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How does the existing Bamboo policy affect the livelihood options and commercial prospects of the economically disadvantaged in the North Eastern states of Mizoram and Arunachal Pradesh?

Krishna Raj Fellowship Programme

Bhavnit Singh Batra,
Jennifer Pachuau,
Malavika Vyawahare
Zilpha Modi

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ACRONYMS

BDA	Bamboo development Agency
CAPART	Council for Advancement of People's Action and Rural Technology
CBTC	Cane and Bamboo Technology Centre
CCF	Chief Conservator of Forest
DFO	Divisional Forest Officer
FAO	Food And Agriculture Organisation
FDA	Forest Development Agency
FGD	Focused Group Discussion
FRA	Forest Rights Act
IFA	Indian Forests Act
KVIC	Khadi and Village Industries Commission
MFP	Minor Forest Produce
MoEF	Ministry of Environment and Forests
NABARD	National Bank for Agricultural and Rural Development
NBM	National Bamboo Mission
NREGA	National Rural Employment Guarantee Act
NTFP	Non-Timber Forests Produce
TRIFED	Tribal Co-Operative Marketing Development Federation of India Limited
UNIDO	United Nations Industrial Development Organisation
VC	Village Council

GLOSSARY

Bamboo Flowering: The flowering of the Bamboo which occurs after fixed periods ranging from 1-50 years for different species. The flowering is also known as synchronized masting since all the Bamboos of that species flower at the same time and then die.

Mahal system: Under this system harvesting rights are sold annually to contractors (*Mahaldars*) who have the right to cut Bamboo from the forest areas.

Mautam: Local name in Mizoram for the famine that follows the flowering of Bamboo

Mau: Local name in Mizoram for *Melocana Baccifera*

Jhum: Jhum is the traditional name for the Slash and Burn method of agricultural activity. This kind of agricultural practice is largely practiced in hilly tribal areas.

Joint Forestry Management: Under joint forest management (JFM), village communities are entrusted with the protection and management of nearby forests. The areas concerned are usually degraded or even deforested areas

Protected Forests: An area notified under the Indian Forest Act or other State Forest Acts, having a limited degree of protection. In protected forest all activities are permitted unless prohibited

Reserved Forests: An area so constituted under the provisions of the Indian Forest Act or other State Forest Acts, having full degree of protection. In reserved forest, all activity are prohibited unless permitted

Unclassed State Forests: An area recorded as forest but not included in the reserve or protected forest category. Ownership of such forests varies from state to state

EXECUTIVE SUMMARY

With more than 1500 uses Bamboo is rightly considered a miracle plant in many cultures across the world. India has the second largest growing stock of Bamboo in the world, two-thirds of which is found in North east India. Not only does the North East have a rich tradition of Bamboo crafts, post independence the abundant forest resources in this region attracted many large paper mills especially to Assam and North East Frontier Agency region. These were however few and concentrated in some areas. While much of the extant literature and discourse on the North East seeks to explain the political instability in the region, the causes for underdevelopment have not received sufficient attention barring a few notable exceptions¹. The Mizo insurgency Movement is an illustration of the close interconnections between the political and socio-economic dynamics of this region. The birth of the state of Mizoram is believed to be a direct result of the central and Assam government paying little heed to the Mizo people's traditional knowledge of the phenomena of Bamboo flowering which culminated in a famine in the region². The abundance Bamboo resources juxtaposed against the underdevelopment in the Bamboo sector calls forth an examination policy environment surrounding this resource.

In this paper we examine what constraints the existing Bamboo policy places on the livelihood options of the poor and commercial prospects in this sector, in the states of Arunachal Pradesh and Mizoram. The report focuses on the evaluation of the impact of the existing policy and institutions in two ways:

- General review of the Forest Policy, Bamboo policy, role played by the state and the other support organizations through study of published official documents and other related reports
- Investigation through carefully selected and intensively studied cases via in- depth interviews, focused group discussions (FGDs) and semi-structured interviews with farmers, government officials and employees of the industrial units in Mizoram and Arunachal Pradesh

¹ We refer here to Sanjib Baruah's work and recent work by social scientists from the region itself

² Sajal Nag, *Pied pipers in the hills: bamboo-flowers, rat famine, and colonial philanthropy in North East India*, Centre of South Asian Studies, University of Cambridge, 2008

The livelihood prospects encompass recognition of customary rights to the resource, extent of dependence on bamboo based work, income from bamboo cultivation, daily wages in bamboo mills, handicrafts, differential impact on employed women, impact of Bamboo flowering on livelihoods and food security and alternative livelihood options. The commercial prospects involve prominent issues relating to commercial enterprise such as supply of raw materials, market linkages and support mechanisms of the state.

The implementation of the existing bamboo policy reveals the absence of a well defined role of the state. Regarding the execution of the policies, there is a lot of discrepancy and much left to be desired. There are multiple agencies performing similar tasks leading to ambiguous outcomes. The National Bamboo Mission, which aims at the holistic development of bamboo sector in the North east has not been able to carry out its functions properly since it lacks a clear cut policy and influenced by vested interests. One of the most important observations of this report is the mismanagement of the bamboo resources by the Forest Department in the garb of the confusing state laws vis-à-vis the definitional clarity of bamboo. As a result the interests of the rural population and the implementing agencies are often at conflict. We also came across some models for utilization of bamboo, which offer valuable lessons for inclusive development of this sector. Poma Village Model in Arunachal Pradesh is one example. As regards the role of the two states we surveyed, Arunachal Pradesh fares relatively better than Mizoram, where the state government is still tackling the after effects of the Bamboo Flowering during 2006-09.

Based on the findings we present the following key recommendations:

- Lucid laws regarding Bamboo- Synchronization of laws absolutely necessary
- Provisions for scientific management of Bamboo especially endangered Bamboo species by the Forest department *only in* Forest lands
- Enhance the role of local bodies
- Replace National Bamboo Mission by a Board and streamline the structure
- The problem of Bamboo flowering should be tackled keeping the interests of the people paramount
- Learn from the models which are currently in operation and very effective. Ad hoc measures and Individually initiated schemes will not result in overall development

1. BACKGROUND

With more than 1500 uses Bamboo is rightly considered a miracle plant in many cultures across the world. India is fortunate to have the largest area under Bamboo cultivation and the second largest pool of genetic pool of Bamboo species after China. From being termed as 'Poor Man's timber' to being called 'Green Gold' the perception of Bamboo, scientifically recognized as a versatile grass, has undergone a drastic change. What however has not changed is the fact that in the Indian Forests Act of 1927 (IFA) which is the primary legislation on Forests in India, Bamboo is classified as a tree. This inaccurate classification has brought Bamboo under the purview of myriad forest laws and pervasive state controls. While world over Bamboo is being discovered as a viable industrial substitute for wood, a source food security for the poor and an eco-friendly source of energy, India still grapples with outdated laws and state institutions which are in no way designed to promote the use of Bamboo or allow private parties to explore its potential. The gravity of the problem however lies in the fact that not only have we failed to tap this resource for the modern industrial economy, even the traditional users of Bamboo viz. the poor people and the tribal artisans have been adversely affected due to this policy.

The impact of this policy is acutely felt in the North East region of our country where 66 percent of the growing stock of Bamboo in India is found. Not only does the North East have a rich tradition of Bamboo crafts, post independence due to the rich forest resources in this region many large paper mills were established in Assam and North East Frontier Agency³. These mills also obtained Bamboo for use as raw material from the forest department. While much of the extant literature and discourse on the North East seeks to explain the political instability in the region the causes for the underdevelopment in the region have not received sufficient attention barring a few notable exceptions. The Mizo insurgency Movement is believed to be a direct result of the central government paying little heed to the Mizo people's traditional knowledge of the phenomena of Bamboo flowering which culminated in a famine in the region⁴. However this region poses a challenge for policy formulation in general for various reasons. One of the most

³ NEFA was the name of the political division under the British government in India which post independence became a part of the state of Assam before attaining statehood itself in 1987 as Arunachal Pradesh

⁴ Sajal Nag, *Pied pipers in the hills: bamboo-flowers, rat famine, and colonial philanthropy in North East India*, Centre of South Asian Studies, University of Cambridge, 2008

important of these is the fact that it has the largest concentration of tribal population. This in itself has serious implications for governance as it gives rise to unique land ownership problems due to the wide prevalence of traditional community land. The Policy with respect to forests becomes salient due to great dependency of the local populace on forest resources.

Due to its unique cultural- demographic and historical position in the Indian Union this region acquired a special constitutional status by being placed under the Schedule VI of the constitution. Schedule VI of the Constitution of India lays down the Provisions as to the Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram. The Constitution of India provides relief to the hill states in terms of land, tax and funding from the Centre. Unlike other states these states receive 90 percent grants and 10 percent aid from the Centre. Land in this area cannot be sold to non-tribals. Except for Assam in none of the other states is Agriculture subject to tax. These special provisions make it one of the most densely administered regions of the country. While such measures make sense from the administrative point of view and may have a political rationale, their impact on the developmental process is debatable. Especially when they are not being complemented by steps to ensure long term development which has fed into the problem of political instability.

The impact of the Bamboo policy in this region promises to shed light on a plethora of issues- from governance, political stability, and sustainable economic development to rights of forest dependent communities and environmental concerns. In this paper given the limited scope of our study we chose to focus on the immediately perceivable impact of the existing policy on the commercial prospects of Bamboo and the livelihood options of the economically disadvantaged in the states of Arunachal Pradesh and Mizoram. These two states were purposively selected for the reasons listed below and additionally due to the existence of conditions conducive to fieldwork. We give a description of the two states below.

2. THE SETTING

2.1 MIZORAM

Bound by Assam and Manipur in the north, Myanmar in the east and south and Tripura and Bangladesh in the west, Mizoram has the lowest population among all the North Eastern States. The tribal population comprises 94.5 percent of the total population. It also has the highest proportion of area under forest cover. It falls under the Schedule VI of the Constitution. In comparison to the other states Mizoram has had a relatively violence free history since its inception in 1987.

The people of Mizoram are known by the generic name of Mizo, which literally means people (mi) of the hills (zo). There are numerous different tribes under the general ethnic broad group of Mizo. The people of the Mizoram region have acquired a multiple-cultural from multiple tribes, who came from different parts of the eastern countries in the past. The Chinese, Burmese and Tibetan cultures influenced the people of this region to form their own lifestyles and the own craftsmanship. The absence of outside influences helped the inhabitants of Mizoram to preserve their ancient cultures and traditions of craftsmanship. The traditional crafts of Mizoram are weaving, cane and bamboo work. Mizo food is simple, basically made up of lentils, bamboo shoots and fish; pork, chicken and wild game meat and rice are hot favourites. The absence of authoritarian rule and egalitarian relationship among the people gives Mizo society a sense of cohesion and equality. The land ownership system is also unique. Land distribution earlier by the Chiefs and now by the Village Council has been need based.

