water wells and important rivers of N. E. India" and "Data Collection of metallic and non-metallic ore minerals associated with ultramafites of Indo-Burma Region", have led to valuable clues towards economic development and social awareness of the people of the region. On the basis of the findings of the latter scheme, the Government of Manipur is



NFRIST, Itanagar ✓

reported to have initiated action towards setting up of small scale industries based on Jade and have already got trained requisite personnel for the same at Jaipur. Schemes are also being contemplated to make economic use of decorative stones discovered during this study. Several studies in the field of Remote Sensing and Watershed Management have also been undertaken under NEC's sponsorship.

Popularization of Science :

In the field of popularisation of science, NEC's contribution is also substantial. A Regional Science Museum has been established at Guwahati in collaboration with the National Council of Science Museums and the Government of Assam. Seminars, symposia, exhibitions and training programmes have been arranged in various parts of the region with financial and logistic support of NEC. The standard of Science and Mathematics amongst the tribal students of N.E. Region being lower than that of their other student counterparts in the country and also in the region, the NEC has

taken initiative towards improvement in the education of Science and Mathematics in tribal areas of this region through institutions like North Eastern Hill University and Assam Rifles Public School in Shillong. Occasionally, NEC also arranges popular lectures by eminent Scientists in different disciplines of science and technology.

Establishment of Newer S & T Institutions :

The North Eastern Regional Institute of Science & Technology has been established at Itanagar. This is a unique experiment for imparting technical education in modular system turning out students with certificates, diplomas and degrees at different stages. To facilitate investigations concerning peculiar road communication problems of the region, NEC has provided support towards establishment of a unit of Central Road Research Institute at Dimapur. A Regional Institute of Mining is also being established at Dimapur with the support of NEC. Among other S & T institutions established in the region with NEC's sponsor-

ship, mention may be made of Regional Medical College at Imphal, Regional Dental College at Guwahati and Fisheries Training Centre at Amranga in Assam.

Strengthening of Existing S & T Facilities :

NEC is also supporting various Science & Technology schemes towards upgradation of the existing S & T Institutions in the region such as, Forensic Science Laboratory and Regional Cancer Institute at Guwahati, and Mental Hospital at Tezpur, which is one of the oldest in the country. Another of the oldest Institutes in the region devoted to the Science of Biology and Bacteriology is the Pasteur Institute located at Shillong. NEC is also providing support and assistance for its upgradation and modernisation in order to cater to the ever increasing needs of the people of the region. Besides, NEC has been helping various other institutions and universities in the region in modernizing their faculties by giving equipment grants and logistic support.

RRE & Environmental Studies :

In consonance with the objective of the 20-Point Programme announced in 1986 to meet the energy needs of the rural population, NEC has, so far, provided support to about 75 schemes under Renewable Resources of Energy. Till now about 230 Bio-gas plants, 52 Solar Pumps, 10 Solar Hot Water Systems and 7 Gasifier Systems have been sanctioned under these schemes. Schemes have also been supported for setting up of 8 Rural Energy Centres in the constituent States. In the field of Environmental Studies, as per the recommendation of the Regional Committee on Environment, three experts groups have so far been constituted for taking up specific studies in the areas like Ecology, Pollution and Hum Control. Formation of about 20 such study teams have been envisaged involving various institutions and voluntary organisations. After receiving the reports from these experts groups, NEC is planning to take up pilot demonstration projects in vulnerable areas.

Conclusion :

The approach towards the role of NEC in the matter of Science & Technology may be summarised as follows : In addition to the studies in the field of Earthquake Science, NEC's role in S & T involves

co-ordination of S & T activities amongst the S & T Councils of the constituent States of the region ; Co-ordination of S & T activities under various development sectors of NEC ; Co-ordination among the various central and state agencies engaged in promotion of Science

& Technology ; examination of various R & D proposals for NEC's support ; examination of proposals for seminars, symposia, training programmes, etc. concerning development of S & T in the region and monitoring the progress of various S & T schemes sponsored by NEC. In

a word, NEC's current role in the realm of Science & Technology is mainly to act as a focal point for all the S & T activities concerning the integrated socio-economic development of the North Eastern Region.

MANPOWER DEVELOPMENT

INTRODUCTION

1. Manpower planning based on realistic estimates of present and perspective manpower requirements is essential for the success of development planning in the North East. In view of the severe shortage of technical and non-technical manpower, various sectoral development programmes as well as large numbers of projects have to face serious manpower constraints. The National Committee on Development of Backward Areas (1981) has rightly observed. "The Development Programmes taken up in the North Eastern Region will run a ground for lack of technical personnel if suitable programmes of Manpower Development are not taken up".

2. Recognising the crucial role of manpower as an essential input in development planning and also the practical constraints in developing both technical and non-technical manpower in the

North East, the NEC requested the Institute of Applied Manpower Research (IAMR), New Delhi to build up the estimates of projected manpower requirements in different fields of specialisation upto 1989. The study carried out by the IAMR revealed *inter-alia*, that by 1989 the NE Region would require about 3506 Diploma Holders in Engineering, 4889 Agricultural Graduates, 2476 Veterinary Graduates, 14699 Post-graduates in Arts and Commerce and 15256 Post-graduates in Science, besides, 3799 Draftsmen, 3012 Stockmen, 1050 Forest Rangers were also included in the estimates of projected manpower requirements upto 1989.

3. Although the above study reflected the requirement of Manpower upto 1989, it is being increasingly felt that these data have to be updated and perspective requirement analysed for a period upto 2000 AD after including all new emerging areas and diversification. Further, general manpower shortages and surpluses in the country may not reflect the actual situation at any State or regional level.

4. In the above context, the NEC has assigned IAMR for undertaking a comprehensive study of manpower requirement in the NE Region upto 2000 AD. The study has been undertaken in right earnest and in spite of obvious logistical difficulties the study is likely to be completed soon.

5. Based on these reports and some other proposals of the Expert Committee (constituted by NEC) the NEC has taken steps as an additional input to States efforts, for Manpower Development within the region in following ways :-

(a) Sponsoring of students from this region for various Undergraduate, Postgraduate and Ph.D. studies in Agriculture and allied subjects being the core area of development and granting financial assistance to the students studying in specialised courses of Engineering and Technology having gap in Manpower.

(b) Sponsoring of inservice personnel for short duration specialised courses for development of their skills in their respective fields of specialisation.

(c) Expansion, strengthening and modernisation of Institutions already in existence in the region, and

(d) Setting up New Institutions in the region.

6. The sponsoring of students in Agriculture and Allied subjects started in 1975-76. Till the academic year 1988-89, 2221 students have been sponsored by NEC in various Undergraduate, Postgraduate and Ph.D. Courses.

7. The reservation of seats in Agriculture and allied sectors is done through ICAR. However, sometimes cannot fulfil our projection for some good reasons of their own. Considering the backwardness of the area and non-availability of facilities in the region, ICAR has been requested to consider liberal allotment of reserved seats

specially in Postgraduate/Ph D. Courses.

8. There is always a need to improve capability of inservice personnel through inservice training. NEC has identified 35 such courses covering a wide spectrum and more than 1200 inservice personnel had taken advantage of the programmes. For Executive and Management Development Programmes, Department of Personnel and Administrative Reforms (Department of Training) has been allotting the training programmes of regional interest. During 1985-86 and 1988-89 about 20 such programmes had been allotted to NEC by Department of Personnel and Administrative Reforms (Department of Training).

Expansion & Strengthening of Institutions in the Region :

9. In order to develop manpower in all spheres of economic activities in the region and to harmonise educational planning with manpower planning and economic planning there is a need to expand and strengthen

some institutions already established in the North Eastern Region so that these facilities are proportionately availed of by the constituent States to build up their manpower need. Under this programme the following institutions were expanded/strengthened.

(a) *Tripura Engineering College* - The College has been provided Rs. 85.01 lakhs to increase the intake capacity from 60 to 90. Out of the increased intake some reserved seats have been allotted to other constituent States as follows :—

Central Government	10
Mizoram	3
Arunachal Pradesh	3
Assam	3
Nagaland	3
Meghalaya	5
Manipur	5

(b) *Expansion and Modernisation of ITIs Bongaigaon and Aizawl* :—Financial assistance has been given to the above ITIs for

expansion and modernisation at an estimated cost of Rs. 40.76 and 8.22 lakhs respectively.

(c) A number of other institutions have also been provided financial assistance for strengthening/upgrading. In this regard mention may be made of the following institutions :—

- (i) Central Training Institute at Guwahati.
- (ii) School of Veterinary Science at Silchar.
- (iii) Assam Agricultural University at Jorhat.
- (iv) Fishery Training Institute, Assam.
- (v) Sericulture Training Institute, Assam.
- (vi) Textile Institute at Guwahati.
- (vii) Regional College of Physical Education, Tripura, etc.

10. During 5th & 6th Plans, a number of institutions were set up under the aegis of NEC. In this regard mention may be made of the following : Regional

Nursing College, Guwahati ; Regional Dental College, Guwahati ; North Eastern Judicial Officers' Training Institute at Guwahati, Regional Pharmacy Institute, Agartala ; North Eastern Police Academy, at Barapani in Meghalaya ; North Eastern Regional Institute of Science and Technology at Itanagar. In the Seventh Plan, financial support is also given to the above institutions for expansion/further augmentation of facilities. Besides these schemes one Regional Fisheries Training Institute at Amranga, Assam, Regional Centre for Training of Trainers in Farm Management at Rani in Assam, Improvement of ITI, Aizawl ; Regional ITI for Women, Tinsukia ; modernisation of ITI, Imphal and Regional Mining School, Nagaland and Assam Survey School have also been sanctioned for implementation during the Seventh Plan of N.E.C.

11. Manpower Development in the Eighth Five Year Plan :

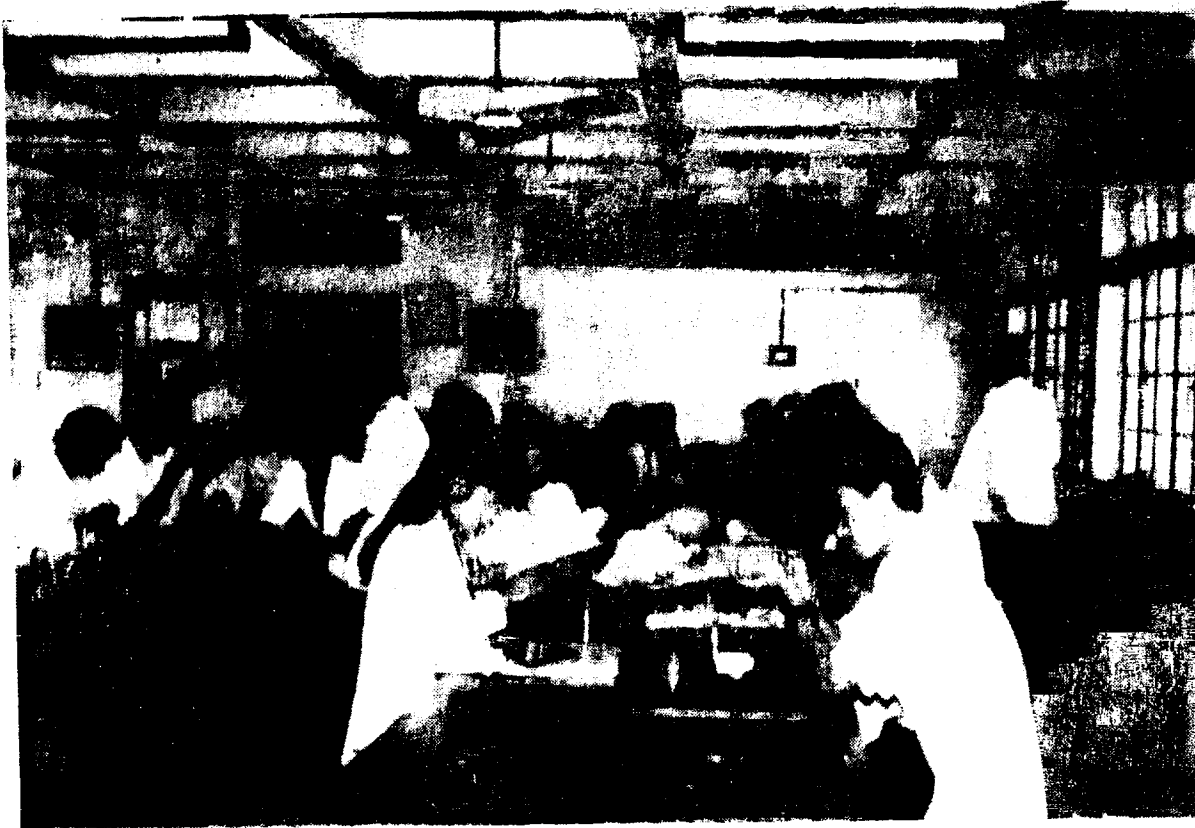
The matter of a coordinated and integrated planning for the

North Eastern Region has been under study in the North

Eastern Council for sometimes past. In the 27th Meeting of the

Council held on the 29th July, 1987 at Imphal, the issue of an

integrated development in the sectors of Power, Flood Control, Water Resources, Manpower and Industrial Development was discussed. In the 28th Meeting of the Council held on the 6th June, 1988 at Guwahati, recommendation was made for a balanced and coordinated economic development of the North Eastern Region. In this meeting it was also recommended that there was a need for working on a clear-cut perspective plan for the North Eastern Region together with sectoral and area break-up. In order to work out the modalities for such an integrated planning, a meeting was held under the Chairmanship of Secretary, Planning Commission on 2nd June, 1988. In this meeting, role of NEC in the 8th Five Year Plan of the States of the North Eastern Region was discussed in depth. It was decided that NEC could, in consultation with the States of the region, prepare perspective plan for sectors of Transport & Communications, Irrigation & Power, as also other important sectors having regional impact. It was felt that such sectoral perspective plans could then be



Regional Dental College, Guwahati

utilised by both the NEC and the States of the region in formulating their 8th Five Year Plan proposals.

