Chapter – V

STATE OF FORESTS IN MANIPUR

5.I: STATUS OF FORESTS

5.I.1 Introduction

According to the *Statistical Bulletin of Manipur Forests (1999-2000),* forest land including pasture land constitutes about 78 per cent of the state's land area. At present about one lakh people depend on the forests for their survival. However, forests form only about 2.4 per cent of the entire state domestic product and the expenditure allotted to it was not even one per cent of the total Ninth Plan. Clearly, the sector requires renewed focus and careful delineation of priorities.

5.I.2 Classification of Manipur's Forests

i). Classification by Vegetation Types:

Broadly speaking, there are four types of forests in Manipur:

Table 5.1: Classification of Forests of Manipur, 2001.

Classification by	Area (km^2)	Percentage to total	
		Geographical area	Forest area
A. Legal status:			
Reserved forests	1467	6.57	8.4
Protected forests	4171	18.68	24
Unclassed forest	11780	52.76	67.6
Total	17418	78.01	100
B. Crown density* [Year of survey, 1997]			
Dense forest (C.D.>40%)	4937	22.11	28.34
Open forest (C.D. <40%)	12481	55.9	71.66
Total	17418	78.01	100
C. Composition (as per PIS-1975)			
(i) Coniferous	2442	10.94	16.11
(ii) Non-coniferous (Broad leaved)	9444	42.3	62.32
(iii) Bamboo			
a) Pure bamboo brake	3268	14.63	21.57
b) Under store & clump farming bamboo	4594	20.58	21.5
Total	15154	67.87	100
D. Group (as per PIS-1975):			
Tree forests	7621.44	34.14	50.29
Bamboo forests	3268	14.64	21.57
Grass brakes/open forests	4264.56	1910	28.14
Total	15154	67.88	100
E. Vegetation (FSI-1995)			
Wet temperate forests	1451.01	6.5	8.23
Pine forests	2442.77	10.94	13.86
Wet Hill forests	9057.59	40.57	51.4
Semi-evergreen forests	644.89	2.89	3.66
Teak gurjan forests	610.74	2.74	3.47
Bamboo brakes	3268	0.65	0.83
Grass brakes	146	0.65	0.83
Total	17621	78.92	100

Source: NBSSLUP

a) Tropical semi-evergreen forests found in western Manipur hills in the Barak drainage system that consist of timber species like Haldi (*Adina cordifolia*), Sundi (*Acer niveum),* Toon (*Cedrella toona*), Jarul (*Lagrostomia flosregina*), Bonsum (*Phoebe spp.*), good quality canes and Muli Bamboos (*Melocanna bambusoides*). The width of this forest varies from about 3 km to 5 km and covers around 5828 sq. km.
b) Tropical moist deciduous forests situated along the Burma border in Manipur east hills and composed of Teak (*Tectona grandis*), Kanyin, Khen (*Melanorhoa usitata*) and Toon (*Cedrella toona*) trees. They cover around 900 sq. km.
c) Sub-tropical pine forests found in the northeastern part of Ukhrul district where uchal or khasi pine (*Pinus khasya*) interspersed with oak and chestnuts are found over the entire region covering about 260 sq. km.
d) Dry temperate forests found all over the Manipur valley that contain mixed forests of Semul (*Bombax malabaricum*), Pareng (*Alnus nepalensis*), Pine (*Pinus Khasya*) and other trees along with oak and chestnuts.

ii). Classification by Composition:

From the point of view of composition, forests can be classified into three types: coniferous (16.11 per cent of total forested area), non-coniferous (62.32 per cent of forest area) and bamboo brakes (21.57 per cent of total forest area). While the bamboo brakes and half of the coniferous forests (covering 2442 sq.km.) are accessible to human interventions and pressures, one third of the non-coniferous forests are inaccessible and unassessed. As a result about 4500 sq.km. of Manipur's forests remain unexploited.

iii). Rights-based Legal Classification of Forests

As per the Indian Forest Act of 1927, forests are classified into the following categories on the basis of the recognition of local peoples rights:

a) Reserved forests where no rights are granted to local people:
b) Protected forests that are under the control of the state but where people have defined rights for meeting virtually all their daily needs.
c) Unclassed or unclassified forests that are generally under the control of the state or autonomous councils but are used by tribal communities for all practical purposes: In Manipur the *de facto* controllers of this land appear to be the autonomous councils though legally the ownership of these forests belongs to the state.
d) Wildlife protected areas and conservation areas that have been demarcated under the Wildlife Protection Act, 1972 and the Manipur Forest Rules, 1971.

The area under reserved forests is only 8.42 per cent of the total area and unclassed forests are about 67.3 per cent of the total area. This is a regular feature since the formation of the state when forest and land settlements were carried out in the three valley districts. Most of the forests in the hilly districts (about 68 per cent) of the total forest area, are unclassed and informally controlled by the traditional tribal Chiefs. Therefore, the state has no *de facto* control over these areas, and this is also reflected in the manner in which the forests are managed and the produce extracted from them.

Table 5.2: Forests By Legal Status (area in sq. km.)

Year	Reserved	Protected	Unclassed	Total	Per cent of total area
1955-56	1004	2219	2796	6019	26.96
1965-66	1247	1226	11892	14365	64.34
1970-71	1334	4171	8860	14365	64.34
1975-76	1377	4172	8816	14365	64.34
1980-81	1377	4171	9606	15154	67.87
1990-91	1463	4171	9520	15154	67.87
1991-92	1467	4171	11983	17621	78.92
1997-98	1467	4171	11780	17418	78.01
2002-03	1467	4171	11780	17418	78.01

Source: Government of Manipur Forest Reports and Stastics of Different Years

5.I.3 Wildlife Conservation Sites in Manipur

Manipur has a vast faunal and floral heritage with many endemic species, the foremost amongst them being the Sangai or the Brow Antlered Deer. The Hoolock Gibbon ape and the Himalayan Bear are found commonly in all hill districts of the state. The state is also home to the Clouded Leopard and the Golden Cat that are nocturnal animals. The Slow loris, Serow, Malayan sun bear, Spotted linshang, Hog-badger and a host of other such rare, endangered and endemic denizens of the forests are found in the state. There are certain animals and birds that are fast becoming extinct in the state, like the Javan Rhinoceros and wild ox from Myanmar (known as 'bantering' in Manipur) about 13 years ago. These extinctions are a result of rapid deforestation and habitat destruction in the state despite the prevalence of in situ and ex-situ protection mechanisms whose status is described below (table 5.3):

Box No. 1 WILD LIFE PROFILE

- 116 avifaunal species
- 100 species of mammals
- 265 species of flora
- 425 Species of Fauna

Table 5.3: States Of Situ and Ex Situ Protection System

Conservation Site	District	Area (sq. km)
IN SITU SITES		
Keibul Lamjao National Park	Bishnupur	40.00
Yangoupokpi Lakchao Sanctuary	Chandel	184.80
Bunning Wildlife Sanctuary	Tamenglong	115.80
Zeliad Wildlife Sanctuary	Tamenglong	21.00
Kailam Wildlife Sanctuary	Churachandpur	187.50
Jiri-Makru Wildlife Sanctuary	Tamenglong	198.00
Shiroi Hill National Park	Ukhrul	41.00
Loktak Lake (Ramsar Site)	Bishnupur	288.00
EX SITU SITES		
Manipur Zoological Garden	Imphal (Iroishemba)	0.08
Second Home of Sangai	Imphal (Iroishemba)	0.60
Orchid Preservation Centre	Imphal (Konghampat)	0.50

Source: SBMF, 1999-2000, Forest Department, Govt. of Manipur

This network has resulted in some degree of preservation of the Sangai population, which has risen from 76 in 1990 to 162 in 2000.

