

ENDANGERED LIFE AND DISTRESSED DIVERSITY: A STUDY FROM A DEFORESTED VILLAGE OF BANGLADESH

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Abstract

In Bangladesh there are many agric-villages going on either with its 'traditional' way or with new developed strategy for its 'better position' but in forest-villages, 'traditional' mode of life does not exist because of deforestation. This study reveals people's living condition and livelihood strategies of a deforested village. This paper shows the picture of socio-cultural condition, availability of resources, process of resources utilization, ownership pattern of some major properties and existing livelihoods options. It also includes the important suggestions of villagers to solve the existing problematic situation. This study explores villagers' perception and attitudes towards livelihood needs, socio-economic condition, causes of deforestation and resources degradation. There are some people who dependents on some existing forest resources for their livelihood. For their betterment, villagers would be part of 'development' to ensure their exact participation and own governance. The study explores the local people's perception by using qualitative research methods such as In-depth Interview, Key Informant Interview and Observation.

Key Word: Deforestation, Livelihoods, Resources, Perceptions, Preservation

Introduction

The World Bank estimates that roughly a quarter of the world's poor and 90% of the poorest depend substantially on forests for their livelihoods (World Bank, 2001). So people living around the forest are heavily dependent on forest resources for their livelihoods. The mainstream literatures are continuously claiming that due to these livelihood activities, forests are destroyed through out the world. The actual causes of deforestation are conversion of natural forests into agricultural land, human settlement, forest excision, population pressure etc. Though a few people are responsible for this deforestation, all are victims of its environmental, social, economic and cultural influences.

Traditional forest villagers do not do destructive activities. They have the knowledge about the conservation of forest. People who live in or near forests have a deep understanding of natural resource management (Sekhar, 2003). The ecological importance of such local knowledge has been widely acknowledged (Kumar, 2002;

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Logan, 2002). The studied village is distinctive from other forest villages in many characters. The study explores that many people are migrated here from other regions of the country and they have no or little knowledge and introduction about the conservation of this forest village ecosystem.

When people are forced to live in crowded and possibly unfamiliar situations – not of their own making or choice – they often are left with no option but to depend on natural resources for their livelihood activities (Uddin and Khan, 2006). The study shows that once the village population was limited in keeping balance with its environmental resources; but when population had increased, the situation became uncontrolled as well as imbalanced. But at present situation, with the degrading resources people can realize what kind of activities they performed earlier. Now they feel that how they could protect the environment and manage their livelihood options to develop their living condition. There are huge scope created through using peoples' perception and knowledge for their better livelihood which have been partially explored in this study.

For millions of people in developing countries, forest- related activities are an integral part of their livelihood activities and strategies and provide their main income source (Byron and Arnold, 1999). Of the total area of Bangladesh, forest lands account for almost 17%. Sal forest is one of the main forested areas in Bangladesh where a cross section of tribal people has been dwelling and they are dependent for their daily livelihoods activities. The total area of Sal forest is 120,000 hectare which accounts for 0.81% of total area of Bangladesh (BFD, 2001). In Bangladesh, more than 60% of the Sal forest was relatively density wooded 30 years ago (Chowdury, 1994). Now it is almost deforested area. High population pressure and associated long-hungry agriculture, scarcity of agricultural places and unplanned urbanization has led to notable degradation, poor stocking and almost extinction of the forest. Ethnic minorities and the ever-increasing number of land less peasants have played a major role in the process of deforestation (Ahamed, 1993). These activities place forests under threat. If we do not restrict such activities or find alternative solutions, low-level resource gathering activities can quickly turn into wide-scale, often irrevocable and ultimately forest destruction (Uddin and Khan, 2006). With this background the study has conducted in a deforested village, which is becoming under threatened considering the livelihood strategies, resources degradation, living condition, deforestation etc.

Materials and Methods

Study site

The study was carried out in the month of July dated on 7-22, 2009 at Nimaichala village of Barmi Union (a rural administrative unit) in Sreepur Upazilla under the District of Gazipur, which is situated under the Sreepur Forest Range of Dhaka Forest Division. Sreepur Upazila has an area of 469.24 km². It consists of Nine Union parishads,

81 mouzas and 186 villages. This Upazila inhabits by Muslims (95.43%), Hindu (4.26), Christian (0.11%) and others (0.20%). Literacy rate is 44% among where male is 42.5% and female is 45.9%. Main occupations in this area are agriculture 55.7%, auricular labor 16.025, wage labor 2.675, transport 2.675%, business 9.60%, services 4.22%, others 9.63% (Sources: Sreepur Upazila Office, 2009). Based on preliminary observation this study found that deforestation is very common in the targeted study village. In addition, people have been enormous suffering in managing of livelihoods due to dearth of forest natural resources.

