

**IMPACT OF SOCIAL FORESTRY ON THE LIVELIHOOD OF  
NEARBY POOR PEOPLE OF DINAJPUR DISTRICT**

**A THESIS**

**BY**

**MST. SHAHANAJ PARVIN**

Registration No. 1805342

Session: 2018

Thesis Semester: July-December, 2019

**MASTER OF SCIENCE (M.S)  
IN  
AGROFORESTRY AND ENVIRONMENT**



**DEPARTMENT OF AGROFORESTRY AND ENVIRONMENT**

**HAJEE MOHAMMAD DANESH SCIENCE AND TECHNOLOGY UNIVERSITY,  
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*Submitted to the Department of Agroforestry and Environment  
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In partial fulfillment of the requirements for the degree of*

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**UNIVERSITY, DINAJPUR-5200**

**December, 2019**

*DEDICATED  
TO MY  
BELOVED PARENTS  
&  
RESPECTED TEACHERS*

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*The Authoress*

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# **IMPACT OF SOCIAL FORESTRY ON THE LIVELIHOOD OF NEARBY POOR PEOPLE OF DINAJPUR DISTRICT**

## **ABSTRACT**

A field survey was conducted in Dinajpur of Bangladesh to evaluate the impact of social forestry activities on the livelihood of the beneficiaries. This study attempts to assess the activities, cost, benefits and social impacts of livelihood of social forestry on socio-economic condition of the beneficiaries. The study was conducted during the period of January 2019 to October 2019 at five different roadsides of Dinajpur district which were planted under social forestry program. Those were i) Dinajpur Government College to Dosmile Road, ii) Dosmile to Birganj Road, iii) Dinajpur to Birol Road, iv) Dinajpur to Chirirbander Road, v) Dinajpur to Fulbari Road. Experimental unit of the survey was 20 m strip on both sides for measurement of growth of planted species. To collect the social data, 15 participants out of 75 beneficiaries from each location were surveyed. Therefore, total 75 beneficiaries were interviewed using a pre-structured questionnaire to collect necessary information following the objectives of the study. Collected data were analysed by Descriptive method of statistics. Most (73.33 %) of the beneficiaries involved in that program were influenced by the Forest Department. This study showed majority of the beneficiaries (73.3%) were in the old age having average farm size of 18.75 ha. Most of the respondents (14.9 %) depended on agriculture for their livelihood. Majority (61.33 %) of them had medium annual income. Women (16 %) also participated in the social forestry program. The respondent farmers planted different species of wood trees namely Akashmoni, Mangium, Eucalyptus, Mahogany, Neem, Raintree, etc. Among the planted species Akashmoni (24 %) was most planted, preferred and profitable species. The species were planted in the months of May to July because it was the best time for planting most of saplings. Age of the planted saplings was in the range of 4-6 months. Based on the trees and tree products wood based cottage industries were established in the surrounding areas of social forestry program and generated employment and income opportunity for the local people. Due to the involvement in social forestry plantation, illegal felling of trees, encroachment etc. were reduced significantly. Some people changed their profession from theft to tree guards. By using the pruning materials and fallen leaves, they met their fuel wood demand and reduced their expenditure in purchasing fuel wood. They also used the pruned leaves as fodder for their cattle. After selling the final products, the beneficiaries got a fixed amount of money mentioned in the agreement deed which was done by the Forest Department. They met their essential needs using that money such as loan payment, children education, food buying, old house repairing, etc. They also faced several problems during implementing the program such as illegal felling, encroachment, damaged by cattle and natural disaster.

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# CHAPTER I

## INTRODUCTION

Social forestry is the forestry program by the active participation of the local people whose main purpose is to fulfill the needs of timber, manure, food, fruit, fibre, fuel wood etc for the local people (Nath and Inoue, 2010). Social forestry program started in Bangladesh in the early 1980s through donor-assisted programs ((Muhammed *et al.*, 2005). This program is considered to be one of the most effective and successful forestry programs in Bangladesh. The concept of social forestry has emerged as a framework for understanding and analyzing the relationships among stakeholders involved in community development, and has come to the forefront as a crucial ingredient in achieving equitable and sustainable development (Islam and Sato, 2012; Jashimuddin and Inoue, 2012). Recently with the active cooperation of Bangladesh Forest Department, the local participants are getting benefits from social forestry (Nath and Inoue, 2010; Nath *et al.*, 2011). As the program is becoming popular day by day, the impact of this program, on the livelihood needs to be evaluated.

Social Forestry a forestry which aims at ensuring economic, ecological, and social benefits to the people, particularly to the rural masses and those living below poverty line, specially by involving the beneficiaries right from the planning stage to the harvesting stage. The target of the social forestry is the 'rural poor' and not the 'tree' alone. This support, however, is not just to ensure that the trees get planted and survive but rather to ensure that the people who plant the trees receive adequate sustenance to live with dignity before reaping the harvest from the raised crops. FAO defined social forestry as 'any situation which intimately involves local people in a forestry activity'. It excludes large scale industrial forestry and other form of forestry which contributes to development solely through employment and wages, but includes activities by forestry industries and public services to encourage and assist forestry activities at a community level (Adger, W.N. *et al.*, 2012).

The history of social forestry in Bangladesh is linked with the institutional approach to the introduction of forest extension services in the Forest Department. During 1962-63, two forest extension divisions, one at Rajshahi and other at Dhaka were created and the tree planting day on 1st June was introduced. Since the creation of the forest extension division for raising and distributing of seedlings, a gradual expansion of activities took place. The activities, however, remained confined in the establishment of nurseries and ceremonial

planting in the district headquarters and some important centres. Tree planting campaign initially was for a day which later extended to a week, then a month and subsequently to three months period. The programme activity initially was small and it never created impact on people. The activities failed to bring any change in the outlook of extension personnel or change in the mind of common people. No thought was given to the utilization of landless people and their involvement in the forestry activities (Farouque *et al.*, 2017).

Social forestry project in Bangladesh was taken up by entrepreneurs like Mahbubul Alam Chashi, Mohammad Eunos and Abdul Alim at Betagi and Pomora, two remote denuded hills in Ranguniathana of Chittagong district. One hundred one families were selected for the purpose and land was given to them. The main components of the project were: establishment of about 4800 km strip plantations along road, railway, and canal embankments; adopting participatory approach in raising fuelwood plantation in 4800 ha, and demonstrative agroforestry farms in 120 ha in the denuded forest land; establishing a social forestry training institute at Rajshahi; providing equipment and training to staff as part of institutional support; imparting training to various categories of people to create awareness among them; and establishment of regional office and division office within the project area (Zaman, S., Siddiquee, *et al.*, 2011).

Bangladesh with a total population of about 160 million in a total area of 147 570 km<sup>2</sup> is the most densely populated country in the world. Per capita arable land is about 0.048 ha (BBS, 2017). According to Forestry Statistics in Bangladesh, the estimated forest area of the country is about 2.53 million ha (0.016 ha person<sup>-1</sup>) and this is about 17.5 per cent of the total land base of Bangladesh. Of this forest land, the Forest Department directly controls 1.53 million ha having the legal status of reserved forest and protected forest (Chowdhury and Koike, 2010). The District Administration controls 0.73 million ha of unclassified state forests and the remaining 0.27 million ha belong to the category of privately owned village forest. However, the Forest Resources Assessment 2000 (FAO, 2001) indicates only 10.2 per cent of the land area of Bangladesh as forest. This is much lower than the government estimate because the FAO estimate includes only the designated government reserved forests, protected forests and unclassified state forests without taking into consideration the village forests and private forests. Due to the decreasing trend of natural forests (Reddy *et al.*, 2016), importance of social forestry and agroforestry programs is increasing day by day.

Social forestry in real sense of the term started with the Asian Development Bank (ADB) financed community forestry project. ADB sanctioned a loan of 11 million US dollar and United Nations Development Programme allotted 2.0 million dollar through Food and Agricultural Organization as technical assistance. Project activities started in 1982 and completed in 1987 in seven districts, namely Dinajpur, Rangpur, Pabna, Rajshahi, Bogra, Kushtia and Jessore. The objective of the project was to increase supply of fuelwood, fodder, small timbers, fruits and other products. The project was designed to act as catalyst by creating community awareness with permanent institutional capacity (Brautigam *et al.*, 2010).

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Rakodi *et al.*, 2014).

