

DRAFT ASSAM BAMBOO AND RATTAN POLICY-2003

1. PREAMBLE

- 1.1 Bamboo and Rattan represent untapped major resource of Assam State whose full ecological and economic potential needs to be recognized, developed and promoted in a manner ensuring ecological security for all round sustainable development of the State and also the livelihood security to its people.
- 1.2 Although as per a recent study, the bamboo has over 1500 documented uses, in India, it is primarily meant for making paper pulp (35%), apart from uses like housing (20%), non-residential uses (5%) , rural uses (20%), fuel (8.5%), packing, including baskets (5%), transport (1.5%), furniture (1%), other wood industries(1%), other (3%). In Assam 3 paper mills have been set up based on bamboo, as the basis raw material and all bamboo bearing forest areas have been leased out to the paper mills at concessional rates. The main bamboo growing areas of Assam are the districts of Cachar, Karbi Anglong, North Cachar Hills, Nagaon and Lakhimpur. Bamboo is a raw material of great versatility and forms an integral part of the culture, life style of the people and the economy of Assam since time immemorial. There is mention in history about the rattan and bamboo products of Assam during the time of Bhaskara Varman (early part of the 7th century A.D.), the king of Assam. In the 21st century also the rattan and bamboo products of the State are made mainly at cottage industry level, as no value addition or diversification in a major way has taken place.
- 1.3 Bamboo and Rattans are an essential component of forest eco-system, which is a dominant feature of State's landscape. Traditional living and lifestyle of Assamese society, to a large extent, is dependent on bamboos and rattans for its variety of uses and these species have much to offer by way of contributing to socio-economic advancement of modern Assamese society. The eco-friendly bamboo and rattan crop has immense potential in improving rural economy, industrial development and a sound economic base for the state on sustained basis.
- 1.4 Bamboo and Rattan sector development is a high priority thrust area of the State Govt. and Govt. of India. Thus there is a need to promote bamboo and Rattan development for the benefit of rural sector.
- 1.5 The change over from traditional use to a modern use, tracking a high potential growth path in an eco-friendly manner needs a clear vision, an appropriate policy framework and a blueprint. Hence the necessity of drafting a Bamboo and Rattan Policy.

2. ROLE OF BAMBOO IN SOCIO-ECONOMIC DEVELOPMENT :

- 2.1 Bamboo has been an integral part of the cultural, social and economic traditions of Assam. Many people still depend on it for their livelihood, and for household

- and functional uses. In return communities have nurtured and protected bamboo and are repositories of vast knowledge and skills related to the propagation, processing and usage of bamboo. There is a social context too – bamboo in Assam finds a place in ritual and recreation, in culture and ceremony – needs to find a mention. Most importantly there is a traditional familiarity with the material, and a legacy of skill that can be built upon for newly emerging applications and products. All of this means - along with the fact of abundant bamboo - that Assam has a competitive and comparative advantage.
- 2.2 Bamboo offers promise and potential for value addition and incremental income and employment. The employment intensity of many products and processes is very high - and can lead to enhanced employment in the formal and informal sectors at different stages – cultivation, harvesting, processing, product conversion and marketing. Bamboo can be an important vehicle for sustainable and widespread development, augmenting economic opportunity, income and employment.
 - 2.3 Bamboo is an eco-friendly alternative to many currently used materials. It is a material that lends itself easily to simple processing technologies. At the same time it is capable of high end and high value products and applications.
 - 2.4 Bamboo contributes to the soil and environment, giving back as much as it takes. It is a pivotal element in the balance of oxygen and carbon dioxide in the atmosphere; bamboo produces 30% of its volume in biomass. Its unique root and rhizome structures act as binders, controlling erosion and rejuvenation soil. Bamboo, in plantations or on the periphery of homesteads, acts as a windbreaker, a noise & climate buffer. As a consequence, bamboo based household plantation and agro-forestry can enhance food security, assist in soil conservation, watershed development and the reclamation of wasteland. In Assam, bamboo plantation can therefore be used to control river bank erosion, to arrest soil degradation, and to stabilize embankments.
 - 2.5 The development of bamboo applications would promote eco-friendly products and processes. It would have environmentally beneficial impact. Through substitution and conservation of timber resources, and enhancement of green cover. Bamboo have many new uses too, developed through the application of science and technology. It can substitute technologically and commercially not only could, but also plastics, steel and cement and composite materials in structural and product applications through improvement in processing technologies, product innovations and the application of scientific and engineering skills.
 - 2.6 **Use of Bamboo :**

Bamboo and rattan products generally used for various domestic purposes and made in cottage industry are named below:-

- 1) Chalani (sieve) of different sizes.
- 2) Kula (winnowing fan)
- 3) Khorahi (small basket)

- 4) Dukula/Tukuri (big basket)
- 5) Dala (bamboo tray)
- 6) Duli (Assamese)/Tali (Bengali)-Big basket for storing paddy/ rice.
- 7) Doon (Assamese)/ Kathi (Bengali) – for measuring paddy/rice (usually one doon contains 5 seers).
- 8) Dhol (big measure)
- 9) Bamboo mats known as Dhari, Dhara, Jharia or Darma. These mats are used for various purposes like construction of temporary walls and sheds, big pandals, roofing of country boats, dwelling houses, other domestic uses and also for spreading and drying of paddy/rice.

3. RESOURCE SCENARIO

Rattan and bamboo handicraft is the traditional industry of Assam. The State has the greatest concentration of rattan and bamboo in the country. Total bamboo area in Assam is about 2.23 million hectares as against Indian's total area of about 11 million hectares under bamboo. Out of the 130 bamboo species available in India, 34 species available in Assam. The raw stock of bamboo is valued at about Rs.4000 crores. Unfortunately uses of bamboo and rattan have largely been local and traditional with very little value addition. With value additions of even two times about Rs.8000 crores can easily be generated in Assam from rattan and bamboo on an annual basis.