12. As a follow-up of this decision NEC Secretariat set up 8 Working Groups for the sectors of Power, Telecommunications, Transport & Communications, Manpower Development, Irrigation and Flood Control, Tourism, Urban Deve-

lopment and Agriculture and allied activities. These Working Groups were asked to review the ongoing programmes in the Central, NEC and State Plans and to identify shortcomings if any, in them. They were also entrusted with the work of formulating a strategy for accelerated development of these sectors in the North Eastern Region upto 2000 AD and to suggest definite programmes and schemes to be taken up under

the Central, NEC and the State Plans. The Working Group on the Manpower Development in the North Eastern Region has almost finalised its recommendations for the perspective development of manpower in the North Eastern Region. The main emphasis in the recommendations of the Working Group on Manpower Development is mainly on building up adequate technical/skilled manpower required for various core sectors

of the economy of the North Eastern Region. The North Eastern Council, on the basis of recommendations of the Working Group would be taking up suitable projects in its 8th plan and would also be recommending the projects to be taken by the Central Ministries under their Central Sector Plans in the region and also the projects to be taken up by the State Govts. of North Eastern Region in their respective State Plans.

NORTH EASTERN POLICE ACADEMY

The North Eastern Police Academy was established in 1978 as Regional Police Trg. College for the North-eastern States. It started functioning on 22nd July, 1978 with the posting of Commandant. Subsequently, the nomenclature of the College was changed to North Eastern Police Academy and the designation of its head was changed to Director.

The idea of establishing the Academy was conceived in Gore Committee Report *vide* item 12 of Chapter XII which reads as under-

"There are some small States & Union Territories in the country where the annual intake as well as the total complement of the police force is small and where independent institutions may not be feasible. We recommend that

the Central Govt. should set up atleast one police training college and one police trg. school for such States and Union Territories. These could, perhaps, be located very advantageously under the Eastern Zonal Council at Shillong or Gauhati to serve primarily the needs of Manipur, Tripura, Arunachal Pradesh, Nagaland and Mizoram. The Central Police Trg. College and School can serve as models for the States".

Following this idea, a Committee was constituted under NEC which presented a project report which is enclosed for ready reference. The Academy was to run the following courses—

One Basic course for Dy SSP	16
One Basic course for SIs	60
One Pre-promotion course	30
One Refresher course	30
One Specialised course	30

Total	166

The Academy thus was designed to run only 5 courses in a year catering for 166 persons

only. The staff, etc. was also sanctioned accordingly.

In 1978 itself the Commandant established the Academy office in Shillong and started acquiring land and collecting staff for the office. The Commandant at that stage functioned from Shillong as the Academy did not have any land or its own building. Very soon, the present location was identified. This was the old MeSEB campus which it inherited from the State of Assam. This campus was created as stores and residential complex for the hydro electric scheme of Umiam lake during the 1960s. After completion of that scheme, the campus lay unused and was abandoned. We got this 210 acre plot of land by courtesy of the Govt. of Meghalaya and MeSEB on a token lease but paid the cost of the roads and whatever few structures that existed.

It is a very picturesque and beautiful setting. The nature is at its full charms all round the year. The area is lush-green and attracts immediately.

The training efforts started in 1979 itself in one of the Assam type rooms attached to the single employee's hostel as their sitting-cum-dinning room. The Commandant lost no time in running the Courses.

From 1978 to 1980, an *ad-hoc* grant of Rs. 30 lacs was given and the staff was also appointed on *ad-hoc* basis as detailed plan was under consideration of the Central Govt. Details of staff and buildings necessary for the Academy were finalised and the scheme of the Academy at a cost of Rs. 417 lacs was approved for the 6th Plan *i.e.* from 1980-81 to 1984-85. Out of this amount of Rs. 417 lacs, Rs. 324 lacs was meant for capital outlay *i.e.* construction of building, etc. and the remaining amount of Rs. 93 lacs was meant as revenue expenditure. As per the scheme, all the buildings were to be completed by 31st March, 1985 but unfortunately, the construction was rather slow and the buildings could not come up.

The Academy office kept on functioning from Shillong but it became difficult to function from a distant place and it constricted the growth of the institution. By 1985, it was felt that if the Academy is to grow, the office has to be shifted so that the Commandant, being the only officer at that time, does not function with one leg in Barapani and the other in Shillong. Moreover, the number of officers at that time was very limited and quite often, Commandant was the only officer against the sanctioned strength of 14 officers and the work could not be properly supervised either in the office or in the field *i.e.* training. The office was shifted from Shillong to the Academy campus in May, 1985. After that, the Academy has made very rapid progress. The number of courses has gone up, the number of trainees has gone up and also a number of Assam type buildings have also been constructed. We had waited for full 6 years but still the

classroom buildings would not be in site for another 5 years *i.e.* 1990. There was no office accommodation and it also did not appear in site. The campus office was functioning in the residential building meant for Deputy Director for which the post has been kept vacant even till now as we can not provide him a place to stay. There was of course no housing for the staff except some 8 houses of all description of which one had been converted into office. No hospital could be established as there was no building and also there was no doctor but with the arrival of bigger batches of trainees, the facility had to be provided. We embarked on a big programme of self-help by constructing Assam type buildings for office, classrooms, library, residences and for other welfare measures which were badly needed. A full office complex cum-classroom-cum-library was created but subsequently, it has been handed over to Central Schools

organisation for establishing a Central School in the campus as it was felt that educational facilities at or around the campus were of prime importance. One of the available 8 houses was given to hospital and doctor was appointed. This brought health-care to the campus. Having given the building to the Central School, we again shifted back to our old office *i.e.* residence of the Dy. Director and again started constructing classrooms. We have again created a complex consisting of classrooms, a decent canteen and a decent library. Shortly, we would be shifting from this library also to a bigger library which can seat 150 users at a time as the average strength in the Academy at present is around 150 at any time. We also created an auditorium called Rangshala, a grocery shop, a poultry building and a building for dairy. In another month or so, we would have acquired with the self-help, a new campus altogether for all the

other branches like office, etc. also. In this self-help programme, the training has not suffered at all as the Academy staff took up this responsibility and by now have put up 29,000 sq. ft. of Assam type buildings during the last three years.

The Academy has beautiful mess buildings for the trainee officers, for SIS and for Constabulary of the Academy. The messes are located in beautiful sites. Our cadets' mess constructed at a cost of Rs. 45 lacs would perhaps rank one of the best 2-3 messes in the country. Housing is coming up and perhaps by this year end, we will be very well placed. The main Academy building complex has yet to be taken up. It may be taken up by the end of this year or early next year. When completed in another 3 years, it would be a very distinguished and very well set building.

We conduct a variety of courses, a chart showing the courses conducted since the inception of the Academy is at-

Year	SP	ASP	DSP	Inspr	SI	ASI	NCO	Total
1979		11	12	1	—	—	—	24
1980				8	16	8		32
1981		9	6	20	60	23		118
1982		2	13	3	31	15		64
1983	2	1	5	17	46			71
1984		—	18	23	45	19		106
1985			11	12	142	9	46	218
1986			21	14	127	31	41	234
1987			16	20	145	20		201

In 1987, the number of seats allotted was 506 but because of the law and order situation in Shillong, courses had to be cancelled and because of some other problems in the North-East, some States did not utilize these seats. As such, the number of seats utilized is only 183. 1988 has started with a bright note. There are 105 trainees of the Basic course who will be with us for full one year and we have already conducted a training on trainers' course and Narcotics

attached. The Academy has passed out the following trainees in various ranks as per the table

course for 42 trainees and IB has conducted a Course for their own officers in the Academy and a Pre-promotion course for 35 trainees has started w.e.f. 25th April, 1988. Thus for 1988, the number of trainees has already touched 200. This year, the output of the Academy would atleast double than its allotted number.

This year we have introduced certain new courses—the Narcotics course is one, Computer

course is another and last year we introduced Police Community Relations course. Narcotics course and Police Community Relations course have been introduced in the North East for the first time. These courses have given a lot of confidence to the police officers to carry themselves through various difficult situations that the police man faces and he learns to steer himself clear of them. Police Community Relations course aims to orient his behavioural pattern, to be sympathetic towards the people. It helps change the ruler syndrome from which the Govt. servant in general and police officer in particular suffer. We give very high inputs on behaviour orientation in order to make them the first servants of the people.

We put in great efforts at moral building and strengthening the convictions of our trainees to be honest, straight, efficient and hardworking. We give rather a very high dose in how to get rights of weaker sections. Police traditionally has been accused of being on the side of landlords against the tenants,

factory owners against the labourers, haves as against have nots and so on. Brain conditioning is very greatly responsible for this attitude. By repeated lessons and examples, we try to remove or minimise this bias as far as is humanly possible.

A part from the above particular features which we have introduced in the Academy very intensively, police training everywhere has been made intensive to enlighten the trainees in every possible field and for collection of information for them as it covers—(1) Criminal laws which includes IPC, CRPC, Evidence Act and a host of minor Acts; (2) The Constitution of India particularly Fundamental Rights, the concept of socialism, nationalism; (3) Economic, political and social framework of the country including the national tradition; (4) Human behaviour and what should be the appropriate police attitude under various situations; (5) Forensic Sciences, i.e. science as applied to the art of investigation; (6) Forensic Medicine, i.e. medical jurisprudence or medi-

fine as applied to the process of investigation; (7) Crime prevention and investigation; (8) Management concepts; (9) Maintenance of order and traffic control. These are the main subjects for indoor studies besides there are a number of more indoor subjects. In addition, there is a whole range of outdoor subjects which includes PT. Foot drill weapons drill, weapons training including firing practices, latest technique of crowd control, driving and maintenance of motor vehicles, wireless, etc. Besides, we put them through social service classes so that the Police Officers do not develop any inhibition against doing work with their own hands.

A distinctive feature of the Academy is that it has introduced an Agricultural Dynamics course for all the officers of basic course. The course is conducted by the scientists of ICAR covering the latest techniques and developments in the field of agriculture particularly in the North East. It opens up great knowledge about the North East to these officers. The scientists

are doing a lot of research but it does not percolate down to the users *i.e.* the farmers. Police draw a very great advantage that they get to know about agriculture and can talk to people about their own problems at a common denominator. All over the world, ways and means are being devised how police men should come nearer to the people.

The size of the police force in the North East has nearly doubled from 53,000 when the Academy was being planned to 96,000 as at present. During these 10 years, at national level there has been a great shift for better training in all sphere of life and in police in particular. As a result, the facilities provided by the Academy have fallen inadequate despite the fact that the Academy will exceed its charter of training 166 officers by more than 100% as in place of 166 officers who should pass out as per the scheme, the year will close with 400. But still the number is not adequate. As per Gore Committee Report which is a bible on police training, there should be a number of

pre promotion - cum - refresher courses whereas only 2 have been provided in the scheme of the Academy. Besides, there should be a number of the following courses:-

1 Specialised courses (duration)

(a) Crowd control course
(6-8 weeks)

(b) Courses on intelligence work

(c) Course on investigation of fraud, embezzlement *i.e.* economic offences
(6-8 weeks)

(d) Course on juvenile delinquency (4 weeks)

(e) Police community relation course (2 weeks)

2 Course on advanced scientific method of crime investigation (14 weeks)

Sl. No.	Name of the Courses	No. of Courses in a year	No. of seat in each Course	Total
CIVIL POLICE COURSES :				
1.	Basic course	1	for Dy SSP 40	40
2.	Basic course	1	for SIS 110	110
3.	Refresher course	4	40	160
4.	Pre-Promotion course	4	40	160
5.	Crowd control & tear smoke course	2	30	60
6.	Intelligence course	2	30	60
7.	Investigation of economic offences including fraud, embezzlement etc.	1	30	30
8.	Course on advance scientific methods of crime investigation	1	30	30
9.	VIP Security course	2	30	60
			Total	C. O. : 710

Sl. No.	Name of the Courses	No. of Courses in a year	No. of seat in each Course	Total
ARMED POLICE WING				B. F 710
10.	UAC Instructors Course	1	40	40
11.	Commando Course	1	40	40
12.	Weapons & Tactics Course	1	40	40
				Total : 830
TECHNICAL WING				
13.	Motor Mechanic Course	1	30	30
				Total : 30
				Grand Total : 860

In the Academy board where all the police chiefs of the North East are members, they have been pressing for certain more courses like UAC, Commando, weapons and tactics courses etc. Now the plans are under consideration of Govt. of India to expand the Academy in the next plan and the following courses to be conducted in the Academy for the officers of the North East. When this curriculum is added, the Academy would be able to give complete range of courses to the North East.