Although literacy level in the State is 88.84 percent ⁵ i.e. the second highest in the country, it lags behind on the economic front. The lack of infrastructure, remote location, poor market linkages and inadequate power supply has resulted in slow pace of industrial development in the State. Difficult topography and limited flat terrain (Just around 3 percent)⁶ has also contributed to economic backwardness. There are no major industries in the State to provide regular source of income to the people. Approximately 50,000 persons are employed in various Government and Semi-Government undertakings, which is just about 6 percent of the total population.⁷ Traditionally people practice poultry, piggery, pisci-culture and dairy in the homestead. People are also engaged in sericulture, weaving, knitting and tailoring, bakery, workshops, trade, and in various cottage industries. The economy of the State is primarily

⁵ 2001 Census, Provisional figures

⁶ New Land Use Policy, Planning Board, Government of Mizoram, 2008

⁷ www.mizoram.nic.in

agrarian with majority of the people practicing Jhum cultivation⁸. Jhum cultivation leads to overexposure of soil adversely affecting productivity. When land is cleared for Jhumming all vegetation including the standing Bamboo is destroyed. An FAO report has found that the common practice of 'jhum' cultivation in the northeastern states has resulted in genetic erosion of several bamboo species.⁹

Mizoram has the largest proportion of its area under forest a cover (80%) with Reserved Forests constituting 47.3 percent, protected forests covering 21.3 percent and Unclassed covering 31.35 percent of the total area under forests. Mizoram alone contributes 14 percent of the country's growing stock of bamboo with about 9210 sq. km (49.10 percent) of the geographical area of 21018 sq. km of the state. The non-clump forming bamboo *Melocanna baccifera*, locally known as the *Mautak* or *Mau* dominates the species composition, constituting 95 percent of the growing stock of Bamboo. There are 35-40 species of Bamboo covering 9 genera, occurring in the State. Other important species are *Dendrocalamus hamiltonii* (Phulrua), *Dendrocalamus longispathus* (Rawnal), *D. species* (Rawpui), *Bambusa tulda* (Rawthing), *B.longispiculata* (Rawthing chi) and *Arundinaria callosa* (Phar). Barring Mautak, other species are found in small proportion but are commercially important for value added products. Amongst the edible bamboos, *Melocanna baccifera* (Mautak) is most favoured followed by *Bambusa tulda* (Rawthing), *Dendrocalamus hamiltonii* (Phulrua), *D.longispathus* (Rawnal) and *D.sikkimensis* (Rawmi).¹⁰

No reliable data is available regarding the volume of growing stock, available bamboo yield, consumption and use due to the prevalent practice of Jhumming; where even standin Bamboo is destroyed annually. But as per the Forest Survey of India's inventory carried out in 1988-89 the Bamboo stock in Mizoram is assessed at 12,950.75 (000) MT and the annual yield being 3237.689 (000) MT, while the annual consumption of bamboo for domestic purpose was estimated at 28.315 (000) MT thus leaving an annual surplus of 3209.374 (000) MT for industrial

⁸ Statistical Handbook Govt. of Mizoram, 2008

⁹ *State of Forest Genetic Resources Conservation and Management in India*, 2003, R.P.S. Katwal et al, Forest Genetic Resources Working Papers, Forestry Department, Food and Agriculture Organization of the United Nations

¹⁰ Government of India, Ministry of Agriculture, 2008, *One Year of National Bamboo Mission*, Cane & Bamboo Technology Centre

and trade purpose. Traditionally Bamboos were annually worked under Mahal system. Under this system harvesting rights are sold annually to contractors (*Mahaldars*) who have the right to cut Bamboo from the forest areas. There are regulations in place to prevent the premature harvesting of Bamboo clumps and the quantity but these are difficult to and “rarely enforced”.¹¹ Most of the Bamboo harvested by the Mahaldars is supplied to Hindustan Paper Corporation at Panchgram in Karimganj District of Assam. Rivers are preferably used for bamboo transportation. Substantive quantity of Bamboo is available outside the Government Forest in revenue land where it is used as burning material during *Jhum* operation and is not harvested.

The flowering of Bamboo referred to in Section 1 occurs at a periodic interval of 48-50 years in Mizoram. From past experience Bamboo flowering is followed by a famine which is known as 'Mautam' after the flowering of *Melocanna baccifera* (Mautak) and *Thingtam* after the *Bambusa tulda* (Rawthing) flowers. As per record Mautak flowered in 1815, 1863, 1911 and 1959 and recently between 2006-09. As for Rawthing, flowering was observed in 1739, 1785, 1833, 1881, 1929 and 1977 and the next flowering is expected in 2025. While this erratic pattern of flowering has become something of a mystery for botanists, the relationship between flowering and famine has generated more than just scientific interest. A renowned scientist appointed by the Government of India proposed the explanation that Gregarious flowering and seeding of bamboo causes an increase in rat population. The massive rat population feeds on standing agricultural crop, causing its destruction and results in acute food scarcity.¹²

2.2 ARUNACHAL PRADESH

Before 1962, Arunachal Pradesh was known as the NEFA, and was constitutionally a part of Assam. Because of its strategic importance, however, it was administered by the Ministry of External Affairs until 1965, and subsequently by the Ministry of Home Affairs, through the Governor of Assam. In 1972, it was constituted as a Union Territory and renamed Arunachal Pradesh. On 20 February 1987, it became the 24th state of the Indian Union. One important result of this development was that while the Union Territory of Arunachal Pradesh came under the Schedule VI, the state of Arunachal Pradesh was no longer a part of it. Arunachal Pradesh

¹¹ Forest Department, Government of Mizoram, Website, Interview with CCF

¹² Government of India, February 2003, *National Bamboo Mission on Bamboo Technology and Trade Development*, Planning Commission

falls under the provisions of the Schedule V of the constitution. The state thus has a 3 tier Panchayati Raj system of local governance as per the North-East Frontier Agency Panchayat Raj Regulation Act 1967. As per its provisions Zilla Parishads at District level, Anchal Samitis at Block level and Gram Panchayat at village level. The traditional village councils which were already recognized under the North-East Frontier Administration of Justice Regulation, 1945, were accorded the status of Gram Panchayats.

Arunachal Pradesh is the largest state of Northeast India with a geographical area of 83,743 sq km and a population of 1.1 million distributed over 16 towns and 4065 villages¹³. The State has the lowest density of 13 persons per sq. km. There are 20 major tribes and a number of sub-tribes inhabiting the area. Most of these communities are ethnically similar, having derived from and original common stock but their geographical isolation from each other has brought amongst them certain distinctive characteristics in language, dress and customs.

The land tenure system is governed by the local tribal and customary laws. The traditional land ownership which differs from tribe to tribe can be broadly classified into three categories; (1) village community, (2) clan, and (3) individual. However with an increased link in the outside world, the traditional land tenure system has seen a shift the traditional community/clan ownership to that in favour of private holdings¹⁴. Also according to the Arunachal Pradesh (Land Settlements and Records) Act. 2000. (Section 9) all land, public roads, lanes, paths, bridges, ditches, dikes, and all canals and watercourses etc., which are not the property of any person or community, are declared to be the property of the State Government.

The percentage of recorded forest area to geographical area is 61.64 which is the lowest in this region. Roughly 62 percent of the area in the state comes under the category of Unclassed State Forest¹⁵. Of the total forest area of 5.15 million ha, 15,500 ha is under private ownership while the rest is under state control. Under the provisions of *Assam Forest Regulation 1891 (Section-4,)* the Government may constitute any land at the disposal of the government as reserve forest. According to the provisions of *Forest (Conservation) Act 1980*, forest land cannot be diverted for non-forestry purpose without the approval of the Government of India. Even felling of old

¹³ Census of India, 2001

¹⁴ Vishal Gupta, State Profile of Community Forestry, Arunachal Pradesh, CFI, 2007

¹⁵ India State of Forest Report 2009, Page 58

growth forest for replanting is non-forestry purpose. Cultivation of cash crops like tea, coffee, rubber and spices etc comes under the ambit of non- forest purpose.

The various categories of forests in Arunachal Pradesh are¹⁶:

- (i) **Reserved Forest (RF):** These are under the control of the Forest Department and are constituted as per the provisions of the Assam Forest Regulation, 1891. These forests are managed as per the approved working plans.
- (ii) **Protected Forest (PF):** To prevent undue erosion and to ensure that the water supply of the area is not affected by cutting trees, certain areas have been declared as PF as per the *Jhum* Land Regulation, 1947.
- (iii) **Anchal Reserve Forest (ARF):** Certain economically viable units, other than the RF, have been constituted as ARF for the proper management of the forests for the betterment of the communities on a revenue sharing basis between the Department and the concerned Anchal Samiti. This is as per the Arunachal Pradesh Anchal Forest Reserve (Constitution and Maintenance) Act, 1975.
- (iv) **Village Reserve Forest (VRF):** For the benefit of the village community, certain lands have been constituted as VRF as per the Assam Forest Regulation, 1891. The net revenue is shared in the ratio of 50-50.

Arunachal Pradesh is one of the world's top biodiversity hotspots. Due to its altitudinal and agro-climatic variations, the State is very rich in flora and fauna, growing 59 species of bamboo ranging from *Bambusa bolcoa* in the lower stretches to the high-altitude *Arundinaria gracilis*. The area under bamboo in Arunachal Pradesh is 34.5 percent of the recorded forest cover of 51,540 sq km. The bamboo resource of non-forest area is 18.75 sq km with cultivation of few commercially important species such as *bambusa tulda*, *B pallida* and *B nutans* as cash crop for domestic use. In Arunachal Pradesh, all tribes use bamboo for construction of houses, each species serving specific purposes such as scaffolding, posts, roof and ceiling, walling, binding and flooring. All the species go into making bamboo bridges in rural areas, making various parts of bullock carts, baskets, household equipments and agricultural implements. The bamboos are also used in making musical instruments, toys, and decorative and other utility items.

¹⁶ Vishal Gupta op. cit.