A. **Bamboo**

- A.3.1. Forest types occurring in the state are Tropical Wet Evergreen, Tropical Semi Evergreen, Tropical Moist Deciduous, Sub Tropical Broad Leaved Hill, Sub Tropical Pine Forest and Littoral and Swamp forests..
- A.3.2. There are 34 species of Bamboos occurring in the State. The following species are extensively found : *Dendrocalamus hamiltonii* (Kako), *Neohouzeaua dulooa* Syn. *Teinostachyum dulooa* (Dolu), *Melocana baccifera* Syn. *Melocana bamboosaaides* (Muli), *Oxytenananthera parviflora* (Hill Jati), *Dendrocalamus longispathus* (Khang), *Oxytenananthera albociliata* (Kala sundi), *Oxytenananthera nigrociliata* (Kaligoda), *Bamboosa pallida* (Hill Jati), *Bamboosa balcooa* (Bhaluka). All the bamboo species are clump forming except Muli (*Melocana beccifera*), *Bamboosa tulda* (Jati), *Bamboosa vulgaris*, *Bamboosa balcooa* (Bhaluka), *Bamboosa teres* (Bhaluki Mokhal), *Bamboosa nutans*, *Bamboosa polymorpha*, *Bamboosa gigantia*, *Bambusa arundinacea* (Kata Bamboo), *Bamboosa pallida* (Bajal) are mostly grown in homesteads. A list of Bamboo found in Assam is given below : -

**BAMBOO FOUND IN ASSAM ALONG WITH THEIR LOCALITY AND
VERNACULAR NAME.**

**SOURCE : State Forest Research Institute, Itanagar-Survey of Bamboo in
North East India.**

SI No.	Scientific Name	Vernacular name	Locality
1	<i>Bambusa auriculata</i>	Kalia bans	Karimganj
2	<i>Bambusa balcooa</i>	Bhaluka	Throughout the State.
3.	<i>Bambusa bambos</i>	Kotoha,Kotabanh	Throughout the State.
4.	<i>Bambusa cacharensis.</i>	-	Lakimpur, Sultani-Cherra Village.
5.	<i>Bambusa jaintiana</i>	-	N.C.Hills.
6.	<i>Bambusa mastersii.</i>	Beti banh	Lakhimpur,Dibrugarh.
7.	<i>Bambusa nutans</i>	Deobanh,Jotia makal.	Through out the State
8.	<i>Bambusa pallida</i>	Bijuli,Jowa,Makal.	Through out the State
9.	<i>Bambusa Polymorpha</i>	Betua, Jama.	Cachar,Dholai,Kakicherra,Si lchar.
10.	<i>Bambusa Pseudopallida</i>	-	-
11.	<i>Bambusa Sp.</i>	Nangal banh	Kamrup, Gohpur
12.	<i>Bambusa teres</i>	Bhaluki makal,paura	Chariduar,Darrag,Kamrup, Sibsagar.
13.	<i>Bambusa tulda</i>	Jati, Nal banh.	Through out the State.
14.	<i>Bambusa vulgaris</i>	Tansti banh, Ketura	Karimganj.
15.	<i>Dendrocalamus giganteus.</i>	Worra	N.Lakhimpur,Upper Dihing
16.	<i>Dendrocalamus hamiltonii.</i>	Kakoa,Takeo banh	N.C.Hill.,K. Anglong,Nagaon Cachar etc.
17.	<i>Dendrocalamus longispathus</i>	Karail,Jati,Rupahi banh	N.C.Hills,Kamrup,Dholai Block,Hovaithung
18.	<i>Dendrocalamus strictus</i>	Karail, Jati	Deopani river bank
19.	<i>Dinochloa Compactiflora.</i>	-	Cachar
20.	<i>Dinochloa gracilis</i>	-	N.C.Hills
21.	<i>Dinochloa India.</i>	-	Bhuban Hills.
22	<i>Dinochloa mclellandii.</i>	Lota	Karimganj N.C.Hills
23.	<i>Gigantochloa</i>	Kalisundi	Karimganj.
24.	<i>Gigantochloa macrostachys</i>	-	Hathikhali,Kamrup,Kulsi
25.	<i>Melocanna baccifera=M.bambusoides</i>	Tarai banh, Nah banh, Muli banh.	Common in hill Dist.
26.	<i>Phyllostachys assamica.</i>	-	-
27.	<i>Schizostachyum dullooa</i>	Dalu banh	Common in hilly areas and in Upper Assam.
28.	<i>Schizostachyum griffithii</i>	Behti banh	Sibsagar & Dibrugarh.
29.	<i>Schizostachyum pergracile</i>	Madang	Dibrugarh,N.C.Hills.
30.	<i>Schizostachyum polymorphum</i>	Bajal banh, bajah banh.	Barduar, Batasipur, Darrang R.F. Garampani, Makum forest Narduar, Joypur etc.

A.3.3. Amongst the edible bamboos *Melocanna baccifera* is most favoured followed by *Bambusa tulda*, *Dedrocalamus hamiltonii*, and *D. longispathus*.

A.3.4. The study of availability of bamboo grown in forest areas was carried out by different agencies since 1953. In 1953, reports for M/S Srraw Products showed annual yield in Upper Assam, Central Assam, Lower Assam, Cachar and Mizo hills was 3,69,100 tons. In 1955, Mr. I. Vinton Burn, F A O Expert reported annual yield of Upper Assam, Lower Assam, Central Assam and Cachar as 2,22,700 tons. In 1957 reports for Assam pulp Co. Limited showed annual yield of N.C.Hills as 1,11,559 tons. In 1961, Mr R.C.Dutta Purkayastha calculated annual yield of Upper Assam as 45,000 tons, Cachar 2,75,000 tons. Mizo hills 8,19,100 tons, Central Assam 1,29,800 tons, Lower Assam 54,000 tons. Mr. A.H.Choudhury (1969) estimated the total yield of Cachar as 19 Lakhs ton, Mr.L.C.Das calculated total yield of South Kamrup as 1,81,019.70 tons and prescribed 54,448 tons as annual cut. Mr. H.K.Choudhury revised the yield in 1974 as 1,11,940 tons Mr. L.C.Das calculated the annual yield of Goalpara as 15,526 tons from Reserved Forests and Proposed Reserved Forests and 20,000 tons from homestead. A report for International Paper Consltants (1973) mentioned annual yield of the whole N.C. Hills to 3,00,000 tons.

