

CHT : A Comprehensive Study on Indigenous Ethnic Communities, Natural Resources and Sustainable Environment

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Abstract

Chittagong Hill Tracts (CHT) a mountainous area is located in the South – Eastern region of Bangladesh covering an area about 13,295 sq. km. The ethnic people of the Hill Tracts are mostly ancestral. They depend on jhum for rice production and as the main source of their subsistence and livelihood. The major barriers for sustainable development in the CHT are poverty and low rates of education. Poor sanitation and access to safe drinking water of CHT people are identified as the main problems in the health sector. The CHT people are suffering the lack of appropriate educational and medical facilities. The limited facilities available are in the urban areas, which are often difficult for the peoples in the remote areas to access. CHTDB set up development programs in the hilly region which are funded by development agencies, namely, ADB, UNDP, FAO and UNICEF. Those multi-sectoral development programmes cover sectors, such as infrastructure, agriculture, rural development, cottage industry, education, health, sanitation and family planning. The natural resources of the CHT are many—the hills, soil, forests, rivers, and the energy of the people. The present study is an attempt to collect factual information about the life style and livelihood of the tribal people in our country. The study analyzes capacity building dynamics involving CHT indigenous people into natural resource management in light of indigenous knowledge (IK), need assessment, community envisioning, planning, implementation and reviews with the ultimate goal of improving their livelihoods. The major findings of this thesis relate to the conflict between prime ethnic communities and migrated people, livelihood of indigenous, education and health problem of hill people, environmental issues behind the jhum, evaluation the Jhum cultivation and its impact, and sustainable development process. The Study recommends adoption of effective measures to check the fast deterioration and change in the natural state of the hill areas. It suggests adoption of conservation measures with full participation of local people and in due recognition of their needs, perceptions and ethical values.

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Introduction

The Chittagong Hill Tracts (CHT), a hilly region in Bangladesh, comprise of three hill districts of Rangamati, khagrachhari and Bandarban. The region of the Chittagong Hill Tracts is about 13,295 sq km, which is approximately one-tenth of total area of Bangladesh. The CHT has unique landscape with 13 indigenous ethnic groups, terrain based natural resource potential, socio- economic and political history. It is located in the south eastern part of the country and sharing borders with India and Myanmar. The indigeous peoples are collectively known as Chakma, Marma, Tripura, Tanchangya, Mro, Murung, Lushai, Khumi, Chak, Khyang, Bawn, Pankhua and Reang. The leading religion in the Chittagong Hill Tracts is Buddhism (the Chakmas, Marmas, Tanchangya, and partially the Mru). The Tripuras are Hindu. The Lushais, Pankho, Bawn and some of the Mru are converted Christians. The rest maintain their indigenous beliefs. The total population of CHT is 1.3 million to 1.5 million and 52% people are ethnic communities. As per rough estimate, above 90% of the people of CHT live in isolated areas and people have their own language, cultural distinctiveness, traditions, belief and ethnicity. The traditional Pahari economy consists of a variety of economic activities, such as shifting cultivation which is known as jhum and plough cultivation, livestock and poultry raising, fruitgrowing, extraction of forest resources, hunting and gathering, fishing, spinning and weaving. CHT has huge natural resources. It has largest reserve forests (322,331 hectare or about 24% of the region) in the country. About 75.6 percent of the total land area of the CHT is hilly/ high land. Land scarcity is a major and increasing problem. Exhaustion of resources in CHT has resulted in economic sluggishness in the region. This study examines how indigenous people of Chittagang Hill Tracts in Bangladesh survive their livelihood utilizing the resources, social and economic drivers and constraints, indigenous knowledge in resource management, development interventions by CHTDB and development agencies, environmental issues screening and economic potential of CHT the natural resources . Many sensitive problems of CHT people have been teeming since the prehistoric period which need to be immediate addressed and solved. Mainly these acute problems are related with ethnic peoples' livelihood viz. societal, economical, educational, health, religion, land, law and order situation. The study analyzes the present condition of CHT people and their life style, resources, development activities.