With the passage of time, the cost of Academy project in the

7th Plan has escalated to Rs. 8.96 crores which the Govt. of India has very kindly sanctioned. The entire project, if sanctioned will cost 24 crores from 1978 to 1995 i.e. the end of 3th Plan.

The Academy does impart tough training on the one hand and looks after the comforts and welfare of trainees and the staff in the best possible manner. In years to come, the Academy is slated to march ahead with long strides in the service of the people.

MINERALS AND INDUSTRIES

INTRODUCTION

Though only a quarter of the North Eastern Region has been geologically mapped, yet numerous promising mineral deposits have already been located. The high mineral potential of the region is apparent from the data already on hand. The principal mineral resources are those of petroleum, natural gas, coal, limestone, dolomite, ceramic and refractory raw materials. Recent surveys have revealed some deposits of metallic minerals as well.

Mineral development started early in the region but remained restricted to petroleum and coal only till very recent times. Oil fields and linked industries have developed fairly rapidly during the last two decades. Already there are three refineries and two petrochemical complexes. Natural gas is also being used for manufacture of fertilizer at

Namrup and generation of power at Namrup and Lakwa.

Mining of coal started in the Makum coalfield quite early. Subsequently regular mining was also done for sometime at Borjan (Nagaland) and Jaipur (Assam). Small cottage type coal mining was widely prevalent in different areas of Meghalaya (Laitryngow Bapung, etc.) but currently the North Eastern Coalfields of Coal India Ltd. have their mines in Makum and Jaipur-Dilli fields only. Cottage Type mining is continuing unabated in Meghalaya, especially in Bapung area of Jaintia Hills.

Though endowed with good limestone deposits, some of which are in close proximity to coal deposits, yet the first cement plant of the region was commissioned in 1966 only at Cherrapunji (Meghalaya). The second plant at Bokajan (Assam) became operational in 1976. Together these plants have an installed capacity of about 0.4 million tonnes per year, and the plant at Cherrapunji would soon add 0.12 million tonnes to its

capacity. Limestone is being exploited at Komorrah (Meghalaya) for the Chhatak Cement Plant of Bangladesh.

The Sonapahar area of Meghalaya is well-known for the sillimanite deposits. The production of sillimanites from this area is declining.

Ceramics raw materials though occurring widely and in promising deposits, have been developed only sporadically.

The chromite deposits of Manipur have been intermittently mined on a small scale.

Obviously the development has been rather inadequate *vis-a-vis* the potentials, and this is due to a number of reasons which are analysed in this document.

Major and Promising Mineral Deposits:

The total reserves (all categories) of limestone of cement

and higher grades have been estimated at more than 5000 million tonnes, Mawmluh and Mawsmai (Meghalaya), Komorrah (Meghalaya) and Dillai Parbat (Assam) deposits being exploited for cement manufacture. Other good deposits of limestone occur in Siju, Shella-Bholaganj and Lumshang-Nongkhlieh belts of Meghalaya. Garampani-Umrangso belt of Assam, Tidding area of Arunachal, Nimi and Wazeho areas of Nagaland and Ukhrul-Hundlung belt of Manipur. Chemical grade limestone occur in Shella-Bholaganj and Lumshang-Nongkhlieh (Meghalaya), Nimi and Wazeho (Nagaland) and Tidding (Arunachal) deposits. Recently some bands of chemical grade limestone have been reported from the extension areas of Garampani-Umrangso deposits (Assam).

The main coalfields are in Assam, Arunachal Pradesh, Meghalaya and Nagaland. Estimates of reserves of all categories vary widely, but the most conservative estimate indicates reserves of about 900 million tonnes. Mining activity under

Coal India Ltd. is concentrated in the Makum and Jaipur fields of Assam. Other promising fields are those of West Darrangiri, Siju, Langrin and Bapung (Meghalaya), Namchik-Namphuk (Arunachal), Jaipur-Dilli (Assam) and Borjan (Nagaland).

The oil fields are mostly in Upper Assam and are operated by the ONGC and the Oil India Ltd. Recently an oil field has been opened up in Nagaland as well.

For refractories and dolomites the outlook is bright. The re-assessment of Sonapahar sillimanite deposits is currently in progress and future prospects are not encouraging, but recent reconnaissance by the Geological Survey has revealed promising Kyanite deposits in Meghalaya. The Directorate of Geology and Mining of Assam are investigating the sillimanite deposits of Mikir Hills. Occurrences of fire clay in Garo Hills are already known. The other promising occurrence is that of graphite in Jalpani area of Arunachal.

Besides the dolomite deposits of Meghalaya, good deposits have been reported from Rupa and Menga areas of Arunachal, and both are under active investigation.

Good deposits of clays and glass sands have been studied in Meghalaya, Assam and Tripura. Industrial testing has been done. Recently fairly promising clay deposits have been reported from Nangapahar area of Nagaland.

Banded magnetite/hematite rocks have been reported from Assam and Nagaland, but are small. The Pokhpur magnetite deposit was considered to be of promise because of its nickel content. Studies on nickel extraction technology are in progress. The ophiolite belt of Eastern Nagaland and Manipur contains numerous pockets of chromite which have been exploited in Manipur. Base metal ores have been reported both from the ophiolite and the metamorphics further east. Intensive studies are in progress.

Base metal sulphides do occur sporadically in Meghalaya and

Arunachal. The potentials are not known.

Carbonatite complexes of Meghalaya plateau are associated with phosphates and rare earth. Exploration is currently underway.

Constraints on Development :

The constraints which have retarded mineral development in the region are : -

1. Slow progress of regional resources surveys and inadequate basic documentation.
2. Remoteness and lack of infrastructure.
3. Inadequacy of data on proved and mineable reserves and average grade as investigations on the deposits have rarely progressed beyond reconnaissance and prospecting.
4. Shortage of man-power for mineral exploration and development, and

5. Inadequacy of data on industrial testing of mineral raw materials.

Role of North Eastern Council.

Programmes initiated and planned by the North Eastern Council aim at the following :--

1. Acceleration of regional resource assessment for preparation of basic documentation.
2. Acceleration and initiation of programmes for proving of mineral reserves and determination of grades to facilitate exploitation planning.
3. Development of infrastructure.
4. R & D efforts for industrial utilisation of regional mineral raw materials.
5. Techno economic feasibility studies for mineral industry, and
6. Actual development of pilot industries to promote mineral development

Achievements

During the Fifth Plan period the emphasis was on rapid surveys for first approximation resource assessment by remote sensing techniques. However, in the Sixth Plan period the programme underwent a transformation and elaboration through inclusion of major schemes of detailed exploration and proving operations in mineral deposits of promise. development of manpower infrastructure, a wide range of techno-economic feasibility studies for mineral industry and R & D projects.

The significant results have been achieved during the 7th Five Year Plan under the banner of N.E.C. in respect of Industries & Minerals. On the basis of these results the 8th Five Year Plan would be more productive when new exploration regarding establishment of the presence of Nickel, Cobalt, Copper, Chromium, etc., in ultra mafic areas (Manipur, Nagaland, Arunachal), granites (Meghalaya &

Assam), Serpentine marble (Nagaland & Manipur), Ido craco-gem variety (Nagaland & Meghalaya), Slate (Nagaland), etc. side by side setting up of various cement plants mining projects of limestone, etc. would be established in this part of the country.

Remote Sensing Surveys:

Under this programme the Upper Barak Watershed area, Nagaland, Mizoram, Tripura and Brahmaputra Valley have been covered and the last phase is in progress in Lower Barak Watershed area, Arunachal and Meghalaya

Under a sister programme aeromagnetic survey was carried out over Central and Eastern Manipur and the entire Meghalaya including parts of Assam. These surveys provided anomalies which are currently being investigated further by the specialist agencies.

During 1988-89, Silchar & Agartala blocks have been covered Nagaland, Assam,

Manipur, Mizoram & Tripura partly. The ground checks by the various agencies of States are to be undertaken by them

Detailed Mineral Exploration and Proving

During the Fifth Plan period the reserves of coal in Mawlong-Shella coalfield were proved by a detailed investigation under N.E.C. sponsorship. The objective was to prove adequate coal reserves for developing a captive coalmine for the Mawmluh-Cherta Cement Plant, which suffers continually due to irregular supply of coal. The reserves and configuration established in course of this investigation indicated that only small scale mining would be possible.

During the Sixth Plan period detailed exploration and proving of reserves in eight principal deposits of limestone, coal and basemetal ores have been planned. Currently detailed exploration and proving of limestone and coal reserves are in progress in Siju (Meghalaya), Bapung coalfield (Meghalaya), Namchik coalfield (Arunachal) and Bor-

jan coalfield (Nagaland) Under the same programme detailed exploration and proving of coal reserves in Dilli-Joyppore coalfield (Assam) and Langrim coalfield (Meghalaya) are also proposed to be taken up during 1982-83. Detailed exploration of high-grade limestone in Lumshiang (Meghalaya) and basemetal ores in Eastern Manipur-Nagaland are also planned under this programme. Under a separate programme the reserves and grades of limestone in Umrangso (N.C. Hills, Assam) have been established and raw material investigation on Lumshiang limestone deposit in a pilot sector has also been completed for preparing the project reports for the proposed cement and paper grade lime plants respectively.

During the 7th Five Year Plan the continuing exploration schemes of Siju Limestone, Siju Coal, Langrim Coal and Lumshong Limestone of Meghalaya, Borjan Limestone (Nagaland), Makum Coalfield, part of Dilli-Halwa Coalfield and not Dilli-Jayppore Coalfield and Bokajan Limestone of Assam, Part

of Namchik Nampuk Coalfield of Arunachal Pradesh have been completed.

The new schemes of NEC regarding Mineral investigation i.e., New Umrangshu Limestone, Dilli-Halwa Coalfield (not Dilli-Jaypore Coalfield) of Assam, Nimi Limestone (Nagaland), Lumshong Limestone (North Block), Jaintia Hills (Meghalaya). Investigation of serpentine and idocrase (Manipur), study of paper grade lime stone at Lumshong and Barsonra Limestone of Meghalaya, during the 7th Five Year Plan are in progress.

Besides work on feasibility studies of raw materials i.e. glass sand, silliminite, kyanite, garnet, setting up of one million tonnes cement plant based on limestone are in progress.

NEC is also contemplating the R&D projects in respect low temperature carbonisation, Fuel gas desulphurisation and fluidised technology. Determination of physical chemical characteristics of North Eastern Coal deposits. Setting of Petrological Labora-

tory (Nagaland), Preparation of Project report of paper grade limestone (200 TPD).

Moreover, pilot Industrial Project like expansion of Bokajan Cement Plant (Assam) Breeze Coke Plant etc. are also getting the attention of NEC.

The work on Mini cement plants at Hundung (Manipur) and at Wazeho are almost on last leg of production

Manpower Development :

Under a continuing programme training is being imparted to diamond core driller. Summer course and field training course are continuing for mineral exploration. Operation and management personnel of one cement plant have been trained and the same is envisaged for personnel of the approved cement projects under NEC plan Professional staff for the proposed Borjan coalmine are being trained.

Infrastructure :

For opening up access to mineral deposits in remote and in

accessible areas a number of roads of economic importance are under construction. The total outlay earmarked for such roads is more than Rs. 60.00 crores. Besides roads, helipads have been constructed and air-lift support is being provided by the NEC for facilitating mineral exploration activities by specialist agencies.

Techno-economic Feasibility Studies :

To pave the way for industrial development feasibility studies and project reports are sponsored by the NEC studies completed so far include those for cement plant in Jaintia (Meghalaya), Tezu (Arunachal), Wazeho and Nimi (Nagaland) and Umrangso (Assam), pozzolana plants for all the constituent units of the region and for a paper grade lime plant in Jaintia Hills (Meghalaya). A similar study for a second lime plant, to be located in N.C. Hills, Assam is being taken up.

Mineral Industry :

Four plants of capacities ranging from 30 to 200 tpd be-

ing set up under a programme of NEC at an estimated outlay of Rs. 11.00 crores. Construction of the first 30 tpd plant at Tezu. (Arunachal) is nearing completion and those of 50 tpd capacity at Wazeho (Nagaland) and Hundung (Manipur) will be taken up soon. All these three plants of 200 tpd capacity will be set up at Umrangso (Assam) and construction is expected to commence during this year. The preparation for setting up a 12 tpd lime-pozzolana mixture plants in Tripura are also in an advanced stage.

For the existing and up-coming paper mills, which are being set up by the Hindustan Paper Corporation in the North-Eastern Region, large quantities of paper-grade lime will be required. Two lime plants are proposed to be set up by NEC, and raw material investigation and location study for the first plant has just been completed.

R & D Projects :

Testing of mineral raw materials for ascertaining their suitability for industrial use is a vital pre-requisite. Such endeavours

for the north-eastern raw materials have been initiated by NEC. Studies completed include those on Tidding (Arunachal) and Umrangso (Assam) limestone for cement manufacture and various limestone and clays for making lime-pozzolana mixture. Studies are currently in progress for ascertaining the suitability of Lumshang limestone (Meghalaya) for manufacturing paper grade lime. Pokhpur mini-magnetite (Nagaland) for nickel extraction and Rangapahar clays

for pottery and sanitary ware. Studies on Umrangso limestone for papergrade lime making has also been programmed.