### **1.1 Objectives**

Considering the above facts and importance of this program the following objectives are taken in the present study:

- To identify the diversity of plants in the social forestry program of Dinajpur.
- To assess the economic value of plants.
- To explore the impact of social forestry on the livelihoods of the participants.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

The purpose of this Chapter is to review the past studies conducted by different researchers related to the present study. As far as possible the researcher tried to review the available literature from home and abroad related to perceived impact of social forestry as well as other similar programs and activities.

This Chapter comprises of three sections. In the first section, literature on different aspects of social forestry or related matters has been presented. The second section reviews the past research studies in connection with the relationship of independent variables with impact of different programs and activities. The final section deals with the conceptual framework of the study.

Literature on Different Aspects of Social Forestry or Related Matters The (1999) reported the results of a survey which was conducted during 1995 to 1996 in three villages (Deveghara, Shivnagar and Tahpa) of Tarapur block, Munger, Bihar, India. Participatory Rural Appraisal Technique was used to investigate the resources of village and socio-economic status of agroforestry and non-agroforestry adopting farmer. It was found that farmers raising different crops under agroforestry systems were economically better and attained self-sufficiency in and fodder.

#### **2.1. Social Forestry Activities of Forest Department (FD)**

Forest Department of Bangladesh inherited a traditional forest resource management and conservation system from British regime, wherein there had no participatory approach to involve people around forest area. Forest Department stepped into a new era in the year 1981 by introducing different social forestry projects. Special feature of this projects were to raise short duration plantations to provide early return to the beneficiaries, which would attract participants to involve in these project activities (Anonymous, 2006).

##### **2.1.1. Community Forestry project (CFP) (1981-1987)**

This project was implemented in 23 northern districts of Bangladesh. The main objective of this project was to develop a participatory approach by involving local landless and poor people for creation and management of forest resource on benefit-sharing mechanism. The

main components of the project were fuel wood production, pilot agroforestry demonstration plot, village afforestation and establishment of community forestry growth center.

### **2.1.2. Thana Afforestation and Nursery Development Project (TANDP) (1988-1996)**

Thana Afforestation and Nursery Development Project (TANDP) was implemented throughout the country except 3 hilly districts. The main components of the project were agroforestry and woodlot plantation, institutional plantation, raising seedlings for sale/distribution, training of the village leaders, NGO workers, teachers and students, establishment of thana nursery and private nursery.

Achievement of the project was woodlot-19562 ha, agroforestry-5180 ha, strip plantation-18180 km, training of participants and village leaders-90900 persons (Anonymous, 2006).

### **2.1.3. Forestry Sector Project (FSP) (1997-2006)**

Forestry Sector Project implemented all over the country except Khagrachari and Rangamati hilly districts. Main objectives of the project were to enhance the conservation of forest in the project areas, increase overall wood production, sustainable management of forest resources through local community participation, institutional capacity building and policy reform. The main components of the project were participatory Sal coppice management, woodlot, agroforestry, strip plantation, char land plantation, institutional//homestead plantation.

Achievement of the project was Woodlot-12374.87 ha, agroforestry-3708 ha, strip plantation-14049 km, training of participants and village leaders-139501 persons (Anonymous, 2006).

### **2.1.4. Coastal Green Belt Project (CGBP) (1995-2000)**

Coastal Green Belt Project (CGBP) implemented in 12 coastal districts of the country on participatory basis, where cyclone and tidal surge occurred frequently. The main components of the project were participatory foreshore plantation, strip plantation, embankment and char land plantation, institutional and homestead plantation.

Achievement of the project was strip plantation-8934 km, training of participants and village leaders-48561 persons (Anonymous, 2006).



### **2.1.5 Management Forest Resources Project (FRMP) (1992-2001)**

Among the other activities, the project contained a component named Participatory Forest Development (PFD)”. The PFD component established 850 ha of plantation through participatory agreement with the local people within the Chittagong and Cox’s Bazar districts (Anonymous, 2006).

### **2.1.6. Agreement between beneficiaries and Forest Department**

The term and conditions of the agreement between beneficiaries and the Forest Department were as follows:

- 1) Beneficiaries will be responsible for plantation, protection and management of the planted species.
- 2) Beneficiaries will allow cultivating agricultural crops in association with trees.
- 3) The agreement will be valid up to 10 years.
- 4) Ownership of agricultural crops, first thinning materials, dry leaves and pruned materials will be fully deserved by the farmers.
- 5) Farmers will not pay any tax.
- 6) Farmers will not be allowed to established any permanent or temporary house or shade.
- 7) Share of the second thinning and final selling will be distributed according to the following (Table 2.1.1)

**Table 2.1.1. Benefit sharing agreement**

Beneficiaries	Woodlot %	Agroforestry %	Sal coppice management %
Forest Department	40	45	65
Participant	50	45	25
Tree farming fund	10	10	10

(Source: Anonymous, 2006)

## **2.2. Activities and Impacts of Social Forestry**

A survey was conducted on Community Forestry Project (CFP) of Nepal about achievement of the project from 1981 to 2000. The achievements were about 1.1 million ha of forest land were handed over to nearly 14000 forest user groups (FUGs); 1.2 million households were involved; and 25 percent of the national forest is now managed by more than 35 percent of

the total population. A rapid appraisal of forest product utilize, income and patterns of expenditure of 1788 FUGs from 12 hill and Terai districts in Nepal was carried out in 2000 and extrapolated all FUGs in the country.

The result indicated that the total annual cash income from the sale of forest products from community forest program was 747 million rupees (more than US\$ 10 million). This amount was almost 42 percent of the annual budget of ministry of Forest and Soil Conservation. At the present, 100 percent of those benefits are going to the FUGs. About 36 percent of the income from the community forest program was spent by the FUGs on community development activities, such as building of school, roads and drinking water facilities (Anonymous, 2002).

A case study was conducted on Joint Forest Management (JFM) in Haryana. The success of the Joint Forest Management in Haryana was clear in the improvement of socio-economic development of the people and the evaluation of an institutional process of cooperation between the Haryana Forest Development (HFD) and the Hill Resources Management Society (HRMS). The maximum average yield of bhabbar grass was 850kg/ha under six years of community protection compared to the yield of 300 to 360 kg/ha in the unprotected areas. The total number of trees/ha increased from minimum of 700 in unprotected forest areas to maximum of 3960 in 10 years of protection. Leasing out of forest areas to HRMS for extraction of bhabbar grass contributed to the development of village infrastructure and also in the economic development of the local communities, especially the Banjara community to re-stock their livestock with more productive breed.(Anonymous,2001).

Singh (1999) evaluated a Social Forestry Project of Orissa, in India. He reported that the financial performance of Social Forestry was better than in forestry due to additional income from agricultural crops, higher growth of trees and higher survival of trees. Ahmed (1998) demonstrated the dynamics of social forestry as a model for protecting and preserving forests and generating income opportunity for the landless people.

Begum (1998) conducted an economic analysis of homestead agroforestry practices in selected areas of Mymensingh. She observed that the farmers practicing homestead agro forestry earn higher gross margin from fruits and vegetables. In general, farmers appeared to be rational in the use of resources in producing vegetables. The overall production potential of homestead vegetable gardening is, however, profitable.

Khan (1996) in his paper on Patronage and Social Forestry in Bangladesh revealed that the participating farmers in the Social Forestry Project were engaged in deep- rooted dependency on the local elites (the patrons). The patrons, in turn, utilize the patronage network in influencing the selection of the target farmers for the project, to capture the benefit of the project and to use the farmers as support-bases in local political ‘power’ struggles. He also found that Social Forestry Project has done little to rescue farmers from these exploitative and unequal social relations.

Mangaraj and Raj (1996) found that perception of involved extension ‘personnel about Social Forestry Project were not sufficient. Although they had acquired sufficient skill in the establishment of plantation but there was insufficient skill in motivating, involving and promoting participation of people in the plantation program.

Ahmed (1995) stated that in Bangladesh Social Forestry offers a practical solution to many problems ranging for growing additional food grains, finding alternative sources of nutritional diets, energy, fodder, timber and building materials, social and economical rehabilitation of landless and marginal farmers and rural women to the forging of an ecological balance among men, land and trees. He suggested that goal of social forestry can be realistically achieved only when there exists a participatory institutional mechanism involving, government, people’s organization, researcher training and extension institutions and above all the beneficiaries.

