

AN ANALYSIS ON THE PROBLEM OF DEFORESTATION AND IT'S IMPACT ON THE TRIBAL PEOPLEIN ASSAM-NAGALAND BOREDER AREAS

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ABSTRACT:

In the common verse, deforestation means the removal of forest or stand of trees of an area, which is thereafter converted to non-forest use. Deforestation has already posed a serious threat to the survival of mankind as a whole by pressing the pace of global warming and accelerating the advancing grip of climate change. Apart from this overall global scenario, deforestation has already made sufficient inroads in the areas where the interaction between man and forest is very deep. The forests are critical ecosystem for the peoples who depend on them, but also global regulation of climate, and ofcourse, biodiversity (WRM's bulletin, 2010). However, the forests are disappearing at a faster rate with the advancement of science and technology and concomitant human needs and pressure. Large scale deforestation resulting from numerous causes has already put a threat to the tribal mode of life. The growing population pressure and absence of alternative living means other than agriculture have force the people to encroached the forest land and as result, the forest and forest fringe dwellers having started facing problem in their traditional practices. The needs of the tribal people inhabiting the forest tract are very limited. They collect fuel wood for cook and keep them warm in winter; they collect materials like bamboo, wood, thatch etc. for constructing their small huts, medicinal plants, fruits and leaves from the forest. Social and cultural functions are performed by them have close attachment with the forest environment. They never practice over harvesting of resources from the environment. They strictly observe local ecological ethics in all form of their activities. Worshipping of wild animals and certain plants are integral part of their tradition. Deforestation leads to depletion of forest resources, which along population pressure and increasing greed for forest resources from outside has caused a disastrous situation for the tribal people living in an around.

Keywords: deforestation, forest, tribal people, environment, problem.

INTRODUCTION:

The foothills of Assam-Nagaland border areas, a tract measuring about 310 km in length and 20 km in width are inhabited mostly by tribes like ThengalKachari, Boro, SonowalKachari, Ao, Kanyak, Rengma, Angami, Mising, Karbi, Tai-Shyam etc. The process of forest depletion, in this part of the region is so severe that a large number of reserve forests have already been cleared and put to non-forest use and the tribes in many places are displaced. From the southern end of the foothill tract at Diphu to the northern end there exist 11 reserved forests running parallel to the Assam-Nagaland border areas. Enriched with shallow black brown and alluvial soil of ochrepts type and red loamy soil of ustalfs type, the entire border patch enjoys a congenial monsoon climate to favor luxuriant growth of vegetation. The forest in this belt of N.E. India are normally mixed semi-evergreen, deciduous and dry miscellaneous type in areas where annual rainfall seldom exceeds 150 cm mark.

Mining, quarrying, construction of roads, ill practices of the timber merchants, malpractices of the forest officials, shifting cultivation, pressure from neighboring hill states for more fertile agricultural land, non-implementation of the policies made towards the improvement of the forest environment by the Government etc. may be held responsible for the deforestation in the foothill tracts of Assam-Nagaland border. With an area of about 6213.35 sq. km, the zone covered by thick forest cover which remains conspicuous up to the last part of 1970s. Taking into account the population of the revenue villages in the forested tracts as per 1971 census, the population density stood at 52 persons per sq. km. The 2001 census on the otherhand, displays a substantial increase in the population density(92 persons/ sq. km). The forest survey of India in its latest survey conducted particularly in the reserved forest of the state border areas confirmed the destruction of forest by about 60,000 hectares alone in the Assam-Nagaland border during last thirty years.

The manifold problems of the tribal people residing in the forested foothill areas of the Assam-Nagaland border can be summarized as – i) the tribal people accustomed with their forest environment and traditional ethics, have started gradually losing their habitats, traditional practices and the mode of co-existence with nature, ii) ruthless

deforestation coupled with frequent inter-state border conflicts pushed the tribes from the forest areas, iii) in the absence of timely intervention, and efforts for population control, the door for reckless exploitation of forest wealth remains open which has created congenial ground for the extremist outfit to operate from the forest belt of the border areas, iv) the forest-based socio cultural and economic foundations of the tribes, which generally do not go against the forest environment, are presently in crisis and v) consequently there appears to be emerging long-term ecological disorder, which may eventually uproot the existing ecological society in the area.