Data collection method and techniques

The study selects the *Nimaichala* village from *Barmi* Union of *Sreepur Upazilla* (sub-district) under *Gazipur* District by using purposive sampling. A transect walk was conducted where the researchers walked around the village to find out the boundary and area of the village. Researchers conducted a self scrutiny to observe various locations within the area to know the physical condition of the village and villagers' activity related to livelihood and deforestation. Four Key Informant Interviews (KIIs) were conducted for this study to collect some quantitative background information and some qualitative information. One KII was from local forest range office to know some basic information like total Sal forest coverage area and location, government-owned forest, encroachment area of government owned forest etc. Other three KII were from among the study villagers who have minimum secondary level of education and knowledgeable about the villages which were conducted to know the total number of population, households, types of local and migrated people, and the current condition of the forest and the process of deforestation. Researchers also collected some opinions through KII in order to select participants for conducting in-depth interviews. Participants were selected who know the village very well, socio-economic status of the villagers and have experienced with the knowledge of Sal forest and the village ecosystem. In-depth interviews have been conducted from 46 household, selected randomly, from a knowledgeable person including male and female. In order to conduct in-depth interview, a semi-structured guideline was used by the researchers. Using this guideline researcher was able to collection some study relevant quantitative information and mostly it used for collecting qualitative information. In summary, a transect walk, an unstructured descriptive observation, 4 Key Informant Interviews, 46 in-depth interview and some informal conversation has been conducted for this study purpose. In addition, all data used in this study were collected by using qualitative data collection tools and to get more insights some of this information used here as quantitative representation and quantitative explanation by table and percentage. Data collection was continuing through the consideration of data saturation. The oral consent of the respondent and ethical guidelines were followed and maintained by the researchers. Moreover, data analysis has been accomplished manually through the maintaining the process of data recording,

transcription, preparing code list and data coding. Thematic analysis was used for data analysis.

Result and Discussion

The study was analyzed the socio-cultural provision with some demographic features. Then it shows the resources availability; converse the process of resources utilization and using prototype of some valuable resources. The study examines the ownership pattern and the roles of properties and finally discusses the main livelihood options among the existing resources. Preservation, protection and management of a deforested village reveal in this study based on villagers' perceptions. Also it would be able to understandable about the vulnerable living condition, endangered life and distressed diversity of the locality through exploring the explanation of the below mentioned aspects.

Socio-cultural Condition

The study respondents were very much able to inform the study about practices regarding Sal forest for about forty years. The total area of the village is 1357.77acars, where Government owned Sal forest area is 900.85 acars and individual ownership land is 456.92 acars. Encroachment area of Government Sal forest is 133.63 acres where there is no Sal plants existed in the area. At present, the encroached areas are used as homestead and cultivation purposes. The forest range office controls 767.22 acres of forests. Now there is a small amount of Sal plants belongs among 707.22 acres land and some powerful people and some migrated people are encroaching the free land of Sal forest plants of this forest vicinity for own purposes. According to the calculation of Sreepur forest range office, only 60.22 acars land is now under the Sal forest coverage area and some other area is under the social forest coverage area (Source: Sreepur Forest Range Office, 2009). So the study explores that almost all Sal forest land excluding only 60.22 acars of the Govt. owned 900.85 acres forest land is almost deforested now. These statistical data represents a threatening situation of physical feature (or infra-structure) of the village especially for the degradation of natural forest resources. This study village consists of five paras namely sharkar para, fokir para, napit para, refugee para, hajong para and without this paras there are some people who lived in the village haphazardly. Most of the villagers live in an encroached government owned forest land space. Total population of the village is about 1918. The average household size is 7. Most of inhabitants are poor. The study has explored some continuous conflicts present among the village people and main causes of them include economic crisis and malpractice of power in the village. Other issues also embrace regarding religion, egoistic problem between local and migrated people, practice of political power etc. Due to majority in number, Muslims utilize their power in village politics more than other religious groups.