Malik *et al.* (1995) stated in a discussion of traditional forest management practices, which have variously been termed community homestead social forestry which compares economic returns and ecosystem benefit with those from developed industrial forest management. It is noted that most economic analysis fail to take into account non-market benefits of community forestry can maintain a critical balance between economic and ecosystem sustainability. An integrated model of community forestry development is proposed by co-ordination the extension services of the departments of agriculture, forestry and environment.

Manguraj and Raj (1995) identified non-cooperation of rural youth, women’s traditional believes, improper education, poor finance, no planning for care and maintenance of plantation, political interference and inadequate technical guidance inhibit the success of the Social Forestry Project.

Sekar and Sahoo (1995) reported that Social Forestry Program in Orissa, fourteen landless tribal families was allocated 0.5 hectare of land, on which 2000 multipurpose trees were established (as seedling) at  $4 \times 1$  m spacing, in two rows. Agricultural crops were raised between the rows. Trees survival rates were mostly high and all the tribal were able to sustain their families for 6 to 8 months each year.

Fattah and Akhtar (1994) found that afforestation and agro-forestation had drastically reduced the rate of desertification of land in Pakistan.

Mahapatra (1994) in his paper entitled “Why Village Woodlots Fails: A People Opinion Survey on Social Forestry Woodlot Plantation” found that awareness of the project among the villagers were fairly high. The low plantation survived rate was attributed to lack of Villagers’ Joint Forestation committee (VFC). Many villagers were skeptical about the practical benefits of the woodlot (provision) of fuel wood, grass and fodder, employment and income and the usufruct situation, and skill expected to collect fuel wood from the forest where it was available.

Chowdhury and Sattar (1993) in a study showed that farmers, either retained or planted trees on the crop field for 17 reasons of which fruit cash, insurance, fuel, juice of pump, timber for construction material and increase of soil fertility etc. are important.

Miah (1993) reported that up to 1987, the farmers were not well aware about the effects of deforestation, but afterwards they were becoming aware possibly due to mass campaign in this regard by the government and non-government agencies. As a result the number of homestead trees got an increasing trend.

Lawrence and Hardesty (1992) stated that agro-forestry is not a new concept, most (94 percent) of the land owners of the USA are familiar with agro-forestry practices and found practicing agroforestry or providing advice to land owners who not practicing agroforestry. Agroforestry enhance productivity (18 per cent), aesthetics (13 per cent) and that create income diversity (13 per cent). They found their investigation potential obstacles to practicing agroforestry were: lack of information (28 per cent), lack of technical assistance (18 percent); establishment costs (14 per cent): and the fact that it was not an established practice (14 per cent).

Gilmour and Nurse (1991) reported that the overall landscape is undergoing steady afforestation by farmers to maintain the tree-based farming system in the Middle Hills of

Nepal. Mondal (1991) in his study on Development Management by Gram Panchayat Organization in Nadia and Hoogly districts of West Bengal found that Gram Panchayat Pradhans (Chairpersons of Local Governments at the village level) considered “tree plantation” and “protection of tree” important as it contributed towards improving the quality of rural life.

Adegbihin *et al.* (1990) found that successful introduction of fast growing exotic tree species and the increasing awareness of the multipurpose use of indigenous tree species, the potential of agroforestry for environmental improvement and in sustaining increased output of food and forest produce in the Savanna region needs to be exploited.

Sarker (1990) reported that Social Forestry is an attempt to create forestry in the inhabitant areas of a country in the face of mass destruction of forestry.

Akter *et al.* (1989) in their study showed that farmers grow trees as saving and insurance against risk of crop failure and low yield as well as assets for their children.

Lai (1988) found in his study that application of appropriate technology in relation to production and management of trees and crops in the homesteads, better utilization of land can be achieved with the creation of better living environment.

Shah (1988) reported that social forestry production had direct effect on agricultural production. In a tropical country like India, it was feasible to produce more food and more wood by integrating social forestry with agriculture in form of a three dimensional mixed production system. Under harsh climatic conditions, selected trees in the form of windbreaks and shelterbelts provide a protective umbrella to agriculture. Trees help to ameliorate the effects of climatic excesses and erosion.

Rahman (1987) reported that the growing of plantation crops (fruit trees, banana, groves, forest plantations and bamboo groves and vegetables) have resulted in general increase in living standard and socio-economic status.

Ruangpanit (1985) reported that the participation of the people in community forestry was very important. If they did not participate in the planning and implementation, the community forestry project would not satisfy individual and local needs; if they did not participate in receiving benefits, the projects will had no meaning for them.

Fortmann (1984) reported that agro-forestry and other tree projects' in developing countries often simply failed to taken women into account. Yet women provided at least half of the rural labor and significant number of rural households, as well as being the major users of fuel wood and wood products. It was the intelligence, energy initiative and labor of women that would determine whether agro-forestry and other tree projects worked or not.

Wiff (1984) reported that women were involved in Honduras Forestry Development Corporation in construction of terraces and reforestation. Although the project was not aimed at women they proved more receptive to new ideas. Their success led to wider community participation in the project. However, many legal and social obstacles remained to the participation of women in work and training outside, what was perceived as their primary role as mother.

In India, the National Commission on Agriculture (1976) stressed the socioeconomic importance of social forestry in the rural community as well as in the management of forest resources. It stated that by taking up the program of raising trees, grasses and fodder in the farmer's own land, village common wasteland and degraded forests close to inhibitions; it would be possible to meet the requirement of fuel wood, fodder and small timber for rural housing and making agricultural implements etc. Literature Related to Relationships between Selected Characteristics and impact of different aspects. Age Waheduzzaman (2004) studied on impact of NGO-interventions on livelihoods of women in a fishing community and findings revealed that age of the respondent had no significant relationship with their impact of NGO interventions on livelihoods.

Alam (2001) found that there was a significant negative relationship between age and living status of the beneficiaries of social forestry project of CARITAS.

Rashid (2001) found that there was no relationship between age of the beneficiaries and their living condition in his study on impact of BRAC activities on income and women's empowerment in selected area of Mymensingh district.

Begum (1998) in her study found that age of the rural women had no significant relationship with their poverty alleviation owing to Participation in ASA activities. Basak (1997) in his study entitled "Impact of BRAC Rural Development Activities as Perceived by the Participating women" showed that the age of the rural women under BRAC had no

significant relationship with their impact of participation in BRAC rural development activities.

Level of education Begum (1998) in her study entitled “Poverty Alleviation of the Rural Women Organized by Association for Social Advancement” observed that education of the rural women had a positive significant relationship with their poverty alleviation owing to participation in ASA activities.

Basak (1997) in his study found that education of the rural women under BRAC had a positive significant relationship with their impact of participation in BRAC rural development activities.

Annual Family income Mortuza *et al.* (2004) found that family income had significant positive relationship with livelihood.

Waheduzzaman (2004) concluded that family income of women beneficiaries of CARITAS had significant positive relationship with their impact of NGO intervention on livelihood.

Rahman (2002) found that family income of PETRRA farmers had no significant relationship with their impact of livelihood assets building. 2.2.6 Duration of involvement Ali (2003) in his study on Impact of micro-credit in the poverty alleviation of BRAC women beneficiaries in a selected area of Dinajpur district found that the relationship between duration of involvement with BRAC of the respondents and their change in income was positively significant.

Alam (2001) in his study found a significant positive relationship between length of involvement of the TMSS respondents and their change in income.

Participation in Social forestry Program Rokanuzzaman (2004) reported that there is no significant relationship between participation in income generating activities towards CNRS of the CNRS- beneficiaries and their change in livelihood due to participation in CBFM-2 Projct. Waheduzzaman (2004) concluded that the participation in income generating activities of the women beneficiaries of CARITAS had non significant relationship with their impact of NGO intervention on livelihood.

Paul (1996) concluded a study on the impact of livestock program of BRAC in sadar thana of Mymensingh district. The result of the experiment revealed that a substantial positive change

occurred in family income of the participants after their joining the milch cow rearing and beef fattening program of BRAC.

Sultan (2006) concluded that the knowledge on homestead agroforestry of the farmers had significant positive relationship with the socio-economic condition as perceived by the respondents in the selected area of Sharia Kandi Upazila of Bogra District. Rokanuzzaman (2004) in his study of “impact of community based fisheries management project on livelihoods of a fishing community in a hoar area of sunamgonj District” found no significant relationship between knowledge and fisheries management with the change in livelihood status due to the participation of CBFM-2 project.