OBJECTIVES:

The main objectives of the study are to-

- i) analyse the extent of deforestation in the study area,
- ii) analyse the socio-economic structure of the tribal people and their forest based tradition and activities,
- iii) find out the nature of change in the tribal mode of life arising out of continuous deforestation

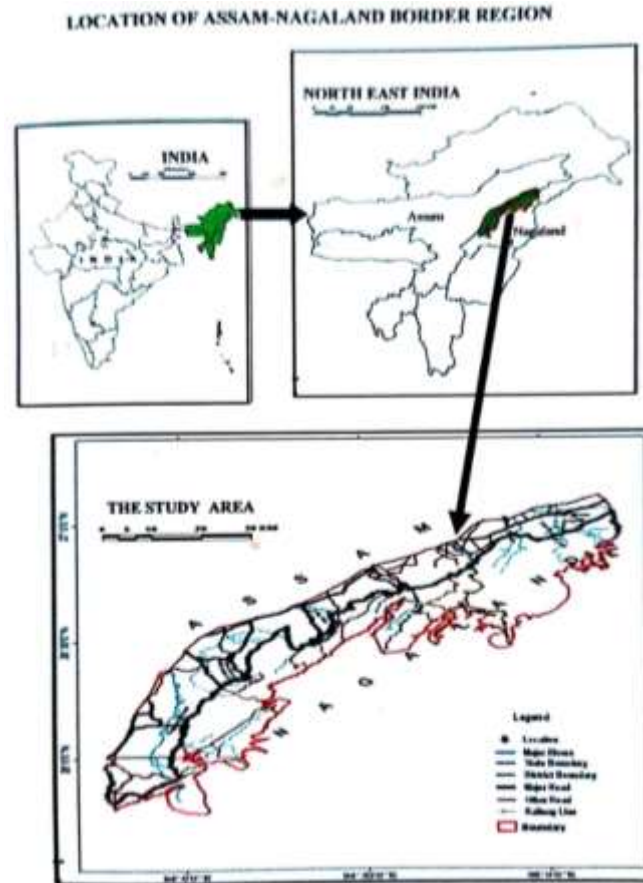
DATABASE AND METHODOLOGY:

The Assam-Nagaland border region, the study area of this work, is a belt formed of parts of the state of Assam and a part of Nagaland. The data pertaining to the study are both of primary and secondary type. A substantial part of the study is essentially based on primary data collected from selected areas of the Assam-Nagaland border region. Secondary data relevant to the study are not readily available and accessible as the study area is neither an administrative nor a politically integrated unit. By applying statistical methods of estimation required data are extracted to feed the analysis of the problem under study. The area is delimited on the basis of few selected criteria and then the census report of India is consulted to procure data on land and people.

LOCATION OF THE STUDY AREA:

The study area, the Assam-Nagaland border, lies between 25°17'53"/N to 27°03'46"/N latitude and 93°20'32"/E to 95°18'03"/E longitude. Predominated by transitory nature of both hills and plains the region exhibits tortuousness where the rivers are there. Diverse topographic forms and a humid meso-thermal climate provide favorable environment for floral diversity with a dense canopy cover in the region. Facing old crystalline Karbi Plateau and the Brahmaputra valley of Tertiary sediments on its west and north-western margin, the scarp line of the Naga Hills with spectacular ups and downs exhibits a rich green cover.

As a whole, the study area encompasses the parts of the state of Assam and Nagaland. Extending NE-SW the area is 310 km in length and only 20 km in width. Tortuousness of the hilly outskirts and the river valleys between the hills give the entire border line a zigzag course with plain on its base. Nagaland a hilly state with a relief ranging from 115 meters to 1200 meters on an average keep the Brahmaputra plain distinctively separate.