High sulphur content of north-eastern coal stands in the way of its utilisation in various industries and for power generation. Moreover, the up coming mini-cement plants of the region would require substantial quantities of coke. For these purposes two R&D projects for coke making from North-eastern coal

and fluidised bed combustion of the same are now in progress under NEC sponsorship in the Regional Research Laboratory, Jorhat, with technical collaboration from BHFL.

Long-term Plan

Mineral development is a slow progress. The time span of Five Year Plans often proves inadequate for comprehensive planning. Hence a longer time-span is necessary for mineral development planning. Long-term plan-

ning for developing cement industry in region has already been done by the NEC and the plan is under consideration of the Planning Commission. A similar plan for expansion of coal mining has been formulated by the Coal India Ltd., based on demand estimates furnished by NEC and currently programming of coal exploration proving is underway for establishment the reserves required for sustaining the production planned for the coming twenty years.

SOCIAL AND COMMUNITY SERVICES

Apart from other sectors, NEC has played a significant role in the development of Social & Community Services. A brief account of 6th Plan schemes along with the continuing schemes are given below :—

I. MEDICAL

1. Development of Pasteur Institute for production of TAB and Anti-Cholera Vaccines.

The scheme was taken up in 1976-77 at an estimated cost of Rs. 34.03 lakhs. The objective of the scheme was to provide facilities for augmentation of production of Anti cholera, TAB and Anti-rabies vaccines. The scheme was completed during 6th Plan.

2. Production of D & T Group of Vaccines :

The scheme was taken up in 1978-79 at an estimated cost



Pasteur Institute, Shillong, New Building of the Centre

of Rs. 59.00 lakhs subsequently the scheme was revised to the tune of Rs. 104.48 lakhs. It was sanctioned this scheme in March, 1985. A sum of Rs. 54.00 lakhs was released upto the end of March, 1984. An outlay of Rs. 28.00 lakhs was approved in 1986-87 Plan. No further funds was allotted for the scheme in 1987-88 as the

scheme was completed in 1986-87.

3. Assistance to Tezpur Mental Hospital, Assam.

A proposal for expansion of the Mental Hospital was included in 1979-80 Plan of NEC. The Planning Commission did not agree to the proposal. Later on a Committee under the

Chairmanship of Dr. Wig was constituted and the final report of the Committee was circulated to all concerned which recommended the need for an OPD and a clinical laboratory for the hospital. An outlay of Rs. 25.00 lakhs was provided in 1984-85. The approved outlay for 7th Plan was Rs. 15.29 lakhs and the entire amount was proposed to be spent during 1985-86. The scheme was since been closed.

4. Dialysis Centre at G. B. Hospital, Agartala.

The scheme for establishment of a Dialysis centre in Tripura at an estimated cost of Rs. 28.00 lakhs was approved in January, '85. A sum of Rs. 27.00 lakhs was released to the Govt. of Tripura during 1984-85. The State Govt. took a necessary steps for quick implementation of the scheme. The remaining amount of Rs. 1.00 lakh was utilised during 1985-86 and the scheme was normalised.

5. Artificial Limb Fitting-cum Rehabilitation Centres :

(a) Meghalaya :—This centre was sanctioned at an estimated

cost of Rs. 10.60 lakhs in August '83 with NHC's share of Rs. 9.63 lakhs and the balance was contributed by a voluntary organisation known as Talents Club, Raj Bhawan, Shillong. Initially it was expected that the unit will function partly in existing building of Civil Hospital and a new accommodation of 2000 sq. ft. Later, accommodation was not available from the Civil Hospital and a 2 storeyed RCC building of 4000 sq. ft. was found necessary to accommodate the staff and equipments. Hence the scheme was revised and sanctioned in March '88 at an estimated cost of Rs. 28.02 lakhs of which NCC would contribute by Talents Club. As per the latest progress made, the building has been constructed and handed over to Director, Health Services, Meghalaya. An expenditure of Rs. 18.61 lakhs has already been incurred upto March '89. Equipments for the various section have been purchased. 40 patients are being treated daily in the centre. An outlay of Rs. 5.00 lakhs is approved for 1989-90.



Nursing College, Guwahati

(b) *Manipur* :- On the recommendation of experts in rehabilitation and representatives of the Ministry of Health and Social Welfare held at Shillong on 24-8-81 it was decided that a number of rehabilitation cen-

tres should be established in each state of N. E. Region to provide basic rehabilitation services to the physically handicapped. A pilot project on comprehensive rehabilitation centre was approved in 1982-

83 at an estimated cost of Rs. 43.00 lakhs at Imphal in Manipur. But due to some technical reasons, the scheme could not be started till late 1984. Again on the recommendation of Deptt of

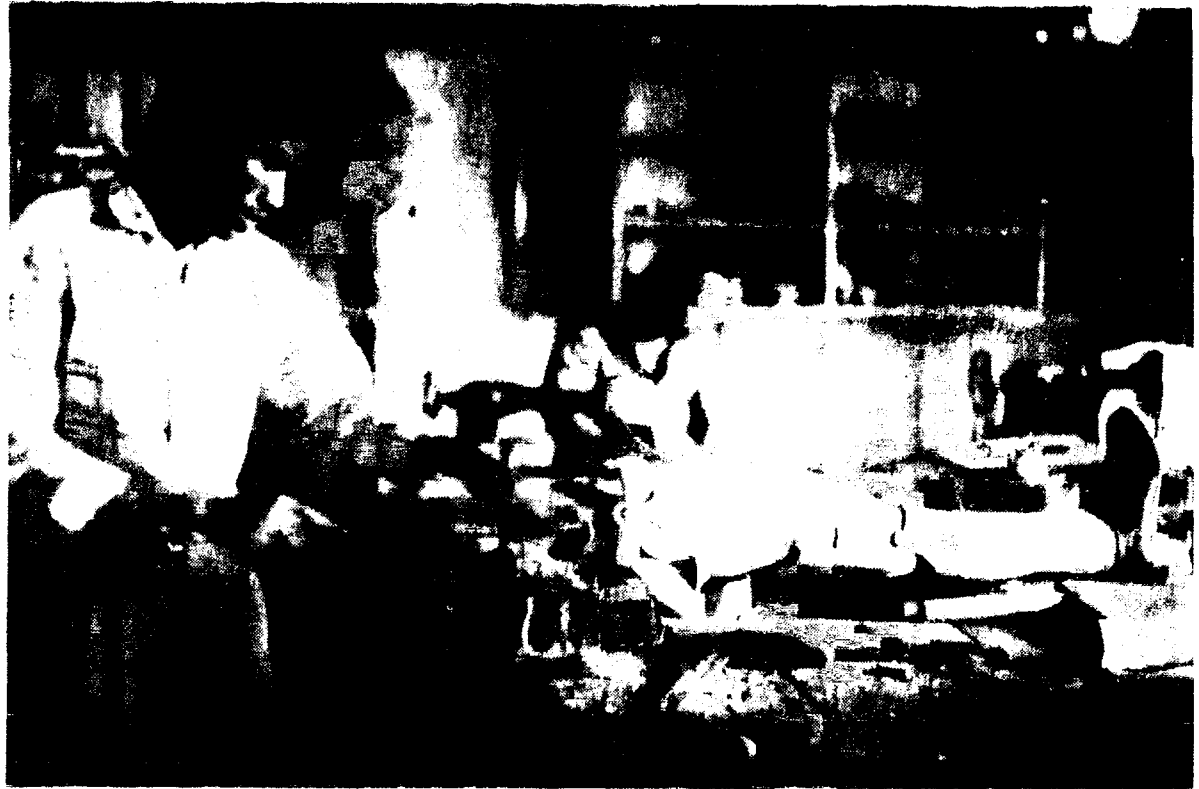
Rehabilitation, Medicine, Safdarjung Hospital, New Delhi and All India Institute of Physically Medicine and Rehabilitation, Bombay a minimum staffing pattern was prescribed and the scheme was revised at an estimated cost of Rs. 54.13 lakhs.

The scheme is functioning satisfactorily and upto December 1988, an expenditure of Rs. 41.85 lakhs has been incurred for construction programme, equipments, staff salary, etc. An outlay of Rs. 18.00 lakhs has been approved for 1989-90.

NEW SCHEMES IN 7TH PLAN

1. Artificial Limb Fitting-cum Rehabilitation Centre, Kohima, Nagaland :

This scheme was sanctioned by NEC in December 1986 at an estimated cost of Rs. 15.32 lakhs for providing artificial limbs, prevention, early detection and training of village level workers. The 7th Plan outlay for the scheme is Rs. 11.50 lakhs. Upto March



Preparation of Artificial Limbs of the Rehabilitation Centre—Regional Medical College, Imphal

'88 an amount of Rs. 7.00 lakhs was spent on construction works and purchase of equipments, etc. The approved outlay for 1989-90 is Rs. 3.00 lakhs

2. *Food and Drug Laboratory, Shillong*

After the separation of Meghalaya from Assam, the State Public Health Laboratory at Shillong was shifted to Guwahati and the work related to examination and investigation of food and drug specimen are being sent to Guwahati. This has resulted in delay and in deterioration of specimen due to distance from Shillong and inadequate facilities available to Guwahati. Hence a scheme for establishment of a Food and Drug Laboratory at Shillong at an estimated cost of Rs. 35.05 lakh has been sanctioned in March 1987. The 7th Plan allocation is Rs. 15.00 lakhs. An expenditure of Rs. 4.16 lakhs has been incurred till today. An outlay of Rs. 9.00 lakhs is approved for 1989-90.

3. *Food and Drug Laboratory, Guwahati*

The objective of the scheme is to ensure distribution of wholesome and nutritious food, safe drinking water and clean air for the healthy growth of

the population both in the urban and rural areas. All samples of water from the State's Army and Para Military forces are referred to Guwahati Laboratory for examination. In view of the heavy commitments of works, it was decided to expand the activities of the laboratory and a scheme has been sanctioned at an estimated cost of Rs. 30.34 lakhs in March, 1987. The 7th Plan outlay is Rs. 18.00 lakhs. An amount of Rs. 25.65 lakhs has been released so far upto 1988-89. An outlay of Rs. 4.70 lakhs for 1989-90 has been approved.

4. *Food and Drug Laboratory, Tripura*

The scheme at an estimated cost of Rs. 31.22 lakhs was approved in March 1987. The main components of the scheme are construction of building for laboratory, staff and office, purchase of equipments and apparatus, chemicals and glassware, staff salary, furniture, etc. The building is nearing completion. An amount of Rs. 14.00 lakhs has been re-

leased so far. The outlay for 1989-90 is Rs. 6.00 lakhs.

5. *Orthopaedic and Traumatology Centre, Shillong*

In view of the large increase in vehicular traffic and other transportation activities in the N.E. Region particularly on Highway No 40 which is one

of the main connection among the States of Meghalaya, Mizoram, Tripura and a portion of Assam and Manipur. A scheme was sanctioned at an estimated cost of Rs. 25.16 lakhs which envisages an accident care service in the Civil Hospital, Shillong, casualty service unit in PHC's and Sub centres on National Highway and to raise



Orthopaedic Deptt., Civil Hospital, Shillong

a corps of volunteers in the village situated on the highway. The scheme has not been started yet due to some technical reason. NEC has released Rs. 3.75 lakhs for this scheme so far. An outlay of Rs. 8.00 lakhs is approved for 1989-90.

6. *Establishment of Regional Blood Bank, Shillong :*

In order to improve conditions for supply of blood to patients it was proposed to provide better facilities in the Pastuer Institute, Shillong. Under this scheme sanctioned for Rs. 18.74 lakhs in June, 1987. Upto 1988 an expenditure of Rs. 12.26 lakhs has been incurred. An outlay of

Rs. 3.00 lakhs for 1989-90 has been approved.

7. *Forensic Science Laboratory, Guwahati :*

Under the NEC's 6th Plan, NEC's support was provided to the Forensic Science Laboratory at Guwahati for improvement of some facilities. The need for further expansion is now felt by other constituent units as the existing laboratory has not been able to cope with the increased workload which was reviewed in the Conference of the Police Organisation of this region. The Govt. of Assam submitted a revised scheme of Rs. 146.24 lakhs which has been sent to MHA for technical clearance.

The concurrence of the Ministry is still awaited. An outlay of Rs. 10.00 lakhs is approved for 1989-90.

8. *Upgradation of Dr. B. Barooah Cancer Institute, Guwahati :*

Dr. B. Barooah Cancer Institute is the only Cancer Treatment Institute in this region which was established in 1974 by a voluntary organisation; later on taken over by Govt. of Assam. At present there are 50 beds in the hospital. On an average, 2500 patients are being treated annually from different parts of the N.E. Region. A working Group comprising of representatives from Deptt. of Atomic

Energy, TMC, Bombay, ICMR, Planning Commission, NEC and Govt. of Assam in their report recommended for a 2 phase upgradation of the Institute. The detailed scheme at an estimated cost of Rs. 862.05 lakhs during 1989-95 was sent to Ministry of Health for technical clearance which has since been obtained. The funding pattern for non-recurring expenditure will be to the tune of two third by the Deptt. of Atomic Energy and one third by NEC. For recurring expenditure, it is proposed that the expenditure will be shared equally by NEC, Deptt. of Atomic Energy and Govt. of Assam. An outlay of Rs. 50.00 lakhs has been approved for 1989-90.

