Socio-Ecological Problems in Soil Conservation Strategy in Hilly Region of Bangladesh

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Abstract: Hills in Bangladesh occupy 12% of its geographical area of which Chittagong Hill Tracts (CHT) covers about 10%. Approximately 1.0 million peoples of thirteen tribal groups are living on the resources of this region. Tribal peoples are mainly depends on shifting cultivation on about 3,200 ha each year, that result topsoil loss of about 1.5 million ton/yr besides tuber crops cultivation and other development activities. CHT is administered on the basis of CHT manual 1900. There are certain changes in rules/acts or laws for contemplating only administering issues and rule of administrators like Deputy Commissioners, Headman etc. on land lease or distribution. Peoples are aware of un-sustainability of shifting cultivation as it could not feed them more than six months and decrease of per unit production to approximately 50% than 60's. Yet improvements are observed that they want to settle around the area where they could practice cultivation (shifting). User right, land ownerships, difficulty in marketing of their products because of different types of restriction, lack of communication (road net work) and apposite stewardships, access to government privileges or scopes and above all incapacity to compete with plain land people in merchandising on or off-farm products make them absent from the main stream of development approaches. By and large till to date a few of the program built-in these issues integrated way in other words trigger the policy issues. Present study was made through surveying among Chakma, Boam, Marma, Tripura and Murung tribal communities of five different parts representing more advanced to least one of CHT. It explores socio-ecological situation on the changing affinity of laws/acts or policies towards natural resource protection since 1900 and review of different institutional interventions (GO/NGO) for protection of environmental aspects with special reference to soil and water conservation and requirement of the local inhabitant to mitigate soil degradation in CHT.

Keywords: shifting cultivation, socio-ecology, land degradation, soil-water conservation, strategy, apposite stewardships

1 Introduction

The inhabitants in Chittagong Hill Tracts (CHT) have diversified life style with unique cultural heritage of each community. Shifting cultivation is the major agricultural practice in their food acquiring system since 1860 (Khan and Khisha, 1970) and this type of land use system is accused for land degradation and/or environmental degradation. This area is characterized by steep to very steep sloping lands mostly with shallow soils (Forestal, 1966). Because of the terrain condition and the heterogeneity of the community this part was administered in different ways since British period. The main focal point of that time was to collect revenue from this area through tribal leaders, 'The King or Circle Chief'. Least population density and enormous forest resources like timber, wild life etc. were not hinder the traditional custom of the peoples. In this issue 'Chittagong Hill Tract Regulation 1900' was used to administer the area. Community ownership and partnerships in almost all activities was the main stream line to lead the life. Until 60`s the tribes did not wish to possess formal land documents or lease deeds as many of them think that land is the common property and

village community or Kinship groups are the ultimate owner of land, hence all hills are owned by them (Khisa, 1997). With the time there are substantial changes in people aspiration, environment and interaction with plain land people which activate transformation in their social make-up very slowly. The set-up is further aggravated due to cross-cultural contacts and sharp increase in population. The basic structure and functions of the ethnic communities have been changed in the last few decades (Millat-e-Mustafa *et al*.,1998). Albeit efforts have been taken from both governmental and nongovernmental institutions to address the issue, declaration of reserve forest, construction of hydraulic power station and lack of appropriate stewardship etc change the whole scenario feeble for development. Eventually the changes in the socio-political arena impart pressure on natural resource management in CHT with result of land degradation in this area and its ultimate effect is extended to off-site areas.

1.1 Objectives of the paper

Jhum (Shifting cultivation) regarded as one of the major causes of land degradation in CHT. On the other hand it is not at all sustainable for various reasons. Transformation Jhum (Shifting) cultivation to permanent farming is a very strategic query for CHT community. This paper explores relevant issues to formulate a rational strategy for batter farming adapting the socio-ecology to mitigate soil degradation in CHT.

1.2 Methodological consideration for the study

This study was conducted through consultation of previous documents and literature relevant to rules or regulations for using lands of CHT, surveying ethnic communities such as Chakma, Boam, Marma, Tripura and Murung tribal communities, impact of different rules/regulation and reviewing different institutional interventions (GO/NGO) for protection of environmental aspects with special reference to soil and water conservation and requirement of the local inhabitant.

2 Observations

2.1 Laws and regulations related to environmental protection

It has been observed that there area regulation to protect marginal areas form further degradation and or to use common river water without harming the system or other users. Chittagong Hill Tracts (CHT) had been administered on the basis of CHT Regulation, 1900 and subsequent steps followed after government orders for amendments of the Regulation. For example CHT (Amendment) Regulation, 1920 or P.O. No. 48 of 1972 etc. (Amin, 2000). This Regulation includes five major Chapters and in Chapter-V: Miscellaneous Regulation 18 depicts the strategic issues related to power and jurisdiction of the Circle Chiefs, Dewans and Headmen, Land lease/ transfer, Registration of documents related to land ownership, Revenue collection etc. The above issues were described in Rule 34(B) as illustrated in CHT administrative Rules, 1900 and Govt. of Bengal, 1900.