History of Chittagong Hill tracts

The Chittagong Hill Tracts, combining three hilly districts of Bangladesh were once known as Korpos Mohol, the name used until 1860. In 1860 it was annexed by the British and was made an administrative district of Bengal. As of today, it is a semi autonomous region within Bangladesh comprising three districts, namely, Chengmi [Hagrachuri (Khagrachari) Hill District], Gongkabor (Rangamati Hill District), and Arvumi (Bandarban Hill District). CHT has extensive administrative history. From the 17th century the Chittagong Hill Tracts came under Mogul rule. The Mughals conquered the region in 1666 and ruled it until 1760. During the Mughl rule in Bengal, the CHT remained an autonomous territory, with little control from the central Government, which later changed with the advent of the British rule.

The British ruled it from 1760 to 1947. In 1900 the British created the Regulation Act 1900 in order to protect the Paharis from non-indigenous people. Throughout the British colonial period the Regulation protected the Paharis against economic exploitation, preserved their traditional, sociocultural and political institutions based on customary laws and prohibited land ownership and migrations of non-indigenous people. The Chittagong Hill Tracts became a part of East Pakistan and Bangladesh in 1947 and 1971, respectively. In the early Seventies, the whole CHT was militarized and brought under military control by undermining the local civil administration. The establishment of Chittagong Hill Tracts Development Board (CHTDB) in 1976 for the CHT development deeply strengthened military occupation and development of military infrastructure in the CHT. After independence of the country on 16 December 1971 indigeneous voices were raised for the lawful right of the CHT for autonomy, retention and endorsement of the CHT Regulation, 1900 (Adnan, 2004), but were rejected outright; rather the new government wanted them to go for their separate identities and mainstream themselves in the building process of a new nation. Later the Government led the demographic engineering programme during 1979-1985 to resettle Bengalis from the plain land districts to the CHT region, which turned into dissatisfaction and ultimately resulted in armed conflicts, insurgency and counter insurgency operation (Ibrahim, 2001). The CHT has experienced pragmatic ethnic conflict Furthermore, in 1981 the government created initiatives to resettle the Bangalis in the CHT. From 1991 to 2001 there was much intervention from national, international and non-governmental agencies to discuss the possibilities of peace. Upon the signing of the Peace Accord on December 2, 1997, the influx to the region continued to grow. In 1998 the Ministry of Chittagong Hill Tracts Affairs and the Chittagong Hill Tracts Regional Council were formed. The livelihood of

the CHT people mainly depends on the natural resources available. Land and water bodies along with their immeasurable plants, animals and minerals constitute the life support for the hill people, which include their dwelling, food, clothing, health-care, festivals and other activities (Khisra, 2002). The initiative of the sustainable development interventions and natural resource management were introduced by CHTDB and financed by development agencies, namely, ADB, UNDP, FAO, UNICEF. Those multi-sectoral development programmes cover sectors such as infrastructure, agriculture, rural development, cottage industry, education, health, sanitation and family planning. The natural resources of the CHT are many—the hills, soil, forests, rivers, and the energy of the people. Recently, with increased population, through natural growth and migration influx, the pressures on the environment have multiplied, meaning, in turn, that the economic pressures on the people of the CHT have also increased. Indigenous knowledge and techniques have to be applied to harvest forest resources and management of natural resources.

Objectives of the Study

The objectives of the study are :

1. To assess how the indigenous ethnic communities of CHT live and grasp livelihood and highlight the vast economic potentials of natural resources.
2. To focus on the land and natural resource management and environmental issues of CHT.
3. To assess the current situation and identify the gap
4. Appraisal of shifting cultivation (Jhum) and its impact on natural resources, land degradation, soil erosion, deforestation.
5. To focus on sustainable development interventions by CHTDB and development agency.

Methodology

The study has made use of journal articles, reports by development activists, donor agencies and organisations working on indigenous affairs, publications, scholarly books, NRM country studies and primary data by field survey. This study brings together constraints and challenges of CHT people livelihood, ethnic conflicts, ethnic policies of nation, opportunities of economic development resource management.

The study outlines the social, cultural and political problems facing the indigenous peoples in the Chittagong Hill Tracts, the role of cultural and ethnic

diversity, what changes will bring in economic, political and social life of ethnic people analyze and the empirical findings on the present situation. This study is based on information from both secondary and primary sources. Information on various periods of CHT is drawn mainly from secondary sources, including reports, official documents (i.e. gazetteers and official correspondence), and travelers, books, journals, and censuses. This information is supplemented by information from primary sources, including a field visit, discussion with elderly persons of ethnic, group discussions and key informant meeting.