INFORMATION AND DOCU- MENTATION

The North Eastern Region having at present a population of about 22 million presents baffling challenge to the planners and administrators of the country in view of the bewildering varieties of a racial and linguistic origins of its population coupled with the complexity of their socio-cultural problems. While almost all the major Indian languages are spoken here, the number of dialects in this region will far surpass the number of the corresponding size elsewhere in the country. The difficult terrain accentuated by underdeveloped transport system has made communication of ideas and innovation in this region an extremely difficult task.

While Assam's links with the rest of the country date back to the hoary past, there are hilly regions which had throughout the length of history not

much of intimate connection with the mainstream of our national life. As a result of this peculiar geographical location and trend of history, the North Eastern Region has ever since freedom been passing through the periods of tension and discontentment which had seriously told upon the process of speedier progress of the whole region.

It has been universally agreed that planning in our country presupposes participation by the masses in all stages of formulation and implementation of the developmental schemes. The success or failure of a good number of the developmental schemes undertaken in this region can be attributed primarily to the availability or otherwise of mass participation in their implementation.

The establishment of the North Eastern Council with the object of bringing about co-ordinated development of the region by sponsoring a series of regional as well as pilot schemes has imparted a new dimension in the sphere of a closer understanding



The North Eastern Council is an Advisory Body assisted by a Team of Specialists.

of the people within the region and the consolidation of their links with the main stream of the national life. With literacy making much head-way in course of the last couple of decades there are also growing expectations among the cross-section of the people of the region in general and the younger generation in particular about the ultimate

destiny of the region as a proud partner of this great country. It has been observed that whenever expectations have not been matched by the corresponding programme of development or even development having gone unnoticed, may give rise to situations in which a wrongly informed or totally uninformed and frustrated section of the people

may go astray creating thereby new crops of problem.

The North Eastern Council, as, therefore, set up the Regional Information and Documentation Centre with the object of developing it as the store house of duly processed information in all fields of life of this region in particular and that of the country in general in order to present to the people-- more particularly to those concerned with research, development, administration and advancement of education with up-to-date information. The Regional Information and Documentation Centre has in course of the last few years been developed into a major Documentation Institution of the country and by far the biggest organisation of its kind in this part of the country.

(2) OBJECTIVE

The Regional Information and Documentation Centre by its very nature has been called upon to play a very vital role in the field of dissemination of information, collection of up-to-date in-

formation and sharing of ideas and information regarding the problems and potentialities of the region and the ways and means for bringing about speedy development. The North-Eastern Region has at present more than 200 Colleges besides seven Universities. While all these Universities and the Colleges have their own individual libraries about 40 libraries are run under the direct supervision of the Governments of the States and Union Territories of the region. The number of public libraries organised purely under popular initiative would be over 10,000. But most of these public libraries situated in the rural areas are virtually in non-functioning condition. Hardly 4,000 libraries are known to have been functioning with regular membership and normal programmes of activities.

The expansion of the literacy in this region including the vast rural areas have opened up tremendous scope for expansion of network of libraries to the extreme corner of the region.

Most of the libraries attached to the schools and colleges have also been functioning without proper co-ordination and purpose. As a result, the reading habits among the younger generation of this region has been found to be behind the level of the national average as well as that of the most of the States of the country. The tribal people more particularly, are not prone to serious reading while those in the rural areas have scarcely anything to do with books.

The North-Eastern Region is a land of diverse languages and cultures. Excepting Assamese and Bengalee other languages do not have a large scale market for books. As a result book publication in this region seldom exceeds 400 annually against the national production average of over 20,000 titles. No thought has so far been given about the problem of book production in this region and very little action has been taken for building up proper infrastructure for development of an organised book trade in this region.

Since the Regional Information and Documentation Centre has had to function as organisation for providing a forum for promotion of unity and cultural understanding among the people of this region within themselves on the one hand and with the rest of the country on the other, it has become urgent to devise ways and means for closer understanding of the people within this region and outside.

The North-Eastern region has a glorious tradition of recorded history dating back to 10,000 A.D. or even before. But it has been found that the economic development initiated in this region right from the end of the 19th century do not have properly documented information. It has become vital to make a beginning in the sphere of proper organisation of archives in this region to preserve essential information in respect of socio-economic changes for the posterity.

In the meantime, the North Eastern Council has set up a

Regional Advisory Committee on the Development of Library Services in the North-Eastern Region and on establishment of Regional Information System on the North East. The Regional Committee which has so far met twice, has given a number of recommendations on the development of Library Services

in the Region. Under the auspices of this Committee, N.E.C. had extended financial support for convening a Conference of the Vice Chancellors, Education Commissioners/Secretaries and Heads of Library Services of the State Governments in the North East which was held on 28th February,

1989 and discussed in detail the problems and prospects for development of Library Services in the North East. This Conference has also recommended that the North Eastern Council should immediately take up preparation of a Project Report on the establishment of a Regional Information System for the North-Eastern Region.

The Council has also initiated action towards preparation of a comprehensive bibliography on the literature about the life and culture of the people of the North Eastern Region besides preparation of a list of Publishers and the Project Report on the status of various categories of Libraries currently functioning in the North-Eastern Region.

SOCIO-CULTURAL HERITAGE OF THE NORTH-EAST

The population of hill people in the North Eastern Region is around 44 lakhs which represents 11 per cent of the total tribal population of the country. Of the seven States in the region, Nagaland, Meghalaya, Mizoram, Arunachal Pradesh and two districts in Assam are overwhelmingly tribal areas. Besides, 60 per cent of the area in Tripura and 80 per cent of the area in Manipur are hilly, inhabited by various tribes. The entire region is inhabited by not less than 180 groups of tribal populations, and every tribe has a rich traditional culture, comparable to the best anywhere in the country. Yet due to geographical, historical and economic reasons, the hill people of the region are facing complex cultural problems.

Complex Cultural Problems of Hill People:

The rugged physiographic condition of the region and poor or non-existent infrastructure facilities render the tribes to live in splendid isolation. Very often a tribe has no contact with another tribe living in another part of the district, and a tribe in one State may not come across another tribe in another State. Considerable diversities exist in dance forms, musical instruments, etc. but in the absence of organised efforts to facilitate intra state and intra-regional exchanges there have grown "cultural pockets" all over the region. The consequential and other problems may be stated as under:

1. Every tribe practices several dance forms, some of great artistic excellence. No count seems to have been made of the existing dance forms, but their number may be in the order of several hundred. Due to isolation of the tribes,



Tankhul Naga Dance

these forms have not been able to acquire distinct of character and cohesion. Secondly, the features and various aspects of these forms are not put in any literature; they are handed down from generation to generation. However, when large number of youngmen move out to urban areas for long periods or when tribes

migrate to other areas, under economic compulsions, these forms are often in danger of being lost to posterity.

2. Harvests provide a popular theme for several dances in this region, as elsewhere in the country. These dances, with local variants, portray the hopes and fears of the people.

through movement. Undeniably, these constitute a rich cultural heritage and must be fostered and preserved. However, the region faces the colossal problem of jhum, or shifting cultivation. Against the net sown area of 29.46 lakh hectares, 26.96 lakh hectares are under shifting cultivation and tribal families practising it number nearly half a million. In view of the scheme undertaken by the Central and State Governments and NEC to curb this harmful practise, it is necessary that dances which are themetically based on various operations of jhuming are delinked from the harmful agricultural practice and allowed to flourish as independent cultural expressions.

3. The traditional culture in the region is swiftly changing. A belief has grown that there is something inferior about

traditional culture and as such it help, in perpetuating the backwardness of the tribes. The younger generation is therefore energetically discarding this culture and taking to western dances and western styles. Culture is dynamic and the hill people have faced and are facing changes, due to inter-action of the traditional process and the modern process. But the present trend is adversely affecting indigenous village institutions, the traditional dances, the traditional cycle of festivals and, above all, the traditional values. As is well known tradition embellishes and invigorates a community and imparts to it a distinct identity. The new trend therefore is not only eroding the basic values of life but also impairing the homogeneity which exists between the old and the young, and the tribes and their neighbours.

Measures needed for Rejuvenation and Documentation of the Traditional Culture

The rapidity with which the traditional culture is changing in some parts of the region has distinctly created a complex problem and the governments concerned have devised various methods to rescue it from the oblivion which is likely to overwhelm it. For instance, the Government of Nagaland have formulated a scheme to have a full length film documentary on traditional Naga Dances made by the Film Division of Information and Broadcasting Ministry. Some other States and UTs have also sponsored and funded film documentaries. In addition, pamphlets and booklets on these subjects have been brought out or proposed to be published. The effort of the State/UT Governments are indeed laudable but these are neither adequate nor effective.

None of the North Eastern States in the Region seems to be in a position, financially and organizationally, to undertake a vigorous and well directed programme to revive and foster

traditional culture or to erect a cultural bridge with the rest of the country. Among the States, only Meghalaya and Nagaland have established tribal institutions. The State Institute of Art and Culture in Meghalaya has been set up for encouragement of local traditional art and culture, training and promotional activities in Indian music and culture, western classical music, painting, sculpture and creative literature. The Naga Institute of Culture, set up in 1964, devotes itself mainly to research and surveys on sociological, ethnological, cultural and historical aspects of the tribes in Nagaland. It is academic in nature. Mizoram is also planning to set up an Institute of Dance and Music. But these institutes though doing excellent work in their respective fields, seems ill-equipped to handle problems of the magnitude faced by the hill people of the States. The departments of culture of the States also do not seem to be equipped to undertake a purposeful drive to popularise traditional culture among the people.

Task involved in Reviving and Popularising Traditional Culture of Hill People :

From the forgoing it will be obvious that urgent steps are called for to revive and popularise traditional culture among the hill people and to establish a fruitful and durable cultural link with the rest of the country. The tasks involved in this regard may be enumerated as under :

1. To set up cultural institutes in all States and UTs to expand the existing ones, on the right lines. Also to establish cultural forums at the districts, sub-divisional and village levels in the States wherever these have not been established yet.
2. To collect information on all existing dance forms and musical instruments of the hill people and to document these in suitable manner
3. To organize performances by cultural troupes of one State in another State of the region and

in other parts of the country on important occasions.

4. To organize exhibitions of musical instruments, paintings and crafts of this region at important centres in the country.
5. To help in the production of film documentaries on tribal dances and to establish liaison with the Film Division of the Government of India and different zonal film circuits for their exhibitions in the cinemas of the country.
6. To bring about greater contact and fruitful collaboration with the various wings of the Ministry of Information and Broadcasting, the Ministry of Education and Culture and Semi-official agencies like the Lalit Kala Academy, the Sangeet Natak Academy, etc.

Manifestly, the States in the region have been making all efforts in this regard, but due



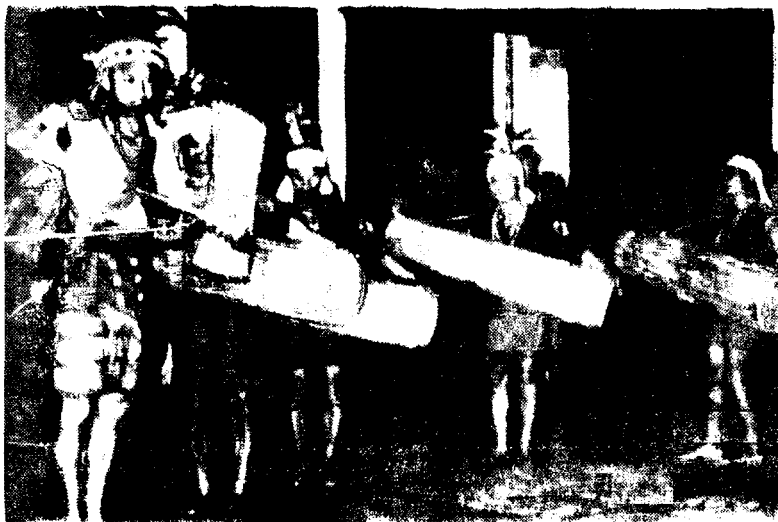
A Kuki Naga plays on his flute

to multiplicity of factors such as organisational shortcomings, paucity of funds and personnel and lack of knowhow of media techniques these have not yet led to any fruitful result. Since the problems of the sharp decline of traditional culture is common to all the states, it is expedient and desirable to undertake urgent and effective steps to preserve, promote and document the traditional art

forms of dances, music and theatre of the people of the North East.

Development of Indigenous Culture and Heritage of the People of the North East

It is now well recognised that "culture" is an important factor in tribal life. For the hill people dance, music and paintings are neither a pastime nor merely expressions of happiness. They



Manipur Drum Dances



A discussion on "Socio-Cultural Heritage" of N.E.R.

are closely interwoven into the economic and social life and they act and react on each other. Manifestly, a programme for their development has to have an integrated approach, including cultural development, for bringing optimum benefit to them.

In the case of this region, the geographical, historical and political factors have created special problems. Of the States Nagaland, Meghalaya, Mizoram, Arunachal Pradesh and two districts of Assam are overwhelmingly tribal areas. Also 60 per cent of the area in Tripura

and 80 per cent of the area in Manipur are hilly, inhabited by various tribes. Due to poor or non-existent infrastructure facilities the tribes live in splendid isolation. Since every unit has a large number of tribes and sub-tribes, inhabiting distinct areas, there have grown "cultural pockets" all over the region. This is undesirable in any context, more so in the case of this region which has a strategic position, and is backward by all yardsticks.