This rule fortunately focused on the types of land or crops. At that stage the whole lands were broadly divided into three types: Plough land (Valley), Grove Lands and High hills. The **'grove lands'** was defined as "relatively low flat and inflate land, low hills at the foot of mountain or mountain range (high hills), hillocks or semi undulated of nearly level forest area which could only be used for raising orchard or other tree crops or any kinds of such use without any partial or whole changes in topography". These three types of land classification correspond with the land classification by Forestal forestry (1966) and Soil Resource Development Institute (SRDI) in 1964-65 That is "Class A" flat or gently sloping valley, where the land can be ploughed (Slope <5%), "Class B" lands with slope <20%, mostly low hill slopes, suitable for orchard, horticultural crops etc (may equivalent to "Grove land") and "Class C & D" are the lands of hills with slope 20 to 40% and more. It is worth mentioning that no comprehensive data base was generated after Forestal (1966). Fig.1 depicts the CHT as documented by Forestal (1965) and SRDI (1964-65).

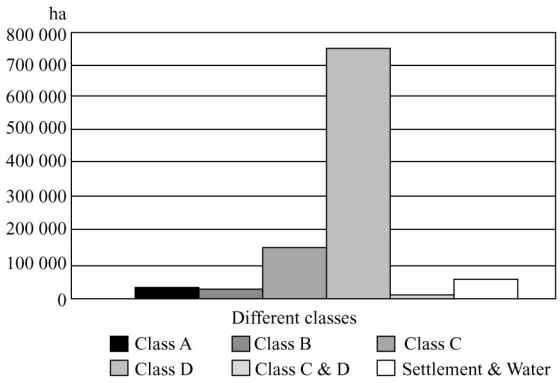

Fig.1 Land Classicfication of CHT

In Rule 34(D) Deputy Commissioner can give lease land to hilly or non-hilly inhabitants for cultivation at the rate of 5.0 acres of low hill land per family situated at the foot of mountain or mountain range (high hills), where the topography or slope may be changed to terraces (Amin, 2000). In the above two examples were focused on the landform, topography, slope class etc with types crops and method of sloping land use. Options for leasing lands for commercial plantation of rubber and other tree crops were also included in Rule 34B (i).

Regulation for using natural water reservoir or lands along the river/stream banks for jhuming or any other cultivation etc were focused in the Rules 34A and 34B which were amended on 27-02-1928 vide the notification No 2977 E.A. (Calcutta Gazette, 1928) and 25-04-1939 vide the notification No. 4852 E.A. (Calcutta Gazette, 1939) respectively. The theme also clear that use of these lands must be adjustable to biophysical condition of the area so that it does not result any hazard for natural resource management (erosion, landslide etc).

February 1871 almost entire CHT district was declared as government reserve forest 14,515 km^2 out of 17,618 km^2 (Cowan 1923). But again in 1875 this forest was divided in to two classes viz Reserve Forest (RF) and District forest known as Unclassed State forest (USF). The RF was put under forest department and any kind of use of forest produce were totally band but in USF jhum and the use of forest produce for domestic purpose were allowed with certain restrictions. Regarding the status of Reserved forests were also explained and excluded from any of the hill Mouza and the territory of CHT was redefined and it included reserved forests, three Circles viz: The Cakma Circles, The Bomang Circles and the Mong (Marma) Circles; and the Maine valley (Calcutta Gazette, 1928). Deputy Commissioners and Headmen were entrusted for conservation of natural resources of the area/mouza viz: rule No.41 and 41A vide notification No 7848 E.A. dated 15-07-1939 (Calcutta Gazette, 1939). Concerned Headmen can restrict Jhum cultivation or grazing if they feel it will be hazardous for resource management. Enforcement of the above theme hill people were thus marginalized through their exclusion from forests and government had not undertaken taken any alternatives (Mohsin.1990). The situation further aggravated due the construction of Kaptai Hydro-power dam. Land for Jhuming has been immensely reduced and as a consequence soil degradation and marginalization of the jhumias (Anon, 1929; Dewan, 1990; Mey, 1984).

Therefore it is very clear from above reviews that since 1900 policy makers were very much aware of marginality and fragility of the terrain and rules were focused on natural resource conservation. There were indications for area where which the type of crops could be grown as well as the management technology like terracing and other kinds of land management to protect the area from degradation. Deputy Commissioners, Headmen and there after District councils are empowered to control misuse or improper use of the land of CHT. This means the local institutions area also empowered to exercise logic to make rational use of fragile land. Unfortunately all the rules were used to getting lands, leasing lands, revenue collection and other administrative issues relevant for better administrative management but did not follow the bearing of the rules focused on natural resource management aspect.

