1. Animal Husbandry:

INTRODUCTION:

In an agrarian economy of the tradition type the importance of Animal Husbandry can never be exaggerated. The livestock population of such an economy serves, among other things as the dominant source of power used in agriculture, a significant supplier of food for the people and as an effective agent of maintaining the fertility of the soil.

Animal Husbandry has been one of the most important pre-occupation of the people of Nagaland since time immemorial. On account of the climate of the State, habit of hard physical labour and customs of the people, meat is one of the staple and unavoidable food items for the tribal people of the State. Every Naga family rears various species of livestock and poultry birds to make available their social status, since the status of a Naga family is basically judged from the number of livestock owned by them. However, the livestock and poultry birds reared by the people during the past were of the indigenous non-descript type and the rearing methods were un-scientific and out dated.

As such the livestock and poultry birds maintained by the people were genetically poor in economic traits, which further deteriorated by continuous in-breeding for a long time. Thus, maintenance of livestock with extremely poor production potentials was highly uneconomic. As per the census conducted in 1971, the state has a human population of about 5.16 lakhs of which more than 80% are rural inhabitants and Animal Husbandry is their main occupation.
The poor genetic potentials of livestock and out dated Animal Husbandry practices has kept the rural economy below poverty line. Due to high demand coupled with low production, there is an acute shortage of meat within the state. To cope up with the increased demand, animals/birds worth of about ₹2/- crores (average of the last 3 years) are being imported every year. In view of these state of affairs, the development of Animal Husbandry in the State needs special attention in order to raise the nutritional status and economic condition of the rural people as well as to meet the requirement of meat, eggs and milk within the state.

As mentioned in the first chapter, the livestock population as per 12th quinquennial livestock census of 1978 is as follows:
### SPECIFICATION OF LIVESTOCK/BIRDS NUMBER IN 1978

<table>
<thead>
<tr>
<th>Description</th>
<th>Number in 1978</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Cattle</td>
<td>92,778</td>
</tr>
<tr>
<td>(2) Buffaloes</td>
<td>8,004</td>
</tr>
<tr>
<td>(3) Sheep</td>
<td>444</td>
</tr>
<tr>
<td>(4) Goats</td>
<td>24,060</td>
</tr>
<tr>
<td>(5) Pigs</td>
<td>2,38,294</td>
</tr>
<tr>
<td>(6) Mithum</td>
<td>9,892</td>
</tr>
<tr>
<td>(7) Poultry</td>
<td>7,14,961</td>
</tr>
</tbody>
</table>

**Total**: Livestock/Poultry 10,88,433

*Source:* Draft Sixth Five Year Plan, Government of Nagaland, Kohima.

The 13th quinquennial census was proposed to be held during 1982. An outlay of Rs. 1.5 lakhs has been earmarked for the purpose during 1982-83. (1)

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During the period from 1964 to 1973-74, the department had built infra-structural facilities by establishing nucleus poultry, piggery and cattle breeding farms so as to take up further developments and improvements on these sectors. Besides, Veterinary aid centres were also established to provide treatment facilities at the village level.

Based on the infra-structures, facilities already created up to 1973-74, the expansion facilities were provided during the period 1974-75 to 1979-80 so as to raise the level of livestock production. Besides, emphasis was laid on production oriented schemes and accordingly two pig breeding farms one each at Tuensang and Akhuloto were established.
THE ACHIEVEMENTS MADE UPTO 1979-80 ARE RECORDED BELOW

<table>
<thead>
<tr>
<th>Name of the Scheme</th>
<th>Unit</th>
<th>ACHIEVEMENTS AT THE END OF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Poultry Farms</td>
<td>Nos.</td>
<td>8</td>
</tr>
<tr>
<td>2. Layers Strength</td>
<td>Nos.</td>
<td>1140</td>
</tr>
<tr>
<td>3. Intensive Poultry Production Centre (Poultry Units)</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>4. Upgrading of local birds</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>5. Cattle breeding farms</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>6. Milch Cows</td>
<td>Nos.</td>
<td>57</td>
</tr>
<tr>
<td>7. Key village (S.M.C)</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>8. I.C.D.P. (SMC)</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>9. Bull Calf rearing Centres</td>
<td>Nos.</td>
<td>2</td>
</tr>
<tr>
<td>10. Distribution of breeding bulls on subsidy</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>11. Piggery farms</td>
<td>Nos.</td>
<td>3</td>
</tr>
<tr>
<td>12. Breeding sows</td>
<td>Nos.</td>
<td>72</td>
</tr>
<tr>
<td>13. I.P.D.P. (Piggery Units)</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>14. Veterinary Dispensaries</td>
<td>Nos.</td>
<td>6</td>
</tr>
<tr>
<td>15. Veterinary outposts</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>16. Mobile Veterinary Dispensaries</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>17. Quarantine Check Posts</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>18. Vigilance Unit</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>19. Vaccination Station</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>Name of the Scheme</td>
<td>Unit</td>
<td>ACHIEVEMENTS AT THE END OF</td>
</tr>
<tr>
<td>-------------------</td>
<td>------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>20. No. of districts in which F.M.D. Control has been taken</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>21. Sheep breeding farm</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>22. Feed &amp; Fodder farm (being merged) with development of feeder resources from 1980-81</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>23. Feed mixing Plants</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>24. V.F.A. Training Institute</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>25. Farmer's training (Farmers trained)</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>26. Disease Investigation &amp; Central</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>27. Rural Diary Central</td>
<td>Nos.</td>
<td>-</td>
</tr>
<tr>
<td>28. Milk production</td>
<td>Tonnnes</td>
<td>-</td>
</tr>
<tr>
<td>29. Eggs Production</td>
<td>Million</td>
<td>-</td>
</tr>
</tbody>
</table>

2. SCHEMES AND TARGETS OF ANIMAL HUSBANDRY SECTOR DURING THE SIXTH FIVE YEAR PLAN (1980-85):

The broad objectives of the 6th Five Year Plan from 1980-81 to 1984-85 are the following:

(i) to provide adequate infra-structural facilities to all the existing institutions which could not be provided earlier so that the institutions could be made self-sufficient in all respects within the plan period, and no more expansion is needed beyond 1984-85.

(ii) to initiate preliminary action to introduce certain new schemes to support the ongoing production oriented scheme.

(iii) and to create more facilities and infrastructures for active involvement of farmers to take up livestock farming etc. to support their economic and nutritional status besides increasing livestock production in the State.

For the Animal Husbandry schemes, an outlay of Rs.525.00 lakhs was proposed for the 6th Five Year Plan period from 1980-81 to 1984-85. (2)

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(i) **VETERINARY HOSPITAL:**

There is no veterinary hospital in the State. Due to lack of hospitalisation facilities, no adequate treatment could be provided. Since a large number of farmers are new rearing valuable exotic livestock which need proper veterinary aids from time to time, it has been decided to upgrade the existing three veterinary dispensaries of Kohima, Dimapur and Mokokchung into full fledged veterinary hospitals by providing staff, accommodations, indoor patient wards, equipments, medicines and transport during the sixth plan period since the existing infra-structural facilities are not adequate as required for a hospital. An outlay of Rs.12 lakhs has been proposed for establishing the hospitals during the Sixth Plan. (3)

(ii) **RINDERPEST ERADICATION (CENTRALLY SPONSORED SCHEME):**

The Rinderpest Eradication programme was initiated from the Fourth Plan period as a Centrally sponsored scheme till the year 1978-79. But from the year 1979-80, on account of the achievements made in controlling the disease, the central Government has directed the state to take up surveillance and containment vaccination programme. The pattern of financing was also changed from cent percent Central assistance to 50 : 50 ratio, between the State and the Central Government.

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(3) **Draft 6th Five Year Plan (1980-85) and Annual Plan 1981-82 (Sectoral Plans) Page-13, Chapter-III, Planning and Co-ordination Department, Government of Nagaland, Kohima, November 1980**
The programme for the 6th Plan Period envisages to conduct an active search for Rinderpest case throughout the State, to provide incentives to the first informer of a confirmed rinderpest outbreak, to carry out containment operation through Rinderpest Vaccination and around the seat of outbreak, to provide subsidy of fodder and feed required for the animals kept under isolation, to provide compensation to the owner whose animals are found suffering from Rinderpest in lieu of destruction of such animals, to bear expenditure of disinfectants and labour charges for burying carcasses etc. The scheme will be strictly implemented as per the guidelines provided by the Government of India.