A.3.4.1 Considering all these reports, the annual availability of bamboos from the forests areas of this region may be estimated as below:

Sl. No.	District	Quantity (tons)
1.	Upper Assam (Lakhimpur, Sibsagar, etc.).	1,05,100
2.	Central Assam(Nagaon,Diung Valley)	1,54,000
3.	LowerAssam(Kamrup,Khasi Hills*,Garo Hills*)	80,000
4.	Goalpara	15,525
5.	Cachar	2,75,000
6.	N.C.Hills (R.F areas)	61,392
7.	N.C.Hills (U.S.F. areas)	1,40,00
Total		7,25,000

* Since gone to Meghalaya

(a) The yield mentioned above may not be the true picture at present as there had been considerable destruction of bamboo forests by shifting and unscientific exploitation of accessible bamboo forests areas. In addition to this, the annual availability of bamboo yield will not be available due to reorganization of the States. Thus, the actual yield available as resource on a sustainable basis may be much less as indicated above. The inventory carried out by the Forests Survey of India during 1989-90 indicates that the total growing stock of bamboo for the State of Assam is 10.04 million tons having area of 8213 Sq. Km

(b) The villagers of the State are growing bamboos in their homesteads and the annual availability of homegrown bamboo is more than 3 Lakhs tons at 2.5 to 3 Lakhs tons of homegrown bamboos are going out of the State to cater the demand

of the paper mills situated outside the State, in addition to the supply made to the local paper mills by the villagers.

DISTRIBUTION OF BAMBOO BEARING AREAS

Bamboo forests of the State are well spread over, in the form of pure bamboo forests and overlapping bamboo forests, with trees through out the State, but extensive in two hill districts of Assam, erstwhile Cachar, Kamrup and Goalpara districts. Bamboos of the two hill districts are mainly confined in the District Council Reserved Forests, Proposed Reserved Forests and Unclassified State Forests area, which are subject to extensive shifting cultivation. Actually 60 to 70% of bamboo areas of the two hill districts are confined in the above two categories of the forests. The total unclassified forests area of the two hill districts is 9,217 Sq. Km. out of the total geographical area of 15,222 Sq. Km.

District	Classified Forests Areas (in Sq. Km.)	Unclassified Forests Areas(in Sq. Km.)	Bamboo Bearing Area (in Sq. Km.)
Karbi Anglong	2,334.20	3,650.00	3,890.00
	707.52	3,150.00	1,868.00
North Cachar Hills			
Cachar & Karimganj	2,396.20	-	831,45
Kamrup	829.00	-	491.91
Goalpara	383.84	-	280.00
Nagaon	836.70	-	196.00
Total	7,487.46	6,800.00	7,557.36

The District mentioned above are the main bamboos bearing areas of the State but bamboos are also available in other districts of the State. Presently, about 16% of the total bamboo resource of the country is grown in the State of Assam.

A.3.4.2. During sixties, two units of paper mills of M/S Hindustan Paper Corporation Limited and one unit of M/S Asok Paper Mills were established at Nagaon, Cachar and Jogighopa respectively and all bamboo bearing forest areas were leased out to these paper mills for production of pulp and paper at concessional rates.

A.3.4.3. Bamboo flowering occurs at periodic intervals in Assam and Muli bamboo is expected to flower between 2005-2007.

B. Rattans.

B.3.1. North-eastern region can be referred as the center of genetic diversity of this renewable resource with nearly 45 species of Rattans belonging to 5 different genera viz *calamus*, *Daemonerops*, *Plectocamia*, *Karthalsia* and *Zalacca*. Many of the endemic rattans of India are under severe threat due to destruction of their ecological niche, over exploitation and other biotic factors.

The demand for rattan furniture is increasing now-a-days and the existing natural resource is not adequate, resulting in over-exploitation. Besides, the rattan industries in South India depends on N.E. States for supply of raw-materials. This is also leading to genetic erosion. In the absence of any large scale plantation, the present situation will soon lead to extinction of many species. The states of rattans in North Eastern States and Assam in particular is a major of serious concern. The forest area is diminishing fast primarily due to shifting cultivation and over-exploitation. In North Eastern India about 2.5 million people are involved in shifting cultivation in 2.7 million hectares (Jha,1977), According to the State Forest Report (1989), the area under shifting cultivation has increased considerably in Assam (74.9%) within a period of 10 years. Deforestation is taking place at a rapid speed due to heavy logging, though in recent times due to ban on felling of trees, there is some reduction of the speed. The reduced cycle of shifting cultivation has created environmental hazard like soil erosion and land slides. Thus, natural home of rattans is being destroyed leading to genetic erosion. Many of the species reported earlier are not present now in the reported locations.

Hence, there is an urgent need for habitat preservation for in-situ conservation. Effective measures are to be taken to conserve propagate this group of plants as below :-

- Control on the exploitation of wild populations.
- Check on the destruction of natural habitats.
- Establishment of gene banks and seed orchards.
- Evolving potentially useful methods for the propagation and improving the various existing methods.
- Taxonomy of rattans with emphasis on phytogeography and intra species variations.
- Propagation and introduction of elite species, which are rare and endangered.

The poor regeneration rate of rattan can be attributed to the following factors.