Livelihood of CHT indigenous ethnic communities

The CHT is predominantly a land of some ethnic minorities, distinct in race, including religion cultures, lifestyles and allied with traditional forms of economic livelihood. Fishing, hunting, gathering, and specific forms of agriculture are some of the economic activities that illustrate their close ties with the economy and it has evolved into a symbol of collective identity and pride in a rich cultural heritage.. The economy of this region is reliant mostly on agriculture, with horticulture as the main sub-sector.

About 90% of the Indigenous people living in CHT depend on forest products, such as fuel woods, bamboos, seasonal green vegetables, wild mushrooms, meeting their basic requirements for subsistence livelihood and source of income. Indigenous peoples are traditionally dependent upon swidden agriculture, locally known as Jhum cultivation. Jhum is also known as 'rotational' agriculture. To the indigenous peoples of the CHT, jhum is more than a farming method: it is a source of knowledge, inspiration, and a tangible expression of their struggle to protect their identity.

Most paharies are agriculturists, primarily practising subsistence farming with limited cash crop production. The main crop is rice. Other vegetables are corn, sesame, lentils, chili, ginger, turmeric, garlic, beans, pumpkin, and cucumber . Many crops grown in the *jhum* system have a potential commercial value such as cereal, medicinal plants, aromatic plants, spices. In CHT livelihood usually women are equally involved like man in their life maintenance. Moreover, besides the men , they play decision making role in most family issues. They are involved directly from farming to household domestic purposes. They have to collect safe water which is the most difficult job for them as the sources are remote, located in the risky hilly paths. The workload of most rural indigenous women is extremely high.

The livelihoods of the CHT people are determined in a large part by natural environment in combination with culture, religion and technology. Many people live traditional simple lifestyles. However, this lifestyle comes with a lack of low rates of basic education and modern facilities. Steep hilly land is the only means of livelihood and agriculture is the main occupation of majority people in this region. At present the traditional subsistence farming *Jhum* and plough cultivation are most well known farming system in the CHT region. The income of most households depends on agriculture crop, livestock, forestry and fishery.

Socio- economic scenario of CHT people

The economic activities of CHT people are more significant than the rest of Bangladesh, Land is the main economic resource for the indigenous peoples, which they are dependent on for their economic and cultural endurance. The economy of the CHT in the rural sector is mostly agriculture-based, which is characterized by traditional shifting or swidden cultivation (*jhum*). The main sources of household income are: crop, livestock, forestry and fishery (Rangamati- 61.36%, K 12.43%, Khagrachhari- 20.74%). The economy of pahari is fundamentally subsistence in nature primarily based on agriculture which is most underdeveloped and backward. As a result, the productivity of farming is low. Other households involve themselves to earn their main incomes from non-agricultural labour, business, employment, construction, religious service. Household incomes in the urban area mainly depend on small scale business, employment while agriculture is the main source of income in the rural area. (Source: Population Census-2001, Community series, BBS).

The common *jhum* crops grown on the same plot include paddy, cotton, watermelon, lady's finger, bottle gourd, sesame, and a variety of indigenous seeds. Paharis and Bengalis practise plain land agriculture in the first phase of economic activity, involving the ploughing of land and fishing from rivers, lakes, small stream and other water bodies. In this stage, people also depend on honey collection and hunting to provide income and food. Agricultural cultivation and dependence on natural resources continue as individuals turn to the second phase of economic activity. CHT people increase their agricultural income with the production of handicrafts in small cottage industries, making furniture, baskets, and metalwork.

This study has explored households in the study area and discussions were held with the elders of the tribal people of the study area. Chakma is the leading community both in urban and rural areas. *Jhiri*, Pond/Tank or Lake is the major

source of water for household work whereas tube wells are the major source of drinking water. Access to Safe drinking water is a major problem for CHT people. It is difficult to set up tube- wells in the steep topography . People are familiar with jhiri water (rivulets from the hills). Overall only a few of tribal households have hygienic toilet facilities. In all society education is a key determinant of lifestyle. Education plays a vital role in family planning, occupation, income, sanitation system and issues related to family health and hygiene. The major constraint in the development process in the CHT is the low rate of education. Educational skill is higher for males than females, Majority of population have not received any formal education. Women engaged in agricultural work (about 47 percent) and only 32 percent of men in agricultural work. CHT People are also engaged in service, fishing, daily labor, traditional handloom, business and woodcutting. In our country the socio-economic status of the tribal people is substantially lower than the general people.