Amin (2002) performed a study entitled “impact of PETRRA project in improving livelihood status of the beneficiaries of RDRS”. He reported that there was a significant positive relationship between knowledge of the beneficiaries of PTRRA project of RDRS and their livelihood change.



## **CHAPTER III**

### **MATERIALS AND METHODS**

An appropriate methodology was very important for performing any type of research because it was the foundation of any research. Researcher follows a scientific and logical methodology for carrying out the research. The survey was based on the following steps with including the study areas, the sampling technique, data collection and procedure.

#### **3.1 Study Area**

##### **3.1.1 Geographical Location of Dinajpur**

Dinajpur district is a district in the Rangpur Division of northern Bangladesh. Dinajpur is the largest district among all sixteen northern districts of Bangladesh. Dinajpur is bounded by Thakurgaon and Panchagarh districts in the north, Gaibandha and Joypurhat districts in the south, Nilphamari and Rangpur districts in the east, and the state of West Bengal, India in the west. The total area of the district is 3,437.98 km<sup>2</sup> (BPC, 2001). The main rivers of the district are the Dhepa, the Punarbhaba, and the Atrai rivers, Dinajpur Railway Bridge, Punorvoba River. Total area 3437.98 sq km, located in between 25°10' and 26°04' north latitudes and in between 88°23' and 89°18' east longitudes. The upazilas of this district are: Biral Upazila, Birampur Upazila, Birganj Upazila, Bochaganj Upazila, Chirirbandar Upazila, Dinajpur Sadar Upazila, Ghoraghat Upazila, Hakimpur Upazila, Kaharole Upazila, Khansama Upazila, Nawabganj Upazila, Parbatipur Upazila, Fulbari Upazila (Ahmad Hossain , 2012).

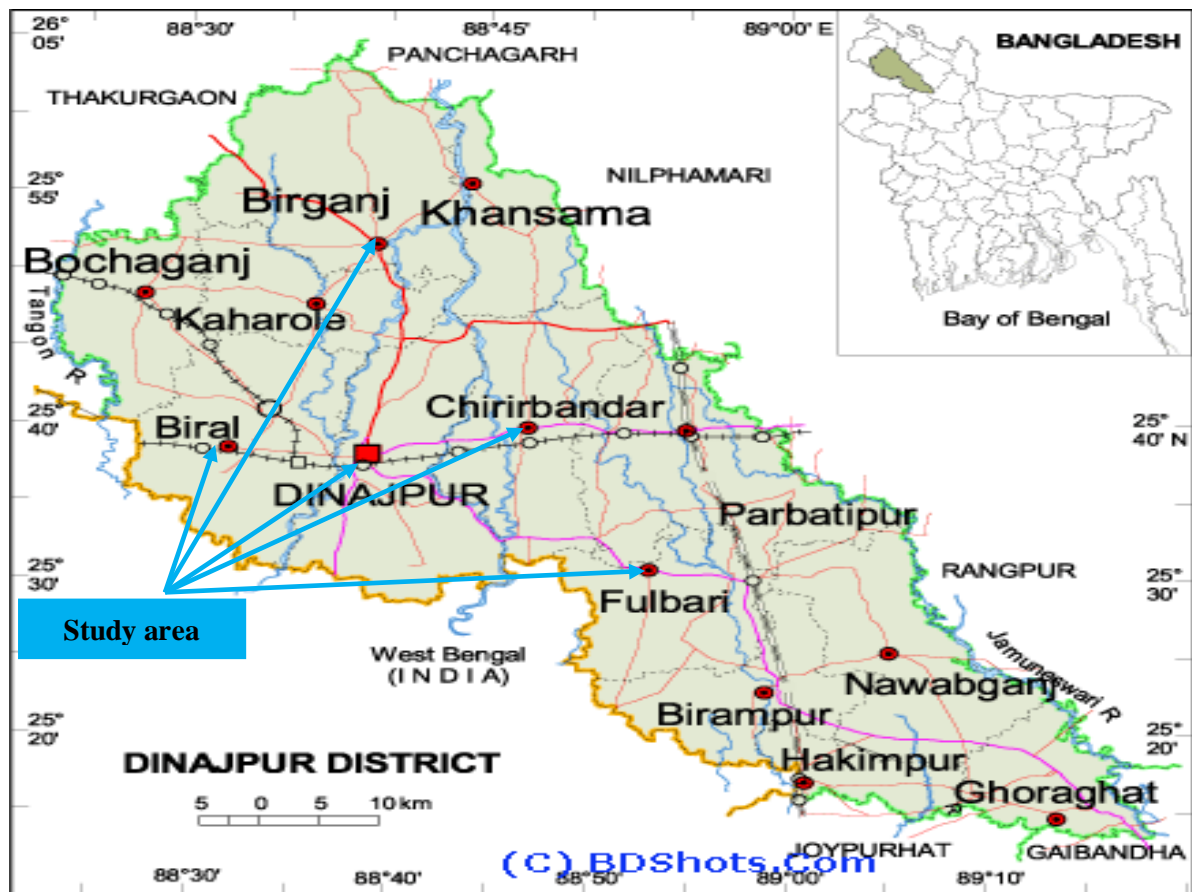


Figure 3.1: Map Showing Dinajpur Districts

Selection of study area was very difficult and most important part of any research. After discussing with the Forest Department (FD) personnel and a short visit, five areas namely Dinajpur college gate to Dosmail road, Dinajpur to Birganj, Biral, Chirir Bander and Fulbari roads were selected. It includes different roadsides which were planted under social forestry program.

The main criteria behind the selection were as follows-

1. Good establishment of planted species.
2. No research had been performed previously on this aspect.

### 3.2 Topography and soil type

Five selected areas of Dinajpur district are located in the agro-ecological region-1 i.e. Old Himalayan Piedmond Plain. Fertility of soil is moderate where topsoil is strongly acidic and sub soil are moderately acidic and soil condition higher organic matter.

### **3.3 Climate of Dinajpur**

Dinajpur experiences a hot, wet and humid tropical climate. Under the Köppen climate classification, Dinajpur has a tropical wet and dry climate. The district has a distinct monsoonal season, with an annual average temperature of 25 °C (77 °F) and monthly means varying between 18 °C (64 °F) in January and 29 °C (84 °F) in August.

The temperature condition of the selected areas was congenial to most plant growth. Average minimum temperature is 22°C and maximum is 36°C. Winter season starts from November and continues up to March. Summer starts from April and continues up to June. Heavy rainfall occurs in July. Average annual rainfall is 2000 mm.

### **3.4 Flora**

Akashmoni (*Acacia auriculiformis*) is the major species of the study area, about 70 percent of the area was covered by this species. Among fruit trees Mango (*Mangifera indica*) and Jackfruit (*Artocarpus heterophyllus*) were main. Other important species were Eucalyptus (*Eucalyptus camaldulensis*), White siris (*Albizia procera*), Black siris (*Albizia lebbek*), Sisso (*Dalbergia sissoo*), Neem (*Azadirachta indica*), Arjun (*Terminalia arjuna*), Cadamba (*Anthocephalus chinensis*), Rain tree (*Samanea saman*) etc. (Zico, A.S.A.D.U.Z.Z.A.M.A.N *et al.*, 2011).

### **3.5 Fauna**

Important fauna of the study area were Squirrel (*Calloscirus pygerythrus*), Jackal ( *Canis aureus*), Myna (*Acridotheres tristis*), Lizaed (*Varanus bengalensis*), Jungle cat (*Felis chaus*), Mongoose (*Herpestes edwardsi*), Heron (*Ardea purpurea*), Parrot (*Psittaci formes*) etc.

### **3.6 Marketing facilities**

A good communication and marketing facilities play very important role in rural development. The study areas were connected with high way by concrete roads. So, good marketing facilities have developed for selling products to district areas (Meera, S.N., 2004).

### **3.7 Experimental period**

The study was from January, 2019 to October, 2019.

### **3.9 Sampling Techniques**

Experimental unit of the survey was 20 m strip on both sides for measurement of growth of planted species. In each selected area, there were five replications of 20 m strips on both sides. To collect the social data, 15 participants (3participants × 5 replications=15 participants) were surveyed from each study area. Therefore, a total of 75 participants were surveyed in this study. A pre-structured questionnaire for collecting data from the selected respondents was used.