Table 1. Demographic features of the study village

Households number, average size and population (Total population is 1918) Total=274						
Community	Local people		Migrated people		Average household size	
Households no.	188		86		7	
Literary condition of the study village households (Households 46)						
Literary level	Illiteracy	Primary level	Secondary	H.secondary	Graduate	
Households no.	28(60.89%)	9(19.56%)	5(10.86%)	3(6.52%)	1(2.17%)	
Land holding percentage among the households (Households 46)						
Community	Self-Owned		Encroached		Rent	
Households no.	18(39%)		21(45%)		7(15%)	
Housing pattern among the households (Households, 46)						
Category	Tin shed + brick	Tin shed + mud	Tin shed + bamboo	Sun grass + mud	Sun grass + bamboo	Other
Households no.	2(4%)	9(20%)	7(15%)	19(41%)	8(17%)	1(2%)
Economic condition of the study village households (Households 46)						
Households income (monthly)	Rich(Tk.8000+)		Middle(Tk.4001-8000)		Poor(Tk1500-4000)	
Households no.	2(4%)		9(20%)		35(76%)	
Beliefs and practices among the households (Households, 46)						
Religion	Muslims	Hindu (chuch, hagong)		Others religion (mundai)		
Households no.	37(81%)	8(17%)		1(2%)		
Occupational variations (Households 46)						
Occupations	Agriculture	Labors (forest, agric, rickshaw, heir cutter)		Others (small employment, businessman, forest wood collectors)		
Households no.	9(19%)	33(72%)		4(9%)		

Study shows that the main occupations of the villagers are agriculture, forest based labors, agric-labors, rickshaw-pullers, hair cutters, fishing etc and very few are involved with small employment and business. Though there are some occupational variations but these occupations are not enough to maintain the minimum standard of livelihood. For this reason, people are enforced to create pressure on existing Sal forest resources and push themselves with new occupation.

Availability of Resources and People's Perceptions

The study found that the respondents are the main beneficiary from the natural resources of the area and hence they meet up the demand of food, medicine and other materials from nature. The research reveals that many resources are present in the village such as forest and agricultural land, plants, animals, fruits, fuels, crops, capitals, human labors etc. The first five groups of resources classify as natural resources. Villagers think that these resources are more necessary to manage of their livelihood means such as foods, medicines and materials etc. As the respondents viewed, the study has divided the resources into three groups- available resources, unavailable resources and disappearing resources. In this research, available resources considered which resources are present in everywhere or every time and people can reach it easily for their purposes. Not available resources (unavailable) considered which resources are not present in everywhere but people can see the resources in sometime or some places. Finally, disappearing resources

considered which resources are not present in everywhere but people can see that specific time or specific places and it is not easy to observe or found.

Table 2. People's perception about some resources availability

Resources	People's perception of Availability (N=46)		
	Available	Not available	Disappearing
Land (homestead, agriculture)	11(24%)	35(76%)	-
Land (Sal forest land)	3(6%)	21(46%)	22(48%)
Plants (Sal)	-	46(100%)	-
Domestic animal (cow, hen, goat)	46(100%)	-	-
Crops (paddy)	2(4%)	44(96%)	-
Capital (money)	2(4%)	9(20%)	35(76%)
Human labors	46(100%)	-	-
Skilled human labors	3(7%)	43(93%)	-
Water (for drink or agriculture)	11(24%)	35(76%)	-
Fish (demand to consume)	8(17%)	11(24%)	27(59%)
Wild animal (snakes, monkey)	-	-	46(100%)
Timber (Sal wood)	-	7(15%)	39(85%)
Fruits (Jack fruits)	35(76%)	11(24%)	-

This study has showed the availability status of some major resources where the some available resources are domestic animal (100%) and human labors (100%). Land, crops, capital, skilled human labors, water, fish have little or some availability not maximum. So they are not available resources. Most unavailable resources are land (76%), crops (96%), capital (20%), skilled human labors (93%), water (76%), fish (24%), and timber (15%). Disappearing resources include capital (money) 76%, fish 59%, wild animal (snake, monkey), 100%, timber (Sal wood) 85%. This is to mention that the data has been explored from the study respondents through using qualitative data collection tools. But researcher presents the qualitative data to show the quantitative scenarios.