2.2 Impacts of rule/Regulation towards soil and water conservation

At the end of 20th century what are the impacts of rules or regulations on the community inhabited in CHT and the natural resource base. There is no shortcut answer of this issue. The real picture may be workout from in depth exercise within different community distributed in CHT. The different ethnic groups differ from each other by language, customs, religious beliefs and socio-political organization. Even they choose different parts of the hills for their living. For example Chakmas, Marmas, Tripuraas are valley living group which was categorized by Lewin (1869) as 'Khyongtha' means 'children of the river' and Khumi, Mro Murang, Lushai, Bawn and Pankus, Kukis, Tanchangya, chak and Riag live on the ridges and categorized as 'Toungtha' means 'Children of the hills, (Mohsin,1997). Therefore almost 100 hill community pacing same way as they were.

2.3 Interactions of GO/NGO program

Table-1 includes some salient features of the villages visited. It is clear that more accessible areas were exposed to development interventions by both GO and NGO. Changing attitude towards farming sys was found in more educated community (Boam). Total 65 respondent of from different community was addressed on the jhuuming and its sustainability. 90% of the respondent was opined in favor of un-sustainability, low productivity, lack of virgin land, shorting of jhuming cycle, increase of population and lack of apposite alternatives.

Table 1 Brief description of the community visited in three different district of CHT

Village, Upazila, District	Community/ ethnic group (no of Respondent)	Distance form Upazila HQ and accessibility	Impacts of Dev. Activity					
			GO	NGO	Change of Farming attitude	Edu	Health	Sanita-tion
Lemi, Bandarban Sadar, Bandarban	Boam (15)	10km, easy	+	+	+	++	+	+ -
Noapara, Ditto	Murang (10)	15km, almost inaccessible	-	-	-	+	-	-
Thambupara, Rangamati Sadar, Rangamati	Marma (15)	27km, easy	-	+	-	+	+	-
Nalbania, Barkal, Rangamati	Chakma (18)	25km, not easy, only waterways	-	-	-	+	-	-
Milon Karbarypara, Dhighinala, Khagrachari	Trpura (7)	17km, easy	+	+	-	+	-	-

Note : (+) indicate active or positive to the subject and (-) indicate otherwise

It was observed that there area many domestic articles for which hill peoples have to depend on plain. For example 'Dao' which is the main tool for their life style. Again there area several ha of land are coming out as popularly known as 'Fringe land" in the Kaptai Lake in dry season. These lands are suitable for one transplanted rice as well as different types of vegetables. But only a part of the hill community could handle these lands as they have not enough skill. It was also observed that many of the hill people now a days working for fishery.

There are institutions to encourage the jhumias to abandoned jhuming with their own strategy. Among them Upland settlement project of Chittagong Hill Tracts Development Board (CHTB); Jouttha khamar (Cooperative Farms) of Asian Development Bank (ADB); Jhumia rehabilitation project of Forest department and several others by GO and NGO's are trying to spark the situation in addition to five

research stations of SRDI, Bangladesh Agricultural Research Institute (BARI) and Bangladesh Livestock Research Institute (BLRI) at different parts of the CHT. The main stumbling blocks of these approaches are:

- Lack of stewardship
- Top down approach
- Not holistic
- Ignore cultural values and social customs of the community

Physical limitations like slope, soil depths etc. of the terrain are unaccounted. Efforts that possibly trigger the main problem of technology transfer will depend on the similarity to traditional practices with low input and production cost and able to protect the land from degradation (Schlippe, 1956; Jha, 1997). We should advocate finding improvement without doing violence to the limiting framework of tradition and environment.

3 Future strategy and conclusions

It should noteworthy to state that present study perhaps is only few pace of the gigantic problem. As it is evident form the earlier steps taken since British colonial states that economic policies from had alienated the hill people of CHT from their means of production i.e land and forest with a view to change their mode of production without considering values and rights of the Hill people. Contrary they were stigmatized as primitive semi-barbarians (Government of Bengal, 1876; Mackenzie, 1884). Jhum cultivation was permitted in Unclassed State Forest (USF) by traditional rights on payment or Jhum tax at fixed rate embodied in CHT manual. But no precise records about Jhum cultivation, its extent, area and distribution are easily available. To confess honestly till to date none of the approach was triggered as per situation.

None can say all the efforts are failed to reach the target. But the major lesson came out from the interaction within five communities that blanket or generalized recommendation will not work as different community has very different cultural values and the topography area they live is differing from others. Homogeneity of the community should be honored, on and off farm work with marketing facility by the community and intervention approach should be close to their present livelihood may accelerate the acceptance of technology.

Therefore community base, similar natural condition (may be small watershed base) with strong stewardship are essential for addressing the situation.

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