5.I.4 Changing Land Use Patterns

Table 5.4 shows that between 1975 and 1996 the cropped area reduced by about 4.18 per cent, and seems to have shifted to the forests and pasture lands. This means that either the social forestry programme in the 1980s created plantations on these tracts or that these tracts degraded into grass and barren lands that were used as pastures. The table also shows that the

area under jhum or shifting cultivation at one time increased by 0.9 per cent between 1996-2000 and the forest area came down by the same percentage. This signifies deforestation for promoting jhum cultivation during these four years, a theme dealt with later in the chapter. For now it will suffice to note that more than 85 per cent of the land utilisation involves forests directly or indirectly as jhum cycles also require the regeneration of forests during their fallow periods.

Table 5.4: Land Utilisation Pattern Over Different Years (Percentage of Total Area)

Land Use Type	Year			
	1975	1989**	1996	2000
Forest including pasture and barren land	74.81	86.04	78.90	78.00
Agricultural tree land	1.51	NA	1.50	1.5
Cropped land*	14.18	6.50	10.00	10.00
Urban sites	1.31	2.30	1.30	1.30
Current Jhum	8.19	NA	8.30	9.20

* The cropped area includes all sedentary cultivation tracts practised in the Manipur valley as well as terrace cultivation in the hilly regions.
** The figures for 1989 have been calculated from a comprehensive database whose parameters were slightly different from the ones given below. The figures on jhum and other lands classified as forests. The figures for the cropped land do not include jhum and other figures for cultivable land but include agricultural tree land.
Source: SBMF, 1999-2000

5.I.5 Status of Forests in Manipur

i) State Level Forest Cover According to Forest Survey of India (FSI) Reports

Table 5.5 below gives the FSI estimates in different assessment years:

Table 5.5: Status of Forests in Manipur

Parameters/ Years (a)	1975[1]	1982[1]	1985[2]	1987[3]	1989[4]	1991[5]	1993[6]	1995[7]	1997[8]	1999[9]	2001[10]	2002-03
Area under actual forest (million ha)	1.51	1.36	1.77	1.79	1.77	1.76	1.76	1.74	1.76	1.74	1.69	1.72
Percentage of actual forest cover to geographical area (per cent)	67.49	60.70	79.07	80.00	79.20	78.90	78.60	78.00	78.9	78.00	75.81	77.12
Area under dense forest cover (million ha)	1.37	1.13	0.47	0.51	0.53	0.53	0.53	0.50	0.49	0.59	0.57	0.65
Area under open forest cover (million ha)	0.14	0.23	1.30	1.28	1.24	1.23	1.22	1.25	1.24	1.14	1.11	1.07
Area covered by forest scrub lands (million ha)	NA	NA	NA	NA	0.14	0.15	0.14	0.09	0.09	0.2	0.01	0.01

Note: NA: Not Available; Source: FSI various issues.

There has been a gradual decline in the forest cover in the state from 1989 to 2002-03, as may be seen in Table 5.5. When we examine the district wise data the forest cover was as high as 95 per cent. Even though area under dense forest has increased (except in Ukhrul), there has been an overall decline of open forest for the state (Churachandpur and Senapati districts, being the exception).

Table 5.6: District Level Forest Cover for Selected Years:

District	Years/sq. km (percentage of total area in brackets)					
	1986	1995	1997	1999	2001	2002-03
Senapati	1735	2352* (71.90)	2259 (69.06)	2443 (74.68)	2342 (71.60)	2559 (78.23)
Ukhrul hills	2634	4829** (71.18)	4264 (93.84)	3556 (79.73)	3526 (77.60)	3582 (78.83)
Chandel	2790 (97.64)	0	3176*** (57.21)	2754 (86.4)	2718 (82.04)	2703 (81.59)
Churachandpur	3920	3997 (87.46)	3835 (83.92)	4155 (90.6)	4173 (91.31)	4157 (90.96)
Tamenglong	3727	4043 (91.57)	3884 (88.45)	4163 (94.8)	3929 (89.48)	3869 (88.11)
Imphal	0	0	0	291 (23.69)	202 (16.44)	301 (24.51)
Thoubal valley	(2.36)	0	0	17 (2.38)	24 (4.67)	33 (6.42)
Bishnupur	328	0	0	5 (1.03)	12 (2.42)	15 (3.02)

* The Senapati district figures for 1995 include Chandel hills also.
** The Ukhrul figures include the valley districts of Imphal, Thoubal and Bishnupur, which only constitute 2 per cent of the total forest area.
***This figure includes valley + Chandel district.
Source: SBMF, 2001-2002, FSI, State of Forest Report 2003, p. 79

Table 5.7: Changes in Forest Cover: 1991-2001

	Years	Area (sq. km.)*
Forest cover as assessed by FSI	1991	17685
	1993	17621
	1995	17558
	1997	17418
	1999	17384
	2001	16926
	2003	17219
Changes between years	1991-93	- 64
	1993-95	- 63
	1995-97	- 140
	1997-99	- 34
	1999-2001	+ 34
	2001-03	+293
	1991-2003	-466

* The negative figures indicate decrease during the periods under consideration.
Sources: FSI various issues.

ii) Nature of Threats and Deforestation

Tables 5.5, 5.6 and 5.7 above show that the decade 1980-90, saw a marked rise in forest cover mainly due to the intense afforestation and social forestry programmes introduced in the state (discussed in a later section) at the time. But the long-term changes in forest cover show a trend towards deforestation. The state has a high incidence of deforestation of about 0.04 that is well above the national and international average. According to the Forest Department the main reasons for the loss in forest cover have been attributed to:

- Lack of definition of rights: The vague ownership over forests of the hilly tracts in the insurgency-affected areas and lack of survey and settlement operations are seen as the root causes of deforestation.
- Lack of a proper institutional and legislative framework for the management of forests.
- Soil erosion resulting mainly from the increasing practice of shifting cultivation. The annual loss of soil is estimated at 50 lakh cubic meters.
- Illegal logging and trade in forest and wildlife products especially in the unclassed forests of the hilly regions.

- The lack of control of territories in the hills and the absence of estimates of the encroached areas has posed a threat to the maintenance of forest cover.

We will deal with many of these issues in the discussions that follow.

Box 2: IMPACT OF DEFORESTATION: CASE OF LOKTAK LAKE

The Loktak lake is the largest wetland in the Northeast and is important from the point of view of the economic and ecological security of the region. This lake covers an area of 266 sq. km and has been identified as one of the conservation sites under the Ramsar Convention. The direct catchment area of the lake is 980 sq.km and its indirect catchment is 7157 sq.km. It has 233 species of aquatic flora and is known for its shallow vegetation habitats of floating weeds covered with soil called 'phumdis", which form a marshy area that covers about two-thirds of the lake. The lake and its surrounding marshes support 425 types of wild animals and 21 types of waterfowls. The lake is also important because the Keibul Lamjao National Park, the second home of the Sangai, is located within its catchment area.

The lake has about 980 sq. km of direct catchment area covering 96 villages. Of this about 430 sq. km is under paddy cultivation and the rest is forested in the north and the northwestern parts. Approximately 1 lakh people are dependent on it for food, animal feed, fibre, fuel and shelter.