This research reveals that some resources are available and merely available to some affluent and middle class people because of their socio-economic and political ability. But there are limited availability of plants, wild animal and timber resources due to access man-made deforestation. People had enormously consumed and till these resources degradation process is going on there as there are no alternative resources to fulfill the some basic demands such as foods, shelters, fruits, vegetation etc and to generate alternative income generate sources. The study also explored that there were no intention among the villagers to increase and preserve of these degrading of unavailable resources. Rather their intention was only to survive with the present environment on the basis of some existing resources of the locality. The preserving and protecting sense of the villagers is not active in the mind about some existing natural resources. As a result, the degradation process of the resources is gradually increasing. But according to some respondents that in near future, people would not be able to consume and utilize the

existing resources because these resources would be extinct resources. Some old-aged respondents of indigenous group think that once there was enough sense to make a good management of these resources, but due to the increased migrated population, a competitive situation for consuming of forest resources had been grown among the villagers. At present the most disappearing resource is wild animal like snake, monkey etc. Snake and monkey are considered as wild animal; both of them were available and most common animal in the locality. This is the most traumatic side of the study village as once the abovementioned resources were available in the study village. Study reveals that a considerable number of the villagers are migrated and they have come from other parts of the country. The process was started at the early 1980s. Previously, people mostly depended on the natural resources with limited population. Now the area is almost deforested and due to the above mentioned reasons the natural resources also lost its availability. Now the place of wild animals is replaced by human and domestic animals such as hen, cow, goat etc. Almost all people have a minimum number (3-10) of domestic animals both for using of themselves and for commercial purposes. The research found that all have domestic animals that are shown in the above mentioned table. This study explored that almost all wild animals are in extinct situation excluding some common animals like snakes, dogs and so on. The study unfold that wild animals were victimized by the increasing people of the village. These increased people used some of these animals as of their commercial purposes for managing of livelihood means. For instance, some people catch the snakes and monkeys for showing game to earn money. So, the wild animals could not survive properly with increased population. Due to the imbalanced situation the wild animals gradually have lost their own rights of survival in the natural Sal forest environment. As a result, there are some domestic animals, without any natural wild animals. People can easily rear of these animals as there are huge free land spaces in the villages. This is a major environmental change for the village. According to some respondents that there are many crises arise such as village's resources degradation, lack of foods, unemployment, poverty, malnutrition etc due to the changing of environment and physical infra-structure. The picture of resource availability has showed the threatening situation among the villagers. Some respondent think that present environmental situation cannot support them to survive properly because of enormous demand of food, medicine, homestead, materials etc. Even there is no productivity of the existing resources now and local people think that some of available resources would be vanished or extinct in future. This study explored that some existing resources are controlled by some of the villagers, but once it had own growing capacity or productivity and it was managed or adopted with the demand of environment adequately. There is no management system or policy to increase, maintain and conserve the existing resources and its' productivity. People do not know well how they may manage these resources and in which way they will prevail over their problem of resources scarcity.

Process of Resource Utilization

This study has revealed the utilization process of some existing resources. Study has reconnoitered from special conversation with respondents how much they utilize and where is the lacking to utilize of these resources and explore the importance of some resources. Villagers utilize the following resources for various purposes-

Water: Water is essential in every step of life for every person, but in studied village sources of water are very atypical. There is a river and two canals in the study village. People use the water of canals and river in rainy season for various purposes such as cultivation of special crops, paddy, vegetables, planting etc. In addition, people has little source of mineral water because of its geographical location and economic inability. Tube well is one of the sources of mineral water and only few rich people have it. Poor people are totally dependent on those people who have tube well for fulfilling the demand of their drinking water. Some of the tube-well are affected with arsenic. Some people also drink water from canal, river and ponds due to the unavailability of mineral water sources, which is very much unhealthy and unhygienic. Few numbers of people also drink rain water in rainy season.

Fish: Fish is unavailable resource in the study area. In the area there is a river and two canals. So the sources of fish are river, canals and some ponds. But in the dry season water are not found in these canals and river. This is one kind of obstacle to get needed amount of fishes from the natural water sources. Here we found some ponds from where people can catch fish. But some rich people are the owners of these ponds who have enough land to dig a pond for fishing occasionally and professionally. The poor can do work in these ponds as a manual labor to produce the fishes, but they cannot get enough fishes for eating purpose from these water sources as the rich people sell fishes in the market with high price. The poor have to buy it from the market occasionally.

Plants (Sal): Majority people use it as a fuel and for other purposes. Some of them use it for selling purposes to other for the demand of cash money. Also there are some rich and middle class people involved with this activity. The abovementioned Table-2 indicates that plant as a not available resource, but some people manage it at any cost for their benefits. Some of the respondents think that if Sal plant is abused as a fueling purpose of people then it would be very difficult to find the tress of Sal species in the next course of time.