3. METHODOLOGY & LIMITATIONS

3.1 SITE SELECTION AND DATA COLLECTION

Nature of site	Method data collection	Name
Bamboo plantation on private land	In depth questionnaire with 5 purposively selected Bamboo cultivators	East Siang district, Pasi Ghat, Arunachal Pradesh
Bamboo plantation on Community land/ Bamboo Flowering affected areas	In depth questionnaire with 10 purposively selected farmers	Puilo and Dulte Village, Champhai District, Mizoram
Small Scale handicraft unit (Govt. aided NGO)	Semi structured interview with Treasurer, FGDs with workers	Hnamchhantu Workshop, Aizawl, Mizoram
Small Scale Private Enterprise (Capital Intensive)	Semi structured interview with joint partner, FGDs with workers	B'nei Menashe Industries, Zungtai, Aizawl district, Mizoram
Small Scale Private enterprise (Labour intensive)	Semi structured interview with owner, FGDs with workers	L.Z. Industries, Aizawl district, Mizoram
Large Scale Industrial unit	Telephonic interview with official, head office, Observation, Company Annual Report	APIL, Namsai, Lohit district, Arunachal Pradesh
Government aided commercial project	Semi structured interview with trainer, FGDs with workers	Poma Processing Unit, Poma village, Itanagar district, A.P
Bamboo Plantation under Forest Department	Semi structured interview with Scientist, State Forest Research Institute	Namsai Working Circle, Namsai, Lohit District, A.P
Bamboo Flowering Site	Observation, Semi structured interview with member of Planning Board, Mizoram	Champai district, Mizoram
Government offices	Interview with Officials from Cane and Bamboo Technology Centre chief, Officials from the Forest Department, Agriculture Department, Horticulture Department and Planning Board in Mizoram, Official Reports, pamphlets etc.	Itanagar Papumpare District, A.P., Aizawl District, Mizoram

We attempted to cover Bamboo plantations differentiated in terms of ownership and industries differentiated by ownership and scale of operation. Since we have managed to visit one of each

type, our findings have been presented as case studies. In this study we have been able to highlight the issues related with each. We hope to provide a glimpse of the different implications of the policies across these categories rather than within each category.

3.2 LIMITATIONS

Our study is limited by the following factors:

- (a) Lack of Quantitative data due to small sample size: The nature of our data is largely qualitative, due to the limited amount of time and budgetary constraints
- (b) Logistics issues: We entered the field during the monsoon season; our difficulties were aggravated by the poor transport system and road network. The fieldwork conducted in the latter half in Arunachal was particularly affected by this problem
- (c) Cultural and Language Barrier: Our interaction with the locals was hampered by our inability to communicate in the language. In both the field sites only one member of our team was fluent in the local language. The cultural setting is also vastly different in the areas where fieldwork was conducted hence many aspects of the society had to be understood before examining the main issues of our study
- (d) Inability to examine the effect on the MPT (Most Primitive Tribes) like Apatani who use Bamboo extensively: Due to political instability in the region we were advised not to travel to Ziro in Lower Subansiri district of Arunachal Pradesh.

4. POLICY AND INSTITUTIONAL FRAMEWORK

4.1 POLICIES

(a) **Central Laws:** There is a clause in as Indian Forest Act 1947 (Chapter 1.2(7)) which states that the definition of tree includes bamboo. This makes bamboo subject to regulations by the forest department; these extend to the harvesting, transit and trade of forest produce. The

definition of Forest produce given in this act includes two categories of flora (i) Timber regardless of where it originates is forest produce (ii) Plants not being trees which originate from the forests. Currently Bamboo falls under the former category due to its definition as a tree. Thus, even the bamboo being grown on homesteads, private plantation and community land falls within the ambit of government laws but to varying degrees. Forests being a concurrent subject the State governments are entitled to make laws regarding transit and trade. These laws cover three activities- harvesting or removal, transit and trade of the forest produce. Removal of forest produce is prohibited in reserved forests except by the Forest Department. In protected forests removal of timber and any other forest produce is to be done with written permission of the Forest Officer or in accordance with rules framed by the State Government. With respect to transit, "the control of all timber and other forest produce in transit by land or water is vested in the State government, and it may make rules to regulate the transit of all timber and other forest produce."¹⁷

The most recent and significant legislation came in the form of the Forests Rights Act which bestows the first right over Minor Forest Produce on the forest dependent communities. However it states explicitly that Bamboos are excluded from the list of Minor Forest Produce "*Bamboo and canes have also been excluded till an amendment is brought in the India Forest Act to exclude it from the category of trees "Tree". However States are encouraged to give ownership rights to Bamboos and Canes also in areas adjoining villages, through an executive order, till an amendment in the India Forest Act, 1927 is brought about.*"¹⁸

(b) State Laws: Arunachal Pradesh follows the definitions and rules laid down by the *Assam Forest Act 1891* which follows the definitions given in the IFA 1927.

Forests in Mizoram are governed by the *India Forest Act (1927)* and the Mizoram District (Forests) Act 1955. In Chapter VI of this act rules for the levying of transit fees and its regulation have been laid down. The Act provides for several categories of forests, apart from the government reserve forest; i.e., Council Reserve forests, village forests reserve, town forests reserve⁴⁷. The forest produce from brought private lands is covered by a certificate of origin, which is issued by the owner of the land. However the private landowner has to get his property

¹⁷ S. Upadhyay and S. Mehra, Mehra, *Transit Rules for Forest Products in Northeast India*, Community Forestry International, 2004

¹⁴ Forest Rights Act, Section 2: Definitions, Explanation for Clause (e)

marks registered with the Forest Department officials. For extracting forest produce from the VC reserve forests, the required royalty has to be paid and the permission of the Executive Committee of the VC has to be obtained, irrespective of the purpose for which the forest produce is to be taken, domestic or commercial. From an unclassed Council Forest¹⁹, the inhabitants of the district can collect timber or forest produce for personal use, without payment of royalty or permit. The Chief Commissioner is possessed of all powers to make rules relating to the transit of all timber and other forest produce whether found in or brought from reserved forests *or private lands*. For the purposes of trade in timber, reserved, unreserved or any other type of forest produce, a trade permit need be obtained. All forest produce that are taken outside the district for trade under a trade permit, have to be charged with a royalty, at the rates prescribed under the Act.

(c) Judicial Interpretations: In the year 2001, Court ordered a blanket ban on movement of timber from the North Eastern States to rest of India, the Apex court gave detailed directions for transit of timber. In this order Court suspended all earlier license given to the sawmills and plywood industries. Hundreds of saw mills and plywood units in Assam and Arunachal Pradesh were closed down since December 1996, throwing the workers out of employment.²⁰ Some of these industries like the APIL were reopened by using Bamboo as a substitute, however were shut down a number of times due to ambiguous status of Bamboo and differing interpretations by forest officials.

However the Apex Court in the on-going Godavarman case held bamboo to be a Non Timber Forest Produce (NTFP) as bamboo belongs to family of grass²¹. On the issue of the need for transit passes in the case of movement of timber and other forest produce cut or brought from private land, the Guawahti High Court was of the view that the forest department does have the statutory authority to regulate transit of timber or other forest produce irrespective of their being found in reserved forest or brought from any private land.

¹⁹ According to Assam Forest Act rules, “unclassed state forest” means any land at the disposal of the state that is not included in a reserved or village forest

²⁰ Assam State Development Report, Ch 7.: Agriculture and Allied Sectors: Constraints and Policy Options, Planning Commission, 2002

²¹ *Industrialisation of the Bamboo Sector in India*, India Development Foundation commissioned by CII

4.2 INSTITUTIONAL FRAMEWORK

While it may be prudent to have an understanding of the history of institutions regulating forests in India, a discussion on that can be found elsewhere²². Here we highlight the features of the new institutional set up that came in place post 2006 which marked the launching of the National Bamboo Mission. It is a centrally sponsored scheme launched in 2006, which is implemented by the Division of Horticulture under the Department of Agriculture and Cooperation in the Ministry of Agriculture. It heralded the new Bamboo Policy which aims at making India a global bamboo power by removing multiple constraints in the sector including lack of scientific methods for propagation and cultivation, lack of post harvest treatment and technology for product development and value-addition, inadequate trained manpower, inadequate infrastructure for large scale harvesting in the event of gregarious flowering, and poor market linkages.

The focus areas of the new policy are-

- Coordinated approach covering production and marketing to assure appropriate returns to growers/producers
- R&D of varieties and technologies for enhanced production
- Enhancement of acreage (in forest and non-forest areas) and productivity of bamboo through species change and improved agriculture practice
- Promotion of partnership, convergence and synergy among R&D and marketing agencies in public as well as private sectors at all levels
- Promotion of cooperatives and self-help groups to ensure support and adequate returns to farmers
- Generation of employment opportunities for skilled and unskilled persons, especially unemployed youth
- Establishment of National, State and sub-State level structures to ensure adequate returns for the produce of the farmers and eliminate middlemen to the extent possible

(CBTC, Annual Report 2006-07)

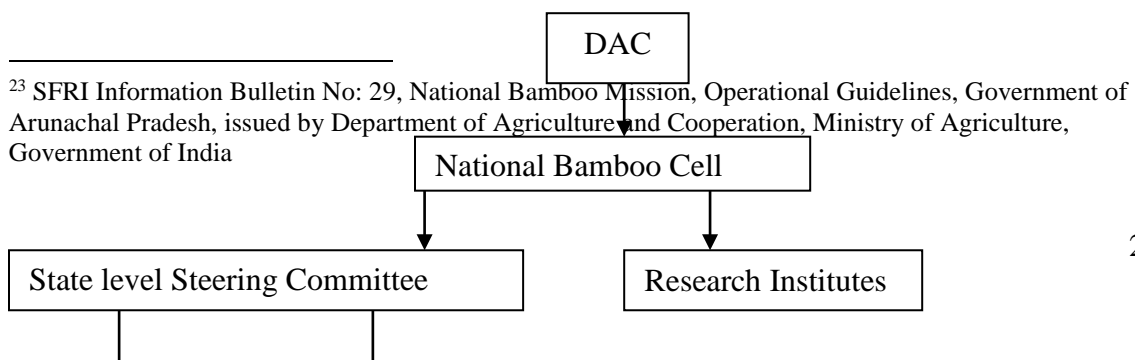
²² Vyawahare, Malavika, *Bamboo: Poor Man's Gold- A Case for developing Bamboo sector in India*, CCS Working Paper, 2009

A National Mission on Bamboo Applications was also established under the Department of Science and Technology as a technology mission and has been tasked with creating the basis for enlarging the bamboo sector, and with supporting the efforts of the Government of India towards augmenting economic opportunity, income and employment.

Mission structure of the National Bamboo Mission at the national level comprises of the National Apex Committee (NAC) and National Steering Committee (NSC). One of the functions of the NSC is to ensure that there is no duplication between the activities of the NBM and the National Mission on Bamboo Applications (NMBA) set up in the Ministry of Science and Technology. In addition to this a National Bamboo Cell (NBC) will function in the Department of Agriculture and Cooperation (DAC) with support of the various working groups. The NBC would ensure networking with various financing institutions to facilitate availability of credit. The Working Groups would oversee each of the following three Mini Missions focusing on Research and development, Plantation Development and Handicraft, Marketing and Export.

At the state level the institutions expected to look after bamboo mission works include State Bamboo Steering Committee (SBSC), State Bamboo Technical Support Group (SBTSG), Forest Development Agency (FDA), Bamboo Development Agency (BDA) and Districts Level Agency. The SBSC shall be responsible for approving the action planned ensuring effective implementation and monitoring of the schemes. The SBTSG will provide necessary technical know-how regarding cultivation and management of bamboo in association with the National Bamboo Technical Support Group. There is a Bamboo Technical Support Group for the East and North East region in India housed in the CBTC, Guwahati.