(iii) CONTROL OF FOOT AND MOUTH DISEASES: (Centrally Sponsored Scheme): This scheme was taken up in the State from 1975—76. Upto 1978—79 the Scheme was implemented under the State Plan Programme and from 1979—80, this has been taken up as a centrally sponsored scheme. As in case of the Rinderpest Eradication Scheme, it was envisaged to implement the Scheme on 50 : 50 ratio of financing pattern between the Central and State Governments. The poor status of the farmers coupled with lack of awareness of the importance of this programme, makes it impossible to induce the farmers for getting their animals vaccinated on payment of 50% of the cost of the vaccines which are quite costly. In view of this, the State Government requested the Central Government for permission to implement this programme on 50 : 50 expenditure basis between the State and Central Governments. Accordingly an outlay of 2.20 lakhs being 50% State Government share has been earmarked for procurement of F.M.D. Vaccines during the Sixth Plan Period. (4)

(iv) **CONTROL OF RABIES:**

This is a new scheme to be taken up in the State during the 6th Plan Period. The incidence of canine rabies are very common in Nagaland and Annually many people die of rabies. Since most of the Naga families are fond of keeping pet dogs which are a common source of this disease to the human population, the dogs need to be immunised against Rabies to avoid further casualities.

To control this disease, the town committees have been requested to introduce a licence system for pet dogs. Unless these pets are not protected against rabies through prophylactic vaccination the hazards of rabies cannot be avoided. With this view in mind it is aimed to vaccinate about 2500 pet dogs during the 6th Plan Period. An outlay of Rs.1.00 lakh has been proposed for procurement of Rabies vaccine during the Sixth Plan Period. (5)

(v) **CATTLE DEVELOPMENT:**

(v)(i) **CATTLE BREEDING FARMS:**

Out of the three existing farms, three farms, one each at Lerie, Medziphema and Ahiba will be strengthened by providing additional infrastructural facilities so as to increase the strength of the milch cows from 250 (Base level 1979-80 for three farms) to 350, annual production of exotic calves from 150 to 206 and annual production of surplus milk

from 2.08 lakhs litres to 2.73 lakhs litres by the end of 1984-85 in the 3 cattle breeding farms. (6) Due to lack of fund, in most of the cases adequate livestock and staff accommodation could not be made available to accommodate increased livestock as per the targets set forth. In view of this, it will be essential to provide adequate accommodation in these existing farms so that anticipated production could be achieved.

As regards the existing cattle breeding farm in Tuensang it may be mentioned that the farm is located 10 kilometers away from the town. It has no proper water source and it does not have a proper approach road. All these factors contributed to the unsatisfactory progress of the farm, and it is the view of the Department that unless the location of the farm is changed, further expenditure on expansion of the firm will be a mere waste of fund. It is therefore proposed to close the farm with effect from 1981-82 and accordingly no provision is kept against this farm during the 6th Plan Period from 1981-82 onwards. The fund earmarked against this farm during 1980-81 is proposed to be utilised for expansion and shifting of the existing cattle breeding farm at Medziphema to Dimapur which will facilitate disposal of Milk directly to the chilling plant. An outlay of Rs.70.00 lakhs has been proposed for the development programme of the cattle Breeding Farms for the 6th Plan period. (7)

(6) Ibid, Page - 28
Under cattle development projects, the State Government has taken up Intensive Cattle Development Projects with one centralised Semen Bank each at Dimapur, Mon, Phek, Tuensang and Wokha, One Regional Artificial Insemenation Centre at Mokokchung and 47 stockmen centres all over the State.

(TWO BULL CALF REARING FARMS) - Were established during the earlier plan period One each at Jalukie and Sathazou with the aim of rearing the cross bred bull calves produced at existing cattle breeding farms till they are sexually mature. When these bulls are sexually mature, then they will be distributed among the farmers for upgradation of indigenous cattle production. These two centres were further strengthened by providing cattle sheds to accommodate the dry cows belonging to the existing cattle breeding farms so that the maintenance cost etc. on such cows could be reduced at the cattle breeding farms. The dry cows and bull calves from the cattle breeding farms at Lerie and Medziphema will be maintained at the Jalukie Centre, and those cows from the Ajiba Centre will be maintained at Sathazou.

The Government is also supplying exotic breeding bulls to the private farmers in rural areas where artificial insemination are not available on 50% subsidy. The purpose of supply of bulls is to upgrade the local cattle through natural service so as to raise the production potential of cross bred progeny. With the advance of Animal Husbandry practices there is a growing demand for such bulls from the local farmers. It is therefore, proposed to continue the scheme during the 6th Plan period and accordingly an additional number of 160 breeding bulls will be supplied to selected farmers on 50% subsidy i.e. @ ₹1000/-
per bull. An outlay of Rs.0.80 lakhs has been earmarked for the 6th Plan Period, the amount being the subsidy component of the Bulls. (8)

(v)(3) ASSISTANCE TO THE FARMERS FOR OPENING OF BEEF PRODUCTION FARMS: This scheme was started in the year 1979–80. Under this scheme, scrub bulls at the tender age of 12 to 15 months are supplied to the farmers after castration for rearing till they attain full growth by 24 to 28 months of age and are ready for disposal for table purposes. Each bull unit consists of 15 such bulls @ Rs.4500/- per unit i.e. Rs.300/- per bull. At the time of disposal of these bulls by the farmers for table purposes, the department will realise the amount of assistance provided to the farmer and the surplus sale proceeds will go to the farmer as his benefit. Thus, the scheme will not only help the poor farmers in creating self employment but will also help in eliminating scrub bulls in making available the healthy meat for the public.

The scheme will be continued during the 6th Plan Period, and it is proposed to establish 50 such units. An outlay of Rs.2.25/- lakhs has been earmarked for the 6th Plan. (9)

(v)(4) ESTABLISHMENT OF COMMUNITY CATTLE SHED:

This scheme was initiated by the year 1979–80 with the object of providing housing facilities to the village cattle. Due to poor economic condition of the farmers, the village cattle are not provided with proper housing facilities. Therefore, the cattle are let loose for grazing and they stay on the road side. The stray cattle destroy the cultivated fields and put the farmers under financial losses, and also cause traffic obstruction which lead to road accidents etc. Besides, when a livestock epidemic prevails in the locality, it becomes difficult to vaccinate the cattle as

(8) : Ibid, Page - 64
(9) : Ibid, Page : 64
they remain scattered and cannot be grouped. To overcome such problems, community cattle sheds are provided in the village for domestication of cattle to avoid losses to the farmers and facilitate in providing prophylactic vaccinations etc. from time to time. The scheme was proposed to be continued during the 6th Plan Period and accordingly a provision of Rs.1.00 lakh was kept for four community sheds during the year 1980–81. (10) During the 6th Plan Period, the department was contemplating to establish 16 community sheds. However, due to inadequate funds and the Government's decision to the effect that the scheme will be taken up by the Rural Development Department, this scheme will be dropped from the year 1981–82.

(v)(5) **FODDER AND FEED DEVELOPMENT:**
(a) **DEVELOPMENT OF FODDER RESOURCES:**

The Department of Animal Husbandry and Veterinary has launched various developmental programmes in the State for cattle development which has created great impact on improving the breeds of local cattle and their economic traits. On being convinced of the economic aspects of dairy farming, the number of farmers and educated unemployed youths entering into this particular trade is found to be increasing year after year. However, in view of acute shortage of fodder resources in Nagaland, the genetic potentials of cross-breed cattle could not be exploited fully and the economic benefits due to the farmers are still not being realised. To improve the situation, the Department besides continuing its on going programmes of fodder development, strongly feels about intensifying the fodder development progress especially at the farmer's fields. To achieve this aim, it is contemplated to initiate

(10) Ibid, Page - 64.
a scheme on development of fodder resources in Nagaland during the 6th Plan Period. The Scheme has been worked out on the basis of the guidelines forwarded by the Government of India under which it is aimed to establish a certified fodder seeds multiplication farm and organised fodder demonstration plots in the fields of the different farmers throughout the state by providing necessary infrastructures viz. quality seeds, fertilisers, manures including technical knowledge to the farmers on the importance of various nutritious fast growing fodder grasses, the method of their cultivation, preservation etc.