Soil: Soil is used in various ways in the village. Poor people utilize it for the purpose of vegetation and settlement. They cultivate vegetables inside their homestead land. Some poor people commercially produce local variety of vegetable. They sell these in the local market and earn money. They also take the vegetable for family purpose. Some rich and middle class people also cultivate vegetable in the same ways. Some poor and middle class people also utilize the soil for building of their *muddy house* to live which is popular

within the locality. Most of the people utilize it for their cooking purpose, which is known as *chula*. Rich people are the owner of the cultivable agricultural and free land where they are cultivating different crops. In addition to that some rich and middle class people are selling soils to the owners of the brickfield with high price.

Rain: As mentioned earlier, the study spot is totally tropical Sal forest area and there are few sources of water. Most of the people, who are living on agriculture and forest-based resources, mainly depend on rainwater during the rainy season. But this process of resource utilization is achieved when rain water comes naturally. Villagers cultivate many kinds of crops such as paddy, wheat, banana etc that mostly depends on the natural water and sometimes the source of water is pond, canal and others. Presently, natural rainfall is decreasing than previous course of time. People think that due to enormous rainfall earlier they got some facilities such as low cost for growing crops which helped their smooth livelihood.

Animals (snake and monkey): The study explores that once there were many animals belong in the locality. Even before thirty year ago snakes and monkeys were the most common animals in the locality. In the Table 2 the research showed that these wild animals have become disappearing animals. Presently, few animals like *banor*, *kokor*, *shihal*, *gokra sap*, *dora sap* (local name) etc existed in this village forest. Now people are using these rare animal resources, for example, *banor (monkey)* and *snakes* as a recreational element. As a result the number of these types of animals is degrading day by day. So now people can see these types of animal atypical such as *shail*, *kokor*, *sap* etc as a natural animal resource rather they can see that as a commodity of people's recreation. There one kind of commercial thinking has been grown among the villagers. At present, the study has found some domestic animal life such as cow, goat, hen etc for the self and commercial purposes. Every family has at least one cow, goat, and hen. So it can be said that the places of wild animal replaced by some domestic animals. This is a major environmental change for the locality.

Ownership pattern and the rules of properties

The study people use the existing resources and belonged property as they require. That would have positive and negative impact for the village ecosystem. The study explores that the present situation is different than the before and now the population are increasing and at the same time, resources are in shrinking. Respondents said that about 30 to 40 years ago most of the village lands were covered within the natural Sal forest. Now most of the area is almost deforested as data gathered from the local forest range office. Now this forest is not reserved and conserved rather it is open for all classes of people. Forest and some agricultural land is one of the main resources of the villagers but its management is different from other villages of the country. Here only 456.92acars of the total 1357.77acars land; owner of these lands are only some rich and middle class

people. As the majority people are Muslim, their property is distributed according to the Muslim Family Law. Other land properties of the village are government owned Sal forest which has now almost deforested and encroached by some local and migrated people. Now some migrated people are also encroached the forestland in the same way; but it is not as easy for them as the local people do. When the migrated people commit to village leader that they will serve him with cheap labors, then the leader request the forest staffs to give a little homestead land for living purpose. In addition, some local powerful and rich men also encroaches the forestland nearby their agricultural land. They gradually transfer the forest land into the cultivable agricultural land. This is the main process of encroaching forest land as private property. This is why the forest has become a deforested land. This research also explored that the people has influences over the power and politics of the village whose have private land property. The selection of village leader is based upon the amount of land ownership.

Table-3. Ownership pattern among seven properties

Property	Ownership pattern (N=46)		
	Self-owned	Lease	No property
Homestead land	11(24%)	-	35(76%)
Agricultural land	10(22%)	1(2%)	35(76%)
Agricultural instrument	8(17%)	3(7%)	35(76%)
Animal (domestic)	46(100%)	-	-
Tube eel	11(24%)	-	35(76%)
Tree (fruits, timber)	14(30%)	-	32(70%)
Paddy	11(24%)	-	35(76%)