In this context it is pertinent to consider the impact of loss of forest cover on the lake. It has been well documented that deforestation has led to the siltation of the lake and the annual rate of siltation is given below:

Land Use	Area (ha)	Soil Loss (ton/ha/year)	Total Soil Loss (Year)	Percentage
Shifting Cultivation	5000	40.95	2,04750	16
Paddy Cultivation	43000	2.85	1,20400	9.5
Mixed Forest of habitation	50000	NA	12,72,650	100

A total of 50 per cent of the soil loss is retained in the lake every year i.e., 6,36,325 tonnes every year and works out to an annual siltation of 4.50 hectare metres per 100 sq. km a year. Since the main soil loss is due to shifting cultivation in 5000 hectares, this area should be targeted as an area that has to be treated for soil loss and erosion. But this has to be done through making the necessary changes in the system so that it can continue to feed the people who depend on it. One way of doing this is by strengthening valley land agriculture and redeveloping shifting cultivation in a way that does not affect local people adversely. The Apatani wet rice cultivation method along with pisciculture should be promoted in these areas. Alternatively, this area should also be targeted for mixed plantation with its associated processing units. The immediate catchment area should have herbs and bamboo brake plantations (especially of Dendrocalamus hamiltonii that prevents soil erosion). If the average cost of mixed plantation for one hectare is Rs 27085 for five years then the investment required is Rs 135.43 lakhs. The cost of promoting wet rice cultivation with pisciculture is Rs 2753 per hectare per year with a return of Rs 10,062 per hectare or 1:3.6 per year. The investment needed for 5000 hectares would be Rs 137 lakhs in the initial year.

[Source: Chabungbam Rajagopal Singh, 'Management of Loktak Lake', http://sndp.delhi.nic.in].

5.II: LEGAL AND INSTITUTIONAL CHARACTERISTICS OF FOREST MANAGEMENT

5.II.1 Background

Unlike Assam and Meghalaya, which have a plethora of forest acts and regulations to govern their forests, Manipur has no forest act or policy save the Manipur Forest Rules, 1971, and the Games Regulation Act, 1973, which have been formulated to implement the provisions of the Indian Forest Act, 1927, and the Wildlife Protection Act, 1972 in the state. The policies and the rules of the Forest Department are guided by the Indian Forest Act, 1927, and Forest (Conservation) Act 1980, which are in force in the rest of the country. However, the Manipur Land Revenue Act (1960) does make some mention of forest and land rights in forestlands and on all lands not in private hands. It states that the right to all trees, jungles and natural produce on such land shall be vested with the government.[1]

Today, the main driving force of forest management programmes in the entire Northeast region including Manipur is the National Forest Policy of 1988, which stressed the need for the involvement of people in forest management with the prime objectives of achieving economic and ecological security in the region. Towards this end, Joint Forest Management (JFM) programmes were introduced. The first JFM committees were set up only in 1999-2000 in Manipur. JFM still remains one of the targeted programmes of the Tenth Plan. Keeping in mind the sensitive nature of the northeastern region and its ecological importance, the Ministry of Environment and Forests appointed a committee to "Suggest a Forest Policy for the North Eastern States" in 1998. The terms of reference of the committee clearly highlight the state of forest management in the region. Among many other things, the committee looked into the following issues:

- Management of all categories of forests, including the needs of survey and development.
- Assessments of rights and concessions to the local people.
- Control of existing wood-based industries, particularly in the light of the Supreme Court Judgement of 12 December, 1996, banning felling in the Northeast.
- Control of shifting cultivation with the ultimate objective of weeding out this practice and restoring of degraded jhum lands.
- Development of corridors of wildlife migration and gene pool dissemination where forests have been fragmented.
- Identification of non-wood forest produce and development of their commercial potential.
- Development of forest infrastructure, research and development and enhancement of financial investment in the forestry sector.

BOX: 3
CONFLICTING AIMS:
DEVELOPMENT VERSUS CONSERVATION

As in the case of the other states, in Manipur too, the policy makers face a problem of how to reconcile conservation of forests with developmental objectives. The main conflicts facing the state today are:

1). Construction of Tipaimukh Hydel Project: The Tipaimukh dam is to be built at the confluence of the Tuivai and the Barak rivers on the Assam – Manipur – Mizoram border. It is to be 390 m long and 162.8 metres high. The total area of submergence due to the project will be 293.56 sq.km, which comprises of 217 sq.km. of reserved forests. It is feared that 40 per cent of the Kailam Sanctuary that houses the hornbill species and the capped langur will be either submerged or be adversely affected by the command area. So far no environmental and forest clearance has been granted by the government for the construction of the dam, which is being opposed by tribal and local groups. Many public hearings have been held on the issue and the Manipur Assembly has also unanimously opposed its construction in 1995 and 1998. An MOU between the government and NEEPCO was finally signed in 2003.

2). Construction of north Cachar- Imphal Railway: Though no details are available on this project, it is expected to have an adverse impact on eastern forests in the hilly areas.

- Development of models of JFM and farm forestry for district councils and private forests.

While analysing the need for a forest policy it is important to keep in mind the long-standing conflict between the state and the tribal people with regard to the ownership and control of forests (See Chapter-XVII).

5.II.2 Methods of Working Forests[2]

i). Scientific Forestry and Working Plans in Reserved Forests

Since the 1960s the Forest Department of the Manipur has been working the reserved forests. It has prepared working plans for the reserved tracts since the early 1970s. Foresters of the state say that the working of the reserved forests has only been minimal, and that too through traditional methods, namely: a) enforcement of certain rules and regulations framed by the state government; b) allowing different villagers in the vicinity to enjoy rights and concessions, and c) undertaking some plantation work to increase the growing stock. In contrast, protected and unclassed forests have not been brought under the system of working plans. However, in the wake of the Supreme Court Order of 15 April, 1998 directing the northeastern states to prepare working plans irrespective of the ownership of forests, the process started in all forests. The government has also submitted a programme of carrying out fellings to the Ministry of Environment and Forests.

The harvesting of timber in Manipur's forests can take place through three agencies:

a. The Government: Departmental felling of forests takes place in reserved forests by the Forest Department.

b. Combined agency: Here the purchasers of timber and the government work the forests together. The employees of the Forest Department carry out the actual felling whereas the purchasers perform the marketing, seasoning and transportation functions. This system is also prevalent in reserved forests.

c. Purchasers: This system is widely prevalent in Manipur where the forest area is given to the purchaser for felling and removal of timber. This system is highly detrimental to the forests.

The methods of timber harvesting and logging can also be classified into three systems:

- The short felling system
- Tree felling system
- Full tree system

ii) Harvesting Timber and Non-timber Forest Produce in Unclassed Forests

Unclassed forests constitute the bulk of Manipur's forests and are important as a major source of low-value timber produce and the bulk of the non-timber forest produce. Though formally owned by the state through the Forest Department, the tribal Chiefs mostly control these forests. Broadly speaking, two systems of forest produce extraction are prevalent in these forests. These are:

a) The Lump Sum Sale System:

Areas covered by Low value, undersized and defective timber, are sold on a lump sum basis.

b) Sale by Means of Licence and Permit:

The state, the local Chiefs and the hill development authorities lease the forest area to the trader of timber or non-timber forest produce for a specific period of time. The Department and local tribal people have minimal control over either the forest land or its produce. The main control lies with the contractor who purchases the area for felling from the Department.

5.II.3 Investment in Forests and the Impact of Forestry-Related Schemes

i) While the share of forestry in state income has grown, expenditure has declined.

