

DWINDLING FOREST AND THEIR PROTECTION STRATEGIES THROUGH JOINT FOREST MANAGEMENT IN ASSAM

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Abstract—Assam with its varied and favorable physiography, climates and soil conditions is endowed with plenty of forest resources. The peculiar geo-physical make-up of the state along with its verdant forests has resulted in a variety of ideal ecological habitats for a large variety of flora and fauna. But in recent years, the state happens to be a land of immense human significance characterized by high population growth and resultant stress on its forest resources. Various forms and processes of forest depletion leading to large-scale deforestation and bio-depletion are posing serious threat to ecological balance, which demands proper plans and policies for conservation of forests. Of all the already recognized efforts to protect the forest cover of Assam, the Joint Forest Management (JFM) involving community participation in forest management issues is thought to be one of the best strategies for regeneration, maintenance and protection of forests. Besides analyzing the forms and processes of forest depletion in Assam, this paper examines the problems and prospects of JFM in the state and advocates the prospective conservation of forests through effective implementation of the JFM programmes.

Key words: Geo-physical make-up, bio-depletion, rural subsistence, Joint Forest Management, community participation.

Introduction

Forests constitute an integral component of the physical environment and form the most precious biotic resources. They play a vital role in maintaining ecological balance in nature. Forests moderate the climate, reduce soil erosion, regulate stream flow, improve the ground water conditions, reduce floods, provide shelter to wide variety of flora and fauna, supply food, fuel and shelter to human population, support a number of industries and provide opportunities for recreation (Tripathi and Singh, 1993). Besides being vitally important from environmental point of view, forests in a developing country like India are not only the basic resource to provide economic goods but also to maintain and improve agricultural productivity. It is true that as population grows, the need for greater food production becomes necessary. But this should meet by more intensive cultivation and not by destruction of forests, which play a pivotal role in the national economy. However, the irony of the situation is that along

with increase in population more and more forest areas are brought under cultivation and indiscriminate felling of trees in the form of commercial exploitation has continued unabated. Of late the decline in forest cover has been alarming which is likely to acquire gross environmental hazards in the near future.

The situation is more so in the start of Assam. Being an integral part of the monsoon regime of eastern Asia, Assam enjoys similar geophysical conditions and thereby inherits similar rich forest resource base as that of the North - Eastern Region of India. Like other states of North-East, Assam was also endowed with plenty of forest resources. But in recent years, a host of anthropogenic factors have been adversely affecting its natural environment leading to over exploitation and abuses of the natural resources. Assam's forests are thus fast losing their splendour and regenerative capacity due to uncontrolled process of deforestation caused by human advance, economic exploitation and so called development at the cost of bioresources. Under such circumstances there arises an urgent need to squarely address the ever growing issues and dimensions of the deforestation problem. However, some efforts are being made to check the forest depletion process. The traditional ways and measures which have already been suggested and accordingly put into action to protect forest cover are found ineffective and incapable of yielding any desired results. It is in this context, a realization grows that unless the local communities are involved in forest management issues, deforestation process can never be checked. The Joint Forest Management (JFM) programme is, therefore regarded as the key strategy for conservation and management of forest resources. Keeping this view in mind, the present study aims to analyze the pattern and process of forest depletion and examine the relevance and need of JFM in putting Assam's forest resources on a sustainable footing.

Forest cover dynamics:

Assam is a land of rich forest resources. The outstanding feature of the biotic resources of the state is the great diversity

of flora and fauna. Assam is an integral part of a global biodiversity hot spot (Myers, 1991). The wide spectrum of forest types ranging from tropical evergreen forest to wet grass- type vegetation from widely differing habitat ecology and support an exquisite variety of fauna (Bora, 2000; Choudhury, 2001). However due to senseless human intervention coupled with the pace of development the forest cover of the state is under serious threat in recent years. The forest depletion scenario of Assam today is utterly dismal which has become a matter of grave concern. According to the State Forest Report, 2017, the forest cover in Assam has increased since 2001, showing the forest cover percentage from 35.33 percent in 2001 to 35.83 percent in 2017 (table 1.1). But the loss of forest is comparatively more in the case of dense forest. As evident from the (table 1.2) the area under dense forest in the state stood at 15,830 sq.km.in 2001 which later on decreased to 2797 sq.km.in 2017. As a result, the percentage of dense forest area got reduced from 20.18 percent in 2001 to 3.56 percent in 2017. A report of the forest Survey of India reveals that Assam and other 11 states of the country are gradually losing their forest cover while other 17 states have shown significant increase in their forest cover. Among the north-eastern states (table 1.3) Assam has the lowest forest cover accounting for only 35.83 percent of its total geographical area. The per capita forest cover in Assam is only 0.03 hectares, which is lowest among the states of the North- Eastern region.