At present, the department is having a fodder production farm at Jalukie which is proposed to be merged with this scheme and converted to a certified fodder seed multiplication farm covering 30 acres of land. The targets of fodder demonstration plots to be organised in farmers' field during the 6th Plan Period in the various districts are as follows:
<table>
<thead>
<tr>
<th>Target</th>
<th>Total</th>
<th>1980-81</th>
<th>81-82</th>
<th>82-83</th>
<th>83-84</th>
<th>84-85</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Area of land to be covered for seed multiplications (acres)</td>
<td>30</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>(2) Number of demonstration farms to be organised</td>
<td>124</td>
<td>30</td>
<td>21</td>
<td>25</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>(3) Quantity of fodder seeds to be produced at seed multiplication farms (Quintals)</td>
<td>210</td>
<td>70</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>(4) Quantity of green fodder to be produced at demonstration farms (Quintals)</td>
<td>18800</td>
<td>4500</td>
<td>3450</td>
<td>3650</td>
<td>4200</td>
<td>3000</td>
</tr>
<tr>
<td>(5) Quantity of fodder to be produced at Seed farms (Quintals)</td>
<td>13500</td>
<td>3500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
</tr>
</tbody>
</table>


To implement the programme outlined above, an outlay of Rs. 12.00 lakhs has been proposed during the 6th Plan period from 1980–81 to 1984–85. (11)
(b) **FEED MIXING PLANTS:**

The three existing feed mixing plants one each at Dimapur, Mokokchung and Tuensang will be strengthened by providing additional accommodations and godown facilities to increase the production capacity of compounded feeds from 11,000 quintals per year to 15,500 quintals per year by the end of 1984-85. Transport facilities for lifting of feeds to various places will also be provided. An outlay of Rs.8.75 lakhs has been proposed for the 6th plan period (12).

(c) **FEED ANALYTICAL LABORATORY:**

With the untiring efforts of the Animal Husbandry and Veterinary Department, a large number of livestock and poultry farms have been set up in the State. Since livestock feed alone is one of the major components of expenditure on livestock farming, the demand of feed for maintaining such farms in the Government and private sectors have been showing a fast increasing trend. Majority of the feed components are not produced within the state and hence such items are imported from the neighbouring states through the contractors to meet the state demand. So far no facility is available in the state to check and control the quality of such ingredients supplied by the contractors which on many occasions, have been found to be of substandard quality and adulterated. In the past, whenever any doubts arose about the quality of feeds, the Department used to send feed samples for analysis of their quality to the feed analytical laboratories outside the state which do not only take considerable time, but also the

(12) Ibid, Page-69
analytical reports could not be obtained in many occasions. Thus, the Government failed to exercise quality control on the livestock feeds.

Since the health and production of livestock is mainly dependent on the quality of the feeds, the department contemplated to establish a feed analytical laboratory in the State during the 6th plan period which will help in analysis of the feed to control its quality. Besides, it will also help in evaluating various feeds and fodder produced locally to evolve cheap rations for the livestock and poultry birds so that the import of feeds from outside the State could be gradually reduced. An outlay of ₹12,00 lakhs has been earmarked for the 6th plan period. (13)

Initial actions were taken up from 1981-82 by providing necessary subordinate staff to the existing nutritionist so that preliminary feed analysis could be started temporarily in the existing dispensary building at Dimapur. The necessary laboratory, furniture, equipments, appliance and chemicals etc. would also be provided to initiate analysis. The construction of permanent buildings to set up a laboratory and also the construction of minimum staff quarters was started during the year 1981-82.

(V)(6) DAIRY DEVELOPMENT:
(a) RURAL DIARY CENTRE:

To provide adequate marketing facilities to the farmers who have established their dairy farms as well as to facilitate the public in procurement of quality milk at fixed rates a rural dairy centre was established by the Department during the fifth plan period with a capacity to chill 2000 litres of milk per day. The centre was commissioned in the year 1976 at Dimapur, For want of pasteurisation facility

(13) Ibid, page: 70
frequently the chilled milk used to get sour on transportation from Dimapur to Kohima which is about 76 kms away from the plant site. Under such conditions the consumers on many occasions were put to financial losses as well as being deprived of mild due to curdling of milk. Hence the requirement of milk remained quite low and the full capacity of the plant could not be utilised. To avoid such problems and to utilise the full capacity of the plant, it was decided to install a Batch pasteuriser with a capacity to handle 1000 litres of milk per hour at the Rural Dairy Centre and accordingly initial action for procurement of a pasteuriser was taken up during 1979-80.

During the 6th plan period, the installation works of the pasteurisation plant will be completed. Besides, a compressor for the chilling plant as a standby measure will also be procured so that the plant could function without any interruption. The necessary staff which could not be provided during the preceding plan periods will also be provided.

(b) PASTEURISATION PLANT:

With the active initiative and development programmes taken up under cattle development a large number of dairy farms have been set-up by the private farmers throughout the state. The number of such small dairy farms in and around Kohima town is quite large and to encourage further development of dairy enterprise in the state, it is essential to provide necessary marketing facilities to such farmers so that they could dispose off their production at fixed prices without involving any middlemen who generally exploit
the producers. Besides, Kohima being the capital headquarters, the number of Government employees and business people is increasing at a faster rate and thereby the demand of standard quality of milk is also increasing proportionately. To tackle both these problems it is felt essential to establish a milk pasteurisation plant at Kohima which will also support the function of the existing Rural Dairy centre at Dimapur. To feed the proposed pasteurisation plant, the milk will be procured from the dairy farmers in and around Kohima and partially from Dimapur. In the lean season, if there will be any shortfall in the procurement of milk, the shortfall will be made up through recombination of Skim Milk Powder and butter oil. After processing the milk the same will be supplied to the consumers at the capital headquarters. The surplus milk, if any, will be utilised for production of butter, ghee etc. An outlay of ₹ 31.50 lakhs has been proposed during the 6th plan period. (14)

(vi) POULTRY DEVELOPMENT:
(a) HATCHERY AND CHICK REARING CENTRE:

Up to the year 1979–80, the Government had established two hatcheries — one each at Dimapur and Mokochung and two district poultry farms one each at Mon and Kohima and two chick rearing centres at Tuensang and Medziphema. During the 6th plan period, it is envisaged to strengthen the existing centres by providing necessary infra-structures which could not be made available during preceding plan periods. Besides, it is also aimed to upgrade the existing poultry centre at Peren to a district

poultry centre at peron to a district level farm so as to raise the strength of layers from 7,7000 to 14,000, eggs production capacity from 13.86 lakhs to 25.20 lakhs per year, hatching capacity of chicks from 6.80 lakhs to 1.20 lakhs per year and capacity to rear chick from 0.45 lakhs to 0.50 lakh per year by the end of 1984-85 in all the centres. An outlay of Rs. 82.00 lakhs has been earmarked for 1980-85 against each farm. (15)

(b) UPGRADING OF LOCAL BIRDS:

Under this scheme, improved breed of cocks are supplied to the farmers in exchange of their desi-cocks for upgrading the indigenous poultry population. The scheme is implemented in selected compact areas so as to wipe out the total population of desi cocks from the area to avoid indiscriminate breeding. Under this scheme comparatively higher priority is given to the backward districts and villages. The desi cocks collected in exchange are disposed off for table purposes at the Government approved rates and the sale proceeds are credited to the Departmental revenue account.