Table 5.8: Share of Forestry and Logging in Gross State Domestic Product and Net State Domestic Product (at Current Price in Rs Lakhs)

Year	GSDP	Forestry & Logging	NSDP	Forestry & Logging
1993-94	130809	4224 (-3.23)	114144	4041 -3.54
94-95	140498	4251 (-3.03)	122074	4045 (-3.31)
95-96	162706	3809 (-2.34)	140992	3577 (-2.54)
96-97	189843	3763 (-1.98)	165434	3498 (-2.09)
97-98	215788	8854 (-4.10)	188151	8561 (-4.41)
98-99	243019	10013 (-4.12)	212521	9696 (-4.2)
99-00	279607	5476 (-4.24)	246627	5135 (-4.61)
00-01(Q)	292010	5949 (4.56) (P)	251713	5582 -4.99
01-02 (A)	334423	6191 (4.62) (Q)	294733	5830 -5.06

Q – Quick estimates, P – Provisional, A – Advance estimate; Figures in parenthesis represent percentage share to GSDP and NSDP respectively. Source: SBMF 1999-2000

ii) Investments in the Forest Sector in the Five Year Plans

Forestry sector investments in the different plan periods are given in the Table below:

Table 5.9: Forest Revenue and Expenditure (Rs lakhs)

	Expenditure			
Plan/ Year	Non-Plan	Plan	Total	Revenue
4th Plan (1969-74)	35.61	33.59	69.2	27.77
5th Plan (1974-79)	91.61	220.41	312.02	108.04
Annual Plan (1979-80)	39.51	95.09	13406.00	31.95
6th Plan (1980-85)	318.46	647.41	965.87	258.79
7th Plan (1985-90)	896.11	1687.83	2583.94	522.53
Annual Plan (1990-91)	291.53	606.25	897.78	99.53
Annual Plan (1991-92)	327.81	620.00	947.81	234.28
8th Plan (1992-97)	1749.90	2577.52	4327.42	1581.24
Annual Plan (1997-98)	551.60	380.05	931.65	296.53
Annual Plan (1998-99)	590.72	452.00	1042.72	70.47
Annual Plan (1999-2000)	1119.07	311.01	1430.08	65.93

Source: SBMF 1999-2000

Table 5.9 not only shows the rising expenditure of the Forest Department but also the declining revenue as a proportion of the expenditure, which is revenue is reflective of deforestation and forest degradation.

Table 5.10: Pattern of Revenue as a Proportion of the Gross Domestic Product

Industry of Origin	1974-75*	1980-81	1985-86	1990-91	1995-96	2000-01	2002-03 (Q)
Agriculture including livestock	50.2	42.69	39.16	36.51	28.22	26.92	25.92
Forestry and logging	0.7	2.26	2.12	1.60	2.34	2.04	2.08
Fishing	1.2	1.28	1.42	2.64	3.05	2.99	2.92
Mining and Quarrying	0.00	0.00	Negligible	Negligible	Negligible	0.00	0.00
Sub-Total: PRIMARY (1-4)	52.1	46.23	42.71	40.75	33.62	31.94	30.92
Total Gross State Domestic Product (Rs lakh)	4020.35	21842.00	41761.00	73915.00	162706.00	292010.00	374047.00

* These figures are for total percentage of Net Domestic Product as the gross domestic products are not available for the year.
Q – Quick Estimates
Source: DES, Manipur.

What is significant is that the contribution of forests to the GDP went up substantially from the 1970s till the 1980s. This can be attributed to the plantation programme of the government and the record of systematic felling of timber in the working plan of the valley districts. But since the 1980s the share of the forestry sector in the gross domestic product remained below 3 per cent, which shows that its full potential is yet to be tapped. This can be gauged from the investment priorities that have been identified by the Forest Department in its prospective plan for the Tenth Plan.

Box. 4 Investment Priorities

Priority A	**Priority B**	**Priority C**
1. Afforestation 2. Direction and administration 3. Working Plan 4. Resource utilisation 5. Development of Keibul Lamjoo National Park 6. Development of zoological park 7. Social and farm forestry 8. Development of Y.L. Sanctuary 9. Economic plantation 10. Minor forest produce 11. Forest protection 12. Urban recreational forestry 13. Control of poaching 14. Captive breeding 15. Planning and monitoring (statistics) 16. Rubber plantation	1. Rehabilitation of jhumias 2. Forest research 3. Human resource development 4. Wildlife Management. 5. Environment awareness (publicity)	1. Forest infrastructure (building) 2. Info tech and forestry communication 3. Resource survey

The Forest Department states that activities listed under Priority A will be implemented in earnest and the rest will be taken up as and when funds permit. It is pertinent to note that the rehabilitation of the Jhumias has become a secondary priority and the main emphasis of the Department is on afforestation and social forestry. The share of this sector in the total plan has been steadily declining even though it remains a core sector of Manipur's economy as shown in the following table 5.11:

Table 5.11: Annual Plan Investment on Forests (in Rs lakh)

Year	Total State Plan	Actual Plan investment in Forest	% Allotment for Forest of the total State Plan Outlay
1990-91	17000.00	606.25	3.50
1991-92	19500.00	620.00	3.10
1992-93	21000.00	317.98	1.50
1993-94	23000.00	450.91	1.80
1995-96	30000.00	485.81	1.60
1996-97	35000.00	482.50	1.30
1997-98	38400.00	390.90	1.00
1998-99	42500.00	452.00	1.10
1999-2000	55304.00	495.00	0.90
2004-05	78125.00	561.97	0.72
2005-06	98537.00	1131.00	1.15
2006-07 (Proposed)	135732.00	1244.00	0.92

Source: SBMF, 1999-2000, Annual Plan (2006-07), p.(x) & p.8-10.

ii) Minimal Impact of Forestry Schemes

As mentioned earlier, one of the main strategies for dealing with the problem of deforestation and soil erosion in Manipur's forests has been the promotion of afforestation, which has taken the form of social forestry, eco-development, rubber and horticulture plantations. It was expected that these plantations would supplement small timber, fuelwood and fodder availability so that people's dependence on degraded forests would be reduced. It was also felt that plantations would help in weaning away Jhumias from shifting cultivation by providing them with some gainful work. The Forest Department thus accorded high priority to the plantation of trees since the formation of the state. This is evident from a look at the table 5.12 below.

Table 5.12: Nature of Plantation Schemes and Area Covered. (Area in Hectare)

Plan/ Year	Afforestation	Economic Plantation	Social Plantation	Rubber Plantation	Soil Watch IAEP*	IAEP 4th Plan	Total
4th Plan (1969-74)	520	1210	NA	NA	NA	NA	1730
5th Plan (1974-79)	1850	5176	1318	116	NA	NA	8460
Annual Plan (1979-80)	820	1520	NA	105	NA	NA	2445
6th Plan (1980-85)	9415	6390	4295	195	1000	NA	21295
7th Plan (1985-90)	8965	9396	15230	305	5180	NA	39076
Annual Plan (1990-91)	1210	2595	4480	25	1450	NA	9760
Annual Plan (1991-92)	1400	3100	3200	32	290	NA	8022
8th Plan (1992-97)	5525	10279	17245	70	6795	6310	46224
Annual Plan (1997-98)	615	1630	2000	NA	NA	NA	4245
Annual Plan (1998-99)	800	800	2070	15	NA	NA	3685
Annual Plan (1999-2000)	480	565	1470	NA	NA	NA	2515
Total	31600	42661	51308	863	14715	6310	147457

Source: SBMF, 1999-2000

* IAEP: Integrated Afforestation and Eco Development Project.