RACIAL COMPOSITION OF ASSAM-NAGALAND BORDER REGION:

The tribes of this region may be primarily grouped into two categories (i) plain tribes and (ii) hill tribes. The tribals of the plain are, to some extent, different from those living in the hills. Changes brought by sharp fall in forest resource base, developmental policies of Government and quick rise of a consumerist market to the tribal life style have already made a slow invasion which creates chaos in tribal ethics- particularly in the areas attached to the urban centres (Gadgil and Guha, 1995). This change is observed especially among the SonowalKachari and ThengalKachari of plain tribes and Ao and Angami of the hill tribes.

The border region is virtually dominated by several tribal groups mostly belonging to Burmese mongoloid stream. Ao, Angami, Rengma, Lotha, Sema and Chakhesang are the major tribes living in parts of Nagaland border, while the Assam part is occupied by tribal groups like SonowalKachari, ThengalKachari, Tai Khamayang, Mishing, Bodo and Karbis along with the tea tribes in the areas dominated by tea gardens.

Inter-border conflict, especially between the agricultural communities of Assam and Nagaland arising out of the occupation of fertile land has in the meantime, brought some significant change in the demography of the region.

ANALYSIS ON THE IMPACT OF DEFORESTATION

DEPLETION OF FOREST AND FOREST RESOURCES:

Forest resources are often regarded as mainstay of the tribal people (Goel and Sharma, 1998). Tribes living in the forest and forest fringe areas depend on forest products for their livelihood. Any dislocation of forests would cause substantial damage to their traditional mode of living. The national forest policy of 1988 directs protection and enhancement of production of non-wood forest products which provide sustenance to the tribal people and other communities residing in and around the forests. People residing permanently in the areas of Assam-Nagaland border, since historic past recall a time when everything of their basic needs came from the forest. They used forest land for agriculture, grazed their livestock in the forest, collected fire-wood, housing materials, etc. But during the colonial period most of the forestland favorable for agricultural extension was appropriated for European tea planters and people inhabiting the neighboring areas were pushed to remote border areas (Ghimire and Pimbert, 2006) Plain tribes accustomed with permanent cultivation rather than shifting engaged themselves in clearing the

forest of the border land. By joining hands with the inhabitants of the forest and taungya villages, migrants also removed the forest to settle and perform their agricultural pursuits and thus brought a sharp reduction in the forest based resources. Naturally it jeopardized the forest-based livelihood of the people living in and around the forest. In the hilly areas, the government of Nagaland concentrated maximum developmental activities and built new settlement areas. Encroachment from hills and plains, intensive logging in the forests of border areas, opening of tea gardens in large number and rehabilitation of the flood and erosion effected people and the intervention of the rich peasantry to grab more lands finally resulted in large scale destruction of forest resources.

The paucity of recorded data on the extent and intensity of depletion of forest resources is a constraint for proper analysis of the dependency of forest dwellers on the forest resources. Depletion of forest resources is a direct result of deforestation and hence deforestation of any kind implies a reduction of intact forest resources. The Assam-Nagaland border, once known as rich harbor of wilderness, was converted into open patch of scattered and spotted forest areas within a span of not more than 50 years. A chronological discourse on the forest cover indicates the facts behind deforestation in the area. During 1910-11, Sivasagar districts (Sibsagar, Jorhat, Golaghat districts and parts of Nagaland) had a forest cover of 56.83% to the total graphical area of 4,995 sq. mile, while Karbi Anglong had 95.97% to the total geographical area (Bryant, 1912). However, the forest cover of the whole district including Jorhat and Golaghat came down to 20.80% in 2007. Karbi Anglong showed a decline in forest cover by about 20.00% during the period. Table 5.4 shows the distribution of forests and the state of forest cover in the districts attached to the Assam-Nagaland border. Moreover, in 1952, the Techno-Economic Survey, Assam observed that approximately 39% of the state's total area was covered with forest. In the next 30 years, the forest covers of the state came down to 30.20% (FSI-2003). Forest cover of Nagaland, however, remained static with 52.45% for the same period. Surprisingly, the border districts measure far less than the state's average forest cover. Mon, Mokokchung, Wokha and Dimapur districts show 23.32%, 17.93%, 15.58% and 22.24% respectively (Chief Conservator of forest, Nagaland, 2001). Under these circumstances, the stock of forest resource decreased sharply which finally left adverse impact on the inhabitants who depend on forest resources for their livelihood partly or fully.