- Unscientific harvesting of the rattans.
- Indiscriminate cutting of the rattans.
- Biotic interference, and
- Degradation in the site quality due to change in micro-climate of the rattan growing area.

B.3.2. The following important species of rattans are found in Assam: *Calamus erectus*, *C.flagellum*, *C.floribundus*, *C.gracilis*, *C.guruba*, *C.latifolius*, *C.leptospadix* and *C.tenuis*.

TABLE – 1
ORIGINAL & PRESENT DISTRIBUTION OF RATTANS IN ASSAM BASED ON
BECCARI (1996)

Species	Original Distribution	Present Distribution
<i>Calamus acanthospathus</i>	X	X
<i>Calamus erectus</i>	X	-
<i>Calamus erectus var schizodspathus</i>	X	-
<i>Calamus flagellum</i>	X	-
<i>Calamus floribundus var dapouperatus</i>	X	-
<i>Calamus gracilis</i>	X	-
<i>Calamus guruba</i>	X	-
<i>Calamus inermis</i>	-	-
<i>Calamus khasianus</i>	-	-
<i>Calamus Kingianus</i>	-	X
<i>Calamus latifolius</i>	X	X
<i>Calamus latifolius var marmoratus</i>	X	-
<i>Calamus leptospadix</i>	X	X
<i>Calamus nambariensis</i>	X	X
<i>Calamus palustris var amlissiums</i>	-	-
<i>Calamus tenuis</i>	X	X
<i>Calamus viminalis</i>	X	-
<i>Daemonorops jenkinsiana</i>	-	X
<i>Plectocomia himalayana</i>	-	-

X Present , Absent.

B.3.3. Rattans are used as a substitute for ropes as cables for suspension bridges and other purposes. Rattan industry is well developed in Assam. Species like *Calamus erectus*, *C.flagellum*, *C.floribundus*, *C.gracilis*, *C.guruba*, *C.latifolius* and *C.tenuis* are used for making furniture. Furniture like chairs, tables, sofa sets, etc. made out of rattans are a novelty. The roots and leaves are used for medicinal purpose. The seeds of *Calamus rheedei* are powdered and applied in ulcer. The roots of *Calamus rotang* are a remedy for dysentery, biliousness and febrifuge and also used as tonic. The tender leaves of *Calamus travan-coricus* are used in dyspepsia, biliousness and as anthelmintic.

B.3.4. There is need to develop packages for nursery and silviculture techniques. The nursery techniques have to be standardized for the climatic condition and a

compact nursery package needs to be developed to make it suitable for raising large scale plantations.

4. NEED FOR BAMBOO AND RATTAN POLICY.

- 4.1** Bamboo and rattans being a multipurpose, eco-friendly crop and natural resource needs to be managed and exploited for sustainable use. Bamboo is conceived as a thrust area in the Industrial Development of Assam for the economic and ecological security of the people. These precious resources need to be fully tapped as Industrial raw material, as substitute for wood in rural/urban housing, engineering works, handicrafts, furniture and value addition through export. Undoubtedly Bamboo and Rattans can revolutionize the economy of the State ensuring employment opportunities to a large number of people. Extension and awareness about bamboo and rattan sector development needs to be given renewed thrust.

5. AIMS AND OBJECTIVES.

Considering the Ecological significance and vast economic potential of Bamboo and Rattans in the State, aims and objectives of the Bamboo and Rattan Policy shall be as under.

- 5.1. Protection and preservation of mountain ecology, protecting the mountain slopes by affording protection to bamboo forests and bamboo re-growth areas for sustained productivity and environmental security for the people. Protection and preservation of Rattan bearing areas.
- Protection, Conservation of rich bio-diversity associated with bamboo forest and Rattan brakes and re-growth areas and their future development
- 5.2. Sustainable development and utilization of Bamboo/Rattan resources through scientific management and research.
- 5.3. Promotion of private bamboo/rattan plantation (individual and community owned) as the key thrust areas for future economy of the State.
- 5.4. Promotion of bamboo/rattan cultivation in the homestead as a cash crop and an essential component of agro-forestry to generate income and to meet the contingent need of rural households in the State
- 5.5. Improvement of bamboo/rattan productivity in farm and forestry sector by use of biotechnology and improved management practices thus making bamboo plantation a profitable and attractive economic enterprise for securing adequate return on investment.
- 5.6. Promotion of bamboo/Rattan based industries at cottage level, small scale, medium and large scale for utilizing the resources at a sustainable level for generating assured income.
- 5.7. Revitalization and promotion of local traditional Bamboo/Rattan craft and art with improved technology, design and market linked trade for value added items for export through industrialized mode of production.
- 5.8. Promotion of bamboo/rattan sector development as an essential component of rural development strategy linked with forestry and agri-business sector in the State promoting rural employment

- 5.9 Promotion of bamboo/Rattan as an essential wood substitute by increasing bamboo/Rattan production. Promotion of enterprises manufacturing bamboo based products and wood substitutes thereby reducing pressure on forests and reducing wood deficiency in the State.
- 5.10 Promotion of awareness and understanding of bamboo as “Green Gold” among Farmers, traders, industry men in the State with a view to utilizing its full potential and to galvanize the rural and industrial sector in the State
- 5.11. Effective exploitation of the economic potential of bamboo before the expected gregarious flowering in 2005-07.