During the 6th plan period, it is envisaged to supply 10850 exotic cocks to the poultry farmers under this programme and an outlay of Rs. 2.17 lakhs has been earmarked. (16)

(15) : Ibid, page : 45
(16) : Ibid, page : 50
(c) **INTENSIVE EGGS AND POULTRY PRODUCTION CUM MARKETING CENTRE:** This scheme was taken up from the year 1974-75. Under this scheme, poultry units each unit consisting of 150 pullets were supplied to the selected farmers for establishment of private farms. Loan assistance of Rs.1000/- each was also provided in the subsequent year for the expansion of the farms. However, supply of feeds was not included in the units earlier. Unto 1979-80, 300 such units were established. (17)

Due to the inability of the farmers to procure the balanced poultry feeds for their units due to their poor financial status, many of the units supplied earlier could not survive. Besides, due to inadequate staff available in the department for routine supervision of these units, the progress of the programme has been adversely affected. To make the scheme more viable and to achieve better results, it is proposed to provide minimum field staff for effective supervision of the units and also to include a 50% subsidy on the poultry feeds for a minimum period of 3 months (till the birds start laying) for each unit during the current plan period. During the 6th plan period, it is proposed to establish 440 poultry units each unit consisting of 150 pullets. The loan assistance of Rs. 1000/- for each unit will also be provided in subsequent years. An outlay of 17.15 lakhs has been earmarked for the 6th plan period. (18)

(17) Ibid, page - 51
(18) Ibid, page - 51
(vii) SHEEP AND WOOL DEVELOPMENT:
(a) SHEEP BREEDING FARMS:
One sheep breeding farm was established at Hanakui on experimental basis during the adhoc plan period and subsequently the I.C.A.R. experts has visited the farm and advised the Department to shift the farm from Hanakui to Poilma (high altitude). Accordingly, the farm was shifted from Hanakui to Poilma in 1976-77.

Initially, the exotic breeds viz. correndale, Ramboulite were introduced in the farm on an experimental basis and their performance was found to be satisfactory. The Merino breed of sheep was also introduced in the centre during 1979-80. In view of the scope of sheep development in Nagaland, it is envisaged to expand the farm by raising the strength of Ewes from 98 to 250 during the plan period. The number of ewes will be partially raised through the production of the farm and the wool to be produced is 300 kgs. An outlay of Rs. 9.00 lakhs has been proposed for the 6th plan period. (19)

(viii) MITHUN RESEARCH CENTRE:
In a meeting of the Governing Body of the I.C.A.R. held at Kohima in which the State Government also participated, it was decided to establish a sub-centre on Mithun Research in Nagaland by the I.C.A.R. to explore various productive and re-productive potentials of this unique animal. The State Government has agreed to provide the necessary land as the State contribution for establishing such a centre at Hanakui. The necessary survey

(19) Source: Ibid, page - 53
survey of about 300 acres of land has been conducted by the Department and preliminary negotiations with the villagers of the area have also been completed. The land will cost about Rs.5.00 lakhs. It is therefore proposed to acquire the land during the Plan Period in a phased manner and to hand over the same to the I.C.A.R. so that the research centre could be established. An outlay of Rs.5.00 lakhs has been earmarked for the 6th Plan Period for the purchase of the land. (20)

(ix) PIGGERY DEVELOPMENT:

(a) PIG BREEDING CENTRES:

The existing 5 pig breeding centres, one each at MedzipHEMA, Merangkong, Tijit, Tuensang and Akhuloto will be strengthened by providing all the required infrastructural facilities which could not be made available earlier so that the farms become self sufficient in all respects to maintain the target strength of the animals and achieve optimum production. The initial action taken up during 1979-80 for opening one new pig breeding centre at Phek will be continued and completed so as to maintain 30 breeding sows with followers at the centre by the end of 1984-85.

Accordingly, the target during the 6th Plan is to raise the breeding sows from 500 to 590 and breeding bears from 80 to 100 and the annual production of piglets is to be raised from 3000 to 3540 by the end of 1984-85. An outlay of Rs.74.39 lakhs has been proposed for the sixth plan period. (21)

(20) Ibid, Page—55.
(b) **PIGGERY DEVELOPMENT CORPORATION:**

Setting up of a piggery development corporation in the state was initiated in collaboration with the A.R.D.C. during 1976-77 and it was proposed to convert the State Pig Breeding farm at Medziphema into a corporation. Necessary provision of fund was also earmarked in the State Budget to give budgetary support to the A.R.D.C. However, the planning Commission did not agree to provide the budgetary support to the proposed corporation. Hence the establishment of the corporation could not be taken up.

However, in view of the scope for piggery development in the State, it is again proposed to revise the programme to establish the piggery development corporation in Mokokchung District in collaboration with the A.R.D.C. during the 6th plan period. Accordingly a provision of Rs.3.00 lakhs has been earmarked as budgetary support.(22) The detailed scheme will be worked out in collaboration with the A.R.D.C. authority and will be submitted to the Government.

(c) **INTEGRATED PIGGERY PRODUCTION:**

This is a new scheme to be taken up during the Sixth plan period aimed to help the poor farmers by supplying concentrated pig feeds who have exotic piggery units of 3 gilts. Under this special animal husbandry programme, piggery units consisting of 3.5 sows each, were supplied to the farmers. Besides, a large number of exotic breed of boars and gilts produced at various pig breeding centres of the Department were also sold to various interested farmers

(22) : Ibid, page- 60
on payment. But due to the poor financial status, the farmers were not in a position to procure balanced feeds for their pigs which resulted in poor growth and heavy mortality in pigs and therefore the anticipated production and progress could not be achieved.

In view of this, it is proposed to supply balanced feeds to the farmers who are having 3 exotic gilts on 50% subsidised rate for a period of 9 months so that after disposing off the pigs produced in the first farrowing, they could create some funds for further maintenance of their pigs. This scheme is proposed to be operated in all the districts. During the Sixth plan period, it is proposed to supply balanced feeds to 420 farmers i.e. for 1260 gilts. An outlay of ₹5.50 lakhs has been proposed during the period 1981–82 to 1984–85. (23)

(II) FISHERIES: (INTRODUCTION):

Planned developmental activities in pisciculture in Nagaland is of recent origin. The fisheries wing came into existence only in the end of the third five year plan in the State attached with the Directorate of Agriculture. From October 1976, the fisheries wing had bifurcated and amalgamated with Animal Husbandry and Veterinary Department upto June 1978. Considering the necessity of the speed of fisheries developmental activities, the Government again bifurcated the fisheries, wing and declared it as a separate Directorate with effect from 1st July 1978. Much progress could not be made due to dearth of technical staff. However, the fisheries developmental activities in the State are being expanded with the few available trained local technical staff and efforts are being made for the development of inland aquaculture.
Nagaland with its numerous streams, rivers and swamps provide good scope for inland fisheries development. Besides this, there are valleys and numerous low lying area in the foothills that can afford a good and ideal fisheries development in the state.

Inspite of the sufficient scope for development of aquaculture in Nagaland and the enthusiasm shown by the people, the department could not make much headway during the third pland period mostly due to dearth of trained technical hand. Priority has therefore been given on training of local young boys on the administrations and development of fisheries in various institutions in the country to man the department.

Till now, a survey of the potentiality of fishery resources of the state has not been carried out. It is therefore, considered of immediate necessity to conduct a systematic survey of the entire resources of the state to know and plan the extent of possibility for development and expansion of pisciculture. It will also enable the Department to draw up suitable programmes towards proper development and utilisation of the resources.

One of the main objectives of the Department is to produce sufficient number of improved varieties of quick growing fish seeds by the application of various breeding methods. This required good fish farms and it is proposed to open at least one standard fish farm in each district during the Sixth Five Year Plan. Similarly the fish farmers will be encouraged to develop individual and society fish ponds by giving handsome assistance in kind and in cash as subsidy and grants in-aid for the development of their ponds.
(a) REVIEW OF THE FIFTH FIVE YEAR PLAN FOR THE FOUR YEAR PERIOD 1974 to 1978:

The targets proposed during the Fifth Plan have been achieved in full. As against the plan outlay of Rs. 33 lakhs, a sum of Rs. 27.147 lakhs have been spent during the four years of the plan period. During these years, 12 lakhs of fish seeds were produced under induced breeding programme and distributed to farmers. Also 85 lakhs of fish seeds were purchased and distributed. The Department has started five fish seeds production farms in a phased manner and some of the farms are still to be completed for want of adequate funds. Under the financial assistance to farmers, 90 hectares of water area of ponds has been developed. The total fish production during these years was 200 M/Ton. (24)

The following schemes were taken up by the Department during the fifth plan.
1. Fish farms.
2. Cage Culture Experiment.
3. Induced breeding operation.
4. Fish seeds Distribution.
5. Paddy-cum-fish Culture.
7. S.M.E.D.A.
8. Supply of feeds, nets etc.
9. Education and training.
10. Riverine Fisheries.