This study has revealed the ownership pattern of some major properties of the village. Some poor people are not getting equal opportunity to use and to get ownership of existing resources due to unequal position in local power and politics. Migrated poor people are totally dependent on the local people to get permission and using resources. There homestead land is important to live in the village. Most of the poor migrated people have no legal homestead land. If we consider Table-3 where we can see that 24% people have own homestead land formally where some rich, middle class and indigenous people are included. Besides we can also see that 76% people having no homestead land are only some local poor and migrated people. But they have made their houses by managing the government forest land which they use as a homestead land. The poor people said that the local forest office had given the authority of living on the forest land with some flexible condition. After the settlement, migrated people usually forget the condition and they frequently try to encroach the forest land nearby their homestead land. After some years, the people claim that they are the owners of this land as they are living here long time. The Table-3 has showed that 22% self-owned agricultural land is owned by only rich and some middle class people; and 2% middle class people have agricultural

land as a lease which they take as an exchange of cash money. But, all of them have at least one own homestead land. This is to mention that 76% people have no agricultural and homestead land.

The research has considered the agricultural instruments like *guro*, *mohish*, *langol*, *kodal*, *moy* (local name) etc in the study village. The study found that 17% people have self-owned such agricultural instrument whose have own at least one agricultural land. They are considered as rich and middle class people. Among them, 7% are only middle class people who take the lease of such instruments from local rich people with some conditions. Remaining 76% people have no agricultural instruments whose are considered as poor.

This study found that all categories of people are the owner of domestic animal such as cow, hen, goat etc. Every household have at least one or more animal including poor, middle and rich households. It is a newly generated income source for all villagers. Rich people have more domestic animals because of their own uses, business and other commercial purposes.

In addition, 30% rich, middle and few poor people have own trees like fruits and timber plants. Other 70% poor people do not own such trees, although they claim the surrounding trees as their own property. Actually they are the poor people who have no own homestead land. The study found that 24% rich and some middle class people who are involved in agriculture and who have some cultivable land have own minimum amount of paddy for their subsistence. Some middle class businessmen or other people from other occupation have to buy the paddy from local market. But the number is very limited. On the other hand, 76% poor people must have to buy paddy from local market for the livelihood.

Livelihood Options

A livelihood could be considered to be sustainable when it can cope with and recover from shocks, and maintain or enhance its capabilities and assets, while not undermining the natural resource base (Hussein and Nelson, 1998). This study explores that the current ecosystem of the village cannot maintain the capabilities of productivity of some existing natural resources because of enormous human caustic activities. It also reveals that when natural resource is extinct, a livelihood option would be threatened or even vanished. This crisis has been created due to the degradation of some natural resources like traditional Sal forest, wild animal, other floras and faunas. Now the existing natural resources of the locality have lost its productivity due to high density population and lack of awareness, adapted knowledge, and effective initiative to cope or enhance for its future capabilities. So the sustainability of livelihood options would not be belonging in the study village.

This study reveals that most of the poor people are working as day laborer, rickshaw-puller, grocer, woodworker and fuel wood collector. Some of them are involved with small business like hair cutting and others professions. In the village most of the middle class people are involved with agriculture, timber business, fishing and small farming. Some are involved with government and non-government services. Some rich people of the study village are involved with the occupation of agriculture, commercial fishing, poultry farming and other business. Some of them work as government and non-government employees. Young people, aged between 20 to 30 years, are mostly depended on forest-based natural resources. Now the scenario is almost altering. Most of the villagers select their livelihood options from different sources based on their personal skills, capital, communication, interaction, power and politics. Many of them have no other options to select as livelihood means. As respondents worried, if the present situation exists people will fall in trouble to maintain their livelihood in future.

Perceptions for a Sustainable Livelihood

The findings of the study carry some suggestions, regarding viable livelihood strategies through forest resources, which are mentioned below:

1. Respondents think that new settlement through encroachment should be stopped in government-owned Sal forest land. Rather alternative settlement initiative would be taken by the respective authorities. Landless and destitute people apart from the area could be relocated here.
2. Migrated people should be encouraged to settle other places where their living facilities and livelihood opportunity prevails. In this process, non-governmental organizations (NGOs) could work for awareness building and the development of peoples' livelihood option through continuous support of capacity building.
3. This study has showed the land encroachment process of the villagers. It is not an eco-friendly activity for the sustainability and productivity of natural resources. So, the authority could take an initiative to stop forest land encroachment and announce the forest land area as a restricted area for several years.
4. Respondents think that the newly plantation of Sal species would be enhanced in entire deforested sites. There local forest authority can be empowered to protect the reforested and newly plantation sites. For this purpose, poor people could be available with some benefits such as fuel wood collection, bee collection, rearing of domestic animal etc.
5. The afforestation program has been started in entire deforested sites of the study village. Name of the program is *woodlot project*. Most of the plants under this program are foreign species like *Akasi*, *Uqlit*, *Mahogany* etc (local name). But respondents think that these types of trees have some demerits i.e. damage

capacity of soil productivity and fertility. Villagers suggest that if they ought to recover and right back of earlier Sal forest ecosystem then obviously they have to think about the Sal forest plantation instead of foreign wood species.