Table 1.1: Forest cover Status in Assam from 2001 to 2017

Year	Total Forest Area(sq.km)	P.C of forest Area
2001	27,714	35.33
2005	27,758	35.38
2009	27,652	35.25
2013	27,671	35.28
2017	28,104	35.83

Source : The State of Forest Report, 2017

Table 1.2: Area under Dense Forest in Assam from 2001-2017

Year	Total Area under Dense Forest(sq.km)	P.C of Dense Forest Area
2001	15,830	20.18
2005	1460	1.86
2009	1435	1.82
2013	1444	1.84
2017	2797	3.56

Source: The forest Survey of India, 2017

Table 1.3: Forest Cover Status in Assam and North-Eastern States.

States	Per Capita Forest Cover(ha)	Forest Area in P.C of total area
Assam	0.03	78,438
Tripura	0.06	10,486
Meghalaya	0.02	22,429
Manipur	0.04	22,327
Nagaland	0.07	16,579

Mizoram	0.06	21,081
Arunachal Pradesh	0.24	83,743

Source: The state of Forest Report, 2017

Forms and processes of forest depletion:

Ever since the human race started agriculture, the beginning of environmental degradation leading to loss of forest has been apparent. Extension of agriculture at the cost of forest cover has been continuing in the Brahmaputra and Barak valleys of Assam since early times of civilization. The fertile alluvial river valleys attracted different human groups to settle down and practice agriculture. With the growth of population the pressure of rural subsistence started increasing resulting in gradual expansion of farmlands at the cost of forests.

The hill tribes of Assam, especially of the Karbi Anglong and North Cachar Hills districts are traditionally practicing Jhum cultivation since early times, which has emerged as one of the important causes of deforestation on the hill slopes. Besides causing loss to forest cover, Jhum cultivation has also acquired the problems like loss of bio-diversity, soil erosion and reduction in soil fertility. In karbi Anglong and North Cachar Hills Districts Jhum cultivation covers 45 percent and 65 percent area of the district concerned respectively. The slash and burn method largely practiced in the two districts results in gross disappearance of forests.

Massive forest depletion in Assam started due to intrusion of modern political and economic systems into the region. During the British rule, the colonial administrators focused attention on political and economic development in the major river basins of country. In due course of time, western systems of property right and resource exploitation penetrated the hills and plains. As against the already prevalent rural subsistence and traditional way of forest use, forest depletion process in Assam also gained momentum with the coming of the British rulers. Natural forests were replaced largely through expansion of tea plantation under British patronage with the introduction of the tea cultivation in 1833. The total number of tea gardens in Assam presently stands at about 803 that are mostly confined to the belt extending from the flood – free built – up zone up to the northern and southern hills and foothills of the Brahmaputra and Barak valleys. Since the later half of the last century, more than 2200 sq.km of forest areas mostly of tropical rain forest have been cleared so far for tea plantation in the state. Presently covers 312,210ha. of the area under tea plantation.

Development of land and water transport system in Assam has also been a major cause of forest loss. Streamer services linking Kolkata with the Brahmaputra valley started in 1847. This facilitated the export of valuable timbers thereby enhancing the process of forest exploitation in the state. Besides, massive deforestation in the Brahmaputra valley began with extension of railways. During 1881-84 the Assam railway and trading Company constructed the first 126 km. long railway section between Dibrugarh and Sadia, which encouraged commercial exploitation of timber from the forest

of the upper Brahmaputra valley. Dhubri was on connected with Calcutta in 1902 while the Lumding - Badarpur railway line (hill section) was constructed in 1903. Moreover, the 330 km. long Rangapara-Mukakcheleng railway on the north bank of the Brahmaputra was completed in 1966. All these extensions of railways in the state not only helped export timbers but also caused heavy forest destruction in their constructions and establishments. Besides, the dense forests getting exposed to the roads and rail lines ultimately received easy access and consequently felt prey to unwise human exploitation.

Gradual progress in urbanization and infrastructural development in the Brahmaputra and Barak plains are also putting heavy pressure on the forest resources of surrounding hills and foothills. During 1901 – 1991, the urban population in the state increased by about 30 times and the number of urban centers increased by 7 times. According to census 2011 Assam, the decadal (2001-2010) growth of urbanization at 27.61 percent is slower than the previous decade, even though the share of the urban population increased from 12.90 percent to 14.08 percent as compared to 31.16 percent in 2011. Besides clearing forests for settlement and exploiting forest products for various constructional purposes, the hydal power and irrigation projects established for water resources intervention in the interest of the plains cause large-scale forest destruction in the foothills zone due to water logging and submergence.