At present 89 hectares of water areas have been developed by the private farmers under the department technical supervisions, guidance and financial assistance. The fishing materials were also supplied to the deserving farmers.

(b) FORMULATION OF OBJECTIVE FOR THE SIXTH FIVE YEAR PLAN:

The inland aquaculture development should be given special priority as an activity well suited for assisting a large number of backward people in the State. Special emphasis is required for practise of aquaculture in inland waters for exploitation and optimum utilisation of water resources. The main thrust in fresh water fisheries should be towards opening of ideal fish seeds production, say from river bundh breeding, hormone breeding and control breeding etc. Extension and demonstration of fish culture in paddy field and ponds are considered necessary for surveys of the potentialities of fishery resources available in the State for future planning on a scientific basis.

For the 6th plan, the department has outlined the following schemes:

(1). Direction & Administration.
(2). Survey of Fishery resources.
(3). Education & Training.
(4). Fish production: (a) Fish Farms (b) Inland Breeding (c) Cage Culture (d) Fish seeds distribution.
(5). Assistance of pisciculture: (a) Paddy cum fish culture (b) Construction of ponds (c) Supply of materials to farmers.
(6). Riverine fisheries.
(7). Fisheries Co-operative.
(8). Extension, Storage & Marketing.
(c) **DIRECTION AND ADMINISTRATION:**

The fisheries department started functioning as a new Directorate from the 1st of July 1978 with a skeleton staff. For effective implementation of the various schemes taken up by the Department it is imperative to strengthen the staffing pattern in all levels and to create the minimum requirement of both ministerial and technical staff.

It is proposed to construct office buildings and staff quarters due to non availability of rental buildings. The total requirement of the five year plan ending (1980-85) is Rs. 32.30 lakhs. (25)

(d) **SURVEY OF FISHERY RESOURCES:**

At present there is no authentic information about the availability of resources and potential for inland aquaculture development. It is therefore, considered important to have a survey unit in the Department so that future planning could be undertaken on the basis of survey records. The survey unit after completion of the detail survey of the resources could be transformed into a research unit in order to carry out connected research studies and works on State Fisheries Development. A Sum of Rs. 7 lakhs has been allotted for the 6th plan. (26).

(e) **EDUCATION AND TRAINING:**

The local boys are selected and sent for the fisheries training and after completion of the training, they are recruited and absorbed in the services as per the training imparted. The training is provided outside.

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(25) : Ibid, Page - 4
(26) : Ibid, Page - 9
the state in different institutions in the country. During the 6th plan period, it is proposed to provide basic training to pisciculturists in order to help in the spread of systematic inland aquaculture practices in the state. The requirement of fund during 1980-85 is Rs. 3.65 lakhs. (27)

(f) FISH SEEDS PRODUCTION:

The following activities have been proposed under this scheme as per the recommendation of the working group, viz.

1. Fish Farms.
2. Induced breeding programmes.
3. Cage culture experiment.
4. Fish seeds distribution.

(i) FISH FARMS:

It is proposed to take up few good existing demonstration fish farms, during the plan period (1984-85) for renovation and extension of the farms. The minimum needs of the farm staff, buildings, fencing and extension of ponds etc. will be provided to make the fish farms viable and productive. Few old tanks that are available in and around Dimapur will be acquired and renovated for stocking fish. Also new fish farms will be surveyed and implemented in the districts where there are no fish farms. These will increase the nursery area and produce more fish seeds in the state and stop import of fingerlings from other states. A sum of Rs. 35.01 lakhs has been proposed for the 6th plan period. (28)

(ii) INDUCED BREEDINGS:

This scheme has been initiated to provide fish seeds through hormone injections to meet the growing demands of fish seeds in the state. The Indian Major carps actually do not breed in

(27) : Ibid, Page 9
do not breed in the stagnant waters for which the above scheme is necessary. This programme will be taken up in the existing fish farms. A sum of Rs.2.00 lakhs is proposed for the 6th Plan Period. (29)

(iii) CAGE CULTURE:

An experiment has been initiated in a small scale to culture both air breathing fishes and other carps in cages. The experiment shows very encouraging results. This programme is proposed to be taken up in Padampukhuri tank for which Rs.2.00 lakhs has been allotted for the period 1980-85. (3)

(iv) FISH SEED DISTRIBUTION:

The demand of fingerlings from private pisciciculturists are increasing every year. To cope with this problem the distribution of good strain seed fingerlings to the farmers on 50% subsidy has been proposed. This will increase fish production in the private fish ponds. A sum of Rs.4.65 lakhs has been proposed for the 6th Five Year Plan. (31)

(v) ASSISTANCE TO PISCICULTURISTS:

This new nomenclature was given to the group of schemes viz. paddy-cum-fish culture, construction of ponds and supply of materials to assist the fish farmers to take up pisciculture intensively and to produce more fish in the State. Details of the schemes are given below:

(i) **PADDY-CUM-FISH-CULTURE:**

This scheme was introduced by the Department during 1977-78. The scheme has been successfully implemented in the Phek District. It is proposed to encourage and to implement this practise in all the Districts in the State where wet and terrace cultivation with good irrigation facilities are available. It is also proposed to supply the seed fingerlings free of cost to the farmers who practise pisciculture in their paddy fields. A sum of Rs.10.00 lakhs has been earmarked for the Plan period 1980-86. (32)

(ii) **CONSTRUCTION OF PONDS:**

The pond culture practice is one of the main schemes undertaken in inland aquaculture. For effective implementation of pond culture by the individual or group of farmers, the fishery Department gives assistance upto 50% of the pond construction by way of subsidy. Also the farmers are encouraged to take up the project in compact areas. During the Plan period (1980-85) a sum of Rs.10.00 lakhs has been proposed. (33)

(h) **RIVERINE FISHERIES:**

During the 6th Plan Period, the Department has proposed to take up three projects in the State for a distance of 5-6 kms or more to control random and destructive killing of fishes in the rivers. The Diphu river has been selected and experimented with encouraging results. To control wanton killing

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of fishes in the rivers, the Department formulated a draft legislation to conserve the fishes during a particular season of the year in the river. A sum of Rs.3.90 lakhs has been proposed for the 6th Plan. (34)

(i) **FISHERIES CO-OPERATIVE:**

The object of this scheme is to finance the farmers for undertaking medium and large scale fish farming, and also handling of raw and dry fishes and other fishery materials through Co-operatives in the State. The Department will provide grants-in-aid to deserving farmers and co-operative societies for the construction of fish farms, where area is above 0.50 hectares of water area. Efforts will also be made to control the handling of raw and dry fishes, fishery products and fishing materials etc. through the co-operative societies. A sum of Rs.5.50 lakhs has been earmarked for this new scheme during 1980-85. (35)

(j) **EXTENSION, STORAGE & MARKETING:**

The Department has taken up various fishery developmental works and activities. In order to assist and educate the rural farmers for taking up inland aquaculture in modern techniques, extension services are urgently required. It has been proposed to set up a cold storage at Dimapur during the 6th Plan which will help the storage and marketing of fresh fishes in the State. During the Plan Period (1980-85) the outlay proposed is Rs.3.00 lakhs. (36)

(34) £ Ibid. Page 15
MAP SHOWING FOREST OF NAGALAND

DISTRICT BOUNDARY.
DISTRICT BD HEAD QUARTER
RIVER.
ROADS
RAILWAY LINE
TROPICAL EVERGREEN (RAIN FOREST LOW LEVEL)
DEGRADED REGROWTH (THUMS) VILLAGE LAND ETC.
CONIFEROUS
BAMBOO
TEMPERATE EVERGREEN (RAIN FOREST HIGH LEVEL)
RESERVED FORESTS (1- INTANKI, 2- RANGAMCHAR, 4- SINGPHOM,)
3- DIPHU
III. FORESTS: (INTRODUCTION)

The State of Nagaland has a total geographical area of 16579 sq.kms. It is a hilly state having a high degree of rainfall and congenial climate suitable for growth of forest crops. According to an assessment, about 37.55% (6206.45 sq.kms) of its geographical area is subjected to conventional system of jhum cultivation and about 17.4% (2875 sq.kms.) only is covered under forest areas. Again, out of the total forest areas, the area under effective control of the Government is only 6.10% (1007 sq.kms.). Although the percentage of forest area to the total area in Nagaland is less than the corresponding ratio in Assam (39%) (37) and Manipur (27%) (38), it is at par with the all India average ratio which works out at 17.2%. But as a matter of National forest policy, a hilly state like Nagaland should have about 60% of the total geographical area under forest cover in order to maintain the natural equilibrium so as to guarantee a congenial environmental eco-climatic system. Therefore, there is a shortfall of about 42.62% in the forest area actually required for the State.