Existing Cultural Forums in the Region :

For revival and promotion of culture some organisations have been set up by the States. In Assam, the Sangeet Natak Academy, started by Rani Sabita Devi, seeks to promote modern Assamese theatre as also the Sastriya dance (or the Ankiva Natt) and the Bihu festival. In Manipur, the Sangeet Natak Academy has established the Jawaharlal Nehru Manipuri Dance Academy for the preservation and promotion of traditional Manipuri style of dancing.



A Regional Cultural Advisory Committee has been set up by NEC for advising the Council on various matters concerning promotion and preservation of Socio-cultural heritage of the people of the North East.

In regard to the hill people, Meghalaya established a State Institute of Art and Culture in January, 1977. So far the Institute has only a Faculty of Music with two branches, namely, (i) Western Music including piano lessons and (ii) teaching of Khasi Folk Songs. The original plan envisaged the setting up of

Faculties of Music, Art, and Literature. The Naga Institute of Culture, set up in 1964, is primarily devoted to research and survey on sociological, ethnological, cultural and historical aspects of the tribes in Nagaland. Both the Institute are embryonic and concern themselves with their respective local

problems. Several States have cultural forums at village levels. In the meantime, North Eastern Zonal Cultural Centre has been set up under the auspices of the Sangeet Natak Academy for promotion and propagation of the dance and music of the North-Eastern Region. A Regional Cultural Advisory Committee has been set up under the auspices of the North Eastern Council to give advice and guidelines to the State Governments of the N. E. Region on various measures required to be undertaken for preservation and documentation of socio-cultural heritage of the people of the region.

The North Eastern Council has extended financial support to a number of North Eastern States for preservation and documentation with a view to help in preservation and documentation of the traditional arts, culture and crafts of the people of the region especially of the hill areas. In the 5th plan of N.E.C., a comprehensive scheme for documentation of traditional culture of the major groups of

the region has been included and a token provision of Rs. 15.00 lakhs is provided.

Schemes as received from the Govt. of Arunachal Pradesh, Assam, Manipur, Mizoram and

Nagaland are now under implementation. While the Govt. of Meghalaya has taken a scheme for setting up of an audio-visual archive for documentation of various folk forms of dance, music and traditional theatre of

the North East. The object of this Regional Cultural Documentation Centre is to ensure scientific display of the documented materials, their preservation of tribal performing arts and research on tribal culture. An

outlay of Rs. 18.00 lakhs was provided in the year 1989-90 for preservation of socio-cultural heritage of the people of the North East.

PLAN OUTLAYS—NORTH EASTERN COUNCIL

SECTORWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in crores)

Serial No.	Sector	Seventh Plan Approved outlay	Actual expenditure 1985-88	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Agriculture and allied programme	46.47	22.66	12.02	12.02	16.70	13.24
2.	Power and Water development . . .	278.08	131.18	52.98	44.62	100.39	63.82
3.	Industries and minerals . . .	10.60	5.17	7.52	1.46	11.52	6.04
4.	Transport and communication . . .	297.53	199.90	99.68	112.33	121.92	120.66
5.	Manpower development . . .	33.80	27.12	10.33	12.27	9.74	7.85
6.	Social and community services . . .	1.61	1.78	0.73	0.65	1.90	1.17
7.	General services	6.92	2.25	1.74	1.65	2.16	2.22
	Total	675.00	390.06	185.00	185.00	264.33	215.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No.	Name of the scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A.	<i>Soil Conservation and Agriculture :</i>						
1.	Pilot Project on Watershed Management	456.58	227.13	113.25	116.65	151.15	151.15
	(a) Popum Poma, Arunachal Pradesh		6.75	1.25	1.25	3.40	3.40
	(b) Hiriniri, Assam		25.70	26.00	29.40	22.75	22.75
	(c) Buwangleima, Manipur		10.00	19.00	19.00	36.00	36.00
	(d) Umtongphar, Meghalaya		25.00	25.00	25.00	30.00	30.00
	(e) Teirei, Mizoram		45.00	25.00	25.00	40.00	40.00
	(f) Dikhu, Nagaland		48.68	10.00	10.00	14.00	14.00
	(g) Rangacherra and Maharani, Tripura		66.00	7.00	7.00	5.00	6.00
				(Rangacherra)			
2.	Survey and Investigation Cell	50.00	20.82	12.65	13.25	14.25	14.25
	(a) Arunachal Pradesh			2.15	2.15	1.00	1.00
	(b) Assam			2.20	2.20	2.80	2.80
	(c) Manipur			1.80	1.80	1.30	1.30
	(d) Meghalaya			1.25	1.85	2.00	2.00
	(e) Mizoram			2.00	2.00	1.50	1.50
	(f) Nagaland			1.50	1.50	2.75	2.75
	(g) Tripura			1.75	1.75	2.90	2.90

SCHEMFWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3.	PPM Cell in NEC Secretariat	20.00	16.16	4.00	4.00	5.00	5.00
4.	Regional Soil Conservation Training Centre, Meghalaya	50.00	29.18	15.00	15.00	15.00	15.00
5.	Survey of Catchment Area, Ranganadi, Arunachal Pradesh	25.00	4.95	5.00	5.00	7.00	7.00
6.	Foundation Seed Farm for Major Crops, Manipur	46.15	10.00	15.00	15.00	25.00	25.00
7.	Regional Centre for Production of Bio-fertilizers in A.A.U.	5.00	5.00	0.30	0.30	0.30	0.30
8.	Joint Input Testing Laboratory, Tripura	29.35	8.01	12.00	9.00	15.00	15.00
9.	Regional Sub-Centre for Training-cum-Production of Mushroom in Mizoram	15.00	22.77	1.50	1.50	5.00	5.00
10.	Regional Farm for Production of Pulses and Oil Seeds, Manipur	54.40	16.48	18.00	21.12	28.00	28.00
11.	Mushroom Development Centre, Arunachal Pradesh	14.50	6.66	6.00	7.91	2.10	2.10
12.	Regional Bio-Fertilizer Production Centre, Tripura	24.90	6.00	6.00	8.00	12.00	12.00
13.	Regional Breeder Seed Farm, Tripura	29.00	10.00	9.00	5.00	15.00	15.00
14.	Regional Mushroom Spawn Production Centre, Tripura	15.10	5.00	5.00	6.00	10.00	10.00
15.	Pilot Project on Dry Land Agriculture, Water Harvesting, Nagaland	43.60	20.00	6.75	10.00	15.00	15.00
16.	Regional Cotton Seed Multiplication and Development Centre, Tripura	54.28	15.80	5.00	5.00	12.00	12.00
17.	Establishment of Regional Seed Certification Agency	—	—	10.00	1.00	300.00	125.00
18.	North Eastern Seed Corporation	—	—	—	—	—	—
Total: SOIL CONSERVATION AND AGRICULTURE		—	—	244.45	238.73	631.80	456.80

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN- 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B. Horticulture :							
1.	Regional Vegetable Seed Farm, Maicherra in Tripura	23.05	8.62	5.00	5.00	10.00	10.00
2.	Regional Orchard-cum-Nursery for Citrus, Myhkre, Meghalaya	5.21	9.21	3.50	3.50	3.50	3.50
3.	Regional Coconut Seed Garden, Tripura	42.37	28.00	8.00	8.00	10.00	10.00
4.	Regional Seed Garden for Spices and Betel Leaf, Tripura	51.46	16.20	15.00	15.00	18.00	15.00
5.	Development of Temperate Nut and Almond Crops, Arunachal Pradesh.	32.45	7.55	10.00	5.00	12.00	6.00
6.	Temperate Fruit and Nut Nursery, Arunachal Pradesh.	26.60	7.50	10.00	10.59	8.50	8.50
7.	Scheme for Survey of Area and Production :	10.00	17.90	8.00	4.00	5.00	5.00
	(a) Assam	—	—	4.00	4.00	5.00	5.00
	(b) Meghalaya	—	—	4.00	—	—	—
8.	NFRAMAC, Gauhati	325.00	300.00	25.00	—	25.00	25.00
9.	Foundation Seed Farm for Potato in Manipur	28.15	15.00	10.00	13.50	15.00	15.00
10.	Foundation Seed Farm for Potato in Meghalaya	50.00	—	10.00	—	1.00	1.00
11.	Foundation Seed Farm for Potato in Mizoram	40.10	1.08	1.00	1.00	15.00	5.00
12.	Establishment of Seed Farm for Production of Certified Seeds of Potato, Tripura.	65.00	15.00	12.00	20.00	20.00	15.00
13.	Regional Tuber Crops Farm, Tripura	38.00	17.60	15.00	15.00	15.00	15.00
14.	Regional Vegetable Seed Farm, Arunachal Pradesh	26.00	7.09	10.00	10.00	8.00	8.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN- 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
15.	Regional Vegetable Seed Farm, Manipur	27.12	21.00	8.00	8.00	15.00	15.00
16.	Scheme for Establishment of Clonal Seed Garden for Banana, Tripura.	60.00	25.00	15.00	5.00	16.00	8.00
17.	Scheme for Rejuvenation of Old Orange Orchards, Tripura	20.00	6.00	5.00	5.00	8.00	5.00
18.	Establishment of Citrus Demonstration and Development Centre, Mizoram.	20.35	8.00	3.00	3.00	6.00	5.00
19.	Establishment of Large Cardamom Nursery, Mizoram	28.18	15.64	7.00	11.00	5.50	5.50
20.	Promotion of Floriculture, Tripura	22.00	6.66	3.00	3.00	5.00	5.50
21.	Introduction of Saffron, Arunachal Pradesh	11.00	3.20	3.00	3.00	3.50	3.50
22.	Establishment of Model Spices Farm and Popularisation of Spices Cultivation in NER.			—	—	23.00	11.00
Total : HORTICULTURE				186.50	140.59	248.10	200.00
<i>(c) Plantation :</i>							
1.	Detailed <i>In situ</i> Survey of Land suitable for Coffee in the NE Region.	10.00	11.91	3.55	3.55	2.00	2.00
2.	Factory for Small Farmers' Tea Estate, Tripura	204.00	105.00	70.00	70.00	12.50	12.50
3.	Rubber Processing Factory, Tripura	137.00	85.00	70.00	50.00	2.00	2.00
4.	Raising of Dioscorea Floribunda Plantation and Processing for Manufacture of Diosgenin/16 DPA, Tripura.	151.00	50.00	50.00	30.00	15.00	45.00
5.	Establishment of Rubber Demonstration-cum-Training Centre in (Assam, Meghalaya, Mizoram and Nagaland).	—	—	—	—	50.00	25.00
Total : PLANTATION				193.55	153.55	111.50	86.50

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN- 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(i) Forest and Plant Resources :</i>							
1. Afforestation of :							
	(a) Catchment Area of Umiyam Hydro Electric Project, Meghalaya	75.00	40.82	25.00	32.89	35.60	33.00
	(b) Catchment Area of Loktak Hydro Electric Project, Manipur	75.00	47.17	30.00	30.00	20.00	20.00
	(c) Catchment Area of Doyang Hydro Electric Project, Nagaland	75.00	17.21	20.00	20.00	30.00	30.00
	(d) Catchment Area of Kopili Hydro Electric Project	—	—	12.00	12.00	28.00	20.00
2.	Propagation of Tissue Culture Technique for Multiplication of Various Species.	100.00	11.85	10.00	3.38	3.23	3.00
	(a) North Eastern Hill University	—	—	—	—	2.04	2.00
	(b) Gauhati University	—	—	—	—	1.19	1.00
3.	Sub-Tropical Botanical Garden of Plant Resources, Nagaland	175.00	9.50	35.00	15.00	20.00	15.00

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4.	Development of Minor Forest Products including Medicinal Plants :	140.00	43.42	25.00	25.21	27.75	28.00
	(a) Arunachal Pradesh	—	—	5.00	5.00	6.00	6.00
	(b) Assam	—	—	5.00	5.00	5.00	5.00
	(c) Manipur	—	—	5.00	5.00	5.00	5.00
	(d) Meghalaya	—	—	1.00	1.00	1.00	1.00
	(e) Mizoram	—	—	3.00	3.00	5.05	5.00
	(f) Nagaland	—	—	1.00	1.21	—	—
	(g) Tripura	—	—	5.00	5.00	5.70	6.00
5.	Tree Improvement Schemes	80.00	24.95	18.00	10.48	14.70	14.00
	(a) Arunachal Pradesh	—	—	1.00	0.25	0.50	0.50
	(b) Assam	—	—	3.00	2.23	3.90	3.20
	(c) Manipur	—	—	3.00	3.00	2.50	2.50
	(d) Meghalaya	—	—	1.00	6.00	3.00	3.00
	(e) Mizoram	—	—	3.00	3.00	3.50	3.50
	(f) Nagaland	—	—	1.00	2.00	1.30	1.30
6.	Regional Forest Rangers College	—	—	10.00	1.00	50.00	33.00
	Total :	—	—	185.00	155.96	269.28	196.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN -1989-90

(Rs. in lakhs)