Natural resources of CHT

Geologically the CHT divided into two broad ecological zones i.e., hill valley, and agricultural plains in Rangamati, Bandarban and Khagrachari hill districts and is featured by hilly rivers, lakes, water springs and cliff covered with thick tropical forest, lush and creeper jungles. The land of Chittagong Hill tracts presents a look of scenic beauty of the nature. The Hill Tracts is divided into four valleys surrounded by the Feni, Kamaphuli, Sangu (Sankhu) and Matamuhuri rivers and their tributaries. The ranges or hills of the Hill Tracts rise steeply thus looking far more impressive than what their height would imply and extend in long narrow ridges.

The main natural resources of Chittagong Hill tracts are Land, Agriculture, Forest based resources, and water based resources.

Land based resources

The major issue in the CHT is land. Land is the economic resource base and important source of livelihood for the indigenous peoples, which they are dependent on economic and cultural survival. Land scarcity is a major and increasing problem. The hill land is less fertile than plain land. Twenty eight per cent of the CHT comprises high hills, 22% medium high hills, 31% low hills and the rest is valley land. Bandarban and Rangamati mostly have high and medium high hills. But only 7% of Khagrachhari comprises high hilly areas, 45% medium high and low hills, and 45% valleys. Traditionally indieneous people depends on

these steep hill land for shifting cultivation. They cannot maintain their identity as a separate people without their land. It was claimed that, after construction of Kaptai dam in 1960, the existing 40% fertile plain land of this region swamped. Due to the creation of Kaptai lake the Pahari people were displaced and forced to migrate neighboring countries. The total area of hilly region about 3.26 million acres. After categorization of hilly land, (Type –A) the plain fertile land is 3.07% (76,466 acres), which is suitable for all crops cultivation, (Type-B) 2.72% (67,871 acres) land suitable for terrace cultivation both agricultural and horticulture at the edges of hill and mountain, (Type-C) 14.71% of land (3,66,622 acres) on the steep hill suitable for horticulture. (Type-C-D) located at the top of the mountains 1.18% (32,024 acres) of land suitable for forestry and can be used for horticulture (Type-D) 76.91% (1816993 acres) of land is not suitable for agricultural, only possible for afforestation.

The whole economy of Bangladesh mainly depends on its agricultural production using land based resources. Jhumming has been practised from the time immemorial. The cultivation process of Jhum includes clearing and burning of surface vegetation before harvesting mixed crops of rice, millet, sesame, maize, vegetable and some cash crops like cotton. This mixed nature of cultivation ensures a chain of steady supply of food throughout the year. But voice is also raised against shifting cultivation, locally called Jum cultivation in CHT. CHTDB, other organization tried to blame Jum cultivation saying that is unsustainable, as it causes soil degradation, erosion and loss of biodiversity. The debate on *jum* cultivation examines one of the more sensitive issues surrounding the NRM practices in the Hill Tracts. On the other hand, about 84% people of the CHT depend upon agriculture, mainly Jum cultivation. Production mode is quite different from other areas of the country. Because of increasing population and scarcity of land, jhumias aggressively use the hill slope to maintain the cultivation process. Jhum cultivation (Slash-and-burn cultivation) is the most widespread form of cultivation in the entire hill area of Bangladesh. The practice of shifting cultivation was found to be ecologically stable and sustainable when the fallow period was about 10-15 years. Recently, the erosion and soil fertility problems have become severe as the fallow period decreased, which is not enough for replacement of soil fertility through natural process. Moreover, the ecological experts asserted in contrast that Jum cultivation can ensure sustainability of the forests, given sufficient land.