The programme was started in 1974, but picked up pace only after 1983-84. It is divided into three parts: farm forestry, fuelwood and fodder plantation, and roadside plantation. While in farm forestry the people are encouraged to take up plantation of trees in their own fields, the fuelwood and fodder plantations are maintained by the Forest Department, which allows the people to take timber, fuelwood and fodder for their daily needs. At the same time the plantations also help in the maintenance of the ecological balance through soil conservation works like vegetative check dams, contour bunding, bamboo spur, and minor engineering works. Between 1974 and 2000 the government undertook fuel and fodder plantations in about 54038 hectares of unclassed forests.

Box. 5 HORTICULTURE VERSUS NATURAL REGENERATION

One of the main issues in the forestry sector is whether afforestation should concentrate on improving the biodiversity of the region, or whether it should concentrate on raising horticultural crops. Many of the trees being promoted under the social forestry and economic plantation programmes in the hilly areas are non-local commercial species that augment the incomes of the people and aim at being an alternative to jhum cultivation. These programmes promote the raising of nursery and orchards for fruit trees as a part of the afforestation schemes. The hill people seem to prefer horticultural plantations because of their market orientation. The important fruit trees promoted are orange, pineapple, lemon, mango and guava, but the main problems of these programmes is that they lack the necessary infrastructural support systems, especially in terms of storage, marketing, credit, and processing facilities.

In this regard it may be safely said that horticulture plantations can be promoted in areas that are totally deforested, but degraded forest areas should not be downgraded to horticultural plantation. Rather the Department should concentrate on natural regeneration in this area. Moreover, horticulture will only be beneficial to the people if it is accompanied by adequate ***infrastructural support and processing or semi-processing units that are owned and run by the people themselves.***

Table 5.13: Species-wise Plantations Up to 1997

Species	Area in '000 ha	Percentage
Pine (*Pinus Khasya)*	82.42	63.0
Eucalyptus spp.	9.20	7.0
Teak (*Tectona grandis*)	6.54	5.0
Parenga (*Alnus nepalensis*)	2.62	2.0
Yangu Khangra (*Dipterocarpus spp.*)	2.62	2.0
Champa (*Michelia champaca*)	2.62	2.0
Wang (*Gmelina arborea*)	2.62	2.0
Others	22.25	17.0

Source: FSI estimates, 1999.

Table 5.14 i: Growing Stock in Different Categories of Forest

Type of forest	Area (sq km)	Growing stock (lakh cu m)	Increment (lakh cu m)
Inaccessible closed forests	2159	300.80	5.80
Accessible closed forests	3777	538.70	10.20
Open forests	11448	209.20	4.00
Total	17384	1048.70	20.00

Source: FSI, State of Forests Report 1999.

Table: 5.14ii: Growing Stock (Volume)

Geographical Area (km.sq.)	Recorded Forest Area (km.sq.)	CNFA Plus Forest Cover Outside Forests (km.sq.)	Growing Stock (Volume in m.cum)		
			In Forest	In TOF	Total
22327	17418	4811	111.072	4.279	115.351

Source: FSI, State of Forests Report 2003, p. 38.

Table 5.15: Social Forestry Projects Between 1974-2000

Components of Employment Generation	Person days (1000s)
Fuelwood and fodder plantation	812.50
Soil and moisture conservation	90.00
Farm forestry	12.50
Total	915.00

Source: Anon., Social Forestry and Its Impact in Manipur, Unpublished Note

The social forestry project was expected to increase employment in the region. However, the forestry programme was not able to keep pace with the rate of deforestation, which was about 8.3 per cent per year as estimated in the *Forest Statistics of India*, 1995. These programmes concentrate more on fast-growing or commercial species rather than species which support the expansion of local systems of production. The need for enhancing the productive potential of local resources in the hilly regions is discussed later in the chapter.

5.II.4 Land Tenure and the Question of Forest Rights

Property rights are the defining parameters of forest rights in most states. The acquisition of rights in reserved forests and protected areas is also guided by land revenue codes with the District Collector presiding over the process. The Northeast has many communal land tenure systems which also acted as the bulwark of forest management in the British and pre-British period. Village chiefs framed customary laws and rules for their exploitation. Often to the detriment of the poorer sections of the tribal community. The question of how to bring the benefits to the most disadvantaged tribal people also needs to be considered seriously, (Chapter-XVII discusses these issues in detail).

Changing Patterns of Land and Forest Control

As mentioned earlier, a majority of the forests in the state are 'unclassed forests'. The late 19th and the early 20th Century saw the arrival of the British into the area, with the strategic aim of ensuring the safe movement of British troops on the Burma border. The extension of this process of control over the hill people's lives led to the first attempts at establishing settlements in the 1930s. The colonial administration fixed the boundaries of the villages and imposed a household tax on the jhum cultivators. This attempt to control the councils and the chiefs also extended to forest lands and produce since most of the jhum areas were in thickly forested areas.[3]

Independence brought about substantial changes in the nature of the customary authority and the extent of control of exercised by the village councils and chiefs. The enactment of the Manipur Land Revenue Act 1960, authorised the government to carry out survey and settlement operations in the hilly regions. Complementary to this Act was the Manipur Hill Areas (Acquisition of Chiefs' Rights) Act 1967 under which the government would acquire all rights over land and the chiefs would be given compensation in return. Their rights to collect tax from the cultivators were also abolished. The formal claim of the Forest Department over all forest lands led to a conflict between the state and the Naga and Kuki Chiefs. But these chiefs used the uncertainty caused by this conflict to assert their right over all tree resources, especially in cases where they gained monetarily. The exploitation of forest resources combined with the demand of industry facilitated the nexus between the chiefs and the contractors. The people of the hills, led by their chiefs, were opposed to survey and settlement operations because they felt that once these operations were completed they would have to pay higher taxes. It might also give a foothold to land seekers from the valley. Further, the tribal elite feared that with the enforcement of the land-ceiling laws they would be deprived of their surplus land and their power would be undermined. As is rightly observed in a study on the Kukis by Gangte[4], the profits of forestry in the post-Independence period seldom went to the ordinary tribals. The major portion of the revenue went to the contractor who had an understanding of market and trade. The trader-Chief nexus (where it exists) can only be broken with the settlement of land rights in the hill districts.

5.III: ECONOMIC AND COMMERCIAL IMPORTANCE OF FOREST PRODUCE

5.III.1 Introduction

Forest produce can be broadly classified into wood and non-timber forest produce. Wood products include timber small wood and firewood. The state is also rich in non-timber forest produce and possesses over 300 varieties of medicinal plants that have been documented and identified, 54 species of bamboo, and four species of cane. Other products of commercial value include Sarpagandha, Tumitla bark (*Cinimum cecidaphne*), Dalchini, Agar, etc.. Forest produce assures supplementary income to about 87 per cent of the tribal farmers.