Serial NO.	Name of the Scheme	Seventh Plan Approved outlay	Actual expen- diture 1985- 1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
E. Animal Husbandry							
1	Regional Temperate Fodder Seed Production-cum-Demonstration Farm, Arunachal Pradesh	15.00	29.60	7.00	7.13	10.00	10.00
2	Regional Broiler Chick Production-cum-Demonstration Farm, Gauhati.	46.68	42.87	10.00	6.00	15.00	15.00
3	Regional Feed Testing Laboratory, Khanapara, Gauhati	42.57	36.78	4.60	2.50	4.00	4.00
4	Regional Integrated Farming System Project under AAU	4.00	3.08	0.40	0.40	0.40	0.40
5	Regional Cross-Breed Cattle Farm, Teenzawl, Mizoram	40.00	27.50	6.00	7.80	8.00	8.00
6	Regional Goat Breeding Farm, Tripura	29.33	19.76	10.00	10.00	9.70	9.70
7	Regional Pig Breeding Farm, Naikata, Tripura	34.11	24.53	10.00	10.00	7.20	7.20
8	Regional Mithun Breeding Farm, Arunachal Pradesh	25.00	20.70	9.00	13.00	10.00	10.00
9	Regional Fodder Seed Farm, Assam	45.00	28.20	12.00	27.00	18.00	18.00
10	Regional Frozen Semen Project, Assam	35.00	46.64	2.70	19.60	12.00	12.00
11	Regional Buffalo Breeding Farm, Assam	—	32.96	20.00	27.00	17.00	17.00
12	Mechanisation of Institute of Veterinary Biologicals, Khanapara, Assam.	—	13.18	11.00	26.00	20.00	20.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN- 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
13.	Regional AI Training-cum-Cryogenic Laboratory in Assam Agriculture University.	20.00	7.35	4.15	7.00	4.50	4.50
14.	Regional Buffalo Breeding Farm, Manipur	49.20	30.90	20.25	30.00	12.00	12.00
15.	Regional Pony Development Project, Manipur	60.00	25.85	15.00	30.00	20.00	20.00
16.	Regional Composite Livestock Farm Tamenglong, Manipur	35.00	22.85	16.40	16.40	3.40	3.40
17.	Regional Piggery Farm, Meghalaya	40.00	45.24	7.00	16.00	6.50	6.50
18.	Regional Fodder Seed Farm, Thenzawl, Mizoram	25.00	15.59	5.00	5.00	7.00	7.00
19.	Regional Broiler Chicks Farm, Mizoram	50.00	26.78	14.50	15.34	10.00	10.00
20.	Regional Cross-Bred Cattle Farm, Nagaland	75.00	39.40	22.00	25.00	35.00	35.00
21.	Regional Exotic Pig Breeding Centre, Nagaland	65.00	41.70	18.00	18.00	5.00	5.00
22.	Regional Broiler Chicks Production-cum-Demonstration Sub-Centre, Kohima.	40.00	21.85	13.00	13.00	5.00	5.00
23.	Regional Veterinary Biological Centre, Tripura	85.80	19.00	22.00	20.00	25.00	25.00
24.	Regional Centre for Investigation of Common Diseases of Ducks, Tripura.	25.00	9.00	6.00	10.00	1.00	1.00
25.	Regional Pig Breeding Centre, Manipur		11.70	15.00	25.00	3.00	3.00
26.	Regional Pork Processing Centre, Nagaland		—	40.00	40.00	35.00	35.00
27.	Regional Rabbit Production Centre, Nagaland		19.00	20.00	25.00	5.00	5.00
Total : Animal Husbandry				341.00	451.07	303.70	333.70

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN -1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Fisheries</i>							
1.	Reclamation of Beel Fishery, Arunachal Pradesh and Meghalaya	66.00	A P. —	7.00	12.00	20.00	15.00
			Megh	6.99	3.50	3.50	5.00
2.	Regional Fish Seed Farm, Meghalaya	18.00	3.00	10.00	10.00	9.00	9.00
3.	Regional Fish Seed Farm, Mizoram	20.00	10.91	4.00	8.00	8.00	3.00
4.	Regional Carp Fish Breeding and Culture Farm Nagaland	50.00	25.66	9.00	15.00	2.00	2.00
5.	Regional Air Breathing Fish Seed Farm Tripura	48.97	12.00	8.00	1.60	24.00	19.00
6.	Fresh Water Carp Seed Farm in Loktak Lake, Manipur	25.00	7.88	5.00	5.00	11.00	11.00
7.	Regional Pengba Fish Seed Farm, Manipur	25.00	10.43	5.00	5.00	12.00	12.00
Total : Fisheries		—	—	51.50	62.10	100.50	76.00
Total : Agriculture and Allied Programme		—	—	1,202.00	1,202.00	1,669.78	1,324.00

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN -1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989 90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
II. Power, Water Development and RRE							
Power Development :							
(a)	Generation	..	..	3,851.00	2,966.00	5,735.00	4,317
	1. Kopili Hydel Project	3,100.00	7,100.00	700.00	700.00	10.00	1.00
	2. Garo Hills Thermal Project	3,000.00	..	1.00	1.00	10.00	1.00
	3. Doyang Hydel Project in Nagaland	10,000.00	1,325.00	500.00	500.00	2,500.00	1,000.00
	4. Ranganadi Hydro Electric Project	5,000.00	1,400.00	1,500.00	1,500.00	2,400.00	2,000.00
	5. Gas Turbine, Tripura	..	150.00	250.00	250.00	165.00	165.00
	6. Gas Turbine Project, Roknia, Tripura	..	..	900.00	10.00	500.00	1,000.00
	7. Serlul-B HEP, Mizoram and other new Generation project	..	..	..	5.00	150.00	150.00
(b)	Transmission	1,112.00	1,207.00	1112.00	1207.00	2,500.00	1,450.00
	8. Additional Transmission Line including construction of 132 KV-Lungmual-Zembank line.	882.00	1,200.00	175.00	400.00	100.00	100.00
	9. Transmission System associated with Doyang by NEEFCO	4,000.00	810.00	682.00	682.00	200.00	1,000.00
	10. 132 KV Transmission Cohpur-tentger line	..	146.00	100.00	100.00	170.00	170.00
	11. Ranganadi Transmission Project	500.00	25.00	25.00	25.00	50.00	50.00
	12. Transmission System in NER	1.00	..	100.00	..	150.00	100.00
	13. Establishment of RLDC and SJDC in NER	..	..	30.00	..	30.00	30.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C.	<i>Survey and Investigation</i>	..	..	120.00	58.00	44.00	54.00
14.	Loktak down stream, and Tuivai Hvdel Project, Manipur	15.17	38.82	1.00	..	1.00	1.00
15.	Tuivai in Mizoram	211.12	178.54	17.00	19.00	5.00	5.00
16.	(a) Ranganadi Stage II	63.85	81.86	1.00	1.00	1.00	1.00
	(b) Damwe						
	(c) Papu						
17.	(a) Barak	198.86	186.00	27.00	10.00	5.00	5.00
	(b) Irang						
18.	Kynshi Basin in Meghalaya	86.18	26.00	15.00	..	1.00	1.00
19.	Dikrong in Arunachal Pradesh	39.54	44.54	1.00	1.00	1.00	1.00
20.	Residual Investigation, Kameng	4.00	..	1.00	1.00	1.00	1.00
21.	High Dam Tipaimukh	6.00	..	1.00	1.00	1.00	1.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989 90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
22. Investigation of Hydel Project including Mini-Micro Hydel Project—							
(a)	Popum Puma Investigation . . . . .	..	15.00	1.00	..	1.00	1.00
(b)	8 sites in Nagaland . . . . .	..	3.00	9.00	9.00	1.00	1.00
(c)	Continuation of Collection of Hydrological data in Krimeng HE Project. . . . .	..	10.00	1.00	1.00	10.00	10.00
(d)	Meghalaya . . . . .	..	..	15.00	15.00	16.00	16.00
(e)	Arunachal Pradesh . . . . .	..	..	15.00	..	..	..
(f)	Manipur . . . . .	..	..	15.00	..	..	..
23.	Kopili Dam Investigation . . . . .	..	..	..	..	..	10.00
Total of Power Development				5083.00	4231.00	8279.00	5,821.00
B. Water Development :							
1.	Investigation of Micro Hydel-cum-Irrigation Project, Mizoram — CWC. . . . .	..	..	25.00	20.00	25.00	20.00
2.	Longai Investigation, Tripura — CWC	40.01	9.08	15.00	25.00	7.00	60.00
3.	North Eastern Regional Institute of Water and Land Management, Assam.	131.28	..	30.00	80.00	100.00	60.00
4.	Flood Protection Works near Kaliabhomora Bridge . . . . .	..	80.00	18.00	18.00	..	..

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
5.	Sedimentation Survey of Umiam Reservoir, Meghalaya	11.00	7.40	5.00	1.96	7.00	7.00
6.	Exploration of Ground Water in Mizoram . . . . .	..	27.46	11.00	11.00	6.00	6.00
7.	Jiri Medium Irrigation Project in Manipur	218.39	23.00	10.00	10.00 (Inv.)	200.00	22.00
8.	Construction of Pagludia Dam . . . . .	..	..	20.00	..	500.00	25.00
9.	Construction of Tipiamukh Dam Project . . . . .	..	..	..	..	500.00	25.00
10.	Drainage Project in Barak Valley-Haraing Sub Basin . . . . .	..	..	20.00	..	100.00	10.00
11.	Development of Loktak Lake . . . . .	..	..	..	10.00	100.00	200.00
12.	Investigation of Sissiri and Kunlung Project, Arunachal Pradesh . . . . .	..	..	..	5.00	50.00	50.00
13.	Investigation of Dauza-Tsurang Project, Nagaland . . . . .	..	..	..	..	15.00	10.00
14.	Investigation of Dikhu-Tamlu Project, Nagaland . . . . .	..	..	..	..	15.00	10.00
15.	Investigation of Atengbak Project, Manipur . . . . .	..	..	..	5.00	25.00	10.00
16.	Drainage Scheme in Brahmaputra Valley . . . . .	..	..	..	..	20.00	10.00
17.	River Morphologi Study - Brahmaputra . . . . .	..	..	..	..	20.00	200.00
Total of Water Development				156.00	174.96	1,960.00	691.00
C.	R.R.E.	200.00	101.70	70.00	56.00	70.00	70.00
Total of Power, Water Development and R.R.E.				5298.00	4461.96	10,039.00	6,382.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
III. Industries and Minerals :							
A.	Detailed Minerals Investigation and Proving	..	..	713.50	112.91	1,109.50	104.00
1.	For clearing pending liabilities of—						
	(a) Siju Borjan, Dilli-Joypore, Bokajan, Namchik, Nampuk, Lumshnong, Makum Exploration.	..	..	20.00	20.00	10.00	10.00
	(b) Langrin Coal Exploration, Meghalaya	50.00	42.75	5.00	5.00	5.00	5.00
	(c) Exploration of Western extension Block of Namchik Nampuk Coalfield, Arunachal Pradesh.	35.00	34.25	7.00	7.00	5.00	5.00
2.	Coal Exploration Dilli Sector of Dilli Joypore Limestone (New schemes)	35.00	12.61	12.00	12.00	11.00	11.00
3.	New Umrangshu, Assam	25.00	7.00	7.00	7.00	11.00	11.00
4.	Nimni, Nagaland	24.00	10.00	10.00	10.00	10.00	10.00
5.	Detailed Investigation of high grade limestone in Lumshnong North Block, Jaintia Hills, Meghalaya.	16.00	7.50	3.00	3.54	3.50	3.50
6.	Exploration of Ground Water, Mizoram	..	27.46	11.00	11.00 (included under Water Development.)	..	..
7.	Decorative Stone, Manipur	..	..	..	..	..	12.00
8.	Exploration of Limestone, Barsona, Meghalaya	..	..	..	..	..	35.50
9.	New Umrangshu Limestone Mining, Assam	..	..	..	..	..	11.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN-1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B. Large and Medium Industries :							
10	Mini-Cement Plant at Hundung, Manipur (50 TPD)	40.80	72.93	5.00	5.00	1.00	1.00
11.	Mini-Cement Plant, Wazeno, Nagaland (50 TPD)	21.50	108.10	5.00	5.00	1.00	5.00
12.	Paper-grade Line Plant at Lumshuong, Meghalaya	10.00	..	..	..	10.00	10.00
13	Paper-grade Line Plant (200 TPD), Umrangshu, Assam	1.00	..	..	..	1.00	..
14.	<i>Detailed Raw Material Investigation for Specific Project (Feasibility Studies)</i>						
	(a) Beneficiation utilisation studies of Glass and Sand, Meghalaya and Tripura.	15.00	..	3.00	6.20	1.00	1.00
	(b) Beneficiation test, Sillimanite and Kyanite, Meghalaya and Assam.	8.00	..	4.00	..	10.00	10.00
	(c) Beneficiation test on Garnet and other minor abrasive minerals	24.00	..	1.00	..	10.00	10.00
	(d) Feasibility and detailed studies for one million tonne cement plant.	30.00	..	..	..	10.00	10.00
	(e) Feasibility studies for Chemical/High Grade limestone	5.00	..	1.00	0.70	10.00	10.00
C. R and D Project for Industrial Utilisation of Regional Raw Materials :							
15.	Low Temperature Carbonisation of N.E. Coal	10.00	8.00	1.00	1.00	1.00	1.00
16.	Development of Fluidised bed Technology of NE Coal	10.00	9.65	1.00	1.00	1.00	1.00
17.	Desulphurisation of flue Gas generated in the Beehive coke oven	5.00	3.25	1.00	1.00	1.00	1.00
18.	Determination of Physical, Chemical characteristics of the N.E. Tertiary Coal, NE Region.	30.00	9.87	10.00	10.00	17.00	17.00
19.	Setting up of Chemical and Petrological Laboratory at Dimapur, Nagaland.	33.00	5.00	7.50	7.50	..	..