In forest areas, FDA will implement the schemes while in the non forest areas, The BDA will implement the schemes through beneficiaries such as the NGOs or Self Help Groups(SHG). The funds for the Mission would be released by the DAC through the following channel.²³



(a) Operational setup in Arunachal Pradesh

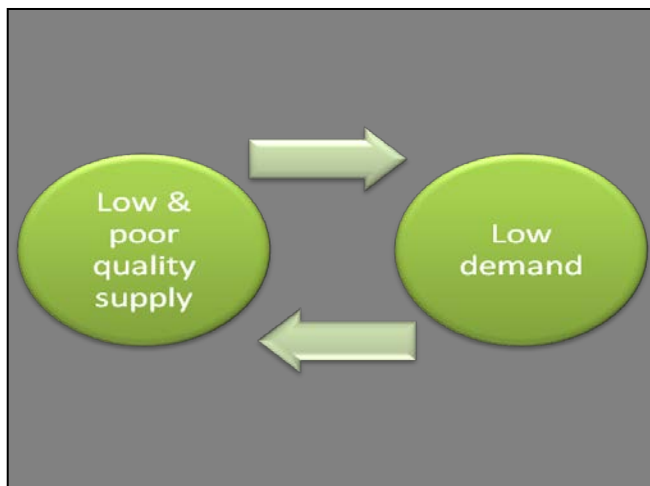
Land Bamboo grown	Government Forest area	Non Forest Area
Overall implementation and coordination	Forest Development Agencies (FDA) and Joint Forest Management Committees (JFMCs)	Bamboo Development Agency
Working	Proposals are compiled by the JFMCs and sent to the FDAs <i>for appraisal and scrutiny</i>	District Planning Committee and Panchayati Raj Institutions under the District Agriculture/Horticulture Officer
Plantation development funding	The MoEF is involved in promoting bamboo plantations in the forest areas. The NBM supplies the required funds in a phased manner.	Bamboo growers are given direct subsidy up to 50percent of the cultivation cost per hectare subject to a ceiling of Rs 8000. The funding is sourced from existing government programmes or through bank loans.

(b) Operational setup in Mizoram

Bamboos within notified forests are managed i.e. conserved, protected and harvested under JFM (Joint Forest Management) system. Bamboo till now has been collected in an unregulated

manner by villagers to meet their bonafide domestic need free or on payment of royalty. Bamboo from Government Notified Forests is sold by Mahal System described earlier. It is now in the process of being phased out as court rulings and the shift in Forest policy has deemed the selling of rights on forests to contractors as illegal. As of 2002 the Mizoram Bamboo Mission was yet to come up with an alternate Bamboo plantation management program.

Bamboos outside government notified forests and in jhumland is sought to be managed (from dedicated bamboo areas under government community control) on scientific lines. Harvesting would be done by Village Councils/VFDCs through labour cooperative societies or family lease system. Village Council/VFDCs are empowered to manage the Bamboo Resources for which Act/Rules were to be implemented. Guidelines for the same are formulated in consultation with the Village Councils, Environment & Forest, Local Administration Department (LAD), Revenue, Agriculture and other development departments. The new Bamboo Policy provides for the harvest of limited bamboo from Jhum areas by the respective Village Council/VFDC to meet the local bamboo need and industrial demand.



The implications of this matrix of policies are that there is recognition for government intervention in the Bamboo sector which goes much beyond determining the legislative framework within which the resource will be utilized. The state has envisaged a comprehensive and direct involvement at least in terms of control

of the supply of the resource. While the production of the goods itself remains largely in the hands of the private parties both large industries and artisans in the unorganized sector. Establishing market linkages and even research and development remains a prerogative of the government. The extraction of Bamboo resources from the forests effectively lies with a government agency; be it a FDA, JFMC or BDA. While the JFMC as the name suggests is a conceptualized as joint forest management between the forest dependent communities and the

forest department, there are serious misgivings about the collaborative aspect in its working.²⁴ In their paper Upadhyay and Jain have also argued that in fact the JFM scheme that has been transplanted from peninsular India may not be appropriate for the North Eastern states and as seen above the provisions with regard to MFP under the FRA 2005 do not apply to Bamboo.

While the legislative powers lie both with the Centre and State even the implementing agencies are manifold spanning over 15 ministries with the Ministry of Environment and Forests and Ministry of Agriculture being at the helm of affairs. At the local level the New Bamboo Policy relies on the institutions of local governance for its functioning as well as the forest agencies.

The implementation of the policies is thus very state specific especially in the North East due to the prevalence of varied forest management systems and even formats of local governance.

While the need for government intervention in the Bamboo sector is not disputed it is the nature of this intervention that is of consequence. In this paper we attempt to investigate whether the approach adopted currently is enabling or disabling breaking the vicious cycle depicted above.

5. KEY FINDINGS: ARUNACHAL PRADESH

5.1 BAMBOO WORKING SCHEME of NAMSAI FOREST DIVISION (ARUNACHAL PRADESH) (2007-08 TO 2014-15)

(a) Industrial Demand for Bamboo: The sources of the demand for Bamboo in this division are twofold- industrial and domestic. Since the Namsai Forest Division of Arunachal Pradesh is home to some important bamboo based industries there exists a stable industrial demand for Bamboo which has been increasing over the years. Many of these industries earlier relied on timber but with the ban on felling of timber in 1996 there has been a shift towards the use of bamboo.

²⁴ S. Upadhyay and S. Jain, *Community Forestry and Policy in North East India: An Historical Legal Analysis*, Community Forestry International, 2004

There are three bamboo based industries within the Namsai divisional jurisdiction which makes bamboo ply for shuttering, flooring, door panel and bamboo agarbatti stick etc. Raw bamboo consumption capacity of these bamboo based industries is given in the following table.

Sl. No.	Name of Industries	Annual consumption of bamboo(nos) (313 working days)
1	Patkai Bamboo Pvt. Ltd. Alubari, Chowkham	3,50,000 nos
2	Arunachal Plywood Industries, Namsai	6,00,000 nos
3	Zingnu bamboo Industries, Jona-I, lathao	3,50,000 nos.

Source: DFO Namsai Forest Division

Presently industrial consumption of bamboo is higher than the supply. Local people are unable to meet up the industrial demand from their home stead bamboo gardens. Therefore these bamboo based industries are importing raw materials in form of bamboo mats from outside the state. A number of cottage based and small scale industries based on bamboo marketable products are mushrooming. These industries produce bamboo ply, bamboo mat, agarbatti stick, basket, hat, fishing rod, fishing trap, furniture, flower stand, trays, bamboo shoot pickle, etc.

(b) Domestic Demand for Bamboo: The local people living around the Reserve Forests (RFs) are highly dependent on forests for their daily use. They need bamboo for construction of their dwelling house for fencing, firewood, agricultural implements, fishing and hunting and for making household articles. The estimates of this demand by the Forest Department are shown in the table below:

Sl. No.	Name of RFs	No. of villages	No. of households	Total population	Quantity of bamboo required per annum for
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					domestic needs
1	Tengapani and Manabhum	60	4914	25741	1,22,850
2	Turung	38	1138	4745	28,450

Source: Statistical Handbook of Lohit district, 1999. It has been assumed that half of the bamboo houses need replacement during the plan period 2007-08 to 2014-15) and each household requires 500 nos. of bamboo per annum.

Though the IFA 1927 and Assam Forest Regulation Act, 1849 do not grant rights to the local people living around the RFs they have been collecting major and minor forest produce for meeting their basic needs but not for barter and sale. The RFs in Namsai Forest Division are facing tremendous biotic interference owing to large population in neighbouring villages and towns.

Extraction of bamboo, cane and other non timber forest produce is done by the local tribal people on permit system for their use. At present bamboos are harvested from the reed planted and grown by local people in their homestead and cultivated land. This is done after physical verification of the area by concerned range officer for assessment of actual availability of bamboo, which is not enough to meet the industrial demand.

Since the industrial and local demand of bamboo is constantly outstripping the supply the forest division of Namsai (which has a bamboo based industry) decided to explore reserve forests as an alternative for increasing bamboo supply. Thus the aim is to meet the demand for Bamboo of the local populace who depend on it for their livelihood and to improve the commercial prospects of the industrial units by providing a stable supply of raw material.

(c) The Scheme: The occurrence of bamboo in various reserve forests of Namsai forest division varies to a great extent. Through a stratified random sampling methodology, the forest division selected only those parts of the RFs which had more than 25percent of the area under bamboo. Then they divided the selected RF area into grids and calculated the annual yield for each grid by using a formula.

The bamboos of these areas mature within three to four years. A felling cycle of 4 years is therefore, prescribed for exploitation of bamboo from the workable prescribed areas. As a result four bamboo blocks have been formed in each of the three reserve forests so as to operate one block in one year and to put other three blocks in rest. Then the operated block will be put to rest for three years to maintain the felling cycle of four years.

The current working scheme of the Namsai forest division is approved for a period of 10 years effective from 2005-06 to 2014-15. Once the resources are developed for sustained supply of raw materials any industry can be started. Therefore bamboo should be protected, improved and production should be enhanced with regard to employment generation and income. The bamboo forests under this working circle have maximum potential for production of bamboo, which can give major boost to the state's economy in the future, if proper institutional arrangements are made for collection and marketing of bamboo in scientific manner following sound management policy. It is noteworthy that we did not come across any such working scheme in Mizoram.

5.2 PROCESSING CENTRE AT POMA VILLAGE:

(a) Objective: Under the initiative of the Governor of A.P., the state government opened a Bamboo Processing Centre at Poma village (32 km from Itanagar), implemented by Arunachal Pradesh Forest Corporation Limited (APFCL) with technical help from Cane and Bamboo Technology Center (CBTC), Guwahati in January, 2010.²⁵ . In order to allow the village to run the project itself eventually a Poma Village Development Society (VDS) was constituted. This

²⁵ IPR (PR) 3/2009 Dated Naharlagun, July 8, 2009 Press Release No. 609 Governor's Secretariat, Itanagar, Arunachal Pradesh

pilot project focused on capacity building of the locals in Poma for the production of bamboo based industrial requirements which are in demand by bamboo based industries based in Assam and Arunachal Pradesh. Thus the project aims at not only providing livelihood to the local population but also boosting the industries by supplying Bamboo in the required form. It is also hoped that the community will be able to manage the entire venture on its own and do so on a sustainable basis.

(b)Working: The supply of bamboo is met from the plantations of the village. The land ownership was completely private in nature. In case there was shortage, it was met from the nearby villages. For achieving the above objectives, government funds allotted to APFCL are being used to procure machinery through CBTC and necessary infrastructure of building for installing the machinery has been being put in place by APFCL through the Poma Village Development Society.