6. APPROACHES TO BAMBOO AND RATTAN SECTOR DEVELOPMENT.

- 6.1 Conservation of bamboo & rattan diversity, bamboo & rattan germplasm and preservation of mountain ecology.
- 6.2 Use of bamboo/rattan forest and bamboo/rattan re-growth areas for affording protection in critical watersheds, human habitations, civil engineering structures like national and state highways, rural roads and hydropower project etc.
- 6.3 Regulating bamboo/rattan exploitation by involving village councils/Joint Forest Management Committees (JFMCs) and facilitating gradual change over to agro-forestry management and practices.
- 6.4 Sustainable management and use of dedicated bamboo/rattan forests and bamboo/rattan re-growth areas for providing essential bamboo/rattan materials for traditional use and commercial use in bamboo/rattan based industries, handicraft sector and for bamboo trade and commerce.
- 6.5 Promoting bamboo/rattan cultivation in homestead, agro-forestry sector as a cash crop using improved high yielding bamboo/rattan species for income generation and supporting bamboo/rattan based enterprises and bamboo/rattan trade.
- 6.6 Promoting private bamboo/rattan plantation as key thrust area for achieving the objectives enshrined in the policy. The focus will be on developing the sector as market driven and people oriented.
- 6.7 Providing supportive administrative, institutional framework to facilitate all round bamboo/rattan sector development by evolving a framework of incentives, subsidy, technical and professional support in regard to planting material, improved plantation, technology, processing facilities and support services like training, credit, marketing, export facilitation etc.
- 6.8 Identification of bamboo/rattan species for plantation raising and providing raw-materials to selected industries like bamboo mat board, flooring and edible shoots having high demand in domestic and export market and adoption of improved technology and market & export linkages and supportive investments to promote such plantation & processing enterprises in the State.

7. THE STRATEGY.

7.1. Protection of Ecology and Environment.

7.1.1. Environment and ecology shall be protected and preserved and existing imbalance due to inappropriate land use, over exploitation of natural resources beyond carrying capacity shall be checked and prevented. The detailed action plan/guidelines will be formulated.

7.1.2. Bamboo/rattan forests and re-growth areas in critical mountain slopes and around village habitation shall be afforded protection to ensure environmental security (protection of catchment, regulation of water flow, recharge of water table, conservation of flora and fauna etc. and protection of development infrastructure like roads, bridges, hydel projects, human settlement, habitations etc.)

7.1.3. All variety of native bamboo/rattan species, ecotypes shall be protected and germplasm preserved. Efforts shall be made to conserve germplasm in in-situ and ex-situ. Bamboo Resource Development wing will be co-coordinating agency with technological inputs from Department of Biotechnology, National Institute of Bamboo and Rattan, ICFRE Assam Agriculture University and other Scientific Institutes within and outside the State.

7.2. BAMBOO/RATTAN RESOURCE ASSESMENT.

7.2.1. Mapping/ Inventorisation.

Database in regard to bamboo/rattan is poor. Bamboo/Rattan resource assessment i.e. mapping and inventorisation of Bamboo/Rattan shall be accorded highest priority and shall be completed in 2 to 3 years. This may be clubbed with non – spectral data base such as roads, market, community users, resources/product movement. This will enable identification of resource catchment areas for each resource head in terms of total value, annual increment and determination of management requirements. Available expertise of Forest Survey of India (FSI), National Remote Sensing Agency (NRSA) and services of State Remote Sensing Application Centre and Department of Environment & Forests shall be utilized to carry out the mapping and inventory for which required fund support shall be provided.

7.3. Dedicated Land use for Bamboo/Rattan Development.

7.3.1 Bamboo/Rattan rich areas having bamboo development potential and having Economic and Ecological significance must be identified, surveyed, demarcated and dedicated to permanent bamboo/rattan growing (in Government, Community, Private Sector).

7.4 Management of Bamboo/Rattan Resource in the State.

7.4.1. Bamboo/Rattan occurs as a lower storey in Evergreen, Semi-evergreen forests along river banks and bamboo grows profusely in abandoned jhum lands. It occurs pure in bamboo-brakes. The existing bamboo /rattan resources within the notified forests and outside in Government lands and jhum lands and village council areas shall be managed on scientific lines, keeping in view the end use, socio-economic need of local people and industrial need.

- 7.4.2. Bamboo/Rattan within notified forests shall be managed as per approved management plan keeping in view sustainable forest management principles in association with local village communities (under Joint Forests Management concept). Present system of bamboo/rattan harvesting by mahals shall be replaced in a phased manner. The existing bamboo/rattan shall be harvested and utilized employing, improved and modern harvesting and utilization technology.
- 7.4.3. Bamboo/Rattan outside Govt. notified forests and in jhum land shall be managed i.e. conserved, protected and harvested (from dedicated bamboo/rattan areas under Government/Community control) on scientific lines. Appropriate guidelines shall be evolved in consultation with the village council. Local Administration Deptt. (LAD), Environment & Forests, Revenue, Agriculture and other development department. Harvesting would be done by village council/JFMCs through labour Co-operative Societies or family lease system.
- 7.4.4. As an incentive and to wholly involve the village council/JFMCs in conservation, protection and sustainable management of Bamboo/Rattan Resources in the respective village areas, bamboo management shall vest with village Council/JFMC Village Council/JFMCs shall be empowered to manage the Bamboo Resources for which Act/Rules shall be enacted Representative of Environment & Forest Department, Rural Department, LAD, Revenue Shall be represented in Village Council/JFMCs to ensure management of bamboo/Rattan resources is in conformity with Bamboo/Rattan Management Regulations for each village. Thus Bamboo/Rattan Resource Management will be a community enterprise with delegated powers/vested interest created to conserve, protect, harvest bamboo/rattan resource in the village council area involving willing families in bamboo/rattan production, management, harvesting and supporting bamboo/rattan craft, bamboo industries in the rural sector.

7.5. Protection from Fire.

Bamboo/Rattan resources inside notified forests and in Village Council areas shall be protected from spread of fire. Every year a forest fire prevention strategy and measures shall be adopted and implemented by making joint efforts by various government departments, Village Councils and Social organizations. Required fund support shall be made available from government sources and village council fund (Bamboo/Rattan Revenue).

