



Impact Evaluation
of
Impact Evaluation of the Poverty Alleviation through
Participatory Forestry



Carried out by

Evaluation Sector

Implementation Monitoring and Evaluation Division (IMED)

Ministry of Planning, Government of the People's Republic of Bangladesh

Conducted by



Eusuf and Associates

June 2011

**Impact Evaluation
of
Poverty Alleviation through Participatory Forestry Project**

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FOREWORD

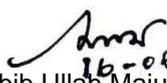
The Forest Department (FD) under the Ministry of Environment and Forests designed and implemented the "Poverty Alleviation through Participatory Forestry Project" from July 2006 to June 2008. The project covered 38 selected districts of the north, west, and south part of the country. The project was designed and implemented to re-utilize the marginal and unused scarce public land resources for second rotation once used in earlier phase for planting trees and thereby ensure sustainable land use and production of forest resources. The project was financed from the own resources of the Bangladesh Government (GOB). The cost of the project was Tk2,200 lakh.

Evaluation Sector of Implementation Monitoring and Evaluation Division (IMED) under the Ministry of Planning contracted out the evaluation of this project to Messrs Eusuf and Associates, a consulting Firm, through open competition. The Consulting Firm was assigned to assess: (i) implementation status of tree plantation and training program; (ii) level and effectiveness of participation of the beneficiaries; (iii) success of the project in terms of motivation of the beneficiaries towards establishment of tree resources, alleviation of poverty, and arresting depletion of forest resources through illegal felling; (iv) identifying strengths and weaknesses of the project design and implementation; and (v) suggesting measures for similar projects in the future.

Findings of the impact evaluation indicated that the project contributed to: (i) increase forest resources through re-establishing tree resources and maintenance of existing plantations, (ii) enhance motivation of the beneficiaries for establishing and maintaining forest resources, (iii) increase income through by-product and ensured a good financial return from the well grown plantations after felling on maturity, (iii) utilize of marginal public lands, (iv) arrest depletion of forest resources through illegal felling, and (v) protect environment and ecosystem.

I, sincerely congratulate M/S Eusuf and Associates team for conducting the impact evaluation and making successful completion of the report in time. I also thank Syed Md. Haider Ali, Director General (Evaluation Sector) along with his professional colleagues to provide guidance and supervisory supports to the M/S Eusuf and Associates team members. I would also like to appreciate the Forest Department and local administration for their all cooperation and cheerful responses of project beneficiaries and participation of local influential/civil society members in the local level workshop.

I am very hopeful that the recommendations of the impact evaluation study will be much helpful to everyone involved in the design and implementation of similar projects in the future for higher efficiency, effectiveness, and sustainability.


16-06-11
(Md. Habib Ullah Majumder)
Secretary
IMED, Ministry of Planning

PREFACE

Implementation Monitoring and Evaluation Division (IMED) of Ministry of Planning, has been assigned to implement two major activities: one is monitoring of the on-going project activities and other one is evaluation of the completed GoB development projects. The Evaluation Sector, one of the six sectors of IMED is supposed to conduct impact evaluation for at least 10% of the completed projects of the GOB in each financial year. But due to present shortage of man-power/workforce which at present constitutes one third of the total strength, can not evaluate more than 3% to 4% of the completed projects of the GoB.

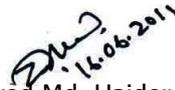
Despite the constraint, this Financial Year 2010-2011, Evaluation Sector, IMED conducted the impact evaluation of 9 completed GOB projects of which 6 projects have been evaluated by outsourcing research firms and 3 evaluation studies have been completed by the in house professional officers of the Evaluation Sector. One of the outsourcing firms- M/S Eusuf and Associates, has been awarded the contract-money of taka 18.50 lakh by the Evaluation Sector of IMED, Ministry of Planning to carry out the impact evaluation on the Project titled "Poverty Reduction through Participatory Forestry" which was implemented by the Forest Department (FD) under the Ministry of Environment and Forests during the financial years 2006-2007 and 2007-2008 with an investment cost of Tk.2,200 Lakh.