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved outlay	Anticipated expenditure	Proposed outlay	Approved outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Industrial Project--</i>							
20.	(a) Clinker grinding units in Mizoram and Tripura . . . . .	..	..	200.00	..	400.00	400.00
	(b) Expansion of Bokajan Cement Plant . . . . .	..	..	400.00	..	600.00	400.00
21.	Breeze Coke Plant (for 30,000 tonnes) to meet requirement of VSK Cement and Lime Plant.	166.00	..	10.00	..	10.00	10.00
D.	<i>Sericulture</i> . . . . .	..	..	28.00	32.80	32.50	32.50
22.	Establishment of Muga Plant and Oak Plant Nursery, Arunachal Pradesh.	10.50	2.17	2.00	0.50	3.00	3.00
23.	Establishment of Reeling Units, Assam	8.00	9.60	5.00	5.00	6.00	6.00
24.	Scheme for Modernisation of Mulberry Silk Reeling Unit, Meghalaya.	8.00	9.00	4.00	4.00	5.00	5.00
25.	Establishment of Silk Reeling Spinning Weaving, Training-cum-production centre at Kolasib, Mizoram.	15.00	6.07	5.00	3.80	3.50	3.50
26.	Establishment of Integrated Reeling and Twisting Unit, Nagaland	8.00	11.00	5.00	15.00	5.00	5.00
27.	Silk Reeling Unit, Tripura	8.00	3.55	5.00	2.50	6.50	6.50
28.	Establishment of Tassar Silk Weaving Unit, Manipur	8.00	7.00	2.00	2.00	3.50	3.50
29.	North Eastern Handlooms and Handicrafts Development Corporation	..	..	..	..	10.00	10.00
Total : Industries and Minerals . . . . .		..	..	752.50	145.74	1,152.00	603.50

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN 1989-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved Outlay	Actual Expenditure 1985-1988	1988-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
IV. Transport & Communication :							
1.	Ropeways	1.00	..	5.00	..	20.00	5.00
2.	Improvement of Inland Water Transport Construction of Floating Jetties and River terminal facilities at Badarpur.	410.00	186.00	94.00	74.00	100.00	100.00
3.	Mechanical Cargo Handling Plant at Badarpur	253.00	215.00	200.00	150.00	200.00	200.00
4.	Roads	28,908.68	..	8,155.00	8,853.00	11,361.00	9,500.00
	(i) Inter State Roads	15,996.00	10,253.67	4,730.00	4,625.20	6,269.00	5,025.00
	(a) Arunachal Pradesh . . . . .	..	1,644.00	750.00	820.00	860.00	775.00
	(b) Assam . . . . .	..	1,976.67	830.00	1,009.00	1,410.00	1,050.00
	(c) Manipur . . . . .	..	1,005.00	400.00	310.00	500.00	400.00
	(d) Meghalaya . . . . .	..	1,534.00	700.00	651.00	1,010.00	750.00
	(e) Mizoram . . . . .	..	1,201.00	650.00	636.00	910.00	675.00
	(f) Nagaland . . . . .	..	1,530.00	800.00	632.00	873.00	775.00
	(g) Tripura . . . . .	..	1,363.00	600.00	567.20	706.00	600.00
	(ii) Roads of Economic Importance executed through BRDB	12,912.68	8,658.00	3,425.00	4,227.80	5,692.00	4,575.00
5.	Bridge across Brahmaputra, Tezpur, Assam	160.00	671.00	10.00	159.00	..	..
6.	Survey of Bridge over Brahmaputra near Dibrugarh . . . . .	..	..	4.00	3.86	1.00	1.00
7.	Support for rail-cum-road Bridge over Brahmaputra at Joghghopa . . . . .	..	..	1,500.00	1,500.00	..	2,000.00
8.	Support for Helicopter Services in NER (New scheme) . . . . .	..	..	..	..	500.00	..
9.	Improvement of Airport facilities in NER . . . . .	..	..	..	..	..	150.00
10.	Setting up of Inland Transport Corporation (New scheme) . . . . .	..	..	..	..	10.00	10.00
Total : Transport and Communications . . . . .		..	..	9,968.00	10,740.06	12,192.00	12,066.00

SCHEME-WISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1988-90

(Rs. in lakhs)

Serial No.	Name of the Scheme	Seventh Plan Approved Outlay	Actual Expenditure 1985-1988	1988-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
V. Manpower Development :							
1.	<i>Fellowship and Academic Programme</i>	230.00	124.56	45.00	41.50	45.00	45.00
	(a) Arunachal Pradesh . . . . .	..	..	6.00	4.50	6.00	6.00
	(b) Assam . . . . .	..	..	7.00	7.00	7.00	7.00
	(c) Manipur . . . . .	..	..	8.00	6.00	8.00	8.00
	(d) Meghalaya . . . . .	..	..	5.00	5.00	5.00	5.00
	(e) Mizoram . . . . .	..	..	5.00	5.00	5.00	5.00
	(f) Nagaland . . . . .	..	..	7.00	7.00	7.00	7.00
	(g) Tripura . . . . .	..	..	7.00	7.00	7.00	7.00
2.	<i>Linemen's Training Programme</i>						
	Assam	25.00	25.56	4.50	4.50	4.50	4.50
	Meghalaya . . . . .	..	..	4.50	4.50	5.00	4.50
3.	Miscellaneous Training Programme	132.00	62.80	30.00	30.00	40.00	38.00
4.	N.E. Regional Institute of Science and Technology	1,500.00	1,400.00	500.00	50.00	200.00	200.00
5.	Extension of Assam Survey School	7.00	9.50	6.00	6.00	5.00	5.00
6.	Financial Assistance to Assam Rifles Public School for improvement in the Standard of Science and Mathematics Education.	25.77	18.73	5.00	5.00	5.00	5.00
7.	Establishment of Regional Fishery Institute, Assam	54.41	22.00	13.60	12.90	10.30	10.00
8.	Regional Mining School in Nagaland	10.00	..	10.00	2.00	5.00	5.00
9.	Regional Medical College, Imphal	700.00	475.00	190.00	150.00	200.00	200.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN 1989-90

(Rs. in lakhs.)

Serial No.	Name of the Scheme	Seventh Plan Approved outlay	Actual Expenditure 1985-1988	1988-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
V Manpower Development — contd.							
10.	N.E. Judicial Officers Training Institute, Guwahati.	20.00	9.04	4.00	4.00	4.00	4.00
11.	North Eastern Police Academy, Umsam, Shillong	347.39	332.67	100.00	138.00	200.00	150.00
12.	Regional Dental Wing, GMC	40.00	35.88	..	5.00	10.00	5.00
13.	Regional Nursing College, Guwahati	60.00	25.00	60.00	60.00	1.00	1.00
14.	Expansion of Regional Pharmacy Institute, Agartala	30.00	10.00	7.00	7.00	10.00	10.00
15.	Improvement of ITI, Aizawl	15.00	20.00	5.00	5.00	2.00	2.00
16.	Regional ITI for Women, Tinsukia	10.00	18.00	25.00	38.00	20.00	20.00
17.	Modernisation of ITI, Imphal	20.00	18.65	1.00	1.00	..	..
18.	Regional Centre for Training of Trainers, Rani, Assam	..	55.00	15.00	19.00	20.00	20.00
19.	Construction of Hostel Accommodation in the Banasthali Vidya-pith, Rajasthan for the students of NFR	..	..	5.00	20.88	..	..
20.	Construction of Hostel at Delhi for the students of NER	..	..	2.00	1.00	2.00	1.00
21.	Operation Black Board	..	..	..	629.60	160.00	45.00
22.	Establishment of Survey and Training School, Tripura	..	..	..	..	10.00	10.00
Total : Manpower Development		..	..	1,032.60	1,226.68	973.80	785.00

SCHEMEWISE APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs.)

Serial No.	Name of the Scheme	Seventh Plan Approved Outlay	Actual Expenditure 1985-1988	1989-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
VI. Social and Community Services :							
1. Artificial Limb Fitting Centres—							
	(a) Shillong	20.12	30.38	4.00	4.00	6.00	5.00
	(b) Imphal . . . . .	..	..	11.00	11.00	25.00	18.00
2.	Artificial Limb Fitting-cum Rehabilitation Centre, Nagaland	11.50	7.00	5.00	6.00	3.00	3.00
3.	Food and Drug Laboratory, Shillong	15.00	5.00	10.00	10.00	9.00	9.00
4.	Food and Drug Laboratory, Guwahati	18.00	19.65	6.00	6.00	4.70	4.70
5.	Food and Drug Laboratory, Tripura	20.00	7.00	7.00	7.00	6.00	6.00
6.	Orthopaedic and Traumatology Centre, Shillong	10.00	..	6.00	5.00	8.00	8.00
7.	Regional Blood Bank, Meghalaya . . . . .	..	13.00	4.00	3.00	3.00	3.00
8.	Forensic Science Laboratory, Guwahati . . . . .	..	..	10.00	10.00	10.00	10.00
9.	Upgradation of Dr. B. Barooah Cancer Institute, Guwahati . . . . .	..	..	10.00	1.00	100.00	50.00
Total : Social and Community Services . . . . .		..	..	73.00	65.00	189.70	116.70

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN 1989-90

(Rs. in lakhs.)

Serial No.	Name of the Scheme	Seventh Plan Approved Outlay	Actual expenditure 1985-1988	1988-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
VII. General Services :							
A. Other Services :							
1.	Regional Information and Documentation Centre	50.00	25.20	10.00	13.00	18.00	15.00
2.	Documentation of Tribal Culture of the Tribal People	15.00	..	5.00	9.00	20.00	18.00
3.	Establishment of Regional Film Studio-cum-Production Centre, Jyoti Chitran in, Guwahati.	..	..	10.00	1.00	20.00	10.00
4.	Regional Centre for Resources Evaluation, Documentation and Information System	45.00	2.84	10.00	3.00	10.00	5.00
5.	Integrated Multi-channel Police Telecommunications for NER . . . . .	..	..	..	..	1.00	5.00
6.	Youth Activities	5.00	0.42	1.00	2.00	3.00	3.00
7.	House of NEC Staff	72.00	38.00	20.00	20.00	35.00	37.00
8.	NEC Guest House in New Delhi . . . . .	..	..	..	..	..	15.00
9.	Environmental Studies	15.00	0.07	1.00	..	1.00	1.00
10.	Chairman's Survey and Consultancy	250.00	87.32	50.00	70.00	75.00	70.00
B. Science and Technology Services :							
11.	<i>Natural Hazards Risks Evaluation and Reduction Programme</i>						
	(i) Earthquake Risk Evaluation Cell	40.00	19.38	7.00	7.00	8.00	8.00
	(ii) Earthquake Risk Evaluation in NER -Establishment and Operation of Network of short period Seismic Station in NER.	40.00	10.00	20.00	35.00	10.00	10.00

SCHEMewise APPROVED OUTLAY FOR NEC ANNUAL PLAN—1989-90

(Rs. in lakhs)

Serial No	Name of the Scheme	Seventh Plan Approved Outlay	Actual Expenditure 1985-1988	1988-89		1989-90	
				Approved Outlay	Anticipated Expenditure	Proposed Outlay	Approved Outlay
1	2	3	4	5	6	7	8
VII. General Services—contd.							
12.	R and D Projects :						
	(i) Repetitive Geodetic Surveys for monitoring land deformation precursor of earthquake.	4.00	..	5.00	..	1.00	1.00
	(ii) Radon Emission Studies for Identifying Earth	10.00	..	4.00	2.00	6.00	8.00
	(iii) <i>in situ</i> Stress Measurement	5.00	..	2.00	2.00	5.00	13.00
13.	Regional S and T Council	5.00	..	1.00	0.50	1.00	2.00
14.	Other S and T Programmes	5.00	0.89	3.00	0.50	1.00	1.00
15.	Science Museum, Guwahati	131.00	41.25	25.00	..	1.00	..
Total : General Services . . . . .		..	..	174.00	165.00	216.00	222.00
Grand Total . . . . .		..	..	18,500.10	18,459.44	26,432.28	21,500.00

*Includes Rs. 36 crores of LIC loan to be raised by NEFCO for the following schemes:

1. Doyang HFP .. Rs. 8.00 crores.
 2. Doyang Transmission .. Rs. 8.00 crores.
 3. Ranganadi HEP .. Rs. 19.00 crores.
 4. Gohpur-Itanagar Transmission Line .. Rs. 1.00 crores.
- Rs. 36.00 crores.**

Note.—The schemewise proposed outlays will not add up to the figure given under Grand Total in Col.7 because of deletion of schemes which are not approved by the Planning Commission

GIP (Pub. Unit), Sant.—SI—3 NE Council/89—30-10-90 . 2,000

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