7.6 Regulation of Bamboo/Rattan Harvest.

- 7.6.1. Bamboo/Rattan at present, is collected in an unregulated manner by villagers to meet their bonafide domestic need free or on payment of royalty. Bamboo/Rattan from Government Notified Forests is sold by Mahal system. With a view to manage the bamboo/rattan resources in a sustainable manner and to ensure a support base to increasing bamboo yield to meet the local need and export of bamboo/rattan and improved bamboo/rattan produce, annual bamboo/rattan harvest and yield need to be predetermined through silvicultural availability, felling regulation, seasonal requirement, market need and in consultation with all concerned and regulated so that bamboo/rattan resources are optimally harvested and used.

7.6.2. Where market need exists, limited bamboo/rattan shall be harvested from jhum areas by the respective Village Council/JFMC to meet the local bamboo/rattan need and industrial need.

7.6.3. In place of current system of harvesting of bamboo/rattan from forests by Mahalders, alternate means for harvesting on long term lease to individuals, community enterprise needs to be explored. A better, effective management system with greater involvement of local communities will be evolved.

7.7. Bamboo/Rattan Regeneration in Natural Bamboo/Rattan Stands.

7.7.1. Bamboo/Rattan re-growth and regeneration is not a problem in Bamboo/Rattan brake and open areas, however appropriate management method shall be evolved and employed to ensure quality Bamboo/Rattan yield, keeping in view the end use, need etc.

7.7.2. Natural Bamboo/Rattan stands shall receive the technical support of forests and Agriculture department and available incentive to improve productivity and regeneration of Bamboo/Rattan.

7.7.3. Species of Bamboo like *Melocanna baccifera*, *Dendrocalamus hamiltonii*, *D.longispathus*, *Bambusa tulda* are commercially significant. However, management and regeneration strategy of natural bamboo stand shall focus on preferred species keeping in view the end use requirement.

7.8. Bamboo/ Rattan Plantation Development.

7.8.1. Bamboo/Rattan Plantation needs to be created in next 6-7 years essentially to replenish the bamboo resources, which may be steeply depleted during expected gregarious flowering in 2005-07 and to replenish the over exploited rattan crop.

7.8.2. Bamboo/Rattan Plantation raising shall be encouraged and promoted due to their high value, productivity, uniformity of crop, choice of species linked to peoples need and industrial need. Such plantation of selected species shall be raised in private, community and Govt. sector. The required technical and scientific support and guidance shall be provided by the forests. Agriculture Department financial incentive shall also be given to willing beneficiary families interested in raising bamboo/rattan plantation from the State Agriculture. Horticulture Environment & Forests, Rural Development, Soil Conservation Department through funds from beneficiary oriented schemes. Such willing farmers shall also be granted lease land on specific terms and conditions for raising bamboo/rattan plantation in Government lands outside notified forests.

7.8.3. Bamboo/Rattan nurseries shall be established in the rural development blocks with selected species of Bamboo/Rattan and quality seedlings of colonel original shall be raised for meeting the requirement of bamboo/rattan plantation in region. A central nursery shall cater to the need of several blocks. Modern nursery and plantation technology shall be adopted and technical support and guidance provided to the Bamboo/Rattan Plantation programme in the Districts. Expert advice from National level institute like ICFRE. Agriculture Universities, State Forest Research Institute etc. shall be obtained for adoption, dissemination of improved nursery, plantation technology in the State.

7.8.4. Linkages between Bamboo/Rattan Plantation Growers and Enterprise, Industry and craft Centres shall be established so that Bamboo/Rattan Plantations support

bamboo/Rattan trade, industries and marketing of produce and products within and outside the State.

7.8.5. Accessibility and market linkages should be the guiding factors for site selection of bamboo/rattan plantations.

7.8.6. The guidelines and modalities for raising and maintenance of plantations shall be worked out by Environment and Forests Department.

7.9. Expected Bamboo Flowering and Strategy to Utilize Surplus Bamboo Before Flowering.

7.9.1. Fullest possible utilization of bamboo before the expected flowering in 2005-2007 shall be encouraged & promoted. Scientific harvesting of bamboo inside and outside the Government Forests, Jhum lands shall be encouraged, by granting concessional rates of royalty so that bamboo is harvested and utilized locally for traditional uses including house construction etc. Subject to fulfillment of local need, surplus raw/treated bamboo would be permitted for export under stipulated guidelines till the expected gregarious flowering in 2005-2007.

7.9.2. Bamboo harvest and establishment of Bamboo Enterprise, Craft Centres and bamboo industries in small and medium industry sector shall be encouraged through incentive frame work.

7.9.3. Improved design for house construction, increasing use of improved products from bamboo for infrastructure development works like constructions, road laying, retaining walls, jhum terracing, water harvesting structures and gabions shall be encouraged improved design and technology shall be obtained from National and International Institute to support and maintain such initiatives.

7.9.4. Bamboo Plantation in private, Joint Sector shall be encouraged with a view to establish a resource base at the district level to provide raw materials for the established industries in the State so that after the expected gregarious flowering, the established industries do not suffer from want of sufficient quantity of bamboo.

7.9.5. A State Level rodent control committee should be constituted for evolving a suitable strategy for combating the potential threats posed by the abnormal increase in rat population during gregarious flowering. The Committee will evolve suitable logistical linkages in terms of striking an adequate balance between preventive techniques and damage control exercises.

7.10 Bamboo/ Rattan Trade.

With the policy reform in regard to management, harvesting, utilization of natural bamboo/rattan resources in the State and promoting bamboo/rattan plantation development, it is expected that bamboo/rattan trade shall receive a fillip. With increased bamboo/rattan harvesting before the gregarious flowering and establishment of bamboo industries and with support incentive frame work, trade in bamboo and their products within and outside the State shall grow. It shall be the endeavor of the State to promote trade in bamboo/rattan and their products among the Assamese people. The Bamboo traders shall be organized in to trade association with linkage with bamboo/rattan growers and the bamboo processing industries and bamboo exporters to rationalize the bamboo/rattan trade practices. Export will be promoted

7.10.1 Treatment of Bamboo/Bamboo Products.

Bamboo is easily attacked by insects and fungi due to presence of starch and sugar in abundance. Prophylactic treatment of either bamboo or bamboo mats is very essential to enhance their life during storage. There are two types of prophylactic treatment i.e. – (1) Traditional or Non-Chemical, and (2) Chemical.