The processing centre has two units: handicraft unit and agarbatti sticks' factory. The centre used specific bamboo species: jati (for agarbatti) and bijli (for handicraft). The trainees are given tool kits after acquiring necessary skills in production of various bamboo industrial intermediates. One month of training was also imparted to women employed in the handicraft sector. The employees are all in the age group of 20-40 and mostly women. The working hours were 8:30 am to 3:00 pm. The wage rate for both units was Rs. 1500 per month. The centre employed three trainers - two women and one man, all from the village. They received a salary of Rs. 2000 per month. These trainers are trained by the CBTC. The male trainer Yo Tamin, 21 years of age was trained in CBTC, Guwahati along with 14 people, all from the same village. None of the other trainers returned to Poma to work.

He was taught how to make furniture and agarbatti from bamboo. However the machines for making furniture had still not been provided.

The villagers are required to produce bamboo based industrial intermediates in bulk which are to be sold on 100percent buy back guarantee basis to the industries in Arunachal Pradesh and Assam. The buy back guarantee is arranged by APFCL through CBTC. All profits due to sale of bamboo based industrial intermediates go to the villagers and the VDS in the ratio of 90:10. This pattern of profit sharing is targeted at strengthening the society in order to promote expansion in the scale of the operations.

All the assets of the project will be eventually handed over to the Poma Village Development Society which will own and maintain them through a core Committee called the Executive Committee. The role of the Forest Corporation will be that of facilitator only and not as a permanent implementing agency of the project. The Forest Corporation will gradually remove itself from the scene handing over the charge to the VDS. However, the Corporation will continue to be responsible for holding the training programme. The Forest Corporation will formally enter into a MoU with the Poma Village Development Society before handing over the assets of the project to them.

(c) Impact: With the establishment of this centre about 20 people got employment, most of them from the village and nearby areas. The workers have different motives of working in the centre. The younger age group chose to join the centre for a more secure livelihood since it is a governmental project and offers a life devoid of the hard farming activities. Women constituting a majority of the labour force means that supplementary household income is being generated. The male trainer, for example had only completed high school, but the presence of processing centre prevented him from leaving his village and join the informal sector.

The people of Poma are willing to increase the cultivation of bamboo as they are encouraged by the stability of the returns expected. The market price of bamboo also shot up from Rs.25 to s. 50 with the establishment of the Centre. Thus the wage income they can get from the centre is augmented by the higher prices they can get for the Bamboo cultivated. A significant positive environmental impact was that the people of Poma village stopped jhum cultivation which involved a lot of hardship.

However an interesting observation is that *pucca* houses are taking the place of traditional bamboo houses at an increasing pace. A bamboo house of average size requires 500-1000 culms of mature bamboo to be built as well as repairs/replacements annually. Since the demand for bamboo from the factory is rising, it makes it more attractive to sell the bamboo rather than use it for domestic needs. Before the processing centre came into being, the demand for bamboo was not high due to the high degree of inaccessibility imposed by the poor road and transport network. Now the village has a metalled road. The handicraft segment has grown with the setting up of the Processing centre.

By training the 12 persons thought the CBTC did fulfill its mandate but the benefits do not materialize since there is no assurance that these trainers would actually take up the work. The lack of proper machinery also hampers production.

Though it was not clearly indicated but we sensed from the interviews with the workers, almost all women, that they did not consider it satisfactory. They also reported certain irregularities in the payment. The centre is only four months old and increments in wage rate are expected in course of time

The workers report that there is considerable crunch of labour. One worker has to work on more than one machine. The lack of labour can be attributed to wage being too low to be attractive for others. The opportunity cost of working at the Bamboo centre is considered too high by the farmers especially during the rice harvesting season. Since the requirement of labor in the fields would increase significantly in the sowing and harvesting season the women employees could not report to the centre. However they would not receive salary for absenteeism. And on Sundays they were not given their pay. Overall the terms payment did not turn out the way as was previously stated to them. The absence of a store house of finished products and absence of a proper workshop the centre depends on placed orders of specific products. For e.g. flower grass, curtain rings etc. As a result the production is limited.

Thus we find that the setting up of the Centre has positively affected the people of the village by providing employment locally to young people as well as women. It promises to curb migration to other areas in search of work as well as empowering women to some extent as the nature of work allows their participation. The processing centre has allowed raw Bamboo to be made available in the form required by the industry thus ensuring a stable demand. In the presence of this, the farmers have also expressed their willingness to increase bamboo plantation thus shifting away from the ecologically unsustainable and primitive method of Jhum cultivation. However certain weaknesses were also apparent in terms of the training of workers and the trainers. The wages received at the centre are not seen as a primary source of income for the household and people have shown a preference to work in their own field. It also fails to promote an entrepreneurial spirit among the people who are only involved in low value addition to support the industries.

5.3 LIVELIHOOD OF FARMERS AT PASIGHAT:

Bamboo is grown on private land in most of Arunachal Pradesh. Farmers cultivate Bamboo on their plantations which are not very large; however the presence of plain land makes it possible to do so. The land is measured in terms of Pura²⁶. The farmers in this area are not affected by Bamboo flowering as the species of Bamboo commonly grown is *Aeing* (scientific name - *arundinaria gracilis*).

Bamboo is considered one of the easiest crops to grow, since it does not have to be tended to carefully. One of the major investments in Bamboo plantations is the fencing since the plants are very prone to cattle attacks, both domestic and wild. They usually attack the new growing shoots which once destroyed completely reduces the yield of bamboos both for sale and consumption. The fencing can cost anything between Rs. 5-10 thousand. Usually family labour is employed for its construction as hiring labour is expensive and the sale of bamboo only barely covers the construction costs of the fence if sold to local dealers. Given its low profitability people prefer to spend their time and resources on the cultivation of rice.

Due to the absence of technical know how, market linkages and adequate transport facilities people are not involved in the production of Bamboo goods for sale even if they grow Bamboo, Marketing of the bamboo product is the major problem due to very poor transport links with the rest of the state. Therefore, most of the bamboo cultivated is still used for subsistence needs. Otherwise they have no option but to sell off the raw bamboo at whatever price it fetches. They reported no help from any government agency with regard to inputs of production and subsidies. None of the farmers we interviewed had heard about the National Bamboo Mission or even Bamboo Development Agency. This is noteworthy because the prerequisite of an active role of the BDA is recognized not only by the National bamboo Mission, but also the forest Department (Namsai Bamboo Working Scheme).

5.4 BAMBOO DEPOT LICENSED BY THE FOREST DEPARTMENT:

The bamboo depot visited by the research team was located 6 km away from the main city of Itanagar. The license to sell Bamboo is issued by the Forest Department but the licensee also has

²⁶ One *Pura* approximately equals one acre

to pay a land tax of Rs.500 every month. This particular Depot was run by a lady along with her male assistant. Contrary to the government notification it did not have a shed for proper storage of Bamboos or an office. The Bamboos were kept outside with no cover. She informed us that the Bamboo being sold at her depot was procured both from the forest land as well as private growers. She also owns her own plantation. However a lot of the Bamboo is obtained from relatively distant places and requires her to cross forest check gates where she pays a duty of Rs.5/ Bamboo culm. A truckload means a payment of Rs. 2000. For harvesting the Bamboo from the forest land however she does not pay any tax as she had done five years ago. There existed other private sellers of Bamboo then but since unlike her they did not obtain a license they have been deemed illegal. The problem with the transit duty is that though in the government guidelines tax is levied in terms of weight since it is difficult to weigh the raw Bamboo it is collected per piece. To avoid paying taxes industrialists also resort to cutting Bamboo into smaller pieces for which they are not charged. This is however not a viable option for making various high value products like furniture and limits the option of the entrepreneur.

6. KEY FINDINGS: MIZORAM

6.1 COMMERCIAL PROSPECTS

(a) Hnamchhantu: A Non Government Organisation

Local NGO established in 1996 with the aim of promoting self sufficient economy in Mizoram. It ventured in the manufacturing and marketing of Bamboo products in 1996. Their portfolio includes hangars, broom sticks, vases and many varied kinds of Bamboo handicrafts which can be manufactured locally. In order to ensure a regular supply three training cum manufacturing centres have been set up, one of which was visited by the Research team.

(i) Supply of Raw Material: The training cum manufacturing unit was located in Sesawng in the Aizawl District because of the easy availability of Bamboo in this region. Local people are employed to harvest bamboo for which they pay Re. 1 per clump. Mature Bamboo culms are utilised for a majority of their products. However even this centre was adversely affected by the *Mautam* since they primarily use Mautak (*Melocana Baccifera*) which flowered. Hnamchhantu had terminated its operations between 2006-08. Even now, despite there existing a growing market for the broomsticks which they produce, scaling up production is not possible due to the to the scarcity of the bamboo required in its production.

(ii) Condition of Labourers: The number of artisans being trained at the centre was 16, out of which 4 were women. The age of the workers ranged from 15 to 30 years. During the Focus Group Discussion, the workers stated that the ones among them who had a job in the government underwent training because it served a means to earn a side income. The younger ones who were no longer in schools undertook the training and hoped to work full time at the Hnamchhantu manufacturing unit. Most of them had studied beyond class fifth but had not completed their schooling. The interesting fact was that a majority of them were first generation artisans and had been attracted to this training as a means of earning a side income. The training was of three months duration where they received Rs. 1000 per month. Anyone could join the training as per the rules however the information regarding the opportunity was not adequately disseminated.

However it is not a regular employment but they do manage to earn approx. Rs. 3000/ 5000 per month. Usually employ people from the same family are employed and paid a daily wage which works out to be Rs. 15000/ month for the family if three members work for the NGO. The artisans are also provided health insurance through the *Rajiv Gandhi Shilpi Swasthya Yojana*. This scheme aims at financially enabling the artisan community to avail healthcare facilities.

The manager points out that due to many such schemes in existence and promises of quick money by politicians people do not actual work on handicrafts but avail the different schemes with their attendant benefits without ever using either the machinery provided etc.

(iii) Capital and machinery: it was established in 2007 using bank loan and micro finance from NABARD but has not received any other financial assistance since. The training Centre had been set up with funds from CAPART as well. It was being run with the help of the yearly grant given by the KVIC however this was not a stable source and if targets were not met it could be withdrawn. The wages that are paid to the workers come from the KVIC funds. The NGO itself has not been making sufficient profits to sustain itself and has a acute problem of capital shortage which may lead to its closure in the coming years.

(iv) Marketing: *Hnamchhantu* has a retail outlet at Aizawl which the research team visited. While the products they sell depend on the demand, it is also constrained by the raw material availability. On the visit to the showroom we were told that their products are highly competitive in the market. They had been producing and selling pouches made out of Bamboo for Rs. 850 per piece while the same product is being imported from Thailand and is sold for Rs.1200. They are however unable to produce on a large scale so the products end up only in the local market. Agencies like the CBTC and TRIFED play as a mediator and a catalyst by arranging product contracts with certain private firms outside the state; for example, they have been supplying bamboo hangers to ITC but it is usually through their own initiative that they develop market links. The manager of the showroom reported that they were allotted a showroom in C.P., Delhi but since they could not meet the demands within the stipulated time due to shortage of skilled artisans, raw materials etc, the showroom had to close down.