The major focus of this impact evaluation was to assess: (i) implementation status of tree plantation and training program; (ii) effectiveness of beneficiary participation in re-establishing forest resources and maintaining existing forest resources; (iii) impact of the project on poverty alleviation, and depletion of forest resources; (iv) impact on awareness of forest resources, knowledge of social forestry rules, and responsibilities; (v) beneficiary household income through income generating activities; (vi) strengths & weaknesses of the project; and (vii) suggesting measures for similar future projects.

Some of the findings of the impact evaluation are found remarkable. Findings of the impact evaluation indicated that the interventions of the project have supplemented increase of forest resources through re-establishing forest resources and maintaining existing forest resources. The growths of new 2nd rotation plantations and existing plantations are satisfactory which ensures that there will be good harvest of forest resources at felling on maturity and all stakeholders including the beneficiaries will receive good returns. Impact evaluation indicated that the beneficiaries already benefited from training, wage income from plantation and maintenance, and income from by-products. The findings of this impact evaluation were presented in a workshop organized by the Evaluation Sector, IMED. Workshop has been attended by concerned professionals represented by the country's reputed agencies, project personnel both from the ministry and the directorate levels and invited guests of different organizations.

I take the opportunity to congratulate M/S Eusuf and Associates—team for conducting the evaluation work and also concerned IMED professionals in making total efforts to complete the report in time. I also express my thanks to officials of the Forest Department especially the Chief Conservator of Forests for conducting the relevant session of the National Workshop as Chairperson. Thanks are also due to all members of Technical and Steering Committee members especially to Secretary, IMED for providing us useful advice and guidance.

I hope that the lessons learnt and recommendations made in the report would contribute to improve the quality and effectiveness of the future projects to be designed and implemented by the Forest Department.


(Syed Md. Haider Ali)
Director General
Evaluation Sector, IMED
Ministry of Planning

EXECUTIVE SUMMARY

1. The Ministry of Environment and Forest designed and implemented the “Poverty Alleviation through Participatory Forestry Project” through the Department of Forest between July 2006 and June 2008. The goal of the project was poverty reduction through participatory forestry and increasing forest resources using marginal and unused land. The estimated cost of the bridging project was Tk.22.00 crore and the entire cost was financed from own resources of the Government. The project covered selected 38 districts of six administrative divisions of Rangpur, Rajshahi, Khulna, Dhaka, Barisal, and Chittagong covering 13 Forest Divisions.

2. The major components were: (i) establishment of 2nd rotation woodlot, agro-forestry, and strip plantation; (ii) maintenance of new and 2nd rotation woodlot, agro-forestry, and strip plantation; establishment of institutional plantations; establishment and maintenance of charland plantation; maintenance of pond/tank, Barind gullies, and SFNTC/SFPC plantations; and train up project participants on social forestry, social forestry rules, and tree farming fund.

3. Implementation Monitoring and Evaluation Division (IMED) of the Ministry of Planning selected the “Poverty Alleviation through Participatory Forestry Project” for impact evaluation during 2010-2011 and outsourced the study to Eusuf and Associates. The scope of the impact evaluation were to assess: status of project implementation (including effective beneficiary participation and training to motivate people towards establishing tree resources); assess poverty reduction, depleting forest resources; identify strengths and weaknesses of the project, and recommend measures to overcome the weaknesses.

4. The methodology of impact evaluation included: reviewing implementation status using secondary data and discussion with concerned officials, key informant interview; growth of trees through plantation audit and visiting plantations by experts; assessment of beneficiary participation by interview and focus group discussion; assessment of project benefits and impact by survey and data collection from sample beneficiary households; identification strengths and weaknesses of project design by review of implementation and key informant and beneficiary interview and holding field level stakeholder workshop; and getting approval of technical committee and steering committee on study design and findings; and sharing draft final report in a national workshop. A total of 1,650 randomly selected beneficiaries were interviewed using a semi-structured questionnaire. In addition, 170 key informants were interviewed and 17 focus group discussions were administered. In all 66 plantations of three plantation types were audited.

5. Physical progress of project implementation is far below the target. Progress of establishing 2nd rotation woodlot, agro-forestry, and strip plantations is as low as 14%, 23%, and 31% respectively. The poor physical progress of establishing 2nd rotation woodlot, agro-forestry, and strip plantation is partly due to local level social demand to retain trees for environmental protection, low priority attached to establishment of new plantations, low budgeted rates of different plantation activities, and lack of necessary fund resources.