It is observed that the endeavors to protect forest under governmental and non-governmental initiatives, however, could not suppress the dominance of firm sector and household sector activity on the forest resources. Increasing pressure of population and tendency to reap economic benefit from forest resources negatively affected the cause of forest protection. On the other hand, 88% of the forests in Nagaland are owned and managed privately or by the village councils and communities themselves, while the government has control over only 11.79% of the forests (FSI, 2011). In terms of forest quality, the state has only 9.7% of total forest cover as very dense forest, while 17% of the total forest cover is moderately dense and 53.3% is classed as open forest. Indian Institute of Science (IISc), Bangalore in an assessment confirmed that 99,850 hectares of green forest of the state has been eroded during 2007-2009 period (www.indienvironmentportal.org, in, p.5). A sharp contrast in the forest cover change can be observed from the records of Forest Survey India. The assessment of forest survey of India presented a disastrous scenario of dense forest which came down from 27.82% to 0.70% within a period of two years from 2009 to 2011.

It is seen that the whole of Assam-Nagaland border, which was once rich in forest, is now transformed into a region of degraded forest. It now experiences intensive human activity in the areas where extensive forested patch once dominated. Depletion of forest resource base pushed the forest dwellers to adopt alternative livelihood practices and in the absence of required incentives and protection measures for the forest dwellers, who were once in a symbiotic relationship with forest, cornered their traditional ethics and engaged themselves in encroachment of forest land for a better livelihood.

BEHAVIOURAL CHANGE OF FOREST TRIBES:

Behavioural approach is based on rigorous, extensively developed and logically coherent conceptual framework, which has links both to the biologically-based human sciences and social sciences (Meguine, 2000). It is a process-driven search of spatial existence. The process is behavioural and includes learning, thinking, forming attitudes, perceiving, giving value and meaning, representing etc. (Golledge and Stimson, 1990). Behavioural change or modification, on the other hand, is usual and common in the social space as a number of reinforcement agents variably pursue activities at different places and different times. Changes in the contingencies of reinforcement modify the pattern of behavior (Sundel and Sundel, 1993).

It is obvious that a region with plenty of forest resources when converted into a degraded condition, the dwellers living there have to change their response from one stimulus to another. Behaviour modification thus becomes inevitable to adjust with the changing situation and supply of resources. The Assam-Nagaland border region, as it experienced reinforcement through wanton deforestation, has more or less lost the response that existed earlier. Change in the behavior of dwellers is certainly intelligible. Change in the response process at time keeps the

dwellers accustomed with the changing situation at the cost of modification in behavior. As Wolpart (1965) has stated – “man is limited to a finite ability to perceive, calculate and predict and to an otherwise imperfect knowledge of the environment” but “he will differentiate between alternative courses of action to their relative ability or expected utility”.

Extensive deforestation is considered as a major stress factor. The forest dwellers and the tribes practicing forest-based livelihood came under severe stress. With this impending stress some other stress factors like migration of new settlers, conflict over border issue between the state of Assam and Nagaland, penetration of big landholders, growth of urban centers etc. heralded upon the region the dismantling process of tribal life and livelihood. Achievement level (a_1) came down and as the aspiration (a_2) started shrinking. The resultant dissatisfaction pushed them to decide for alternatives. The entire changing situation, however, compelled them to modify aspiration level to make it a generic satisfaction by order of in situ adjustment, i.e. ratio between achievement level and aspiration level is either more than one or equal to one. Threat caused on traditional tribal behavior compelled them for certain modification to raise their satisfaction level.