The growing human populations in the plains and valleys have been also exerting their pressure on land. It is interesting to note that the arithmetic density of population in Assam has increased from 314 persons/sq.km. in 2001 to 397 person/sq.km in 2011. Moreover, the number of villages in Assam has increased which are about 26247 (2011). The results is that those newly growing villages needed paddy fields around each of them in addition to their locational sites. It is a fact that extensive forestlands had to be cleared to accommodate these ever growing vast rural and agriculture settlements. Besides, about 80 percent of the state's populations who are entirely dependent on agriculture are also expending their agricultural activities at the forests. On the other hand, the neo-peopling process in the state that started from the early part of the 20th century is no way less important in causing damage and destruction to green cover. The immigrants from erstwhile East Pakistan (now Bangladesh) took their settlements mostly in the floodplains of the Brahmaputra and presently they are actively engaged in intensive cultivation and cropping at the cost of trees, tall grasses and river bank vegetations.

The increasing human pressure on land in the plains has compelled the economically backward and weaker people especially the tribal's to migrate to the forest belts of northern and southern foothill regions. This economic push has thus become a major cause of forest depletion even profitable one, many of the villagers have started feeling valuable trees and

selling these in the market. Some dishonest timber merchants and contractors with their exploitative and profit maximizing attitudes are also largely responsible for unwise tree felling along the foothills. Moreover, populations as well as settlements along the forests are also fast growing in recent years. The number of forest villages has increased from timber exploited from the neighboring forest for their livelihood. When timber trade turns out to be a 524 in 1991 to 897 in 2011 of which 765098 population inhabited by forest villagers. Besides clearing forests for their homestead, these poor villagers devoid of any source of income readily take to selling fuel wood and forest depletion.

The natural hazards like flood and bank erosion have also their adverse effect on the forest resource of the state. The recurring floods of the Brahmaputra and Barak valley cause destruction to floodplain vegetation of wet savannah grasslands with tall elephant grass reeds, various herbs and some selected trees like Bogori (*Zizyphus* spp), Koroi (*Albizia procera*), Simul (*Bombax ceiba*) etc. Some grassland pockets found in Kazaringa, Laokhowa, Burachapari, Orang, Manas, Kobochari and Dibru – Saikhowa areas are under forces of erosion of the river Brahmaputra. A study (Mahanta and Bora, 2001) reveals that the grassland areas of the Kaziranga National Park are alarmingly shrinking in the order of 0.7 sq.km/year, during 1967 – 2000 due to bank erosion caused by the Brahmaputra, thereby posing a serious threat to the existing rich bio-diversity of the park.

Joint Forest Management for Sustainable forestry:

The Indian forestry sector has witnessed a major policy shift during the last decade towards a more decentralized and people-oriented forestry the National forest Policies of the last two decades have also come to recognize the symbiotic relationship between people and forests (Varalakshmi, 1998). The National Forest Policy of 1988 outlined the scope for people's participation in forest management and thereby emphasized the need for involvement of local people living in and around forest areas and the NGOs to jointly regenerate the degraded forest in the country. As a result the Central Government vide its circular of June 1990 launched the JFM program in 22 states of the country (Ministry of Environment and Forest, 2001). Presently, there are 27 states under JFM. As on 1.1.2011 there are 1, 18,213 JFM committees in the country and a total of 2, 29,38,814 ha. of area are being brought under JFM program. Assam is one of these 27 states where JFM program has been implemented. Besides Assam, the four states of the North-Eastern Region, viz. Arunachal Pradesh, Mizoram, Nagaland and Sikkim have also opted for JFM program. The progress of JFM in the five states of the region is presented in (Table 1.4). As regards the progress in Assam it has been found that with 1,184 JFM Communities, covers 52,499 hectares of land area are being under JFM program.