6. People face the problem of alternatives income generation sources in the study village. That is why they collect plants, timber, fuel wood, bamboo etc. from the Sal forest land. If they would be coped with alternative income sources then people never collect the existing forest resources for fulfilling of their livelihoods. Here, government and non-government initiatives are badly necessary in the area.
7. There are no better road and transportation system to communicate with nearby town for personal, commercial and other professional purposes such as education, treatment, medicine, marketing etc. People think that if road and transportation would be better, then the dependency on the existing forest resources would be reduced. They can move for alternative livelihood sources.

Conclusion

This study reveals diversified livelihood activities and endangered situation. Study found some villagers are involved in forest resources degradation and encroaching activity due to unavailability of other livelihoods resources and alternative income sources. Migrated people are perceived as an unwanted burden to the local people and also to the local forest ecosystem. Now both indigenous and migrated people are thirsty to search the alternative income generating activities. Their alternative livelihood activities need to be supported through close interaction, capacity and awareness-building, community mobilization and motivation. Study explores that local government and non-government organization can play a vital role to improve of villagers' livelihood status and Sal forest ecosystem. The alternative income generation activities may include the cultivation of bamboo and eco-friendly vegetation, participatory agro-forestry activities, development of small scale enterprises such as nurseries, collection and processing of medicinal plants, honey processing, fishing, bees and poultry farming and domestic animal farming etc. The study earnestly feels for conducting further research to better understand and unfold of eco-friendly forest management procedure. In addition, this is an exploratory qualitative study. Testing hypothesis has not applied in this research. We think it will help to generate hypothesis for further research.

References

- Ahamed, F.U., (1993). Respondents to environmental degradation: Some implication of a social forestry project in Bangladesh, M.Phil, Dissertation, Cambridge University, Cambridge.
- BFD (Bangladesh Forestry Department), (2001). *Forest inventory of the sal forests of Bangladesh (Forestry sector project)*, Vol. 4 (Tangail Forest Division). Dhaka: Ministry of Environment and Forests.

- Byron, N. and M. Arnold, (1999). What features for the people of the Tropical Forest? *World Development*, **27**(5): 789-805.
- Chowdury, R.A., (1994). History and importance of Sal forests and current Management status, in: Agro forestry for the degraded Sal forest, proceeding of national workshop held at Bangladesh agricultural research council, BARC, and Forest department with the financial assistance of APAN, Dhaka.
- Hussein, K. and J. Nelson, (1998). Sustainable livelihoods and livelihood diversification, IDS Working Paper Number 69. Institute of Development Studies: Brighton.
- Kumar, S., (2002). Does Participation in Common Pool Resources Management Help the Poor? A Social Cost-Benefit Analysis of Joint Forest Management in Jharkhand, India. *World Development*, **30**(5):763-782.
- Kumer, N., and Saxena, N. C., (2002). India's forest: Potential for poverty alleviation. In ed. U. Lele, *op. cit*
- Logan, B.I and Moseley, W.G., (2002). The political Ecology of Poverty Alleviation in Zimbabwe,s Communal Areas Management Programs for Indigenous Resources (CAMPFIRE). *Geoforum*, **33**:1-14.
- Sekhar, U.N., (2003). Local people Attitudes Towards Conservation and Wildlife Tourism around Sariska Tiger Reserve, India. *Journal of Environmental Management*, **69**:339-347.
- Uddin, M. S. and M. A. S. A. Khan, (2006). Comparing the impacts of local people and Rohingya refugees on Teknaf Game Reserve, Bangladesh. In: Fox, J; Bushley; S. Dutt and S.A.Quazi (eds). *Making Conservation Work: Linking Rural Livelihoods & Prptected Area Management in Bangladesh*. East-West Center and Nishorgo Program of the Bangladesh Forest Department. 149-175pp.
- World Bank, (2001). Recommended revisions to OP 4.36: Proposals for discussion. Washington, D.C. The World Bank.