6. However, the physical progress of maintenance of new and 2nd rotation plantation is significantly high compared to targets – 88%, 82%, and 95% respectively for woodlot, agro-forestry, and strip plantations. Likewise, physical progress of establishment of institutional plantation, establishment/maintenance of charland plantation, maintenance of pond/tank plantation, and maintenance of Barind Gullies plantation is as high as 100% in all the four

components. On the other hand, physical progress of maintenance of SFNTC and SFPC is too low (only 25.6%) although this is just maintenance of existing structures and physical facilities. Progress of training is 73%.

7. The estimated cost of the project was Tk22.00 crore (Tk.12.9695 crore for 2006-2007, and Tk.9.0305 crore for 2007-2008). The government allocation was Tk.14.8863 crore and the remaining amount of Tk.7.1138 crore was expected to come from the Tree Farm Fund (TFF) upon felling of 1st rotation plantations. The ratio of Government and TFF allocation was 68:32. In actual, the project utilized Tk.12.1684 crore (55% of original cost). The utilization during the first year was 44% (2006-2007) and during the second year utilization was 72% (2007-2008). Utilization of GOB fund was 58% and that of the TFF was 49%. Financial progress was low partly because of low physical progress and partly due to lack of fund resources.

8. The project was implemented through participation of local beneficiaries who were selected by the Forest Department in consultation with the local people. There were on average 3.6, 2.3, and 6.2 participating beneficiaries respectively for establishing per hectare new woodlot, agro-forestry, and per kilometer of strip plantation. Number of participatory beneficiaries per unit area for maintenance was as low as 1 to 5 beneficiaries for different type of plantations. Participation of the beneficiaries is high but less effective than expected. Although there is high demand for joining the beneficiary group, the beneficiaries do not take part in plantation activities with due seriousness and contributions (time and money). As a result, the Forest Department takes major responsibilities and spends money for plantation activities. The beneficiaries are very interested to join the beneficiary group as they get wage, training, income from by-products (leaves, twigs, fuel wood from thinning and pruning), and share of revenue at felling. The share per beneficiary at felling is quite high and attractive compared to very little contribution.

9. The study noted that although the project included all 38 districts for plantation of all three types of plantation, woodlot is found in only Dinajpur, Rangpur, Rajshahi, Bogra, and Noakhali. Agro-forestry plantation is rare. However, strip plantation is seen everywhere. This is because of lack of enough unused public lands. Strip plantation is seen everywhere as trees are planted along roads, tanks and ponds, institutions, river banks in narrow strips. Agro-forestry is not liked by the beneficiaries as agricultural practices in the forest land is less rewarding, expensive, difficult, and infeasible in most of the areas.

10. The project monitoring and management information system is not adequate and effective enough to generate and retain data for project implementation and management and future planning. The impact evaluation noted lack of necessary data both at project and field level. There is need for proper monitoring and data generation for proper project management and planning purpose.

11. The project had an estimated TFF fund of Tk.7.1138 crore out of that only Tk.3.45958 crore was utilized under the project. The shortfall was partly due to low demand caused by lower than estimated physical progress and partly lack of TFF generated from felling of earlier plantations. The impact study noted that in most of the area in the project, new woodlot, agro-forestry, and strip plantations were not established for 2nd rotation as felling were not carried out as needed. It is also reported and founded out that the amount of TFF was less than the amount needed for 2nd rotation plantation. As a result, felling of earlier plantations after normal maturity

and replanting for 2nd rotation is being delayed affecting growth of additional forest resources. The Forest Department should review the existing TFF system allowing utilization of TFF nationally instead of retaining the excess funds for use only in respective plantation.

12. The impact evaluation assessed strengths and weaknesses of the project. The main strengths are: raising awareness of people about afforestation and environment, reducing depletion of trees resources and increase of natural resources, contributing to poverty reduction through participatory forestry, involving community to work with government through social forestry, and offering opportunity of attractive income from share of revenue. The impact evaluation also identified the weaknesses of the project. The main weaknesses are: inadequate manpower and logistic facilities, unwillingness and non-cooperation of land owners, lack of budgetary allocation for social forestry, short duration of project, inadequate training than needed.