Table1.4: Progress of JFM in Northeast states (2011)

State	Number of JFM Communities	Area under JFM (ha)
Arunachal Pradesh	1013	1,00,377
Assam	1184	52,499
Mizoram	613	55,990
Nagaland	951	42,924
Sikkim	219	88,518

Source: Ministry of Environment and Forest, Govt. of India (2011)

However, in view of the following of the growing dimension of the forest depletion problem of Assam as outlined in the forgoing discussion, it is an appreciable that the state has opted for the JFM activities is quite imperative and its success indicators depend on the degree of community participation. Assam is home of a large number of social groups living in varying topographic conditions characterized by unique physiographic mosaics of hills, plateaus, plains and floodplains. The different human communities, especially the tribal living close to the forest, social customs, system of land ownership right and land use practices along with the prevalent level of socio-economic development and intrusion of modern economic system. Under such circumstances any efforts to ensure successful participation of rural communities for sustainable management of forest should be made giving due importance to social customs and values of the concerned communities. On the other side too, the State Forest Department should orient their traditional outlook of forest management to this new approach of JFM on realizing the vitally important role of community and private efforts in the sustainable management of forest. There is a need only for change in attitude but also for a heartfelt desire to incorporate JFM activates into the formal duty structure of the forest department. In the areas of motivation and organization of village communities for JFM, the forest department has to play an active role and in the regard the services of committed NGOs may well be utilized. Besides, it is an encouraging point that after some year of political

Deadlock, the Government of Assam has recently constituted the gaon panchayats and the local gaon panchayats may be activated to extend necessary support to the forest management committees for their smooth and proper functioning.

The JFM programme in Assam needs to be urgently implemented covering its entire foothill belt. It is a fact that the forest along foothills of the Brahmaputra and Barak Valleys of the state are the highly degraded ones caused due to increasing pressure of rural subsistence and commercial exploitation of high quality timber. The JFM programme should thus be adopted in the foothill belt highlighting the importance of providing alternative sources of livelihood to villagers to reduce dependence on forests. Participatory action involving both the government and local communities for regeneration of degraded forests through effective protection works and improving socio-economic condition of the rural

communities through forestry management may be initiated as a pilot project at some vulnerable areas along the foothills.

In an agrarian and populous state like Assam development in the agricultural sector is a pressing need of the hour. Besides providing food security, improvement in agricultural yield, may motivate the farmers and change their attitudes towards forests. If crop production increases, obviously there is an increase in agricultural residues like rice and wheat straw, corn stalks, husks etc. that will eventually reduce people's dependence on fodder from the forests.

Conclusions:

Sustainable management of forest is a challenging task before the nation today. Forests in the country have continued to degrade under growing population pressure, leaving a gap between the demand and supply of various forest products and the services that forest provide. The forest resources of Assam are also suffering from the same plight and the state has witnessed a host of forest depletion processes eventually leading to environmental degradation in the region. Forest protection, which demands its immediate execution, assumes a multi-dimensional problem. But in the area of forest protection execution the National Forest Policy of 1998 advocates that the JFM is the most effective way of proper management of forests. However, the forest protection mission in Assam by far has proved unsuccessful due to failure of the traditional forest management system. The JFM has assumed greater relevance in the state in view of the ongoing forest depletion processes on one hand and failure of the traditional methods of forest protection on the other. The JFM involving local communities aiming at ensuring preservation, maintainable utilization, restoration and enhancement of forest resources should essentially incorporate a holistic involving the state forest department, local communities, gaon panchayats and NGOs to prove the programme a success. Above all, the strong political will of state government and a shift in its outlook from commercial forestry to forestry for environmental reasons would certainly yield salutary effect to the earnest endeavor for protecting forests through joint forest management.

References:

- [1] Bora, A.K. (2001): Issues dimension of some Geo – Environmental problems of the Brahmaputra Valley of Assam, Proceedings of the UGC Seminar under COHSSIP, held at A.D.P. College, Nagaon, Assam.
- [2] Bora, A.K. (2000) : Geophysical base of North East India, Journal of the Assam Science Society, 41, 4, 247 – 254.
- [3] Choudhary, A.U. (2001) : Biodiversity in Assam, in Bhagawati, A.K., Bora, A.K. and publication, New Delhi, 68 – 93.
- [4] Mahanta, P. and Bora, A.K. (2001) : Flood and Erosion hazards in the Kaziranga National Park of Assam India, paper presented at the 5th International Conference on Geomorphology (5th ICG) held at Tokyo, Japan during August 23 – 28, 2001.

- [5] **Ministry of Environment and forest, Govt. of India (2001) :** Joint forest Management Programme, National Forestry action – program India.
- [6] **Myers, N. (1991):** The biodiversity challenge: Expanded “Hotspots” analysis, *Environmentalist* 10 (4), 243- 256.
- [7] **Tripathi, R.P. and Singh, H.P. (1993):** Soil Erosion and Conservation, Wiley Eastern limited, 305.
- [8] **Varalakshmi, V. (1998):** Joint Forest management: Towards a new system of sustainable Forestry, *TERI Newswire* IV (7).