Table : Land Classification by Forestal (1966) and Land use potential

Classification	Land Type	Total area	%	Landuse potential
Type A	Plain	76466	3.07%	All types of agricultural, paddy and crops Terrace cultivation, both for crops and horticulture
Type B	Gentle hill slope	67871	2.72%	
Type C	Hill slope	3,66,622	14.71%	Horticulture, partly forestry
Type D	Hills	1816993	72.91%	Only suitable for forestry.
Type C-D	Hill tops	32024	1.18%	Forestry and horticulture
		653	0.03%	Settlement
		131637	5.28%	Water bodies

Source : Forestal Report, 1966, Adnan, 2004

Forest Based Resources

Chittagong Hill Tracts (CHT) ethnic people depends largely on forest commons to fulfill their basic needs and livelihood. Like many other Asian countries, forest commons of CHT has degraded severely. While in early 19th century entire CHT was covered with dense forest, it is now expose severely with some scattered trees and shrub and weeds.

As CHT forest known as most vibrant sector of the economy (Gain, 1998; Adnan, 2004) the soil quality and land topography of the CHT is such that more than 75 % of this area is suitable for forest growth (Forestal, 1966). The forests in the CHT are both Government and privately owned and managed. At present about 25% of the entire region is marked as **Reserved** or **Protected** forests under the control of the Forest Department and have either natural tropical species or single species of teak or rubber (Kamal *et al*, 1999). Construction of 666 meters long and 43 meters high hydro-electric Kaptai Dam a large part of the cultivate area about 46.76 acres of reserve forest had also occupied for the rehabilitation of displaced people which also damaged a large area of forest. The Kaptai Dam flooded historical monuments, sacred sites of the indigenous peoples, and countless homes and farms. It has displaced more than 100,000 indigenous people, who had no choice but to abandon their ancestral lands. Many took refuge in India where they remain to this day. The erosion of forest resources vis-à-vis environmental degradation has triggered long term ecosystem damage in the CHT. Aggressive Jhum cultivation, slash, burnig of forest also damages the forest severely. Jumming are the major contributors to environmental degradation, soil erosion, damaged forest ecology and economy of this region. The hill people damaged and

exploiting the forest resources by collecting extract bamboo, fuelwood, roots, herbs, timber and plants from forest areas due to economic hardship.

Forest area is combination of hills, lakes, water, colorful tribal life and culture which can be attract tourists both from country people and foreigners. CHT authority and respective sector Parjatan corporation can be developed a longterm plan for a modern attractive tourist zone. Many people will come from abroad to see the natural beauty. Once the forest area was a wildlife zone. There were about 75 species of mammals, 100 species of birds, and reptiles. But these wildlifes decreases gradually due to deforestation and slash-burn process.

Role of Forests in Poverty Alleviation in CHT

The CHT forest can advance their life and livelihood through collection and sale of forest products with commercial value– woods, eatables forest products with medicinal plants, herbs etc. It can be alleviate the poverty line of CHT people. But lack of proper preservation and value addition they are deprived from fair economic value of their products.

The forestry sector can improve the management of forest resources by the systematic measures and increase tree plantation, timber production through individual or commercial ventures. But there is no government scheme to build up the indigeneous capacity building in economic activities .

Water Resource

Since 1961 creation of Kaptai dam and an artificial lake, the fishery sector expanded enormously with 58,300 hectares, with average depth of 9 meters. Now, both the hill people and the Bengalis are involved in fishing in the lake. There are 76 types of species of fishes in Kaptai lake and 42 species fish produced on commercial basis. (Alam zahirul). Out of the 3000 registered fishermen, at least 25% are hill people (Rafi and Chowdhury, 2001). The fish trade is primarily controlled by Bengali businessmen. The production capacity of fish in kaptai lake is about 31,360 metric tons. But as per Landing station of Fisheries department at the lake the quantity of marketed fish per annum is about 6000 metric tons, which is about 20% of the capacity.

Water is essential to life and livelihood. For drinking, bathing, washing, sanitation and other domestic purposes, people use water from different sources. In the CHT, the main sources of water are the surface water of rivers, lakes, canals and springs, and groundwater from shallow and deep quifers. Rainwater is an alternative

source of water in those areas of the CHT where rainfall is comparatively high. Water is mainly used for drinking, household, irrigation and commercial purposes. The people in the CHT suffer from different water-related diseases due to the scarcity of safe water and lack of knowledge about proper hygiene. This chapter will discuss the demand and availability of water and also its importance in relation to environment of the CHT area. The complexity of the water resources system of the CHT area comparatively than other hydrological regions of the country. Primary information, as well as different studies and projects carried out by other agencies, were considered to assess the demand, availability, and degree of impact of water scarcity on other natural resources in the region.