They were constrained by supply of raw material, capital scarcity and the lack of a skilled and willing labour force. As we have seen the Mautam led to the closure of the unit, government support in terms of one time credit and financial input is inadequate. Marketing channels are very poor. The ability to meet demand and change according to market conditions is adversely affected by these problems especially since the market segment they have entered is one where they are competing with imports from across the world. Also since there is no stable local market there is a need to reach out to other markets as well which is not occurring presently. Furthermore the sources of capital are ad hoc and not sustainable; the inability of the unit to finance itself is a reflection of its non-viability. The workers also do not perceive it as a viable long term employment opportunity but as a means to earn extra money.

Non governmental initiatives such as this are few and far in between and are likely to fizzle out in the absence of active support from the government and a better incentive structures.

(b) L. Z. Industries: Constraints to expansion

L.Z. Industries is a fully private owned agarbatti stick making enterprise with its office at Ramhlun North, Aizawl. It was established in 2003 and running successfully till date making average annual profits of Rs. 1 crore.

(i) Supply of raw material: Families from nearby villages have been earmarked for production of agarbatti sticks. They collect wild Bamboo themselves since no Bamboo is cultivated on land where *Jhum* is practiced.

(ii): Labour: It is a cottage industry running production units at various places in the State. The production process is labour intensive and the enterprise employs 3940 local people from different villages. The workers are mostly women. The owner supplies basic machinery to families he selects and pays them wages per kilogram of Agarbatti sticks (Rs. 19/ kg) produced. The owner is now foraying into production of the finished goods i.e. Agarbattis rather than only the sticks

(iii) Capital and Machinery: Started with 20 Lakh Rupees as initial investment. The machinery was bought from the M.J Industry in Bangalore which produces square stick making machines. For working capital he uses his undistributed profits and loans from banks.

(iv) Marketing: Having been supplying Agarbatti sticks to agarbatti making companies in South India for many years now the owner found that manufacturing the finished product himself would be a profitable business since the value of an Agarbatti is 25 times that of a Bamboo stick which led the owner to expand vertically and produce the finished product however he is yet to find a market for his product.

This case study highlights the importance of providing marketing support and incentives for expansion to already existing industries in the North East so that they can grow. The export of processed Bamboo from the state means that value addition is not happening here, hence the benefit of possessing such a vast Bamboo resource is not reaching the people of the state fully. The Agarbatti making industry can be easily developed further in this region since it does not require very advanced technological input and is likely to provide employment to people in remote areas especially women. There is also a well established market for the product in India which is made solely from Bamboo. According to the industry attractiveness Matrix provided by the Planning Commission (2004) the agarbatti industry has the potential to grow to Rs. 994 crore by 2015.(Planning Commission : National Mission on Bamboo Technology and Trade Development). An Industrial Potential Survey carried out as early as 1996 by the branch SISI Aizawl listed Agarbatti making as one of the potentially profitable industries in the region. Various successful schemes of Agarbatti Making have been undertaken in different parts of India including in Madhya Pradesh and Andhra Pradesh where the Forest Department and NGOs like the World Bank, INBAR have worked in partnership with Forest Protection Committees comprising of local tribals. Here the Forest Department or NGO facilitates management of resources and its procurement from the Forest area and in establishing market linkages through MoUs with major companies.

There is a need for such models to be put into place in a more institutionalised manner.

(c) B'nei Menashe industries: Technological innovation in the Bamboo Sector

This unit is located in Zungtai in Aizawl and is five years old. It deals with manufacture of bamboo agarbatti sticks and other allied products. The enterprise is jointly owned and managed by a young Jewish entrepreneur, J.Laltlanmawia who is also the president of Mizoram Bamboo Entrepreneurs' Federation. Though the production capacity of the unit is limited Laltlanmawai is attempting to diversify his product profile through his own efforts and collaborations to import technology. Currently he produces activated charcoal, Bamboo vinegar and agarbatti sticks.

The owner of this enterprise complains of having no help from the government with regard to innovation and skill improvement sector. He wants to export the goods. He has been to a

workshop in Japan and he learned that they have been largely using activated charcoal as filtering agent both for harmful infra red rays and bacteria (water filter). So he wants to manufacture it himself and export his product.

(i) Supply of Raw material: The factory has been facing problems in procuring raw materials i.e. bamboo as there are no plantations meant for this purpose. The raw materials currently in use come directly from the forest. However since for specific products the maturity and type of bamboo is very important the supply is not always as per requirements. Knowledge regarding the age of a bamboo remains unknown in case of wild bamboos. Further the wild bamboos are subjected to various forests regulations and royalties have to be paid to the forest department.

Laltlanmawai is of the view that there is a great need for bamboo plantation for the survival of his enterprise. However, the recent policy of doing away with the mahal system* and replacing it with bamboo bazaars to him seems more suitable in terms of procurement of get raw materials. Yet he recognises that the government acting as a mediator means that private growers will still be limited in scope and investment. He believes Bamboo plantations on the lines of those in China would be the most appropriate for enterprises like his which want to produce multiple Bamboo products.

(ii) Condition of Labourers: There are three women and two men employed full time at the B'nei Menashe unit. Some workers comes from outside while some employed live near the centre itself (Among six workers, four were interviewed). They earn a wage of 3000 per month and for one family, food and lodging was provided by the employer. The workers said farming in the hilly terrains has not been very productive for them and working in this present factory has more beneficial for them. They have migrated from the village called Ngopa and have permanently settled at this site which is approximately 200 kms away from the main city of Aizawl. The workers not residing in the factory premises earn Rs. 120 per day. The sons of the workers who are settled within the factory are around the age group of 17-18 years and are both working as part-time workers here. They work till 1:00 pm at the factory and attend evening classes hereafter. They earn Rs.100 for half a day's work. .

(iii) Capital and Machinery: When the the industry was established it was assisted by North Eastern Council which gave them a grant of 16 Lakh rupees.

(iv) Marketing: None of his products except for the agarbatti sticks have not been marketed yet. Many hotels in the country have been importing vinegar, thus his aim is to supply vinegar to hotels within the country which will be relatively cheaper than those imported from outside. But the quality of their product has to be tested and the vinegar product certification is still under way (certification is done usually in Jorhat, Mumbai).

This case study highlights the need for private plantations and better management of Bamboo found in the forest areas. Technological innovation in the Bamboo sector which will allow it to move beyond being a subsistence low value segment will not occur in the absence of adequate quality and quantity of raw materials. The Forest Department which has till now focused on providing Bamboo for Paper and Pulp industries which use any kind of Bamboo, will either have to drastically shift its way of Bamboo forest management or give it up to a specialised agency. The Bamboo Development agency which is supposed to look after Bamboo originating from private land does not have a presence in Mizoram. Though the Mahal system is being scrapped for good, there is very little being done to ensure that the raw material availability keeps up with the demands of new modern industry. Technological innovation is also hampered by weak marketing channels and absence of set guidelines for certification as well as lack of encouragement to collaborations for technology transfer. Individual initiatives will not be sustainable if a conducive policy and institutional framework is not in place.

	Govt. aided NGO	Private Ent. (cottage industry)	Pvt. Ent. (Capital intensive)
Raw Material	Buy wild bamboo from villagers	The employed households obtain Bamboo from the forests	Buys it from the Forest Department under the Mahal system

Labour	Daily wage Rs. 5000/ month Means of side income	3940 local people Mostly women Rs.19/ kg of Ab. sticks	Rs. 3000/ month Earlier involved in jhum cultivation
Capital	One time assistance from NABARD, CAPART, Yearly funding from KVIC Not self sufficient	Rs. 20 L Initial investment Second hand machines bought from M. J Ind.s Working capital: Profits and loans (unstable)	Assistance from NEC when it was set up
Marketing	Retail shops in Mizoram, weak market linkages outside the state Competition from Thailand	Supplying Agarbatti sticks to Agarbatti Ind.s in S. India for 7 yrs Wishes to produce the full product- competition from big existing players	Only marketing Agarbatti sticks currently Host of items await certification and marketing
	Rare NGO initiatives Capital scarcity is the key problem	Marketing is the key problem Competition from big existing players	Innovation not promoted by the Agencies Supply of quality Bamboo

Source: Fieldwork

6.2 LIVELIHOOD PROSPECTS

Our attempt to study the effect of Bamboo flowering and the policies surrounding it brought us to Dulte and Pulo, two small villages located in Champai District of Mizoram. Both have been identified as the most badly affected by the Mautam between 2006-09²⁷. In the interview the Agriculture department official revealed that in 2005, 40percent of the crops were destroyed. 2006-07, there was total harvest failure. Our interviews with ten randomly selected farmers (2

²⁷ Brief Record on Mizoram Mautam 2007-08, Department of Agriculture, Government of Mizoram, 2009

women and 8 men were interviewed) from these villages brought to fore the following aspects of the problem.

(a) Role of Village Council:

Village Councils are the institutions of local governance. Like the Gram Panchayats they are a body of five members headed by the Village Chief. They are both the agent of the state government and a representative of the people. One member of the Village Council at Puilo described the Village Council as the “middleman” between the government and the people. They also act as the third Magistrate; functioning as a court to resolve matters of local importance. The VC also has powers to try cases related to the Mizoram District (Forest) Act 1955. There are three types of forest under the VC viz. Village Safety Reserves, Village Supply Reserves and Protected Forest Reserves. Under the act, “*jhumming*” has been “conceded” only in Unclassed State Forests. Village Safety Reserves are constituted for the protection from fire and in the interest of the health and water supply. Village Supply Reserves are for the supply needs of the people of the village, especially for the household supplies of the village. Protected Forest Reserve is for the protection of valuable forest from destruction in the interest of the village community. The distribution of land for *jhum* is vested with the Village Council, which can allocate land for the practice from the Village Safety Reserves and allocate land for house sites.

(b) Land Ownership and Distribution:

We observed the existence of three kinds of land in these villages- private land, community land and government land. The private land ownership of the ten farmers interviewed by us places all of them in the small or marginal farmer category²⁸. (6- marginal, 4- small farmers). Besides private land however eight out of the ten farmers were also growing crops on village community land through various arrangements. The general procedure for being granted village land for cultivation involves a chit system where families which wish to use village land are allotted a number and depending on whether the number they pick is selected they get to choose the piece of land for instance, if family A picked the number 1 then they will be the first to choose the plot of land so desired. The size of the plot of land so chosen is also dependent on the size of

²⁸ Small farmer defined as someone owning between 1-5 ha. of land and Marginal farmer as someone who owns less than 1 ha. of land.

the family. Another system called the periodic patta is also functioning within the village. Under this system, the claim to the plot of land owed is renewed after every 5 years. If anyone wants to transform this periodic patta into permanent patta, then the concerned person must get a form from the revenue department. Once the concerned farmer gets the letter of recognition along with the stamp from the Village Council, the form is resubmitted to the revenue department. Then once accepted by the revenue department it can become a permanent *patta* (Land Settlement Certificate). The VC's discretion regarding handing over the land to private growers is based on their judgement whether the farmer will be able to look after the land. Through this they also encourage farmers to shift to wet rice i.e. permanent cultivation rather than *Jhum* cultivation which makes them strong candidates for the same.