### **3.10 Preparation of Questionnaire**

A pre-structured questionnaire was prepared to collect the required data to satisfy the objectives. Data was included both socio-economic and growth data. Some socio-economic variables of the participants were name, age of respondent, sex, yearly income, family size, homestead area, profession, year of participation in social forestry, benefits from social forestry, year of plantation in social forestry how they look after the roadside plantation or protection measure against thief, money/benefit received, mode of technical help from FD, intermediate benefits, impact on their livelihood etc. (European Food Safety Authority, 2009).

### **3.11 Method of data collection**

Data were collected in two different ways-

- a. Primary data collection: Primary data were collected randomly from 15 respondents out of 75 from each study area using a pre- structured questionnaire.
- b. Secondary data collection: Secondary data about the respondents were collected from the forest Department, Journals, books etc.

### **3.12 Tree measurement**

Tree diameter, height and volume was measured in the sampled area. Economic value was calculated based on the local market price. The height of the tree was measured from ground level to the top of the tree with the help of Hager Altimeter and suunto cleano meter. The height of all trees per sample unit per replication was recorded and its average was calculated (Hunter, J.T., 2006).

### **3.13 Estimation of income**

After selling the final products of Social Forestry Program (SFP) share money of each respondent were recorded.

### **3.14 Estimation of employment opportunity**

Occupation of each respondent was recorded to become sure that this program s aim to uplift the economic status of rural poor.

### **3.15 Estimation of standard of living**

For estimating the family standard the following information were collected –

After getting the share benefits the beneficiaries used the money in –

- 1) Business purpose
- 2) Children 's education
- 3) Food buying
- 4) Loan payment
- 5) Other household improvement

### **3.16 Estimation of change of outlook**

To change the outlook of rural people the following activities were done-

1. Women 's participation in social forestry program .
2. Women 's participation in decision making process. (Kiernan, B., 2017)

### **3.17 Identifying limiting factor in social forestry**

The followings were the main obstacles in development of social forestry-

- a. Illegal felling
- b. Theft
- c. Encroachment
- d. Cattle
- e. Natural disaster

### **3.18 Problems faced in data collection**

- a. In first step, respondents were not properly attentive because they were confused about getting their benefitted money.
- b. The respondents did not have any written documents of their activities. So, researcher have to depend on their memory for data collection.
- c. Most of the farmers have primary level education. So, they were suspicious about the researcher.

#### **Data collection:**

#### **Interdependent variables:**

**Age:** Age of the respondents was categorized into three levels(table 4.1). These were:

- a) Young=0-40 years
- b) Middle age= 41-50 years
- c) Old age>50 years

#### **Level of Education**

Most of the respondents had primary level education. The rest are secondarily educated and only a few had gone to college for their education.

#### **Sex ratio**

Women's participation was also noticeable in social forestry program. Among the beneficiaries 16% were female and 84% were male.

#### **Family size**

Majority of the respondents belonged to large size family. The rest had medium and small size family.

#### **Farm size:**

Most of the respondents belonged to small size farm. The rest were landless, marginal and medium level farmer.

#### **Occupation:**

Respondents are engaged into varieties of profession including farmers, carpenter, business holder, shopkeeper, mason, peon, village doctor, etc. Most of them depend on agriculture for their livelihood.

**Annual income:**

Majority of the beneficiaries had medium level income. The rest had high and low level income.

**3.8 Data collection and analysis**

The survey data were collected from five roads of Dinajpur district by the stratified random sampling method. These were Location 1- Dinajpur G. College to Dosmail Road, Location 2- Dosmail to Birganj Road, Location 3- Dinajpur to Birol Road, Location 4- Dinajpur to Chirirbander Road and Location 5- Dinajpur to Fulbari Road. The collected independent and dependent variables were analyzed by descriptive method to find out their percentage, mean and standard deviation. All data were analyzed with a statistics software STATISTIC 10.

## CHAPTER IV

### RESULTS AND DISCUSSION

Data were collected from 75 beneficiaries of five selected areas under Dinajpur district. Then the data were compiled, tabulated and analyzed. The findings had been discussed on the basis of following criteria:

- 1) Socio-economic characteristics of beneficiaries
- 2) Role of forest Department in this program
- 3) Activities of the beneficiaries
- 4) Achievement of the planted species
- 5) Socio-economic impacts of this program on the beneficiaries suggested
- 6) Problems and solutions suggested by the beneficiaries, respondents.

#### 4.1. Socio-economic characteristics of beneficiaries

##### 4.1.1. Age

Age of respondents ranged from 30 to 76 years having a mean 50 years and standard deviation 35.85. The respondents were classified into 3 categories based on their age, as young (0-40) years), middle (41-50 years) and old (>50 and above) age. In Table 4.1 age distribution of the respondents shown which revealed that the highest proportion (73.3 percent) belonged to young/middle/old aged group. Whereas, 22.7 and 4 percent of the respondents are middle and your aged groups, respectively

**Table No 4.1. Distribution of respondents based on their age**

Age Level (Years)	Age of the respondents		
	Percent	Mean	SD
Young (0-40)	4	50	35.85
Middle age (41-50)	22.7		
Old age (>50)	73.3		
Total	100		



#### 4.1.2. Level of Education

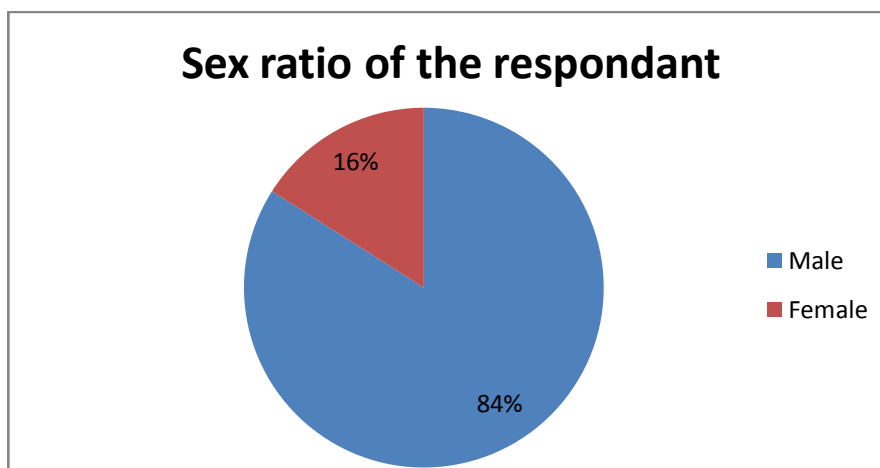
Educational qualification acquired by a respondent in years. One score was given for you every year of schooling Education level of the respondents was classified into three categories, 'as primary level (I-V), secondary level (VI-X) and higher secondary (XI-XII) level. Table 4.2 expressed that (52.7 percent) respondents had primary level education. Whereas, 45.9 and 1.4 percent of had secondary and higher secondary level education respectively. Level of education Begum (1998) in her study entitled Poverty Alleviation of the Rural Women Organized by Association for Social Advancement” observed that education of the rural women had a positive significant relationship with their poverty alleviation owing to participation in ASA activities.

**Table no: 4.2. Distribution of respondents based on educational level**

Level of education	Education level of the respondents		
	Percent	Mean	SD
Primary	52.7	33.33	27.86
Secondary	45.9		
Higher secondary	1.4		
Total	100		

#### 4.1.3. Sex ratio

Most of the respondents (84 % were male, whereas, only 16% were female (Figure 4.1).



**Figure 4.1. Sex distribution of the respondents**

#### 4.1.4. Family size

On the basis of family members in a family, family size was measured, It ranged from 4 to 11 with an average of 4.2 and standard deviation 2.29. The families were classified into three criteria. i.e. small (below 5 members), medium (5-8 members) and large above 6 members).

In Table 4.3 the contained data expressed that highest proportion of the respondents (10.7%) and small sized family (36%) and (52%) had medium and large sized family respectively.