Agricultural resource

The main economic activities of CHT hill people are based on traditional agriculture system, and Jhum was the primary agricultural system. The livelihood of the indigenous people, which greatly depends on the natural resources, has tied them to nature. In the traditional system hill people farming the shifting cultivation on the slope of the hill cut the small plants, vegetations, shrubs, and burn. After cleaning and burning jhumias sow mixed seeds, rice, cotton, pulses, oilseeds, and vegetables there. These crops are grown, matured and yield at different time periods of the year. The rice is of two varieties, Aus and Amon. The spring harvest bears a special importance to the indigenous economy. Among the spring harvests, sesame, tobacco, chili, radish, lady's finger, sugarcane, brinjal, potato are especially notable. Other predominant spring crops are ginger, arum, kawn, cotton, turmeric, chili, cassava, tea, mustard, and maize. Among the fruits, pineapple, banana, jackfruit, orange, nuts papaw and lemons are notable (Khan 2001, Chowdhury 2001). Traditionally, after harvesting of crops, the land would be left fallow for 15-20 years which is called the *Jhum* cycle, which facilitated natural regeneration of biomass on the cleared hill slopes. Under such circumstances, *Jhum* cultivation need not be detrimental to soil fertility, although most trees in the *Jhum* plot are eventually cut down. Ethnic groups and settling Bengalis are practising agricultural cultivation by Jhuming. (CHARM: BECAS) However, the majority of Mros, Tripuras and Marmas (40-80%) are currently engaged in *Jhum* farming and the involvement of the Chakmas is relatively low about 20%. Some (2%) settlers (Bengalis) also practise *Jhum*. At present, a total of 35,000 families, covering about 185000 people are engaged in *Jhum* farming (Rafi and Chowdhury, 2001; Adnan, 2004). *Jhum* lands increase by reducing the *Jhum* cycle to less than 5 years. By the 1970s-80s, this period of *Jhum* cycle dropped to 2-3 years in many places (Schendel *et al*, 2001).

Traditional methods of ground preparation have also been modified and innovated methods have been introduced. Instead of digging spaced holes, the entire hill slope is now burnt, cleaned and soils are prepared by using spades. As a result, the entire top soil on a hill slope is loosened to make it ready for cultivation. Since 1970-80s, along with traditional Jhumming crops, turmeric, ginger, corn, banana, jute and other cash crops have been grown and since the 1990s teak, gamari and other forest species are being raised in the Jhum fields as well (Shelley, 1992). Due to expansion of market economy and increased demand of food crops, the traditional system Jhumming has now collapsed. Due to the shortening of the Jhum cycle as drastically, after Jhum harvesting the fallow period is not long enough to allow regeneration of natural vegetation and recovery of soil potential, which ultimately leads to soil degradation and loss of soil fertility (Adnan, 2004). Because of soil degradation, low yields from traditional Jhum farms and demand for additional foodgrains to support the increasing population in the CHT, consideration of alternative approaches to Jhumming and farming techniques is required. The goal of seeking such innovative farming systems should increase crop production, conserve soil quality and fertility and protect the natural environment. Since 1997, Zabarang experimentally introduced the SHCT (Sustainable Hill Cultivation Technology) as a pilot project (Zabarang, 2005[S2]). This innovative approach urges a single family to produce yearly lasting short-term crops (such as rice, banana, turmeric, ginger, vegetable etc), two to five-year lasting mid-term crops (such as horticulture) and up to ten-year lasting long-term products (such as mango, jackfruit, karai, *gamari* and other woody plants) in the same plot at the same time.