The 6th Five Year Plan is aimed at attempting to bridge this gap through forestry developmental activities within the term of reference as below:

1. To make a critical assessment of land potentiality for bringing it under various forestry programmes, and examine forest resources for promoting productivity approach of planning in accordance with the basic priority needs of the people in the State.

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(2) To identify strategies, formulate policies and prepare programmes to implement the strategies.

(3) To work out outlays on various forestry developmental programmes.

(1) **POLICIES:**

In pursuance of the Directive of the Centre and with the aim of taking up massive afforestation works, a basic change in the outlook towards forests has been adopted. At present, forests are considered to be a revenue yielding asset to the State. This leads to a number of undesirable practices, the main one being over exploitation. Although forest resources are a renewable resource, it should not be used to the point of non-renewable exhaustion. In view of this the subject of forestry is now considered a service or welfare activity. Revenue from the forestry activities should be incidental and should not be given prime importance. The Government of Nagaland, therefore adopts the following policies for development of forestry.

(1) To create increased productivity in all the forests for economic, industrial and rural needs.

(2) To extend tree land through social Forestry programmes into productive use of degraded village forests, wastelands, marginal land, roadside and private land etc.

(3) To improve environment by massive afforestation works.

(4) To provide employment to the rural population through social forestry programmes.

(5) Enforcing strict prohibition to destroy wild life and its habitat.
(2) LAND RESOURCES FOR FORESTRY DEVELOPMENT:

(i) STATUS OF LAND:

The position in which the various kinds of land are held and utilised is termed as the 'Status of Land'. By making ground assessment and in computation with the N.R.S.A. Report, the total geographical area of Nagaland is distributed approximately under the following categories:

(i) AREA UNDER GOVERNMENT CONTROL: (39)

(a) Reserved Forest — 8350 ha — 0.5057 %
(b) Protected Forests — 50876 ha — 3.0784 %
(c) Proposed to be reserved — 20428 ha — 1.2360 %
(d) Wild Life Sanctuary — 21125 ha — 1.2782 %

Total (a) — 100787 ha — 6.0983 %

(ii) AREA UNDER PRIVATE CONTROL:

(a) Village Forests — 186770 Ha — 11.3009 %
(b) Jhumland:

(i) Current Jhum — 82000 ha — 4.9616 %
(ii) Jhum Growth — 538645 ha — 32.5918 %

Total (b) — 620645 ha — 37.5534 %

(c) WASTELAND:

(i) Potentially suitable for forestry — 284282 ha — 17.2011 %
(ii) Non accessible — 290000 ha — 17.5470 %

Total (c) — 574282 ha — 34.7481 %

(d) Irrigated cultivation — 38000 ha — 2.9992 %

Total a+b+c+d(ii) — 1419697 ha — 85.9017 %

(iii) AREA UNDER DUAL CONTROL:

Area under towns, villages, road, rivers etc. — 132216 ha — 8%

Total (i)+(ii)+(iii) — 652700 ha — 100%

(ii) **LAND POTENTIALITY:**

Out of status of the lands stated above, the lands that have potentials for forestry development are as below: (40)

(i) Village Forests  - 1,86,770 ha
(ii) Jhum Land  - 6,20,645 ha
(iii) Wasteland:
   (a) Potentially available for forestry work  - 2,84,282 ha.
   (b) Non accessible area  - 2,90,000 ha.

**Total**  - 12,81,697 ha

(3) **REVIEW OF DEVELOPMENT OF FORESTRY DURING THE PREVIOUS PLANS:**

(1) **THIRD PLAN (1961-66):**

The main object of the third plan was organisation of investment. During the middle of the 3rd Plan, with an outlay of Rs.46.44 lakhs a separate directorate was created with 3 territorial divisions. During this period, a system to regulate felling of trees in private forests was formulated. Keeping this objective in view emphasis was given to communication, buildings, and economic planation. The planation achievement during this plan was 240 hectares as against the base level of 324 hectares during 1961-62 and thus an area of 564 hectares were brought under forest planation at the end of third five year plan. (41)

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(40) Ibid, Page 3

(41) Ibid, Page 5.
(2) **ADHOC (PLAN) (1966–69):**

The main object during this plan was investigation of forest resources on industrial potentials with Rs. 58.86 lakhs. During this period a seasoning and treating plant was established. A feasibility study report was prepared for establishment of a paper mill at Tuli. The resources survey for a veneer mill was conducted in Namsa–Tijit area for establishment of a plywood industry. A working scheme to regulate felling of trees was prepared. In addition to investigation works, the department achieved 716 hectares under planation as against the base level of 546 ha during 1966–67 and thus the total area under cultivation was raised unto 1280 ha. (42)

(3) **FOURTH PLAN (1969–74):**

The main object was investment on personal resources and forest resources potentials. During this plan, a forest training school was established at Dimapur and 19 forest guards were trained during 1972–73. Five Foresters, five Rangers, one ACF (Assistant Conservator of Forests) and one I.F.S. probationer were given training. A Zoological park was established at Kohima and a Tragopan Breeding centre was also created at Kohima. A research garden, a sample plot and an increment plot on important species were also established. A working plan officer was posted for preparation of a working plan and the Món Division working plan was also taken up. The logging unit with modern equipment for demonstration as well as experimentation was created. A new division was created

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for Tuensang District during (1969-70), and the forest protection Wing was strengthened. During this plan, the Department brought 1779 ha under various planation schemes raising the base level of 1200 ha during 1969-70 upto 3059 hectares at the end of the Plan Period. (43)

(4) FIFTH PLAN (1974-78):
The main objects were amenities oriented, production, and employment oriented. Two orchidaria and four new forest divisions were created. Intangki wildlife sanctuary was established. About 129 sq. kms. of forests were purchased for supply of raw materials to the Nagaland Pulp and Paper Mill at Tuli. The highlight of the plan was 53% of the total plan outlay was used for planation programmes. Although the plan was terminated one year earlier, an area of 5443 ha was brought under planation as against the base level of 3059 ha during 1974-75 and thus bringing the total area of 8502 ha under forest planation during 1977-78 ending. (44)

(5) ROLLING PLAN (1978-80):
The main object was production and employment oriented. With an outlay of Rs.286.93 lakhs, 6970 ha was purchased for both paper mill and Normal forestry works. Twentynine kms. of new roads were constructed, one planation division was created and 7013 ha area brought under planation thus raising the base

(43) Ibid, Page-6.
(44) Ibid. Page 6
level from 8502 hectares to 15,515 hectares by 1979-80 ending. (45)

(4) STRATEGY FOR THE SIXTH PLAN:
(a) STATE SECTOR:
   (1) AFFORESTATION:
   (4)(a)(1) PRODUCTIVE FORESTRY:

   Government forests including reserve, protected and purchased constitute about 100787 ha. But the area under the category of protected forests are not potentially economical for productive plantation and only the reserved and purchased land i.e. 28786 hectares are available for productive plantation. Out of this, 7204 ha has been planted up and the remaining 21,582 ha (28786-7204ha) are available for future plantation. On the other hand, the estimated land for recruitment for productivity plantation for meeting industrial, economical and social needs of the state is 70600 hectares. This is based on the assessment that the total growing stock of timber from the forest area of 17.4% in Nagaland is about 32.83 Million cubic metre (cm) with its mean annual increment (M.A.I.) of about 0.213 million C.M. On the other hand, the total annual consumption of timber and forest products in the form of construction timber, and others etc. is assessed to be about 0.572 million C.M. By this process, the annual consumption rate is causing an overdraft in the growing stock (G.S.) of timber resources to the tune of

0.359 million C.M. annually. As per report of National Commission on Agriculture, quick growing species plantation can yield 10 C.M. per hectare per year. But assuming that the average forest plantation can yield 5 C.M. per hectare per year, it is necessary to bring about 70,600 ha under plantation to remove the deficit. In the State, so far, 7204 ha has been raised under productive forestry plantation and as such, the state will have the burden of raising 63,396 ha under productive plantation. (46) However, the available land resources under the Government is only 21,582 ha as against the total required area of 63,396 ha. An additional area of (63,396 - 21,582) = 41,814 ha shall have to be made available from the village forests for productive management. Considering the constraints of infrastructure such as manpower, monetary resources etc., it is proposed to carry out 8386 ha of plantation and 1200 ha of cultural operation with an outlay of Rs. 149.50 lakhs under various programmes of productive forestry during the sixth five year plan to meet the industrial, economical and local needs. (47)

SOCIAL FORESTRY:
The available land resources for forestry developmental work is about 12,81,987 ha. On the other hand, in order to meet the various needs of the State, the total requirement of land for Rural Water catchment area is calculated to be about 1000,000 ha, for fuel plantation is about 2,00,000 ha, and for the conservation of catchment area for permanent cultivation is 2,00,000 ha, and the remaining 44,956 ha

(47)  i Ibid, Page-10.
can be placed for the requirement of various social forestry schemes such as Mixed plantation etc. An area of about 41,814 ha shall have to be made available for "Productive Forestry" plantation. Thus the total requirement of land to meet the need of forest production in the state is about 5,86,770 ha. So far, an area of 8,311 ha has been planted up under social forestry schemes. The remaining (586,770 - 8311 ha) = 578459 ha shall have to be covered up with afforestation works by various social forestry schemes in a phased manner. However, in view of the limited infrastructure such as communication, manpower and financial resources, it is proposed to cover about 7534 ha with an outlay of Rs.108.70 lakhs. The schemes include Mixed plantation, Bamboo plantation, Roadside aesthetic and Recreational plantation, and rubber and coffee crop plantation, farm forestry etc. (48)

(4)(a)(3) NATURE CONSERVATION:

Nagaland is rich in flora and fauna. This is due to the fact that the Terrains of Nagaland extend from an altitude of 194 metres upto 3,840 metres in Saramathi. The ascending mountain terrains are criss crossed by rivers and valleys giving rise to various aspects of climatic conditions and various kind of flora and fauna thus enriching the wealth of the state.

So far the state has constructed two wildlife sanctuaries viz. Intangki (20202 ha) and Pulibadze (923 ha). The total area under these sanctuaries forms 1.28% of the total geographical area, From the recent animal census in Intangki, the density of animals in

the sanctuary are found to be as under: (49)

<table>
<thead>
<tr>
<th>Animal</th>
<th>Area (sq. kms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elephant</td>
<td>1.43</td>
</tr>
<tr>
<td>Gaur</td>
<td>8.01</td>
</tr>
<tr>
<td>Sloth Bear</td>
<td>3.48</td>
</tr>
<tr>
<td>Kaleej</td>
<td>4.12</td>
</tr>
<tr>
<td>Horn Bill</td>
<td>0.3885</td>
</tr>
</tbody>
</table>

In addition to this, a tiger census was carried out during 1979 and the report revealed that 102 Tigers were available in the state and the density of the tiger population was 162 sq kms per Tiger as against 200 sq. kms of the normal natural jurisdiction per tiger. This shows that the state is rich in wild life resources. In view of this, the state needs to development the sanctuaries already constructed and to take up the strictest measures for protection of Flora and Fauna.

Furthermore, there are about 290000 hectares of inaccessible land, but this land is rich in Fauna and Flora and endowed with enchanting springs and waterfalls. Special programmes of development is necessary to bring these areas under social utility and thereby to convert the inaccessible area into productive areas under special Management Programme.

Nagaland is fortunate enough to have the Blythe's Tragopan, the beautiful pheasant not found in other parts of the world. The state has taken steps to breed the bird under captivity and has succeeded in it. It is necessary to expand the Breeding project keeping pace with scientific development so that the population

(49) Ibid, Page-12.
of the Fauna which are on the verge of extinction can be preserved, protected and propagated. A considerable amount of money is required to take up these resources development programmes. But the Forest Development Programmes have not received its due importance. Due to the meagre outlay allocated to the forestry sector, a very insignificant amount (only 2% of the total outlay under forest) could be allocated to the development of nature conservation during the period 1974–75. But with the emphasis on preservation of wild life given at the National level and the worldwide appreciation at the success achieved in captive breeding of Tragopan, the State has an urgent need to bring development programmes for nature conservation with the following schemes:

(1) **WILD LIFE PRESERVATION:**
Sanctuaries, Zoo, Aviaries.
Component — Developmental works, creation of Biosphere, Extension and Training.

(2) **BOTANICAL GARDEN:**
To preserve flora.

(4)(a)(4) **RESOURCES SURVEY:**
Forest Resources are renewable wealth and the management of this renewable wealth will depend on the strategic position that the resources can command from the ground in relation to the relative needs and the demand that the wealth can generate in the market and can guarantee the judicious approach to investment decision. This is due to the fact that one item of forest product is utilisable for various uses depending on the market and the dividend that the produce can generate. On the other hand, one unit of land resources
can be subjected to various kinds of developmental management depending on its objectives. Moreover, the renewable resources occupy relatively spacious areas on its locality; the kind of management adopted will determine the kinds of effects and influences on its environment. In order to put the resources into optimum benefit, it is necessary to have proper management planning. This warrants priority in resources survey of the areas to be put under productive forestry. The potential area that is necessary to carry out Resources Survey is about 8000 sq.kms. During the 6th Five Year Plan, it is proposed to carry out resources survey in areas that are under village forests, wastelands. It is necessary to strengthen the working plan organisation to increase the magnitude of inventory works.

However, considering the constraints on infrastructure such as manpower and financial resources, it is proposed to carry out survey works for about 768 sq.kms. during the 6th Five Year Plan with the following schemes: (50)

(1) **SURVEY & DEMARCATION:**
- **Extent** - 400 sq.kms.
- **Outlay** - Rs. 4.60 lakhs.
- **Component** - Survey, Demarcation, Project Survey etc.
- **Location** - Government owned forests.

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2. INVENTORY:
To assess the productive potential of the forest resources for forest based industries on the following lines:

- **Extent**: 150 sq.kms.
- **Outlay**: Rs.2.00 lakhs.
- **Component**: Photo interpretation, Enumeration, Stock mapping, Ground Survey etc.

3. WORKING PLAN ORGANISATION:
For enumeration, survey and stock mapping of the areas to be covered by the working plan on the following lines:

- **Extent**: 217 sq.kms.
- **Outlay**: Rs.7.00 lakhs.
- **Component**: Enumeration, stock, Mapping.

(4)(a)(5) INFRA-STRUCTURAL DEVELOPMENT:
Infra-structure is considered to be one of the primary requirements for successful implementation of the plan programmes and for future forestry development. It is therefore, necessary that due consideration has to be given on this vital point while drawing up the Five Year Plan, and the success in the implementation of the plan programme depends to a great extent on the measures provided in the plan for development of proper infra-structure for execution of the scheme. In view of this provision for creation/development of proper infra-structure are made in the plan, and with this consideration the following schemes are proposed for infra-structural development:(51)

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(51) i Ibid, Pages 16, 17 & 18.
(a) **TRAINING OF FOREST PERSONEL:**

The subject 'Forestry' is a biological science and the management of forests thus, require intricate knowledge of biological science. It is therefore necessary to train personnels to make them equipped with the technical knowledge and to provide for the required manpower for executing the plan. The outlay proposed for the 6th Plan is Rs.8.30 lakhs.