**Table 4.3. Family size distribution of the respondents**

Family Size	Freq	Percent	Mean	SD
Small (upto 4)	8	10.7	4.2	2.29
Medium (5-6)	28	37.3		
Large (>6)	39	52		
Total	75	100		

#### 4.1.5. Farm size

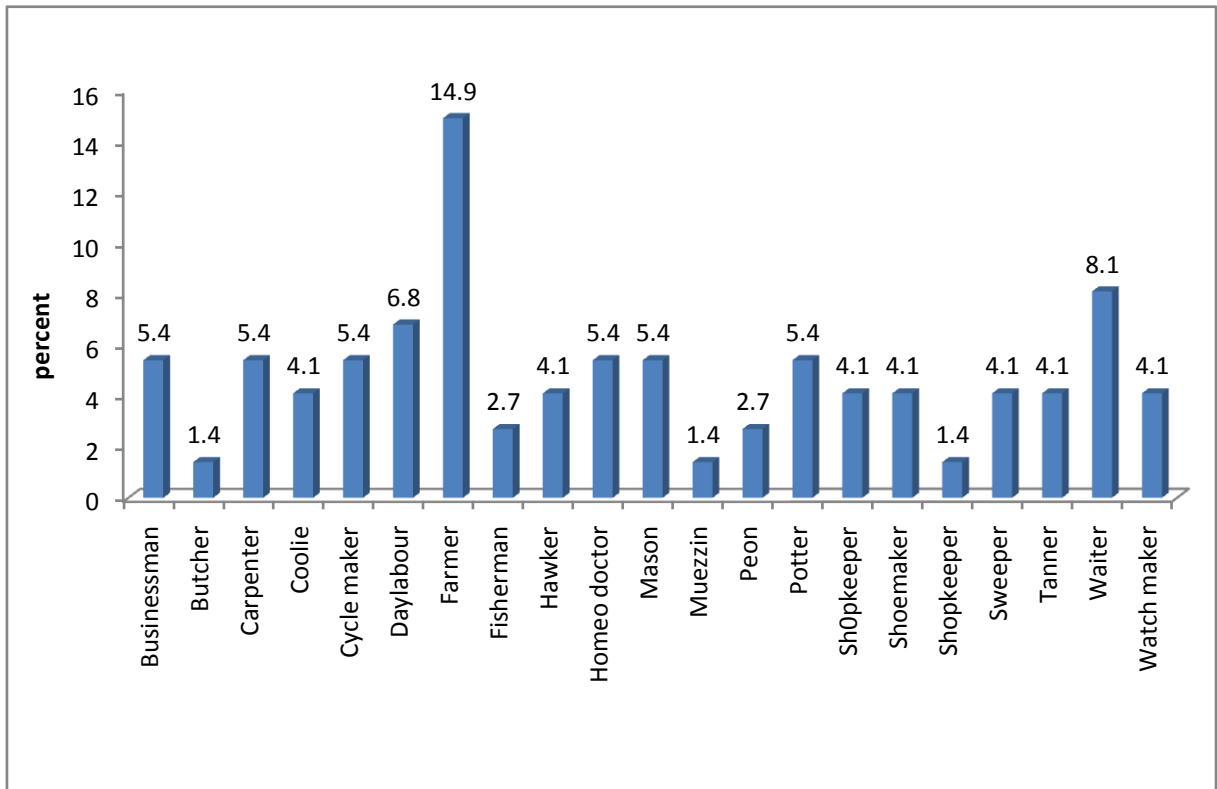
Based on the national standard, farm sized were classified into 4 categories, as landless /<0.02 ha), marginal (0.02-0.19 ha), small (0.20-1.0 ha) and medium (1.01-3.03 ha) (Anonymous, 2004s). The range of farm size of the respondents was from 0.01 to 3.03 to 20.40 hectare and average farm size was 18.75 ha. Table 4.4 expressed that most of the respondents had small size farm, whereas the rest had medium, landless & marginal farm size respectively.

**Table 4.4. Farm size distribution of the respondents**

Farm category (ha)	No. of beneficiaries	Percent	Mean
Landless (<0.02)	15	20	18.75
Marginal (0.02-0.19)	10	13.33	
Small (0.20-1.00)	35	46.67	
Medium (1.01-3.03)	15	20	
Total	75	100	

#### 4.1.6. Occupation

Respondents are engaged into varieties of profession. Most of them are maker, farmers and depend on agriculture for their livelihood, the rest are mason, (5.4%) Carpenter (5.4%), potter (6 %), watchmaker (4.1%), cycle maker (5.4% ) and others (45 %).



**Figure: 4.2. Respondents' distribution based on occupation**

#### 4.1.7 Annual income:

Annual income of the respondents at the time of SFP were from 9000 to 75000 tk.

Based on annual income respondents are classified into three different groups, at such as low income (<10000), medium (10,000–50000) and high income (>50,000 TK.). Annual Family income Mortuza *et al.* (2004) found that family income had significant positive relationship with livelihood. Table 4.6 expressed that (6.67%) respondents' annual income was low, whereas. 61.33 % and 32% were medium and high income, respectively.

**Table 4.5. Distribution of respondents based on their annual income**

Category of income (TK)	Number	Percent
Low (<10000)	5	6.67
Medium (10000-50000)	46	61.33
High (>50000)	24	32
Total	75	100

## **4.2 Role of Forest Department in the selected areas of social forestry program**

### **4.2.1. Participation of the beneficiaries in the social forestry program**

Most of the beneficiaries 73.3 involved in SFP by influenced by forest department, 20% influenced by local leader, 6.67%, influenced because of their dwelling house very close to this program. Government officials have an important role in ensuring peoples participation as the arm of government responsible for executing the projects in rural areas (Wallis 1989, Chowdhury 2004). Table 4.6 showed their participation by various medium.

**Table 4.6. Respondents' Participation in the social forestry program**

Sl. No.	Influenced by	Number	Percent
01	Forest Department	55	73.33
02	Local leader	15	20
03	House close to the forestry program	5	6.67

### **4.2.2. Cash money**

Among 75 beneficiaries, only 15 of them got money from forest department for labor cost in the early stage of forestry program. Remaining 60 beneficiaries did not get any technical help from forest department.

### **4.2.3 Protection of the plantation**

At the young stage of the sapling the beneficiary protects them by group patrolling from cattle, theft and other disturbing agents,

### **4.2.4. Land for plantation**

For this forestry program 20m on both sides of the main road were selected,

**Table 4.7. Benefit sharing agreement**

Beneficiaries	Social forestry program		
	Woodlot	Agroforestry	Sal coppice management
Forest department	40	45	65
Participant	50	45	25
Tree farming fund	10	10	10

(Source: Anonymous, 2004)

### **4.3. Activities of the beneficiaries**

#### **4.3.1. Source of sapling**

All required saplings were supplied by forest department at free of cost, staking sticks were also supplied by forest department

#### **4.3.2. Planting method**

Two types of planting methods were followed such as woodlot method and agroforestry method. Among the beneficiaries 80% followed woodlot method and the rest 20% followed agroforestry method for plantation Table 4.8 expressed their percentage -

**Table.4.8. Planting technique**

Sl. No.	Plantation Method	Number	Percent
01	Wood lot technique	60	80
02	Agroforestry technique	15	20

#### **4.3.3. Sapling age**

for survivability of sapling age is an important factor, the supplied seedlings' age range in to 4 to 6 month Most (60 %) of the supplied sapling was 4 months age, and Table 4.9. Showed the age of saplings in social forestry program all required saplings were supplied by forest department.

**Table No 4.9. Age of the planted sapling**

SL No.	Age of sapling	No. of beneficiaries	Percent	Average	SD
01	4	45	60	4.875	0.853
02	4.5	10	13.33		
03	5	15	20		
04	6	5	6.67		

#### **4.3.4. Planting Time**

June-July is the best time for planting most of saplings. So, tree species were planted from May-June. Majority of the respondents (30%), planted their sapling in the month of July, whereas others planted their sapling in May and June & the percentage were 20 and 25 respectively.

**Table No: 4.10. Planting time of sapling**

Planting time (Month)	No. of Beneficiaries	Percent (%)
May	20	26.67
June	25	33.33
July	30	40

#### **4.3.5. Irrigating**

As saplings were planted in rainy season, so there was no need of irrigation in that time. Respondents felt the necessity of irrigation in dry season but due to lack of irrigation Source, they could not irrigate the plants.

#### **4.3.6. Pruning and day leaf collection**

Pruning is an intercultural operation practiced to remove diseased, excess and broken branch so that plants' growth doesn't hamper.