Rubber Plantation

A total of 45,000 acres land is under rubber plantation in the CHT of the total rubber plantation area. Of the total rubber plantations, the government allocated 33,000 acres land among private parties and to the CHT Development Board 12,000 acres (4 acres each for a *jumia* family). Thus there are two categories of rubber planters in CHT: (i) individual small holding of 25 to 100 acres; and (ii) organized small holding by the settled Jumias of CHTDB. The government were started Rubber plantations in the CHT forest land since 1970s under administration of CHTDB (Chittagong Hill tracts development board). There are three categories of forest land, including reserved forest, protected forest, and Unclassed State Forest (USF). The latter category is where most of the shifting cultivation takes place. As shifting cultivation is practiced under various common property management, and the practice is discouraged altogether, although

allowed in the USF. From their side, the indigenous communities claim this land as community land, whereas the reserved and protected forests are vested under the control of the Forest Department, the community managed(USF) land which included shifting cultivation areas as well as its fallows and village common forests, comes under the control of District Administration. Government had been leased out to private enterprise for rubber plantation Since 1979, The beneficiaries of those lease holds were mostly the influential Bengali elite of which most of them have never even resided in the CHT (Roy, 1998; Adnan, 2004). Allocation of the USF land to the private entrepreneurs for rubber plantation, of course, ignored the customary right of the hill people to collect forest based resources and use of land for Jhum cultivation. In many cases, timber, bamboos and other resources have been extracted from such areas and the plots remain unused even for decades. Rubber plantations, both by the public and the private sectors, gave rise to serious criticisms on the ground that this monoculture plantation has led to adverse environmental consequences for the CHT (Roy, 1998; Adnan, 2004), as the roots of rubber trees eventually remove the surrounding soils and accelerate soil erosion. In an area of rubber plantation, nothing else can be grown for years when rubber production ceases, which again leads to serious loss of biodiversity too.

Appraisal of Jhum (shifting cultivation)

The Jhum cultivation is an ancient farming practise, After clearing from natural vegetation by slashing and burning the area is cropped for 1 or 2 years and then allowed to revert to natural vegetation . After some years, the area may be cleared and cropped again. The system is used in Africa, South America, and Southeast Asia The system is locally called, *Bukma* in Nepal, *Taungya* in Myanmar (Burma), *Kaingin* and *Lading* in the Philippines and *Jhum* in India and Bangladesh. Slashing and subsequent burning are preconditions for shifting cultivation. The Process of Jhum appears to be quite sustainable when the fallow period is fairly long. Formerly, Jhum was practised in the Chittagong Hill Tracts (CHT) as elsewhere in the World with fallow periods of 15–20 years. But, due to increased population pressure in the hills and scarcity of suitable land for Jhum, the rotation has been reduced to 3–5 years in recent decades. In the conventional Jhum system, sowing and weeding are done without major disturbance. Jhumias broadcast smaller seeds like sesame, flower, chilli relatively bigger and mixed seeds of rice, maize, beans, cotton, etc. CHT used only 2.5% of the hill area for shifting cultivation each year, other areas of similar size were used in previous

years. Reduction in the fallow period is followed by low productivity of the crop. The success of shifting cultivation depends on the length of the fallow period .

The length of the fallow period should not be less than 10 years to have a productive shifting cultivation , and this is practically impossible under the existing socioeconomic conditions in the CHT, because of land-to-person ratio is too low. Due to increasing population in recent years jhum cultivation period have shortened, the whole system of shifting cultivation occur imbalance .

As discussions with the elders of the indigenous groups the challenges of Jhum farming identified.

- * Land acquisition by government, CHTDB and Forest department..
- * Population pressure
- * Extraction of forest resources ,
- * Land grabbing by sponsored settlers

However, the Jhum cultivators especially and many ethnic elders consider that over utilization of hilly land may damage the natural environment and cause land degradation, but in their opinion the traditional Jhumming to be a good practice for managing the natural resource by multi- crop production system, regenerate new forest at jhum field, and fire control . But environmentalist believe that shifting cultivation can be a sustainable farming system when well applied in favorable conditions.

Environmental issues

Ecologist identified major environmental issues at CHT as follows:

Effect of jhum farming: The voice of people gradually rises against traditional jhum farming on the upper edge of the hills. It is a traditional method of agriculture. Environment concerned people recommended that Jhum can produce with multi –crop production system and regenerate new forest at jhum cultivation.

Deforestation: : Traditional hill people can meet their daily needs by cutting trees, plants and forest resources. Most of the corrupt forest officials, traders, and persons are involved in illegal cutting and trading of wood that uncover the hills.