13. The impact evaluation carried out plantation audit of woodlot, agro-forestry, and strip plantations and assessed the growth of trees planted during 2006-2007 and 2007-2008 over the 3-4 growing seasons. The consultants assessed the average survival rates of trees in the three types of plantations. It was noted that average survival of trees in woodlot and agro-forestry is 78% and that of the strip plantations is 72%. However, key informants reported an average survival rate of all three types of plantations of 65% that compares with target for 76%. The average survival rates are normal and comparable. As usual the survival rate of strip plantation is comparatively low due to exposure to various risks and hazards and unfavorable environment. The consultants measured girth (circumference/breadth) of the trees at breast height and estimated height of the tree top using standard but simple methods. It was noted that the trees of different species planted in the woodlot, agro-forestry, and strip plantations grew quite well as expected. The normal growth of the trees indicated use of proper seedling, planting, use of materials, thinning, pruning, and maintenance.

14. In plantation audit the consultants noted that generally Akashmoni, Eucalyptus, Arjun, Manjium, Jarul, and Buccain species are used in woodlot plantations. In agro-forestry the species are Akashmoni, Eucalyptus, Manjium, and Jarul. In strip plantations the common species are Akashmoni, Mahogany, Sisso, Rain Tree, and Manjium. In addition, other species like Jack Fruit and Gamar are also planted. The consultants consider that the selection of species was proper. It was also gathered that the species were selected and planted according to the choice of the beneficiaries. Consequently, Eucalyptus was commonly used in all the three plantations although the species is generally discouraged.

15. The consultants gathered from the beneficiaries that the average costs of planting plantation of woodlot, agro-forestry, and strip plantations. It is found that plantation cost (raising seed, nursing, planting, and maintenance including pruning and thinning, etc.) per hectare of woodlot, per hectare of agro-forestry, and per kilometer of strip plantations are respectively Tk.15,397, Tk.10,035, and Tk. 11,632.

16. The beneficiaries were selected based on the specific criteria such as landless (77%), agriculture labor (15%), vulnerable women (69%), widow (62%), poor having monthly income less than Tk.400 per month (46%), farmer (23%) and people in the vicinity of the plantation (15%). Beneficiary selection was generally done well although influence from local people was reported.

17. Key informants suggested for special attention to provision of irrigation, pole, sufficient care, involving beneficiaries under IGA program, supplying high quality plant and seed and sapling, supplying fertilizer, supplying equipment, monitoring of growth of sapling, control of diseases, creating opportunity for formation of local social organization, thinning and pruning of plants timely, protecting plants, harvesting and selling of forest products, providing benefits to beneficiaries according to agreement, monitoring of tree farming fund, creation and maintenance of data base, credit, training, etc.

18. The impact study conducted a survey of beneficiary households. In average there are 4.5 members per surveyed households that compares with the national average of 4.9 (Statistical Pocket Book Bangladesh 2009, page 8). Number of male per 100 female is 117 that negatively compares with national average of 105 (Statistical Pocket Book Bangladesh 2009, page 8). It is noted that members below 15 years and 65 years and above totals 31.89% and members between 15 years 64 years is 68.11%. This indicated a lower dependency ratio of 48.81% that positively compares with the national average dependency ratio of 75.38%. Further, the survey found that 7% members in the household are below schooling age (under five years), 5% are illiterate, 25% can sign only, 25% read up to grade 5, 25% read up to grade 10, and 14% SSC passed and above.

19. The survey noted that 27.4% members are domestic worker, 26.0% are apprentice/student, 16.7% unpaid family worker, 7.1% self-employed, 3.6% regular paid labor employee, and 4.0% day labors.

20. Survey found an alarming scenario of the phenomenon of using forest land for housing purpose and for becoming functionally landless. The survey found that before the project 88% households were on their own land, 8% households on forest land (khas land), and 4% households on others land. After the project, project 84% households were on own land, 12% on forest land (khas land), and 4% on others land. Unused lands are being recovered but all lands are not being used for productive purposes per se.