Respondents did this operation from 18 to 25 times in whole plantation years (10 years) of free cultivation. They got maximum 300kg and minimum 120kg pruned material per head. Beneficiaries also collected 120kg and minimum 70kg dry leaf per head respectively. Table 4.11 showed the amount of pruned materials and dry leaf collection.

**Table No: 4.11 Amount of pruned materials and dry leaf**

Operation	Location	Maximum Kg/ Beneficiaries	Minimum Kg/ Beneficiaries	Total No. of operation done
Amount of pruned materials	College gate to Dosmile	200	120	18
	Domile to Birganj	300	200	13
	Dinajpur to Birol	180	150	15
	Dinajpur to Chirir bander	200	160	12
	Dinajpur to Fulbari	150	120	15
Amount of dry leaves	College gate to Dosmile	100	80	14
	Domile to Birganj	90	80	12
	Dinajpur to Birol	120	100	15
	Dinajpur to Chirir bander	90	50	16
	Dinajpur to Fulbari	70	50	17

**4.3.7. Final products selling**

After the fixed period, the Plantation were cut and sold in open tender under the direct supervision of Forest Department.

The role money were distributed among the beneficiaries mentioned in the agreement (Table 4.7).

**4.3.8. Loss of planted species.**

In different selected area loss of planted tree specks was different average loss due to illegal felling due to hartal, natural disasters, cattle & thief, 19.25, 9.25, 8.25, 7.25% respectively.

**Table No. 4.12. Loss of plantation**

Location	Hortal (%)	Cyclone (%)	Damaged by cattle (%)	Theft (%)	Total	Mean	SD
College gate to Dosmile	60	10	5	2	77	19.25	27.37
Dosmile to Birganj	25	7	3	2	37	9.25	10.72
Dinajpur to Birol	15	5	2	2	24	6.00	6.16
Dinajpur to Chirir bander	20	8	2	3	33	8.25	8.26
Dinajpur to Fulbari	18	6	3	2	29	7.25	7.37

**4.3.9. Varieties of planted species**

Akashmoni (24 %) was the most planted species in all selected areas whereas fruit trees and medicinal plants were planted in minimum amount (2 %). The other planted species were mangium, mahagony, eucalyptus, neem, raintree, koroi, sissoo, etc. Table 4.13. showed the percent of various planted species in the selected areas.

**Table 4.13. Percentage of various planted species**

Planted species in different locations	Percent
Akashmony ( <i>Acacia auriculiformis</i> )	24
Mangium ( <i>Acacia mangium</i> )	13
Mahagony ( <i>Swietenia mahagoni</i> )	15
Eucalyptus ( <i>Eucalyptus camaldulensis</i> )	12
Neem ( <i>Azadirachta indica</i> )	11
Koroi (kalo koroi- <i>Albizia lebbek</i> , sada koroi- <i>Albizia procera</i> )	5
	5
Sissoo ( <i>Dalbergia sissoo</i> )	2
Fruit tree	2
Medicinal plant	4
Other trees	



#### 4.3.10. Species planted in different locations

Different species were planted in different locations. Maximum (22) number of species were planted in Dosmile to Birganj road whereas percentage of survival species was highest (85 %) in Dinajpur to Birol road and minimum number of species were planted in Dinajpur college gate to Dosmile and Dinajpur to Chirirbander road and survival percentage was lowest (10 %) in Dinajpur college gate to Dosmile road.

**Table: 4.14. Species planted in different locations**

Locations	Number of planted species	Survival no. of species	Percent
Dinajpur college gate to Dosmile	15	10	66.7
Dosmile to Birganj	22	16	72.73
Dinajpur to Birol road	20	17	85
Dinajpur to Chirir Bander	15	11	73.33
Dinajpur to Fulbari road	20	16	80

#### 4.4 Achievement of the planted species

##### 4.4.1 Performance of planted Species

Among different species Akashmani was the highest planted species because of its high price and increasing demand. The best performance observed in Akashmans, Eucalyptus, Ghora neem, Mangium, Raintree in terms of volume of log obtained from them were 0.1796 m<sup>3</sup>, 0.1265m<sup>3</sup>, 0.022m<sup>3</sup> and 0.1076 m<sup>3</sup> respectively. Table 4.15 showed the performance of planted species.

**Table no: 4.15 Growth Performance of planted Species**

Name of species	Growth performance of species		
	Average Height (m)	Average Girth (m)	Average Volume (m <sup>3</sup> )
Akashmoni	9.5	0.55	0.1796
Eucalyptus	10	0.45	0.1265
Mangium	8.5	0.45	0.1076
Mahagoni	5	0.45	0.063
Raintree	7.5	0.60	0.1687
Neem	4	0.30	0.022

**4.4.2. Cultivation of agricultural crops with tree species**

Most of the farmers cultivated different agricultural crops in association of tree species in last 2-3 years before cutting final tree products. The agricultural crops were bottle gourd, bitter gourd, turmeric, green stuff and pointed gourd. Majority (26.67 %) cultivated pointed gourd in association with tree species. Table 4.16 showed the agricultural crops planted with tree species.

**Table 4.16 Crop grown in association of tree species**

Crop grown	Number of respondents	Percent
No crop cultivated	15	20
Bottle gourd	10	13.33
Bitter gourd	15	20
Turmeric	5	6.67
Green stuff	10	13.33
Pointed gourd	20	26.67

## **4.5 Socio-economic impacts of this program on the beneficiaries**

### **4.5.1. Income from this program**

After a certain period of time the beneficiaries got a fixed amount of sold money and they could use that money to meet their personal demand, some of the respondents started business and changed their way of life. Table showed that majority of the respondents started business by the shared money and the rest money were utilized in loan paymen, children's education, food buying and other purposes. Ahmed (1995) stated that in Bangladesh Social Forestry offers a practical solution to many problems ranging for alternative sources of nutritional diets, fodder, energy, timber and building materials. They used the shared money in the following purpose

#### **4.5.1.1. Children's education**

Some of the respondents used their money in purpose of their children's education. They spent that money for developing their standard of education such as buying books, paying tuition fee etc.

#### **4. 5.1.2 Food buying**

Respondents also spent their money for buying rice food & such asfruit, meat, fish etc.

#### **4.5.13 Loan payment**

They also used that money for paying loan. As a result, they became free from the burden of debt.

#### **4.5.1.4 Business**

Some of the respondents started business using that shared money and changed their occupation and way of life.

#### **4.5.1.5 Others**

They also used that money for repairing their old house for buying cattle, poultry etc. and improved their financial condition.

By using the dried leather and pruned materials they also saved their money which spent behind buying the fuel wood.

#### 4.5.1.6 Establishment of wood-based cottage industry

Due to social forestry activation wood supply was increased in the local market and wood-based cottage industries were established in the project area Malik *et al.* (1995) stated that in a discussion of traditional forest management practices, which has variously been termed community homestead social forestry which compares economic returns and ecosystem benefit with those from developed industrial forest management. Table 4.17 showed the areas where acquired money were spent by the respondents.

**Table 4.17. Places where the acquired money were distributed by the beneficiaries**

Study areas	Utilization of shared money by the respondents				
	Loan payment (%)	Children's education (%)	Business (%)	Food buying (%)	Others (%)
Dinajpur College gate to Dosmile	25	5	60	5	5
Dosmile to Birganj	25	10	55	5	5
Dinajpur to Birol road	20	10	60	5	5
Dinajpur to Chirirbander	30	10	40	5	15
Dinajpur to Fulbari road	35	5	50	5	5

#### 4.5.3. Change the attitude of the beneficiaries

Due to involving the local poor in this program, illegal felling encroachment etc. were decreased by the local people. Because they converted to respondents instead of being thief and selling the trees. Women's' participation in this program also change the outlook of the local people.

#### 4.5.4. Distribution of money among the beneficiaries

After selling the final products, the beneficiaries got a fixed percent of the sold money mentioned in the agreement. The beneficiaries of Dinajpur to Birol road got highest amount of money from that project where the beneficiaries of Dinajpur college gate to Dosmile road got less amount than other surveyed areas because tree loss (Table 4.12) were higher in that

area than other selected areas. Table 4.18 showed the amount of shared money got by the respondents in different selected areas.