(c) Community Vs. Private land:

Since both private and community land ownership exists in this region and the question of the Bamboo Policy is intimately linked with the question of ownership of land on which the Bamboo grows, we discussed the question with the farmers. A majority of the farmers expressed their desire to own larger plot of land because they preferred working on their own plots. The perceived benefits of private land holding are: (1) the work is more productive, work and get according to their needs (2) they can grow whatever they want. (3) Private land is useful on a term basis because it provides sustainability in the years to come. Sons can inherit them just like their own personal property thus it becomes an asset of the farmer. The problem with private land was that it was small in size and scattered. They believed bigger private land which won't be scattered would increase production.

At the same time they recognised that having community land is also necessary since it can be used: (i) for the old and the poor who do not have their own land, who can't work and provide for themselves community land becomes a necessity because they depend on it for their survival. (ii) promotes social harmony and solidarity because everyone works together.(iii) exchange of different crops...multiple cropping takes place in an easy manner.(iv) during times of harvest which usually takes a couple of years, the community land becomes a source of procuring other types of food crop.

(d) Utilisation of Bamboo and procurement:

Bamboo is used extensively in daily life from building houses, fencing, chicken coops, mats to various containers for storage. Approximately half of the sample of ten families informed us that they also eat Bamboo shoots. Three others were involved in making Bamboo mats, sieves and baskets for sale in the local market. Five of the respondents stated that they harvested wild Bamboo from the reserve forest area while others were ambiguous about the origins of the wild Bamboo. It is a widely recognised fact among the farmers and even members of the VC that villagers should be allowed to take Bamboo for their subsistence needs but not in large quantities for commercial purposes. Despite acknowledging its illegality it is an unspoken agreement that as long as it does not get reported they will not be caught. The nature of vegetation cover is also such that it is difficult to assess and keep a check on where the Bamboo is originating from. The Forest Department had cited similar problems for regulating Bamboo grown on private land. They believe that they will be able to keep a tab on the Bamboo being taken from the forests if they *also* did the same for Bamboo growing on private land. We did not however notice any active regulation of Bamboo harvested from the forests despite visiting a check gate where no one was present. Also the desire of the farmers to have more private land coupled with a move towards generating awareness and making Bamboo a viable *cultivable* crop will tackle the issue at the root. Questioning them regarding their knowledge about the actual status of Bamboo yielded inconclusive results as more than half of the sample did not know what Bamboo should be classified as- tree or grass. Three of them claimed it was neither but one was of the view that it was a tree hence under the Forest Department.

(e) Affect of Mautam & Government Aid:

All the farmers we interviewed in Puilo and Dulte had been affected by the Mautum. While most had felt its adverse affect in terms of destruction of their standing crops a few making Bamboo products also mentioned a rise in the price of their goods due to the scarcity of raw materials which did affect their output. The price of the Bamboo mats for example increased fourfold during this period. Others complained of the rise in the prices of traditional Bamboo goods. While many of the other forms of vegetation were also destroyed by the rats like Bananas crops like ginger, chilli and in some instances rice survived. The consumption of Bamboo shoots was also unaffected as it was obtained from *Rua* Bamboo. The affected population tried to cope with

these conditions in the following ways- distress selling of surviving crops, cultivating other crops or migrating. According to the data we found that most of them have been growing ginger, chilli, vaihlo (a kind of tobacco), mustard (they didn't grow pumpkin, brinjal, maize etc because these face serious attacks by the rodents)

The state provided support in the form of distributing rice, rice seeds and providing incentives for rat killing. However the farmers who did receive the rice complained that it was inadequate, the other complain was of the seeds themselves being eaten up by the rats. Also the selling the rat tails to the government was not very lucrative as the farmers were required to hand them in at Aizawl which was too far away for them. The one positive was the alternative livelihood option provided by the NREGA; 4 families reported working under such projects to earn additional income. Except one, none of the farmers had heard of the National Bamboo Mission and half of the farmers rated the government's response to the *Mautam* as average while four were clearly dissatisfied and only one described it as -good.

The people also seemed to suggest that Mautam affected the productivity of the soil itself. They also argued that drying up of bamboo clumps in large scale leads to loosening of the soil due to which moisture content and fertility of the soil is degraded. The government's focus on 'fire-fighting' were not appreciated and it was a perception that harvesting the Bamboo before it flowered, being better prepared to control rodent population and an emphasis on multiple cropping (grow crops which are repellent to rodents) would have been a more useful strategy.

The problem of bamboo flowering however merits a closer examination as it has implications not only for the farmers affected by the flowering but for the state as a whole. In the next section we focus on these other repercussions of the phenomena of Bamboo flowering.

6.3 BAMBOO FLOWERING AND ITS IMPACT:

This time the flowering is believed to be more widespread occurring in areas of Arunachal Pradesh and Manipur. 3 percent of the total estimated population of 10. 22 L was affected by the problem of gregarious flowering and the rodent menace.

Scientifically the phenomena of Bamboo flowering is called 'synchronic masting' which occurs at a periodic interval of 48-50 years in Mizoram. But for the Mizos it is more than a natural occurrence, from past experience Bamboo flowering follows famine which is known as 'Mautam' after the flowering of *Melocanna baccifera* (Mautak) and *Thingtam* after *Bambusa tulda* (Rawthing). As per record Mautak flowered in 1815, 1863, 1911, 1959 and most recently between 2006-09 while the next flowering of Rawthing is expected in 2025. The relationship between the flowering of Bamboo and the ensuing famine remains problematic as no explanation has been widely agreed upon. The increase in rat population post gregarious flowering however is an empirically observed fact. Rats are feed on the Bamboo fruits and seeds which are believed to increase their fertility and lead to manifold growth in their population. Research indicate that this could be because the high protein content of these seeds causes an estrogen imbalance in the rodents whose fertility rates dramatically increase or that the high protein in the seeds provide the nutrition to significantly enhance the survival rates of the entire rat litter. The massive rat population feeds on standing agricultural crop, causing its destruction and results in acute food scarcity, which was the cause for the famine in 1959. The famine in the early 1960s by some accounts claimed 10000 to 15000 lives. The high casualties were attributed to the nonchalant attitude of the authorities and its ineptitude in the delivery of relief/humanitarian aid. The disillusionment and anger this provoked triggered an insurgency movement by the indigenous tribes. It was a tragic 20 year conflict with the Indian state that was led by the Mizo National Front (MNF) "an ethno-political organization formed initially as the Mizo National Famine Front to respond to people's relief needs. The conflict only ended in 1987 with a peace accord, and the famine with its consequent events remain deeply etched in the psyche of the people continuing to evoke strong emotions." ²⁹

This time in order to prevent a similar situation from unfolding, as early as 2003 the Mizoram state government came up with a contingency plan, setting up a State Rodent Control Committee. On the recommendation of the Committee various methods to control the proliferation of rats were adopted ranging from poisoning to installing rat traps. The government elicited local participation by providing a Re. 1 as reward for every rat tail handed in. The Central government on its part sent experts to look into the problem who were of the

²⁹ Sajal Nag, *Pied pipers in the hills: bamboo-flowers, rat famine, and colonial philanthropy in North East India*, Centre of South Asian Studies, University of Cambridge, 2008

view that tragic consequences of Bamboo flowering could be avoided if the farmers could shift to the cultivation of crops that rats did not feed on like banana, turmeric and ginger. Bamboo flowering not only impacts the human population but the ecology of the region as well. The MoEF was chiefly concerned with the Bamboo dying and rotting and the loss of revenues that would be suffered due to the loss of the resource. The then Chief Minister proclaimed that the efforts were directed towards not only preventing a crisis situation from arising again but also ‘*pave the way for a Bamboo Revolution in the State*’. A workshop conducted by the Jorhat Rain Forest Research Institute attended by representatives from governmental, research and non-governmental institutions concluded that the best approach would be to harvest the Bamboo before they flowered. This was supported by the CM who in the hope of converting a possible disaster into an opportunity called for prioritizing harvesting of Bamboo for industrial use.

Based on these recommendations the Bamboo Flowering and Famine Combat Scheme’ (BAFFACOS) was launched in 2004. Government of India sanctioned Rs 566. 55 crores for implementation of the comprehensive action plan for a period of 5 years (2004-09) covering 15 different Departments. (Comprehensive Action Plan for Bamboo Flowering and Famine Combat Schemes). The three pronged approach is:

- (i) Control of rat population
- (ii) Agricultural Diversification
- (iii) Early harvesting of Bamboo

The policy was lacking in both its content and implementation. There were no clearly defined central objectives for the multiple activities to be carried out by the fifteen different departments.

The allocation of funds to the different departments was also carried out in an ad-hoc manner with no prioritization of activities. In terms of execution our interviews revealed that coordination between the departments was extremely poor. Information sharing was especially a weak point with reports and findings being shared on an informal unplanned basis. In terms of actual implementation as well the collection of rat tails proved impractical as well as ineffective. The payment for rat tails was increased to Rs. 2 in the year 2007, but the scheme was withdrawn subsequently due to its failure to achieve the said objective. Rats damaged the Jhum

paddy, vegetables, fruits and rice cultivation in the low lying areas including in Champai district to the extent of 80 percent according to the records with the Agriculture Department. The shift in crop choice has also come with its share of problems as we discovered during our interviews with the farmers and representatives from the Agricultural department. Not only was there a poor harvest of the alternate crops like Ginger and turmeric but in many cases the government failed to buy back the yield at remunerative prices or not at all.

The Environment and Forest Department did not harvest the Bamboo before flowering and defended their inability to do so by citing the proposition as unviable to begin with and claiming that the harvesting would cost more to the government than just providing relief to the affected families. In our interview with the CCF, Mizoram it was revealed that only 10 percent of the Bamboo that flowered was harvestable given the existing level of infrastructure. He was also of the view that the costs of compensating the families and providing relief measures would be less than of successfully harvesting the Bamboo that was to flower. On being questioned as to why the half a century lapse between the two occasions of flowering had not been utilized to make the more profitable solution viable, he admitted that there had been a lacuna in terms of long term planning³⁰. Environmentalists are of the view that harvesting of Bamboo before it flowers is a misdirected approach which would inevitably lead to ecological disturbance and hamper the natural cycle of the plant itself. Despite this even the Bamboo that was harvested it has been claimed could not be utilized due to absence of storage facilities and channels for marketing. Though there are limited kinds of industries currently in business which utilize Bamboo they do exist. The loss in monetary terms of the Bamboo that was not harvested is a staggering 12 000 million rupees. The fact that Bamboos are used mainly in the paper and pulp industry and not for a range of products which can be manufactured from it reflects on the state of utilization of Bamboo resources in this region. The commercial usage by farmers was not even an option given the status of Bamboo.