21. Housing conditions in respect of number of houses per family has improved slightly - 35% households had one shed house before the project and this has decreased by 23% after the project. Number of 2-4 shed houses increased from 23.6% to 34.3%.

22. Selected beneficiaries were poor before the project at all standards – 57.1% beneficiary households had less than 50 decimal land including about 8% without any land (one of the definitions of land poor). Indeed the beneficiaries are not expected to acquire land resources through the project income in only 3-4 years and the position remained unchanged. The survey noted that the remaining 43% beneficiaries are not land poor rather about 23.1% are rich rural households with over 100 decimal lands.

23. The project provided training for awareness building including hygiene and nutrition and it is expected that with little financial gain and considerable gain from training and awareness there might be some improvements of nutrition level due to additional food intake and change of food habits. The consultants recorded how many times selected food items like fish, meat, pulse, milk, egg, fruit, tea, and sugar were consumed in the sample household over past one week before the project and during the study. The survey noted very slight improvements of the frequency of intake of the selected food.

24. Survey collected data of income and expenditure of beneficiary households and noted that before the project there were only 7% households above poverty line income (\$1 per capita per day) and at the time of survey the number slightly increased to 12%. The survey also noted that in last 3-4 years the beneficiaries who directly participated in the plantation activities could earn an additional income of about Tk.546. The main income and benefit is to come only after the felling and harvest as share of timber. Therefore, it is too early to expect considerable increase of income and benefits from the forestry plantation activities.

25. However, the consultants estimated gross average annual expenditure of the sample beneficiary households and noted that average expenditure increased from Tk.50,705 to Tk.66,904 between FY2006-2007 and FY2010-2011 - 16% increase which is only 3.2% per annum. The annual increase is lower than the annual average inflation rate in Bangladesh during the same period. Therefore, the increase of expenditure might have not increased in real term due to inflation.

26. The consultants assessed the standard of living of the beneficiaries using different indicators such as condition of house; condition of household assets; access to electricity, water, sanitation, health seeking behaviors, service organizations, and facilities, etc. Survey data indicated improvement of the condition of houses – number of beneficiaries with better housing (tin shed) increased slightly during the project. On the other side of the scale, number of households with kacha house decreased from 1,279 to 1,193 (decrease is 5.2%). The improvement might be due to partly awareness building through training from the project and additional income from sources other than the project.

27. Survey indicated an increase of the access of the beneficiary households to electricity, safe water, sanitation, and health services. The improvements are primarily due to all out efforts of Government, donors, and NGOs to increase access of the people to these essential services and the training provided under the project which together contributed to raising the level of awareness of the beneficiaries.

28. The present project was designed for only two years for bridging continuity of the forestry activities completed earlier is considered too small compared to the need. However, the Government should undertake large programs on social forestry covering entire country to continue supports ensuring sustainability of the earlier efforts. Unless such major programs are undertaken the outcomes of the earlier programs will not be fully achieved. Consequently, the motivation and enthusiasm created among the forest department and the people at large may partially face a hick up and retard the growth of the sub-sector. Regaining this loss may require even higher investments at a later stage. The Government may plan for long term nationwide rolling plans for continuous new and re-planting and maintenance of plantations and then undertake number of projects under the program following program approach.

29. The Forest Department should develop and maintain a strong monitoring system and a management information system to generate good quality data of all national and donor funded projects for improved project management and also future planning.

30. The species were rightly selected under the project with choice of the beneficiaries. However, future similar projects should be prepared with more care considering area specificities and choice of beneficiaries. Eucalyptus is seen everywhere in the project although the Forest Department discouraged. Beneficiaries prefer eucalyptus for its faster growth, low

mortality, and medium range quality timber and fuel-wood. The matter needs further investigation and policy decision.

31. High emphasis should be placed in the future on establishing new and 2nd rotation plantations over the maintenance and effective participation of the beneficiaries. The Forest Department may review the financial rates of different activities relating to plantations and ensure that all projects achieve full target. The Forest Department may also be careful on providing workable and attractive rates with flexibility for area specificity in designing future projects to avoid the type of stalemate resulting poor physical and financial achievements.