Table 5.16: Status of Revenue From and Harvests of Forest Produce (Quantity in cu m and Value in Rs '000)

Item/ Years	1955-56	1965-66	1970-71	1975-76	1980-81	1985-86(P)	1990-91	1995-96	2000-2001
Major Products									
1. Timber									
Quantity	NA	17.60	5.30	7.60	4.00	5.70	18.90	12.73	1.40
Value	188.10	251.80	59.70	427.00	227.30	1158.10	4862.00	4687.00	869.00
2. Fuel/ Firewood									
Quantity	NA	33.10	24.60	208.90	58.60	56.90	30.20	53.800	27.32
Value	21.50	47.50	60.90	180.90	261.20	661.80	960.0	947.00	1268.00
3. Round Wood									
Quantity	NA	1.40	14.80	5.90	10.30	16.20	NA	NA	NA
Value	6.00	28.30	59.70	162.50	747.70	2390.70	NA	NA	NA
4. Teak									
Quantity	NA	NA	NA	NA	NA	NA	3.33	118.90.00	0.06
Value	NA	NA	NA	NA	NA	NA	1120.00	10297.00	181.00
Total Value	215.60	327.60	180.30	770.40	1236.20	4210.60	6942.00	15931.00	2318.00
Minor Products									
1. Animal Product (Value)	0.00	NA	0.50	0.90	NA	NA	NA	NA	NA
2. Bamboo & Cane/ Rattan (Value)	7.70	35.30	8.60	1.50	144.30	155.90*	375.00	554.00	746.00
3. Food & grazing (Value)	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Sand, Stone & Earth (Value)	NA	NA	NA	NA	NA	NA	1050.00	2432.00	NA
5. Grass other than fodder (Value)	2.20	NA	11.90	29.10	6.80	NA	8.00	8.00	NA
6. Incense & perfume (Value)	0.50	NA	NA	NA	61.40	NA	NA	164.00	185.00
7. Others (Value)	2.60	169.50	212.10	721.10	1452.40	2160.00	1042.00	4212.00	6451.00
Total Value	13.00	204.80	233.10	752.60	1664.90	2315.90	2475.00	6426.00	7382.00
Total of major and Minor Products (Value)	228.60	532.40	413.40	1523.00	2901.10	6526.50	9417.00	22357.00	9700.00

* Figures of Bamboo & Cane/Rattan (value) are only for Bamboo for 1985-86.
P for Provisional
- Stands for Not Available
Source: -PCCF, Manipur, Figures for 1955-6 to 1989-0 from SHM, 1992, DES, Govt. of Manipur, Imphal, N. Amurei Singh, pp. 79-82; and for 1990-1 to 2000-1 from SHM, 2002, DES, Govt. of Manipur, pp. 94-95.

There has been a marked decrease in the harvests of wood and non-timber forest products especially since 1995 (Table 5.16). The proportion of non-wood forest produce harvest has also been increasing in proportion to timber harvests since 1955, which could be the outcome of the systematic forest degradation that is underway in the region. There is a shortage of timber supplies, causing the prices of timber to rise by 20 or 30 per cent in the domestic market.

i). The Hiatus Between Supply and Demand for Timber and Firewood

More than 80 per cent of the population of Manipur depends upon firewood as its major fuel for cooking purposes according to an estimate of the Census of India. Firewood is also used as a fuel in brick kiln units and by candle manufacturers. According to a survey carried out by

the Department of Economics, Manipur University, fuel wood consumption was estimated at 7 lakh cubic meters. However, this estimate seems to be on the lower side and the total consumption of wood products as given in 1996-97 is presented in table 5.19:

Table 5.17: Proportion of Minor and Major Forest Produce in Harvests

Year/Item	Major	Minor
1955-56	94.31	5.69
1960-61	85.71	14.29
1965-66	61.53	38.47
1970-71	43.61	56.39
1975-76	50.58	49.42
1980-81	42.61	57.39
1985-86(P)	64.52	35.48
1990-91	73.72	26.28
1995-96	71.26	28.74
2000-2001	23.90	76.10
2001-2002	40.99	59.01
2002-2003	30.70	69.30
2003-2004	37.54	62.46
2004-2005	42.96	57.04

Source: SBMF, 2001-2002 & SAM 2005, 184-185.

Table 5.18: Share of Various Fuels Used for Cooking in Households in Manipur

Type of fuels	Households (per cent)
Cow dung	0.15
Coal/charcoal/lignite	0.89
Fuel wood	73.00
Bio-gas	0.40

Source: Census of India, 2001.

Table 5.19: Total Consumption of Wood and Other Products

Particulars	Total consumption		
	Rural	Urban	Total
1. Consumption of misc. timber for construction of houses (cu. m.)	842589	218689	1061278
2. Consumption of misc. timber for manufacture of furniture (cu. m.)	102901	69279	172180
3. Consumption of fuel (kg)	121151928	12385905	133537833
4. Consumption of bamboo (kg)	158498375	16795653	175294028

Source: Statistical Bulletin of Forest Department, 1996-97, Govt. of Manipur.

If we compare this with the projected demand of timber and fuelwood in the 1980s we find a huge gap of 5 lakh cubic meters in firewood and 3.5 lakh cubic meters in timber:

Table 5.20: Production Potential & Estimated Demand of Forest Produce (lakh cum)

Year	Production Potential per year		Estimated Demand per year		Balance	
	Timber	Firewood	Timber	Firewood	Timber	Firewood
1985	1.75	4.17	0.88	6.76	0.87	- 2.59
1990	1.75	4.17	1.01	7.75	0.74	- 3.58
1995	1.75	4.17	1.16	8.90	0.59	- 4.73
2000	1.75	4.17	1.33	10.19	0.42	- 6.02

Sources (as quoted in SFFDP, p. 53): (i) MAI,(1976). FRM, PISFR, p. 44. (ii) Singh, MI (1989). PDFRM, Manipur University, Economics Department, pp. 23-24.

The potential of the social forestry programme to meet local needs is analysed below with reference to firewood production (table 5.21):

It was estimated that in order to meet the firewood needs of the local people a total investment of Rs 500.53 lakh in social forestry would be required by 2010, of which 50 per cent would have to be made by 2005. As regards timber requirement, it is estimated that this would be 1.61 lakh cu .m. as against the existing tree forest cover of 7.62 lakh ha in 2010**.** If the recommended fuel wood plantation of 18.48 lakh ha is completed by 2010 and 65 per cent of it gives some timber yield an annual increment of 0.23 cu. m. per ha can be obtained.

Table 5.21: Potential of Forests to Meet Local Needs

Year	Projected population (in lakh)	People using firewood (in lakh)	Firewood requirement (lakh cu m)*	Yearly production potential** (lakh cu m)	Balance	Incremental demand increase (lakh cu m)	Plantation required (lakh ha)	Cost per ha for 5 years (Rs)	Investment (Rs lakh)
2001	23.89	21.11	8.29	4.17	-4.12	4.12	11.45	27085	310.12
2005	26.88	23.76	9.34	4.17	-5.17	1.04	2.90	27085	7.80
2010	31.17	27.55	10.82	4.17	-6.65	1.49	4.13	27085	111.86
Total									500.53

Note: The population for 2002-2011 is calculated at 3 per cent rate of annual population growth.

* The Firewood Equivalent is calculated using the formula:

88.38 per cent of population x 224.5 kg x 1.75 cu. m,

where 88.38 is the percentage of population using firewood as fuel, 224.5 kg is the per capita annual consumption of firewood and 1.75 cu. m. is the equivalent of 1 tonne of fuel wood (after Singh, M. I. 1989).

** On the basis of Smythies' Conservation Formula, the forests of Manipur will be able to produce perennially 4.17 lakh cu. m. of fuel wood annually, using growing stock of all tree and open forests of 1173995 hectares with a growing stock increment of 0.36 cu m per hectare of fuelwood.

Sources: (as quoted in SFFDP, p. 50): (i) Singh, MI (1985). PDFFRM, Manipur University, Economics Department, p. 10. (ii) Singh, MI (1989), MFRM, Manipur University, Economics Department, pp. 19-21.