The problem is larger and deeper. The Indian state has long been criticised for adopting a paternalistic position towards the North east states. Promoting dependency and not development has become the mainstay of this approach. This has been brought into sharp focus in its response to this predicament surrounding Bamboo flowering. The doling out of

³⁰ Interview with CCF, Mizoram on 27.05.10

monetary aid has encouraged competition to corner a share in the spoils and bred corruption. The state government's response comes under scrutiny after reports of embezzlement and misuse of funds not only in seminar rooms but also on the ground. This even led to the outbreak of violent demonstrations protesting the misuse of money sanctioned by the Central government. In the academic circles the policies of collection of rat tails and premature harvesting of Bamboo are being described as "ridiculous"³¹

The plethora of objectives and lack of focus and sharpness that this policy reflects can to some extent be traced to the very interest that the issue has held for those formulating the policies as well as those implementing them. The Central government is mindful of what is at stake given that the Mizo insurgency movement which took the form of a violent twenty year long challenge to the state's territorial integrity itself was sparked by the Bamboo famine of 1959. The state government which by the MNF was well aware of the dangers of failing to deliver on the promise of better handling of this potential calamity which not only brought he and his cadre come to power but was the basis of the formation of the state of Mizoram itself.

The implementing agencies at the centre and state levels are themselves locked in a battle for control over the resource, the loss of which would not only mean significant revenue losses for the forest department but also surrendering of a resource whose newly discovered exploitable potential it has just woken up to. While it may sound like a harsh indictment of the working of the government it has not untrue that the concerns of all players in authority are as Nag has rightly commented "politically motivated"³² with little genuine concern for its citizens albeit one of the many examples of the same.

7. CONCLUSIONS & RECOMMENDATIONS

7.1 EVALUATION OF POLICY

While the variance in the modalities and working of the government intervention can be attributed to the particularity of the region in terms of ecological as well as economic conditions

³¹ Sajal Nag, *Pied pipers in the hills: bamboo-flowers, rat famine, and colonial philanthropy in North East India*, Centre of South Asian Studies, University of Cambridge, 2008, pp.289

³² *Ibid.* pp. 51

the lack of a well defined role of the state in the Bamboo sector is evident. While in the case of the Poma Processing Plant the emphasis the government plays the role of facilitator in allowing local population to harness as well as develop the resource the Namsai working division clearly the government is a player in the market itself with stakes in terms of revenue collected. As the existing laws leave the status of Bamboo ambiguous there is a great deal of inconsistency in terms of implementation. While in Arunachal some models for utilization of the Bamboo resources have been implemented, these are in the form of ad-hoc initiatives at various levels. On the other hand in Mizoram the state machinery has been geared towards mitigating the damage caused by Bamboo flowering rather than an effort towards optimum use of the resource. While the proposed aim of the new policy was to overall comprehensive and sustained development of the Bamboo sector, given that the resource is quagmire of the forest management structures which are in the process of transition and the measures seem piecemeal, fragmented and short sighted. Here we delineate the key issues and make suggestions to tackle them

(a) The Status of Bamboo:

Clarity about the status of Bamboo is not only important for state revenue generation but also for strengthening of local economy. Definitional ambiguity and fluctuating positions on the part of the courts on basic definitions of terms such as forests produce, has large implications on communities and their orientation towards forestry management. Especially when they concern such resources on which millions of livelihoods depend. Any fluctuating position would surely add to the already existing disincentives for the people.³³

Redefining Bamboo as a grass is not just a question of renaming or scientific definitions but much more a question of the status of the resource. The case for government intervention in this sector is established and given that in this region Bamboo is largely found in forests; particularly in Mizoram where private cultivation of Bamboo is not practiced compels one to consider the significant role the forest department will continue to play. It is also claimed by the officials that they since they have had control of the resource for long, they have the expertise

³³ S. Upadhyay and A. Mishra, *Role of the Courts and Implications for Community Forestry in Northeast India*, Community Forestry International 2004

for its proper management. However from the working of the Namsai Working Circle we see that the instances of scientific management are rare and recent. Also in terms of Industrial demand, the Forest department caters to large scale paper and pulp industries who were receiving Bamboo from it earlier and with little variation in the kind of Bamboo. New industries would not only require as the case of B'nei Menashe industries amply demonstrated particular kinds of Bamboo and also an increase in industrial demand once the products enter new market. Relying on Bamboo growing solely in forest areas is not viable option, also in the long run with growing demand for Bamboo it would put unsustainable demands on forests. Promotion of private plantations is thus necessary. The argument that there are no private plantations because there is no demand thus there is no need to re examine the Forest Department's complete control over the resource is to allow policies to reinforce status quo rather than be visionary.

The more compelling argument against removing Bamboo from the list of trees is that from the viewpoint of ecological balance the felling of Bamboo must be regulated and this requires that felling in private lands be regulated too. The conservationist lobby has argued for the freeing of a set of commercially viable Bamboo species from the control of the Forest department mandate through the implementation of State specific laws.³⁴ However this view is based on the flawed understanding that removing Bamboo from the list of trees would immediately leave all Bamboo found everywhere vulnerable to plundering forest dependent communities; which would not only threaten ecological balance but also endanger rare species of Bamboo.³⁵

The removal of Bamboo from the list of trees *does not* in fact create a free for all situation, as long as the Bamboo is originating from the forest area it will still be a forest produce and hence the forest department will have complete control on it. Nothing prevents the agency from planting and protecting the endangered species on this land. On the contrary by allowing private cultivators to grow Bamboo on their private lands unfettered by the rules and regulations governing forest produce could produce the opposite effect of easing the pressure on the

³⁴ Paul, Mridula, Research Study on the feasibility of an Amendment to the India Forest Act 1927, Commissioned by P.D. Rai, M.P. Sikkim

³⁵ Bamboo Biodiversity Report, INBAR- UNEP WCMC Information for planning conservation and management in the Asia-Pacific region

reserved forests. Also as our study shows it also additionally leads to a shift away from Jhum cultivation.

The idea of excluding a few commercially viable species brings into sharp relief the question of the role of the state. It cautions us about the true nature of government intervention. When setting out to prepare a list of commercially viable species the government will necessarily rely more on knowledge generated in laboratories than in the field. Even if some objective criteria for defining commercially viable species was to be reached it is likely that only a few species will meet the criteria because of the condition of the sector- being largely unorganized and subsistence based. This will exclude potentially commercially viable species, the determination of which is a function of the market and the entrepreneurs' rather than an omniscient state mechanism. This is where the fine balance between market complementary and market excluding interventions has to be maintained. The practical difficulties of the proposition are formidable too. If only certain species would be allowed to be grown on private land without restrictions, the task of checking what is being grown on private lands will be colossal. If the responsibility falls on the Forest department again we would be reverting to a similar '*license permit quote raj*' in forest resource management.

(b) Streamlining and Reforming Institutional Framework:

Unlike the Tea Board of India, which was established through an Act of parliament, the NBM has been described as a Scheme of the Central government. The Mission is entirely under officials from different departments of the government. . The involvement of different ministries has created conflict of interest and vested interests. In contrast the Tea Board draws its members from not only the government but also has representatives of tea producers, tea traders, tea brokers, consumers, and trade unions.

The lack of coordination stems from the overlapping of functions between different agencies, for example for research and development, there exists the Micro Mission under the NBM (Ministry of Agriculture), NMBA (Department of Science and Technology) and the CBTC (earlier under the UNIDO, now the BTSG under NBM)

As was clear from our interactions with the Forest department and Agriculture department the coordination among the departments is extremely weak

The Forest Department clearly was not structured to promote a nascent industry; it already has multiple tasks under its wing and does not look upon Bamboo as a commercial product but a revenue generating source. The Indian Forest department has had to play the role of landlords doing policing, ushering development schemes as well as playing adjudicator in forested belts of the country. The Forest Department site of the Government of Mizoram admits to the mismanagement of the Bamboo resources.³⁶ However the problem is larger and graver; not only are the industries suffering as a result of this mismanagement as the Committee of Secretaries Report claimed that the NTFP from forest areas in India brings only benefits to the tune of Rs. 4,000 cr to the people involved in collecting it while its actual worth is approximately Rs. 50,000 cr!³⁷

The role of the other new agencies like the BDAs has to be emphasised, since awareness about such an agency itself is absent among the people, who have for years been interacting with the forest department for their daily needs. In Mizoram the role of the VC has to be emphasised, which throws up the larger issue of the revitalisation of the Joint Forest management Committees (JFMCs). Indeed an amendment to the IFA would go a long way in doing this as it would make the FRA 2005 applicable to Bamboo as a MFP.

(c) Need for People friendly Policies

Though the FRA is a step in the right direction the synchronization of laws is absolutely necessary- between the centre laws themselves and the centre-state laws. A great deal of cases with regard to forest laws have been filed as a consequence of a lack of understanding of the Rules relating to transit by both the regulator and the regulated. The problem is further aggravated by the existence of conflicting regulations in transit in neighbouring states. Needless say there is an urgent need for a comprehensive and coherent policy framework on management of forest products which takes into account the field imperatives and encourages sustainable forest management.

³⁶ <http://www.forest.mizoram.gov.in>

³⁷ Committee of Secretaries Report as quoted in *Tribals to Earn More*, Times of India, 29.09.10

This focus is especially necessary when tackling a phenomenon like Bamboo flowering. The history of Mizoram is testimony to the damage that ignoring the interests of the people can bring about. The interest of the people is no longer lies in mere famine prevention but the optimal utilization of the Bamboo resources in the region. The motto of governance cannot be Avoid calamity but rather avail opportunity. For the next *Thingtam* all efforts should be directed towards optimal not contingent planning. At the same time the recognition of the potential of Bamboo should be seen as the recognition of the potential of the North east states, the central government cannot afford to exacerbate the centre- periphery character that relations with the North East has acquired. Bamboo industries must come up in this region itself and employment to the local people. As the Planning Commission report had stated nearly 50mn jobs can be generated in this sector in all segments, unskilled, semi-skilled and skilled. The higher participation of women as the fieldwork shows is noteworthy.

7.2 RECOMMENDATIONS: Opportunities for Research

Our research has apart from shedding light on some aspects we sought to explore, has made us aware of the lacuna in the extant literature. Further research in the following areas would be particularly useful

- (a) Synchronization between the India Forest Act and Forest Rights Act
- (b) Role of Forest Departments and the concept of Joint Forest Management
- (c) The Question of Non-Timber Forest Produce:
- (d) Phenomena of Bamboo Flowering
- (e) Can North East function as Bamboo Zone?

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