Health and sanitation: Scarcity of drinking water and poor sanitation were identified as the main problems in the health sector of CHT region. It is suggested that health, education and well structured sanitation be set up besides development agencies.

Suitable land use: The suitable land –use systems such as agroforestry , timber , tree plantation , horticulture in hill and mountain areas, agricultural land-use pursuit are needed to maintain a sustainable environment.

Soil erosion: It is pointed out that soil erosion was mainly due to faulty agricultural practises and deforestation.

Hill cutting and extraction of stones: Practises of hill cutting and extraction of tree violate the hill tracts law.

Key findings of the study

- * Key proble issues of land for all aboriginal communities in Chittagong Hill-Tract districts
- * CHT indigeneous people lead their life & livelihood with traditional lifestyles and shifting Jhum cultivation and depend on forest resources.
- * Lack of proper sanitation, pure drinking water supply, health and literacy
- * The CHT is rich in medicinal plants and forest resources.
- * Womens are lagging behind due to discrimination by the male
- * Development agencies involvement for CHT peoples is needed in areas of health, Education, Sanitation and pure drinking water.
- * The Peace Accord 1997 was shelved for the last seven years during the BNP-Jamaat and caretaker rule.
- * Conflict between hill people and migrated settlers.
- * Indigeneous peoples' experience of selling products to a wider market is not very encouraging.
- * Indigenous knowledge and techniques are also applied to harvest forest resources.

Recommendations

Based on the findings the following recommendations are made:

- * Should revive the CHT Land Commission as settlement of land problems
- * Should implement land reform, distribute land to displaced families.
- * The CHT Regulation-1900 commonly known as CHT Manual should continue to protect the rights of the indigenous people.

- * Should address the conflict between traditional ethnic communities and migrated settlers issues and maintain indigenous policies and laws accordingly Peace Accord 1997.
- * Improve livelihood opportunities of the communities by encouraging to use their indigenous knowledge.
- * Alleviation of poverty with the use of forest resources.
- * Farming system of traditional Jhum cultivation has to improve to maintain sustainable environment and prevent soil degradation a soil erosion.
- * People should be made aware of the importance and need for conservation of biodiversity in the region.
- * Conservation of biodiversity should be based on people's participation and local ethical values.
- * Deforestation of the area, hill cutting, burning should be stopped.
- * Indigenous knowledge on natural resource management with special orientation to livelihood should be applied.
- * Should engage ethnic people literacy program.
- * Improve forest management.
- * Recognize the values, beliefs and practices of indigenous communities on natural resource management.
- * Introduce agro-forest based livelihoods opportunities for Jhum cultivators to reduce burden on forest and Jhum cultivation.
- * Improve CHTDB activities on ethnic peoples' life, livelihood, natural resource management, forest development, tree plantation and biodiversity.

Conclusion

Chittagong Hill Tracts (CHT) is a place of traditional ethnic groups and natural resources in Bangladesh. But the land based natural resources and 13 ethnic groups have suffered socio-politically. The situations began during the last two decades with conflict and frustration among the hill peoples and settlers. The indigenous peoples have been displaced and lost their rights to their own land due to Bengali settlement with state support.

Most of the hill peoples depend on land-based jhum cultivation, forestry for their life and livelihood. Resource scarcity in CHT has become acute because of over population and migration of people into the region. The causes behind the land degradation and drastic soil erosion of the CHT are discussed in the paper. The problems are the disregard of the peace regard 1997, jhum cycle or shortening fallow period, resettlement program, extraction of natural resources, deforestation, destruction of biodiversity, decline topsoil fertility, pollution of water bodies etc. So, ecologists and the older people of ethnic community frequently appeal to preserve the natural resources, biodiversity and the traditional ethnic peoples land rights.

The study suggests that the government authority, CHTDB should take initiative towards sustainable development of CHT peoples' life and livelihood, education, health, hygienic sanitation, safe drinking water, natural resource management and sustainable environment. Besides the GOB, development agencies have to continue development programs to gear up indigenous knowledge to upgrade their lifestyles with fulfillment of basic needs .

The present government began the 1997 peace accord. The Same Government is now in the power and it has responsibility to do everything possible for the implementation of the accord.

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