Table 5.22: Economics of Required Plantations

Year	Plantation required (Lakh ha)	Cost for five years (Rs/ha)	Investment Required (Lakh)	Output and Value after four years					
				Timber (lakh cu m) (Lakh Rs at 2000 prices)			Firewood (Lakh cu m) (Lakh Rs at 2000 prices)		
				Quantity	Unit sale price	Value	Quantity	Unit sale price	Value
2001	11.45	27085	310.12	2.63	620	1632.77	4.12	46	189.61
2005	2.90	27085	7.08	0.67	620	413.54	1.04	46	48.02
2010	4.13	27085	111.86	0.95	620	588.94	1.49	46	68.39
Total	18.48		500.53	4.25	620	2635.25	6.65	46	306.03

Calculated according to the figure of table 5.21

Table 5.22 shows that an investment of Rs. 500.53 lakh under the National Afforestation Programme can yield returns of Rs 2941.28 lakh within a decade and provide employment to about 2 to 2.5 lakh people apart from regenerating forest and community lands. State spending in the sector needs to be increased substantially.

5.III.2 Industrial Potential of Manipur's Forest Produce

i) Wood-Based Industry

At present there is hardly any processing of forest produce in local areas of Manipur. At best the local people dry and cure the wood before they sell it in the market. The Manipur Government's Perspective Plan for the Forest Department identifies the industrial processing of forest produce as one of the main areas for future work. Only one type of forest-based industry is present in the state, namely sawmills mostly owned by private parties who lease forestlands to harvest the timber. Between 1974 and 1996 there were 227 sawmills in the state, and only one was government-owned. The licenses of these mills were cancelled after the Supreme Court ruling of 1996 that banned green felling and a high-powered committee was set up by the Ministry of Environment to process and renew their licenses. Only 13 licenses of units in Manipur have been renewed by the committee. These have been shifted to industrial estates set up by the Government. The rest of the sawmills continue to operate illegally.

Table 5.23: Potential Out turn for Industrial Needs

Particulars	Out turn (cum/year)
Sawn timber	40,731
Plywood size timber	1,10,468
Pine wood sawn timber	35,804
Broad leafed pulpwood & fuel	4,07,928
Poles	9,875
Bamboo pulpwood (air dry)	1,448 lakh ton/year

Source: Statistical Bulletin of Forest Department, 1996-97, Govt. of Manipur.

ii) Medicinal Plants

This is another promising sector that has been identified by the Forest Department. At present there is only one big trading agency, NERAMAC, that has been selling essential herbs to companies like Dabur and Baidyanath. Some of the common species identified for trading are:

- Smilex Macrofolia available in all hilly tracts and procured throughout the year.
- Kuth root (*Saussura lappa*).
- Katha presently imported from Myanmar.
- Dalchini (*Cinnamon zeylanica*) available in the hilly districts of Senapati, Ukhrul and Chandel.
- Jhabar (*Rauvolfia serpentina*) presently imported from Myanmar.
- Agar (*Aquilaria agallocha*) found in west and southeast areas.

There are also herbs that are used as natural dyes and have a good potential market. The Directorate of Scientific and Industrial Research, Department of Science and Technology, in a recent report on *Essential and Medicinal Plants in the Northeast (August 2001)* recommended that the Forest Department and the Tribal Development Corporation collect and market the raw materials. It also stressed the need for greater collaboration with the department.

Two feasible industries are horticultural processing units and cinnamon leaf oil unit. The costs of setting up a horticultural unit and its satellite unit catering to a cluster of 20 villages are Rs 8-12 lakh. The cinnamon leaf oil and essential oils unit costs about Rs 7.5 lakh (including capital investment and working capital for one year.) It is suggested that training-cum-production centres be introduced in Senapati district (with the largest area of jhum related degradation) in the hills and Bishnupur district in the valley. These centres should network villages within a radius of 10 km and the technology choice should be compatible with the cover strategy adopted in plantations. An initial investment of Rs 40 lakh is envisaged for these units for one year. Replication of these units can begin after one year when local adjustments are made to these technologies. Entailing *an initial investment of Rs 40 lakh for over one year, the units are envisaged to become self sufficient after three years, so the total support to be provided to them would be about Rs 150 lakh for this period including the training and monitoring costs. Funds for these pilot projects could be accessed from the Directorate of Industrial and Scientific Research, the Technology Mission on Oil Seeds and Pulses or the Science and Society Programme of the Department of Science and Technology.*

5.IV: RECOMMENDATIONS

An analysis of this chapter reveals that the development of the forestry sector in Manipur is crucial for the economic progress of the state. The broad measures recommended for action are discussed below:

1. Application of Sixth Schedule in Manipur

One of the main problems of the forestry sector relates to the conflict between the traditional tribal Chiefs and the state over forest rights in the hilly regions of the state as has been discussed earlier. It is suggested that the formation of autonomous district and regional councils is probably the best available constitutional mechanism of ensuring that local institutions maintain control over their own natural resources (See Chapter-XVII). *The district councils should also undertake the responsibility of reclassification and settlement of forests as well as the fixing of local rights. Appropriate amendments should be made to the forest acts and policies to incorporate these provisions.* A summary of the recommendations relating to the application of the Sixth Schedule are:

i. The formation of an *Independent Statutory Regulatory Commission by amending the Schedule for mediating the relationship between the State Governments and the Councils.*

ii. The Autonomous District Councils Act 1971 should be amended to solve territorial disputes between the state and tribal groups by making the councils solely responsible for *settlement of land tenures that include customary and collective tenures.*

iii. In respect of the *Review Committee's recommendation relating to the formation of an independent Finance Commission to pass and regulate the implementation of the budget prepared by the district councils,* paragraph 7 and paragraph 9 (clause 2) of the Schedule should be amended to ensure that the accounts of the district councils are also audited by the Public Accounts Committee of the state legislature.

iv. Village councils should be made mandatory and clause 2 of paragraph 1 of the Schedule on composition of the councils should be amended to give representation to customary institutions.

v. Paragraph 1 of the Schedule should be amended to include the representation of women, minority tribes and non-tribals in the councils.

2. Policy and Legislation

i). There is an urgent need for the development of a comprehensive state forest policy, which should be expedited by setting up a state commission on forests, and land management.

ii). The process of settlement of rights in the hill areas should be expedited and customary tenures and practices of forest use taken into account on the lines of the recommendations of the Report of the B.K. Roy Burman Committee on the Land Systems of North East India (1989).[5]

iii). The passage of the Scheduled Tribes and Other Traditional forest dwellers (Recognition of Forest Rights) Bill, 2006 has given rise to fears that the Act may give an impetus to privatiosation and break down of community ownership, and the community–based territorial powers over forests protected under the Sixth Schedule could be undermined. This might also permit the entry of 'outsiders' and 'settlers'.

iv). The forest sector in Manipur has seen a drastic decrease in public investment. The quantum of spending on infrastructure, communication[s] and research and development must be increased. The *recommendations for different programmes have already been made in this chapter*.

v). After a transparent and decentralised process of public expenditure should be worked out. Local people and local bodies like village councils should be part of the decision-making process in these matters.

vi). The Draft Manipur Forest Policy of 1996 was never subject to public to prepare a fresh draft along the principles specified here.