7.11. Bamboo/Rattan Industries.

- 7.11.1. The Bamboo policy framework shall be encouraged to promote establishment of bamboo/rattan enterprises and industries in cottage, small and medium industries sector linked to the need of Bamboo/Rattan produce/products within and outside the State e.g. manufacturing Bamboo/Rattan mat board, chop sticks, bamboo shoots, agarbatti sticks and other handicraft products. There shall be a thrust on bamboo industries development and associated incentives and subsidy framework shall encourage establishment of such industries and enterprises. Conjunctively, the bamboo/rattan policy shall lay emphasis in adopting and using proven technology suitable for manufacturing improved quality products catering to very specific needs and markets and establishing linkages within and outside the State. While simple technologies and manufacturing processes can be adapted by cottage and handicrafts sectors, import of technology shall also be encouraged and adopted in small and medium sector industries to produce quality products for sale within and outside the State and for export purposes. Bamboo mat boards and bamboo ply boards can be promoted as wood substitute for the growing construction needs within and outside the State. This will not only result in a value addition to bamboo products but will also be a substitute reducing use of timber within the State. Use of bamboo and bamboo products shall be emphasized in Government constructions where such uses are feasible and incentives shall be given for use of bamboo products in private and community constructions. Standard housing designs for various constructional purposes shall be evolved taking help of national and international expertise available. Public Works Department building codes are also to be suitably amended to incorporate use of newly developed bamboo products.
- 7.11.2. Other Industrial use of bamboo is in manufacturing bamboo flooring, bamboo shoot industry and bamboo furniture in conjunction with timber and rattan. These sectors need adoption of improved technology, standard/improved designs and improved artisan skill, which will be actively promoted. Assistance of experts shall be taken in identifying suitable technology, product designs and in imparting training to artisans and craftsman. Promotion of Bamboo/Rattan industries would be undertaken by the State Industries Department. State Public Works Department (PWD) building code to incorporate provision for use of bamboo and newly developed bamboo based products for building applications.
- 7.11.3. High value products will necessitate effective and appropriate manufacturing process and market and export linkages. This policy shall encourage joint ventures with entrepreneurs outside the State including foreign enterprises with technology, finance and export linkages. This arrangement will channelise the resources through local traders and manufacturing industries in to domestic and international markets earning handsome revenue for the State. Present export policy in Agro Industry encourages such arrangement, which should also be

adopted and encouraged for bamboo/rattan development in the State including incentive for the plywood industries to shift to bamboo as raw material base.

7.12. Entrepreneurial Development.

Entrepreneurship will be promoted through organized and voluntary participation of people. The Government shall facilitate the growth of entrepreneurship skills through several means such as education and training, promoting group formation, providing supports such as funding, credit, leases, tenurial security and consultation with peoples groups and involving them in management committees.

7.13. Market Information Dissemination.

Dissemination of information regarding existing markets within and outside the States to the growers, traders, bamboo/rattan enterprises, etc. would be done through brochures, involvement of media, IT Network, etc.

7.14 Research and Development.

7.14.1. Research support for bamboo/Rattan sector to improve quality, enhance productivity and value of products, sustainable management, conservation of germplasm and diversified products would be promoted through interactive involvement with the National Institute of Bamboo and Rattan Development.

7.14.2. An interface with research wing of the Assam Agricultural University and technical Institute outside the State would be established for problem specific and site specific research regarding bamboo/rattan growing, plantation development, management of natural bamboo/rattan stands etc.

7.14.3. Appropriate Technology and Technology Transfer.

Technology park would be set up to facilitate effective lab to land transfer. Dissemination of technology shall also be through campaigns involving media, exhibitions, demonstration centers, etc.

7.15. Human Resource Development.

Adequate pool of trained manpower needs to be created for bamboo/rattan resource development, propagation and supply of high yielding planting material to farmers, harvesting, management, industrial production, infrastructural uses, marketing and export. Due emphasis would be given to training of personal within the State, Central Institutions and outside the country.

8. Funding Support.

Funding support to implement the various policy initiatives enunciated shall be provided from the programme funds of the various development departments. While bamboo resource development within the notified Forest area shall be supported by bamboo/rattan development project under CSS through FDAs and JFMC to grow bamboo to ensure quality and sustained supply of raw materials. Development of bamboo/rattan plantation in agro forestry sector shall be supported from respective programme funds of Agriculture, Horticulture, Rural Development Department. Special programmes to finance bamboo/rattan plantation in farm sector shall be prepared for support institutional finance by NABARD and NEDFI. Establishment of craft centers, training of artisans and craftsman and establishment of cottage and small and medium sector industries

can be supported by Government subsidies and institutional finance from industrial financing agencies and industrial investors and exporters. Support external finding shall be solicited from UNIDO, UNDP and other International funding agencies for supporting bamboo sector development including bamboo industries in the State.

9. Institutional Arrangement.

9.1. State Level Bamboo/Rattan Coordination Committee.

The implementation of bamboo/rattan policy and bamboo/rattan development programmes in the State shall be implemented by a number of development departments. Hence, it is necessary to coordinate implementation strategy through an apex body under the Chairmanship of Chief Secretary, Assam. A State Level bamboo/rattan development coordination committee shall be constituted with Commissioners, Secretaries and Head of Departments of line departments and representative from Trade, Commerce, Industries, Banks, NGOs and farmers with the primary function to review and coordinate implementation of bamboo/rattan development programmes in the State.