(b) **INTENSIFICATION OF MANAGEMENT:**

A proper set up of organisation includes strengthening of the organisational structure of the Department with qualified technical personnels to shoulder the increased work load and responsibility. With an outlay of Rs.95 lakhs, it is proposed to create and maintain 3 circles and 6 divisions to strengthen the Directorate.

(c) **COMMUNICATION:**

Nagaland being a hilly state, there are inherent difficulties of communication. Due to the decaying nature of forest products, it needs quick transportation. With an outlay of Rs.30.00 lakhs, this scheme aims at providing 100 kms of new roads and development of 75 kms of the existing roads in the forest areas.

(d) **BUILDING:**

Forestry works are mainly located in the interior places where no facilities of housing the office and staff are available. With an outlay of Rs.60 lakhs, it is proposed to construct 102 residential, 9 non-residential houses with the aims of providing the minimum basic requirement of houses for the offices and the staff.
(e) FOREST RESEARCH:

Taking up of research on forestry is an essential segment of forestry developmental programme and so with a view to forming a firm basic for forestry development, in order to reap the highest dividend in the future the following research schemes are proposed for implementation:

(i) SILVICULTURAL RESEARCH:

With an outlay of Rs. 9 lakhs, it is proposed to undertake experimental research on suitability of various forest species for planation in the state.

(ii) FOREST UTILISATION RESEARCH: (Logging)

With an outlay of Rs. 18.50 lakhs this scheme aims at undertaking experimental departmental Logging operation and demonstration of mechanised logging in order to increase the efficiency of Logging and better utilisation of Forest Produce.

(f) FOREST CONSERVATION AND DEVELOPMENT:

With an outlay of Rs. 20.75 lakhs, the scheme aims at purchasing suitable forest lands for taking up forestry development works, as the land at present at the disposal of the Government is very meagre and in no way sufficient for achieving the national policy for forest cover in the State.

(g) FOREST PUBLICITY:

With an outlay of Rs. 1.75 lakhs the scheme aims at educating the people particularly the villagers on various aspects regarding conservation and management of the forests. This scheme will be implemented during 1980-81. From 1981-82, this scheme will be amalgamated with the Publicity Department as decided by the State Government.
FOREST DEVELOPMENT CORPORATION:

(a) BASIS:
In Nagaland 17.4% (2775 sq.kms) only is under Forest cover. Out of this 6.10% is under the effective control of the Government and the remaining 11.3% is outside the Government control. Most of these forests are rich in commercial species such as Hollong (Dipterocarpus), Makai (Shoria Assamica) and economically important species for trading such as Titasopa (Michelia Champaca), Gomari (Gamelina Arboria), Mango (Mangifora Indica), Gonsoria (Cinnamomum Ceccedaphre), Lali (Ammoora Wallichii), Bhelu (Tetramelas Nudiflora) Gorgra (Schima Wallichii), Begipoma (Chikrassai Tabulariees), Bonsum (Pheeba Goalparencis) etc. These forests are located at the foothills adjacent to Assam State where there are more than forty plywood industries as a ready consuming market. Since most of these forests are under villagers and the community, the essential need prompted the people to exploit the resources at uneconomical rates on the demand of the timber industries. In order to ensure the optimum value of the available forest resources and to guarantee the interest of the people and prevent undue exploitation and in the process increase the revenue of the State, a profitable system of management on a commercial basis such as forest development corporation has become a necessity.

(b) LAND RESOURCES:
In Nagaland about 90% are rural based and only 5.8% of agricultural land is under permanent cultivation and the rest are subjected to the conventional system of Jhuming. With the increase in population, the intensity of land utilisation per unit area has been increased resulting in waste
land to the tune of 17.2%. On the other hand, the State has a congenial climate suitable for growing forestry crops having industrial and economical value. In view of this, it has become necessary to convert the waste land with miscellaneous shrubbery growth by planting them with species having high economic and industrial value. The main objectives of the proposed Forest Development Corporation is the following:

(i) Resources utilisation management.
(ii) Resources Trading Management.
(iii) Resources Development Management (Plantation)

(c) PROBLEMS:

With the existing financial outlay under the forest sector, it is not possible to effectively extend management to the forest resources and the land resources under commercial basis. Further the existing forest Department is already overburdened with the normal forestry works and the expanding social forestry programmes in the State.

In view of the objectives and problems stated above, it has become necessary to propose the formulation of a forest development corporation for management on a commercial basis of the resources of forests and the land in the State.

The forest development corporation is considered to be the only panacea which will guarantee the following needs:

(i) To generate adequate finances on an assured basis over a long span of time to permit implementation of programme for resources management and also for raising the productivity of the soil and the resources.

(ii) To create an autonomous organisation which should be financially independent and viable to implement the programmes in a profitable manner.

(iii) To manage forests strictly on economic grounds
and to take cognizance of the growing demands of the industries.

During the 6th Five Year Plan, with a token provision of Rs. 5 lakhs it is proposed to organise the forestry development corporation of Nagaland. (52)

(4)(b) CENTRAL SECTOR:

In order to meet the various needs of the state, the total requirement of land for rural water catchment area is calculated to be 1 lakh ha, for fuelwood it is about 2 lakhs ha, and for conservation of catchment area is about 2 lakhs ha. However, considering the constraints of infrastructure such as manpower, financial resources etc., it is proposed to carry out about 34050 ha under social forestry with 50% Central assistance and 50% State contribution. The following centrally sponsored schemes are proposed during the 6th Five Year Plan. (53)

(i) SOIL, WATER AND TREE CONSERVATION:

This will cater to conservation of rural catchment area, water catchment area for permanent cultivation and also road and landslide protection measures through forestry works.

Extent — Rural Water Catchment Area — 10000 ha.
Water Catchment Area — 13400 ha.
Road, Landslide protection — 4600 ha.

Outlay Rs. 418.00 lakhs.

(ii) FUELWOOD PLANTATION:

This will include stocking fuelwood species plantation in order to meet the fuelwood requirement in the State.

Extent — 6050 ha.

Outlay — Rs. 102.00 lakhs.

The National forest policy 1952 had recommended that 60% of the geographical area should be placed under forests in the hilly areas. In a conference held on the role of forests in Tribal Economy Organised by the Ministry of Agriculture in 1978 at New Delhi, it was recommended among other things that the development of forests should from an integral part of the comprehensive plans of the Integrated Tribal Development Areas. Against the National Policy of 60%, there is a shortfall of about 42.60% in the state. On the other hand, on the basis of an assessment of the available land resources, the goal of the forest development programme in the state is to bring about 3,36,726 hectares under productive, and social forestry plantations. Out of this, the total achievement so far under productive and social forestry Plantation is only 15,515 ha (2.55%) and there remains 97.45% to achieve the goal of the Forestry Development Programme in the State. (54) This calls for a higher allocation of fund. With a view to taking up additional afforestation works for briding the gap, the following schemes with an outlay of Rs. 2888 lakhs were submitted to the Government of India for implementation under Centrally sponsored schemes:

(i) Soil, Water & Tree Conservation.
(ii) Fuelwood.
(iii) Nature conservation.
(iv) Survey and demarcation.
(v) Communication.
(vi) Cash crop (including sericultural crop).
Out of this, only the first two schemes with a proposed outlay of Rs. 2400 lakhs have been accented on the basis of making available the matching grant 3> 50\% by the State. But while formulating the 6th Five Year Plan it was possible to generate only Rs. 252 lakhs as state's contribution. There is therefore an imperative need for special consideration for giving higher allocation of fund for programme under Forestry Sector, which will go a long way in the upliftment of the economy of rural people since the Forestry works are employment oriented and also it ensures development of renewable resources with the ultimate object of benefiting the rural population particularly in Nagaland.

The total outlay for implementation of the proposed sixth five year plan programmes is Rs. 800 lakhs under state section and Rs. 268 lakhs under central assistance. (55)