32. The Forest Department in future should ensure that the tress are fell and plantations harvested rightly on maturity and share of the revenue distributed as per agreement so that people continue to show interests on plantation activities and participate more seriously. This will ensure growth of additional forest resources and timely replanting ensures retention of the unused land with the Forest Department.

33. The Tree Farming Fund (TFF) established under the project did not generally work well. The TFF fund generated in the 2nd rotation with the revenue (10% of total revenue of each plantation) earned from felling plantations of the 1st rotation, Progress of establishment of 2nd rotation plantation being too low partly due to low rates of plantation activities than needed and partly for lower than needed revenue earned in the felling of earlier plantations. Consequently, plantations could not be felled and harvested and matured plantations remained un-felled and un-harvested.

34. Forest Department may review the TFF system especially to devise a mechanism that allows use of TFF funds of surplus plantations to deficit plantation. The Government may also provide subsidies where needed to cover the shortfall.

35. The consultants suggested several options to cover the shortfall of TFF where 10% of revenue of earlier rotation is not adequate to establish and maintain 2nd rotation plantation. The suggested option is to retain from the sale proceeds of earlier rotation an estimated amount needed for establishment and maintenance of 2nd rotation plantations. If the shortfall is very high compared to total revenue and beneficiaries do not agree to go for 2nd rotation, Government may provide the money short of to make up the shortfall and realize the money from the revenue of that rotation after felling and before sharing the revenue. Forest Department may also look for NGOs and Banks and private sector investors to invest in the plantation and provide credit facilities to the beneficiary group under the supervision of the Forest Department.

36. The consultants considering the extended and diversified role and responsibility of the Forest Department under the social forestry recommend expansion of outreach of the Forest Department to cater the gigantic need of countrywide massive plantation program in partnership with people. This huge task is financially, economically, and environmentally feasible but requires rapid expansion of skilled and motivated and committed manpower with the Forest Department.

Abbreviations

Abbreviation(s)

ACF	Assistant Conservator of Forest
BADC	Bangladesh Agriculture Development Corporation
CCF	Chief Conservator of Forest
DAE	Department of Agricultural Extension
DFO	Divisional Forest Officer
FD	Forest Department
FGD	Focus Group Discussion
FY	Financial Year
GOB	Government of the People's Republic of Bangladesh
IGA	Income Generation Activity
IMED	Implementation Monitoring and Evaluation Division
NGO	Non Governmental Organization
PBSA	Participants Benefit Sharing Agreement
PIU	Project Implementation Unit
PMU	Project Management Unit
PRA	Participatory Rapid Rural Appraisal
SFNTC	Social Forestry Nursery Training Center
SFPC	Social Forestry Plantation Center
SSC	Secondary School Certificate

Reference:

1. Project Proforma/DPP, Poverty Alleviation through Participatory Forestry Project.
2. Project Completion Report, Poverty Alleviation through Participatory Forestry Project.
3. Project Completion Report, Poverty Alleviation through Participatory Forestry Project undertake by the Forest Department.
4. Forestry Sector Development Project funded by the Asian Development Bank.
5. Thana Aforestation and Nursery Development Project funded by the Asian Development Bank.
6. Statistical Yearbook of Bangladesh, 2008, Bangladesh Bureau of Statistics

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SECTION I BACKGROUND OF THE PROJECT

A. Introduction

1. The Forest Department (FD) under the Ministry of Environment and Forest designed and implemented the “Poverty Alleviation through Participatory Forestry Project” between July 2006 and June 2008. The goal of the project was poverty reduction through participatory forestry and increase forest resources using marginal and unused public lands. In fact, this was a bridging project of only two years duration and a small sum of Tk.220.00 lakh was allocated by the Government from own resources as the project cost.

B. Purpose and Rationale of the Project

2. The main purpose of the project was to continue the relentless efforts of the Government to increase forest resources using marginal and unused public lands through participatory forestry with ultimate goal to reducing poverty. The rationale of the project was to establish 2nd rotation plantations where trees planted in earlier rotation are already fell upon maturity and continue generation of tree resources ensuring sustainable possession and use of the marginal and unused public lands. The project rationale also included maintenance of the existing tree plantations to ensure proper caring and growth.