CHANGE IN THE ECONOMY:

Forest tribes, with plenty of forest resources around their habitats are fervently accustomed with diet, of which a sizeable part is forest-based. Rice, the staple food for most of the tribal people is supplemented by vegetables and non vegetable items which were directly collected from forests during the period before the onset of large scale deforestation. Continuous removal of forest cover from the area had gradually jeopardized the life and economy of the ecological community which in turn brought changes to the socio-economic profile of the region. The people, once regarded as ecosystem people, now have changed their status to become more market dependent. It is, as such, indicative that a trend of consumerism has gradually started capturing the whole society. Increasing number of markets and expanding urban horizon in the border belt subside the traditional values of the tribes which in consequence dismantle tribal mode of living attached to the forests. Food gathering and agriculture being the principal sources of living of the tribal of this region supported the people by providing the basic needs till the time prior to the onset of deforestation. The ecocentric tribals of Assam-Nagaland border had tried their best to cope with the changing ecological scenario. Intensive activity of timber traders and the upcoming of numerous tea estates in the region opened up the way to develop market centres. The weekly markets of tea gardens and the entry of Marowari traders from Rajasthan started supplementing the deficit of the subsistence economy of the tribals of the border belt. The period subsequent to the establishment of tea estates and the continuous encroachment of government forest land by people witnessed the growth of several markets and urban agglomerations. Sonari, Naginimara, Lerumen Amguri, Geleki, Tali, Chungthiya, Mariani, Titabor, Sarupathar, Bokajan, Wokha, Dimapur, Merapani. etc. are the townships which have been serving as important functional centers in the Assam-Nagaland border region. Apart from the tea garden markets, there developed sizeable number of important rural periodic markets in the region. The impact of these townships and market centres on the ecology of the region are far reaching.

A most spectacular turn is observed in the health care aspects of the tribes. A substantial number of households accounting for 80% depend on pharmaceutical medicine instead of the age-old traditional practices. Most of them expressed that the village medicine men are decreasing in number and the traditional knowledge is almost gone. Moreover, herbs and medicinal plants used to treat diseases cannot be found easily. The village women weavers, who prepared required clothes and essences in their handlooms, are now discouraged by the cheaper outside supply. Most of the village weavers are now chiefly engaged in preparing their traditional dresses only. Another significant impact of deforestation on the economy of the tribes is that the subsistence agricultural practice is no longer able to fulfill the requirement of the increasing population and thus dependence on market for their required food stuff is increasing. Shortening of jhum cycles to 5 to 6 years reduces the crop productivity which in turn forced the tribes, particularly the Nagas, to procure maximum of their needs from the market. Survey conducted in few Naga villages shows that nearly 60% people of the Naga tribes collect their food items from market. On the contrary, the same is low among the plain tribe villages where market dependency accounts for only 19.20%. The existence of vast fertile agricultural land in the plains became possible due to deforestation which helped settled cultivation to flourish.

REPLACEMENT OF TRADITIONAL HOUSE-BUILDING MATERIALS:

Mode of living is an active expression of the adaptations of the human groups to their natural settings (Sorre, 1962). Being a product of culture environment interaction, house type reflects the cultural heritage, changing fashion, functional needs and consequent positive and negative aspects of non cultural elements (Kniffen, 1965). The Assam-Nagaland border region, originally a forested patch with sizeable tribal inhabitants, has experienced a significant change in the form, function and structure of house type during the post deforestation period. It is a vital question to

enquire that what kind of changes have taken place in the house type and to what extent the socio-economic and ecological conditions in the area are experiencing change.

The house types in the Assam-Nagaland border region can be distinguished on the basis of the building materials used. In all rural landscapes, the tendency in making houses is to use materials available in the locality and to maintain the cultural attributes evolved through generations. Before the onset of large scale deforestation the inhabitants of the region collected all their building materials from the nearby forests. Thatch, bamboo, ashoka leaves (takau pat), wood, cane, etc. were plenty in the forests which were used as primary building materials by the forest dwellers of this region. The highland forest dwellers mostly used ashoka leaves as roofing materials against the extensive use of thatch by the plain dwellers of as thatches were found extensively in the river valleys. However, ashoka leaves, bamboo, wood and cane continued to remain as main building materials until 1960. Big thatch houses were the status symbols of the people and were mostly owned by the well-to-do families. Assam type cottage with ashoka leaf roofs are found still in many parts of the foothill areas of the border region.