9.2. The State Bamboo/Rattan Development Agency.

While the Sectoral fundings shall be utilized and implemented by various development departments to implement and facilitate the special funding arrangement for establishment of bamboo/rattan industries. Craft sectors, training and HRD and bamboo plantations to support the industries. A special agency namely Bamboo and Rattan Development Agency (BRDA) shall be established in the State drawing multi-sectoral experts from various development departments. Bamboo/Rattan Development Agencies (BRDA) shall report to the State level bamboo Coordination Committee & shall be responsible for bamboo/rattan development works under their charge.

9.3. Screening Committee for Grant of Licenses for Bamboo/Rattan Based Industries.

An executive committee consisting of representatives of Departments of Environment & Forests, Industries, Finance, Trade & Commerce & Rural Development and Chief Conservator of Forests, (T) will scrutinize the applications from entrepreneurs and recommend grant of licenses for various categories of units for final decision by the Bamboo/ Rattan Development Agency. The Screening Committee will verify the availability of raw material, financial position, investment source and the entrepreneurial capability of the application and on merit recommend grant of Industrial licenses.

9.4 Bamboo and Rattan Resource Development Wing.

A permanent Bamboo and Rattan Development wing will be set up in the Environment & Forest Department in the State. The Primary function of the wing would be resource development and providing technical expertise for conservation and management of bamboo/rattan plantation within Notified Forests and Plantations outside. A Chief Conservator of Forests will head the Bamboo and Rattan Resource Development wing.

9.5 Constitution of Task Force for Fast Track Implementation of Bamboo Development and Harvesting and Utilization before 2007 (i.e. before gregarious flowering).

Task Force will be constituted under the Chairmanship of Chief Conservator of Forests(T). It will be dedicated exclusively for formulating a strategy for harvesting and marketing for local industries and export before expected gregarious flowering i.e. 2005-07.

9.6. Bamboo and Rattan Development Institute.

It is proposed to establish a Bamboo & Rattan development institute in the State with support funding by Government of India. The Bamboo and Rattan Institute, which will cater to the research and development requirement of bamboo/rattan development in the State shall be activity associated with implementation of bamboo and Rattan development programme.

10. ACTS AND RULES.

All the acts and rules promulgated in the State and Centre shall be applicable for Bamboo and Rattan development sector in Assam.

11. ACTION PLAN.

The policy shall be implemented through appropriate action plan packages and the implementation of programmes shall be monitored from time to time so that policy objectives are achieved.

12. POLICY REVIEW

The Policy shall be reviewed periodically so that essential policy directives and imperatives are evolved from time to time.

**List of persons, Government Officers to whom “Draft Assam Forest Policy-2002”
has been issued for comments/ views.**

1. Shri Prafulla Baruah,
Media Trust, Behind A.G.C.C.,
Rupnagar, Guwahati. - 1 Copy.
2. Dr. Dhrubajyoti Bara,
Christian Basti, Guwahati. - 1 Copy.
3. The Principal Secretary,
N. C. Hills Autonomous District Council,
Haflong. - 1 Copy.
4. The Principal Secretary,
Karbi-Anglong Autonomous District Council,
Diphu. - 1 Copy.
5. The Secretary,
Bodoland Autonomous Council Area,
Kokrajhar. - 1 Copy.
6. Sri Chandan Bora,
Project Associate,
Assam Institute of Management,
Bamunimaidam, Guwahati – 21. - 1 Copy.
7. To all Chief Conservators of Forests &
Conservators of Forests of Assam. - 1 Copy each.
8. The P.S. to the Hon’ble Minister of State
(Independent), Environment & Forests,
Dispur, Guwahati – 6. - 14 Copies.

GOVERNMENT OF ASSAM
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS : : ASSAM
REHABARI : : GUWAHATI – 781 008.

No.FG.84/ Cane & Bamboo/ Policy/ 2003

Dated Guwahati, the 24th September, 2003

To

The Under Secretary, Govt. of Assam,
Agriculture Department,
Dispur, Guwahati – 6.

Sub: Preparation of Draft Bamboo & Cane Policy Assam – 2003.

Ref: Govt. of Assam in Agriculture Department No.AGA.241/ 2002/ Pt./ 42,
dtd.30.8.2003.

Sir,

With reference to the above, I am directed to state that as per the decision of the Expert Committee meeting held on 25.8.03, the draft policy has been amended suitably after incorporating the comments received from Dr. Jayanta Madhab, Economic and Financial Adviser to the Hon'ble Chief Minister of Assam, Dr. G. L. Kaul, Vice-Chancellor of the Assam Agricultural University, Jorhat and also taking the draft Bamboo & Cane Policy of Forest Department into consideration. Sri Harsha Jyoti Baruah, Joint Director of Agriculture (Horticulture) has been also associated with the compilation work.

The revised draft Assam Bamboo and Rattan Policy – 2003 after suitable amendment is enclosed herewith for your onward necessary action.

Yours faithfully,

(P. Kotoky)
Planning Officer – II,
O/o Principal Chief Conservator of Forests,
Assam.

Copy alongwith the Draft “Assam Bamboo and Rattan Policy – 2003” is forwarded for favour of information and necessary action to :

1. Dr. Jayanta Madhab, Economic and Financial Adviser to the Hon'ble Chief Minister of Assam.
2. Dr. G. L. Kaul, Vice-Chancellor of the Assam Agricultural University, Jorhat.
3. Sri S. C. Das, I.A.S., Agri-Production Commissioner. Dispur.
4. The Director of Agriculture, Assam, Khanapara, Guwahati – 22.
5. Sri Harsha Jyoti Baruah, Joint Director of Agriculture (Horticulture), O/o Director of Agriculture, Assam, Khanapara, Guwahati – 22.

(P. Kotoky)
Planning Officer – II,
O/o Principal Chief Conservator of Forests,
Assam.



DRAFT

ASSAM BAMBOO & RATTAN POLICY

2003

GOVERNMENT OF ASSAM