3. Management of Forests

i). *The 26700 ha of land deforested between 1999 and 2001 should be demarcated for natural regeneration at a cost of about Rs. 17160 per ha for five years under the National Afforestation programme. The total cost of such regeneration would be approximately Rs 46 lakh which can be met from the IAEP scheme of the National Afforestation and Eco-development Board.*

ii). As pointed out earlier, *an investment of Rs. 500.53 lakh under the National Afforestation Programme is required to meet the fuelwood and fodder needs of the people. This investment should take place over one decade and can provide employment to over 2 lakh people and cover about 11 lakh hectares of degraded forests in artificial regeneration programmes.*

iii). Siltation of the Loktak Lake can be addressed by treating 5000 hectares of jhum cultivation in the catchment area. Here we propose wet rice cultivation with fish culture or a mixed plantation with horticultural and medicinal plant rearing and processing outside the catchment area to provide employment. *Our analysis shows that the five year investment required for mixed plantation would be 135.43 lakh whereas the promotion of wet rice cultivation would require an investment of Rs 137 lakh for 5000 hectares.*

iv). There is a need for more plantations. This would promote trees and species useful for timber or industry, and also a cover strategy of agro-forestry with local species that can support a diversity of occupations. Tried and tested silvi-pastoral methods should also be implemented. *Some of the multi-purpose species to be promoted are cinnamon, alder, pineapple, Brazil nut, jackfruit, acacia katechu, etc.*

v). The contract system of harvesting forest produce has done considerable harm to Manipur's forests and should be urgently restructured. It is recommended that the entire management of forest produce harvesting and marketing be given to tribal co-operatives and village councils. These cooperatives should be directly linked with the forest development agencies that are to be set up under the Eleventh Plan. Alternatively, separate forest produce trading corporations could be set up. Collectors' cooperatives, marketing federations and other stake holding institutions should find a representation in these bodies.

vi). The Manipur Forest Department plans to implement the Joint Forest Management Programme in the Eleventh Plan period. Critics of this programme suggest that local people need more decision-making powers. They should be involved in deciding a) the

cover strategy and technology of forest management and b) how benefit sharing mechanisms can be improved.

vii). An important thrust area is the sustainable utilization of the rich medicinal plant resources of the State in generating employment opportunities along with market support and networking facilities.

viii). Value addition through Non Timber Forest Produce-based industries run by tribal co-operatives

4. Jhum Cultivation

Both the improvement and replacement approaches should be adopted. There should be an attempt to enhance traditional skills and practices for improving the productivity and checking soil erosion in jhum lands, eg., pollarding of certain trees at the time of clearing the forests, sowing of seeds of trees in vacated lands, etc.

The suggested strategy is stabilising jhum into a five-year cycle through a silvi pastoral method, entailing an initial investment of about *Rs 93.12 lakh for 5000 hectares of degraded jhum lands in the hill districts over a period of five years*.

The Manipur hills offer a vast potential for starting commercial plantations of citrus fruits and some other temperate fruits. The North-eastern Industrial Consultants (NECON) identified food processing industries such as fruit juice concentration, pectin and allied citrus products, banana/guava pulp, pineapple slices, canned pear, peach, plum, papaya, mushroom cultivation-cum-processing, preservation and canning of bamboo shoots as feasible projects. *The* jhum *lands that have been redeveloped should be organized into clusters of 20 villages to support small scale processing units of cinnamon oil as well as fruits. The gestation period of horticultural crops being longer, farmers access to food and other basic amenities in jhummed areas should be guaranteed by introducing the Food for Work programme and an effective public food distribution system*. Tree planting activities should be incorporated in jhum lands through the 'Taungya' system as part of a government programme/ scheme. There should be an element of ownership on the lines of 'tree patta scheme' under which farmers should be allowed to follow a system where plantation of trees is accompanied by the growing of food grains. Plantation should be done in strips and alternative strips should be planted with trees and foodgrains respectively. This is akin to the Taungya system that was once practiced in Burma and Assam.

The Indian Council of Agricultural Research, Shillong, Regional Forestry Research Institute, Jorhat, and departments from the Northeastern Hill University, should be identified as institutions equipped with requisite expertise for undertaking research and technology development on shifting cultivation. Furthermore, Cost-effective agro-forestry models, productive organic farming and hybridisation of native rice varieties are some important areas where research should be vigorously pursued.

5 Industrial Uses of Forest Produce

There is an enormous potential to develop systems of value addition in forest produce. We have earlier recommended the setting up of horticultural processing units and cinnamon leaf and essential oils units. The industrial uses of bamboo and cane should be diversified.

The utilization of bamboo resources is closely linked to employment generation and value addition in bamboo processing is therefore very important for this reason. Research and

development activity with a focus on medicinal plants should also be strengthened as recommended by the Report on Essential and Medicinal Plants in the Northeast (DSIR August 2001). A central level scheme for processing of forest produce in the northeastern region should be considered in partnership with the North Eastern Industrial Finance Development Corporation. An intial investement of Rs 150 lakhs should be allocated for pilot projects in Manipur for this purpose.

6 Financing the Forest Sector

Currently forestry accounts for only about 0.9 per cent of the total plan outlay for the state under the Ninth Plan.

Table 5.24: Physical and Financial Targets Under the 9th Plan for Manipur (1998-2002)

Scheme	Physical Target(in hectares)		Financial Targets (Rs. Lakh)	
	Target	Achievement	Allocation	Release
Non-Timber Forest Produce	3660	940	325.76	237.55
Integrated Afforestation and Eco-Development Projects	12363	9808	1697.46	1376.08
Area Oriented Fuel and Fodder Plantations	14400	8270	975.23	454.27
Association of Tribals and Rural Poor			89.21	70.68
Total	30423	19018	3087.66	2138.58

Source: National Afforestation and Ecodevelopment Board Website: www.envfor.nic.in/naeb

It is unfortunate that the state government failed to utilise an amount of Rs 951.04 crores in the Ninth Plan. An analysis of the pattern of utilisation also shows that the development of non-timber forest produce and fuel and fodder plantation requires more attention and some restructuring. The Government of India started this process of restructuring under the Tenth Plan. It proposed the integration of all schemes under the *National Afforestation Programme*, which will be operationalized through state level forest development agencies. During the plan period a total of Rs. 116 Crores has been allocated for the entire northeastern region. *Of this, Manipur has received an allocation of Rs 24.9 crores, of which only Rs. 7 crores has been released till 2004 March. The Forest Development Agency of Manipur has submitted 11 projects with emphasis on bamboo and cane plantations, and artificial and natural regeneration. The state government should formulate schemes for the projects suggested earlier in this chapter. This will require an additional allocation of Rs. 926.65 lakhs, which can even be done by the reallocation of the 951 lakhs of unspent money in the Ninth Plan.*

Box: 6 Overall, the recommendations can be summed up as follows:

- An increase in public spending in the forestry sector by Rs 926.65 lakhs over the next five years. This will require on enhancement of the budget of the forestry sector to at least 5 per cent of the total Plan since a substantial portion of the population depends on forests for its surivival in a direct or indirect way.
- An important thrust area is the sustainable utilization of the rich medicinal plant resources of the State in generating employment opportunities along with market support and networking facilities.
- Value addition of NTFP through tribal co-operatives
- Legislative reforms in the Sixth Schedule and Autonomous District Councils Act 1971 to ensure that the problem of control over forests can be dealt with in a satisfactory manner.

ENDNOTES

[1] B Datta Ray and K. Alam, *Forest Resources in North East India*, Omsons Publications, Delhi, 2002, p.35.

[2] Much of the material for this section is taken from L. Robin Singh, *Social Forestry and Forest Development Planning*, Daya Publishing House, Delhi, 1997, pp 56-91.

[3] S.N. Pandey, 'Transformation of Land Settlements Under the British in Manipur' in J.B. Bhattacharjee (eds) *Studies in Economic History of North East India*, Har Anand Publications, Delhi, 1994, pp. 115-23.
[4] T.S. Gangte, *Kukis of Manipur*, Gyan Publishing House, Delhi, 1993.
[5] Report of the Committee on Land Tenure Systems in the North East, Planning Commission, New Delhi, 1989.