Removal of maximum of the forest cover, establishment of tea estates and expansion of settlements encroaching forest land brought significant change in the house type of the region. The process of large scale forest destruction also reduced the availability of building materials like timber, cane, ashoka leaves, reeds and bamboo. Settlers of the plain districts of the border region, however, replaced their ashoka leaf roofs by thatches which they used to cultivate in the highlands to supplement the growing demand for roofing materials. On the other hand, houses in the foothill areas as well as the hilly parts remained almost unchanged as plenty of ashoka trees were still there to meet the requirement. Two types of Assam type cottage in the rural- scape of the border belt can be identified -(i) ashoka leaf roofed cottage of foothills and hill areas and (ii) thatch roofed cottage of plain areas beyond the hills. During this period the region perhaps for the first time witnessed the growth of Assam type semi-pucca and pucca houses. The British and the European tea planters introduced this type of building in the administrative centers and in the tea estates of the region.

The second phase of impact of deforestation on house type of the region started during 70^s of 20th century as most of the forests, especially of the plain part, were wiped out. Scarcity of local building materials was mounting resulting from continuous deforestation and encroachment by the land hungry peasants of the surrounding areas. Conversion of vast grassland and the grazing reserves into productive crop land caused shortage of thatch, reeds, cane, bamboo etc. It is reported that cost of one bundle of thatch (containing 100 fistful thatches) was Rs. 400/- during 80^s in parts of South Nambor area (Tengani area) which was quite high for any lower middle class peasant. A well stitched thatched house usually lasted for 8 to 9 years depending upon the quality of thatch (Borah,2011). As an alternative the middle class peasants started using corrugated iron sheets and asbestos sheets for roofing. Durability and effectiveness of these materials against all meteorological hazards attracted more and more people to use it and thus a new wave of using iron sheets (tin) and asbestos sheets which brought about a significant change in the house type. Within a period 15 years, from 1990 to 2005, C.I. sheets and asbestos got top priority as roofing materials in the villages of plain tribes and then among the hill tribe villages.

Apart from these, the implementation of "Pradhan Mantri Gram Sarak Yojana" (PMGSY) to connect rural areas by easy means of transport and communication also enhanced the pace of accessibility which contributed towards improving the marketing facilities in the remote rural areas. The third phase of change saw the growth of Assam type semi-pucca and Assam type pucca house. Change in the house type associated with the process of deforestation can be put in chronological order on the basis of building materials used.

Contrary to the dominance of Assam type houses in the plain part of the region, the hill tribes of Nagaland and Karbi Anglong have their traditional house types Raised platform house or chorghar type was most common among the hill tribes like Karbi, Angami, Lotha, Ao, Konyak etc. Penetration of Christianity and increasing scarcity of locally available building materials encouraged them to construct low cost Assam type houses replacing the traditional ones. Traditionally accustomed to chorghar culture, plain tribes like Mishing, Turung and Khamayang also have developed the habit of living in the flat floored Assam type houses. The survey conducted in the Napam, a Sonowal dominated village of Merapani area and Mithche, a Lotha village of Wokha district reveals that most of the houses are of C.L. sheet roofed Assam type and very few ashoka leaf roofed houses are there.

SUMMARY AND CONCLUSION:

Deforestation is a world-wide phenomenon. Scientists and environmentalists have been expressing sincere concern to the fast deterioration of forest cover everywhere in the world. Rampant deforestation in the forest of Assam-Nagaland border has gradually been demolishing the forest-based economy and practices of the tribes. A rational and acceptable of various problems faced by the Assam-Nagaland border region can be derived from the perspective of sustainable development. In order to further encroachment into existing reserved forests of the region the governments of Assam and Nagaland should immediately chalk out an integrated working plan viable and feasible

for implementation under the jurisdictions of the Department of Land Revenue and the Department of Forests. Proper attention should be paid to the objective reality in formulating such working plans to restore ecological balance in the region. The long standing border dispute between Assam and Nagaland is another important issue which needs a liberal approach to address amicably. The central Government being the supreme authority to demarcate inter-state boundary, should take all initiatives with impartial attitudes to mitigate the boundary dispute. Traditional livelihood practices and locally available forest resources are inter-related. It is necessary to conserve the forest resources for the revival and restoration of sustainable livelihood practices of the tribal people living in the border areas of Assam and Nagaland.

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