**Table: 4.18. Distribution of money among the beneficiaries**

Locations	Number of respondent	Amount of shared money/respondent	Average Tk
Dinajpur college gate to Dosmile	15	11500	21614
Dosmile to Birganj	15	20000	
Dinajpur to Birol road	15	31779	
Dinajpur to Chirir Bander	15	21350	
Dinajpur to Fulbariu road	15	23440	

#### 4.6. Problems and solutions suggested by the respondents

##### 4.6.1. Problems faced by the beneficiaries

The social forestry program was certainly a profitable enterprise for the local poor but they faced several major problems during implementing that program namely lack of capital, irrigation water, lack of proper training facilities, negligence of Forest Department, damage by neighbour. Majority (40 %) of them mentioned lack of proper training facilities showed in table 4.19.

**Table 4.19. Problem faced by the respondents**

Problems	Respondents opinion	
	Number	Percent
Lack of irrigation water	10	13.33
Lack of capital	10	13.33
Lack of proper training	30	40
Negligence of Forest Department in their responsibility	5	6.67
Damage by neighbour	20	26.67

#### 4.6.2 Farmers' suggestions to the Forest Department:

For sustainable development of the social forestry program, respondents' suggestions to the FD (Forest Department) were creating of irrigation facilities, execution of forest rules, forest officials visit should be strengthened, supply of small credit, arrangement of training, increasing forest guard, selection of fast growing and high profitable tree species. Majority (26.67 %) of beneficiaries suggested planting fast growing and profitable tree species and minimum (6.67 %) suggested increasing forest guard mentioned in Table 4.20.

**Table 4.20. Suggestions of the respondents to Forest Department for sustainable development of social forestry program**

Suggestions	Respondents' Opinion	
	Number	Percent
Supply of small credit	10	13.33
Creation of irrigation facilities	15	20
Strengthening forest officials visit	10	13.33
Arrangement of training	15	20
Increasing forest guard	5	6.67
Selection of profitable species	20	26.67

## CHAPTER V

### SUMMARY, CONCLUSION AND RECOMMENDATION

This paper briefly described the major activities of this research. Some Conclusions and Recommendations were drawn based on the study.

#### 5.1. Summary

The study was carried out in five upazilla of Dinajpur district under Social Forestry Program (SFP) of Forest Department. The purpose of this study is to measure the growth performance and management practices of the planted species to assess the socio-economic impacts of Social Forestry Program on beneficiaries and the way of improving Social Forestry Program.

To achieve the above objectives, a statistics method was adopted to collect necessary information through a pre-structure questionnaire. A sample of 75 beneficiaries was selected randomly. Necessary information was collected from March 2019 to February 2020, through direct interviewing with the beneficiaries. According to the objectives of the study, collected data were compiled, coded, tabulated and analyzed using a software SPSS .Descriptive statistics like range, number, percent and average were calculated in explaining the data. The research surrounded the following issues-

The analysis showed that more than half (73.3%) of the respondents involved in SDF are old age (>51), (74%) having secondary education level (52%) having large family size (>6 members/family) and small farm size (0.01 to 3.03 ha/family). Most of them depended on agriculture (14.9%) to meet their livelihood demand women (16%) also participated in this program.

After completion a rotation of (year) trees were sold open tender under direct supervision of Forest Department (FD) by taking opinion of beneficiaries and acquired money was distributed according to the agreement.

Among different species, Akasmoni was the highest planted species because of its high price and increasing demand the best performance observed in Akashmoni, Eucalyptus, Ghora neem, Mangium, Raintree in terms of volume of log obtained from them were 0.1796 m<sup>3</sup>, 0.1265 m<sup>3</sup>, 0.022 m<sup>3</sup>, 0.1076 m<sup>3</sup>, 0.1687 m<sup>3</sup> respectively. The respondent opined that illegal felling due to hartal, encroachment by local thief, natural disaster, storm & insects decrease

the number of planted trees. In some areas there has been an overall increase in benefit flows whereas in some cases slightly reduced.

**Problem faced during implementing the program:**

The findings indicated that SFP is a profitable enterprise among the beneficiaries but they faced some problem when implementing the program. Lack of irrigation facilities, damage of saplings by cattle & lack of capital were most important problems in the way of success of the program.

**Suggestions given by the respondent to FD:**

Proper execution of forest rules management, arranging irrigation facilities, arrangement of training and creation of small credit facilities were helpful suggestion given by the respondents for sustainable development of the program.

**5.2. Conclusion**

The findings of the study have drawn the following conclusions-

**5.2.1 Socio-economic importance**

From the finding of the research work, tree diversity of the social forestry program was identified. Economic probability of the planted trees were evaluated. Finally, livelihood status of the social forestry participants were explored which will help the decision-maker how to uplift the socio-economic condition of the people and sustainable development of the program.

**5.2.2 Contribution of the respondent**

The respondents were given necessary planting material including saplings and fertilizers by FD. The respondent carefully looked after the saplings by turns to protect them from thief, cattle and encroachment. They performed different operations like training & producing for better growth of the trees. Due to absence of water sources irrigation was not applied in dry season.



## **Recommendations**

For sustainable development of the program, the following recommendations are suggested:

1. Extensive field work and covering all field survey in necessary to regions evaluate its impacts on the rural people.
2. A research program should be arranged based on the identified problems to standardize. The combination of tree species for sound environment and better bio-diversity.
3. To choose good combination of agricultural crops & tree species.

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# APPENDIX-A

## Appendix-A

### Questionnaire

Department of Agroforestry and Environment, HSTU

AN INTERVIEW SCHEDULE FOR THE STUDY ON:

Impact of social forestry on the livelihood of nearby poor people of Dinajpur district

Sample No :  
Farmer's name :  
Village :  
Union :  
Upazilla :  
Please answer the following question

1. Age
2. Education
3. Occupation
4. Family member: Male: Female:
5. Homestead area: cropland area:

6. When you joined in SF Program?

7. How many members of your SF Group: Total= Male= Female:

8. How long of road you (your group) are maintaining: .....Km

9. Knowledge of SF Sharing: Do you know how much (%) you will get after harvesting of trees?

10. Trees in SF Road

Initial year= Total species= No of trees=  
Present year = Total plant=

11. Causes of tree's death %:

Hartal= Cyclone= Animal damage= Theft=

Other:

12. How you become the member of SF:

13. Knowledge on tree.

SI No	Question	Answer
1	Name some plants in your road	
2	Name some plants more productive in the road	
3	Which tree is more beneficial in road: Native/ Exotic	
4	Name some tree for homestead.	
5	Benefit we get from the tree	

14 How you protect the road side tree?

Single patrolling: Group patrolling: Normal watching:

**15 If anyone steels tree(s), how you protect:**

Direct force? /Social judgment/ Call police/ Call forest officer/ other method...../ punishment taka? Amount if any?

**16. Have their any demerits of SF?**

What are they?

**17. Intermediate benefits from SF:**

**Shade:**

**Pruning (Amt/yr):**

**18. Problems of SF program:**

Disease/ Top dying of trees. People selection? / Theft/Natural disaster/Delay decision of FD?/ other.....

**19. Benefits of SF:**

- 1) Which tree is suitable for SF?
- 2) Which species is good: Native/Exotic
- 3) Do trees reduce road accident?
- 4) Do trees reduce noise pollution?

**20. If you get 1 lakh taka what you will do by this money:**

Business?

Children's education:

Food buying?

Loan payment?

Other:

**21 Your suggestion about SF/Forest Dept/ etc:**

.....

**22. What type of support you get from forest Dept?**

Ans.

**23. Does FD call you in decision making about species selection/harvesting/tendering etc?**

Ans.

**24. How long the trees are retained in your road side?**

Ans.

**25. How do you sell the tree (either in CFT or as standing tree)?**

Ans.

**26. How much wood is produce at a specific period of time (10 years or during selling)**

Ans.

**27. What are the uses of the wood? Who are the buyers?**

Ans.

**28. Do you practice root pruning to reduce competition with crops?**

Ans.

**29. Is there any social pressure /group conflict due to the member of SF program?**

## APPENDIX-B



Plate 1: Social Forestry Plantation (Dinajpur College gate to Fulbari)



Plate 2: Social Forestry Plantation (Dinajpur to Birol Road)



Plate 3: Social Forestry Plantation (Dosmile to Birgonj)



Plate 4: Social Forestry Plantation (Dinajpur to Chirirbander)



Plate 5: Social Forestry Plantation (Dinajpur College gate to Dosmile)