3. The Forest Department plant trees in the marginal and unused public lands every year under different social forestry programs and maintain the trees until they mature for felling. The exotic tree varieties generally mature for felling in about 10 years period and harvested, and trees are planted again establishing new plantations soon thereafter. Eventually, FD needs to fell trees every year in many plantations that mature for harvesting and establish new plantations there. This has become a continuous and dynamic phenomenon. FD has to harvest matured plantations and distribute share of stakeholders as per provisions of agreement among the stakeholders including beneficiaries. The FD designed and implemented the project to establish 2nd rotation plantations in locations where trees might mature and fell during 2006-2007 and 2007-2008. The project provided provisions for establishing 2nd rotation plantations and maintenance of existing plantations.

C. Project Areas

4. The project covered selected 38 districts of six administrative divisions namely Rangpur, Rajshahi, Khulna, Dhaka, Barisal, and Chittagong. Project area is shown in table 1.1 and map (p.4). According to field organization of the FD the project covered 13 forest divisions as shown at table 1.2.

Table 1.1: Project Area by Administrative Divisions

Division(s)	Districts Covered	Districts
1 Rangpur	Rangpur, Kurigram, Gaibandha, Lalmonirhat, Nilphamari, Dinajpur, Thakurgaon, Panchagarh	8
2 Rajshahi	Pabna, Sirajganj, Rajshahi, Natore, Chapainawabganj, Naogaon, Bogra, Joypurhat	8
3 Dhaka	Faridpur, Gopalganj, Madaripur, Shariatpur, Rajbari	5
4 Khulna	Kushtia, Meherpur, Narail, Chuadanga, Jessore, Khulna, Magura, Jhenaidah, Satkhira, Bagerhat	10
5 Barisal	Barisal, Jhalakati, Pirojpur, Bhola, Patuakhali, Barguna	6
6 Chittagong	Noakhali	1
Total		38

Table 1.2: Project Area by Forest Divisions

	Forest Division(s)	Project District(s)	No. of Districts
1	Dinajpur	Panchagarh, Thakurgaon, Dinajpur	3
2	Rangpur	Rangpur, Kurigram, Gaibandha, Lalmonirhat, Nilphamari	5
3	Rajshahi	Rajshahi, Natore, Chapainawabganj, Naogaon	4
4	Bogra	Bogra, Joypurhat	2
5	Pabna	Sirajganj, Pabna	2
6	Faridpur	Rajbari, Faridpur, Madaripur, Gopalganj, Shariatpur	5
7	Kushtia	Kushtia, Meherpur, Chuadanga	3
8	Jessore	Narail, Jessore, Jhenaidah, Magura, Satkhira	5
9	Bagerhat	Khulna, Pirojpur, Bagerhat	3
10	Barisal	Barisal, Jhalakathi,	2
11	Bhola	Bhola	1
12	Patuakhali	Patuakhali, Barguna	2
13	Noakhali	Noakhali	1
	Total		38

D. Project Objectives

5. Primary objective of the project was to increase the forest resources and meet the increasing demands and thereby minimize the supply and demand gap. The other objectives were to:

- establish, develop, and manage the forest resources with direct participation of the local people;
- bring all marginal, vacant and unused land under tree coverage to ensure economic use of the land;
- ensure local participation of the grassroots level people in development/establishment in the country;
- alleviate the rural poverty;
- motivate the people to take active participation in tree resources establishment in the country;
- arrest depletion of the forest resources;
- ensure sustainability and institutionalization of the social forestry program; and
- maintain the plantations rose under the Forestry Sector Project.

E. Project Components

6. The project had seven major components. The seven components are listed as following:

- Establishment of 2nd rotation woodlot plantation in felled area (744 ha);
- Establishment of 2nd rotation agro-forestry plantation in the felled area(240 ha);
- Establishment of 2nd rotation strip plantation (1950 km);
- Maintenance of new and 2nd rotation woodlot plantation (4156.22 ha);
- Maintenance of new and 2nd rotation agro-forestry plantation (660 ha);
- Maintenance of new and 2nd rotation strip plantation (11110.0 Km);
- Train up project participants on social forestry, social forestry rules, and tree farming fund (6744 person-days).

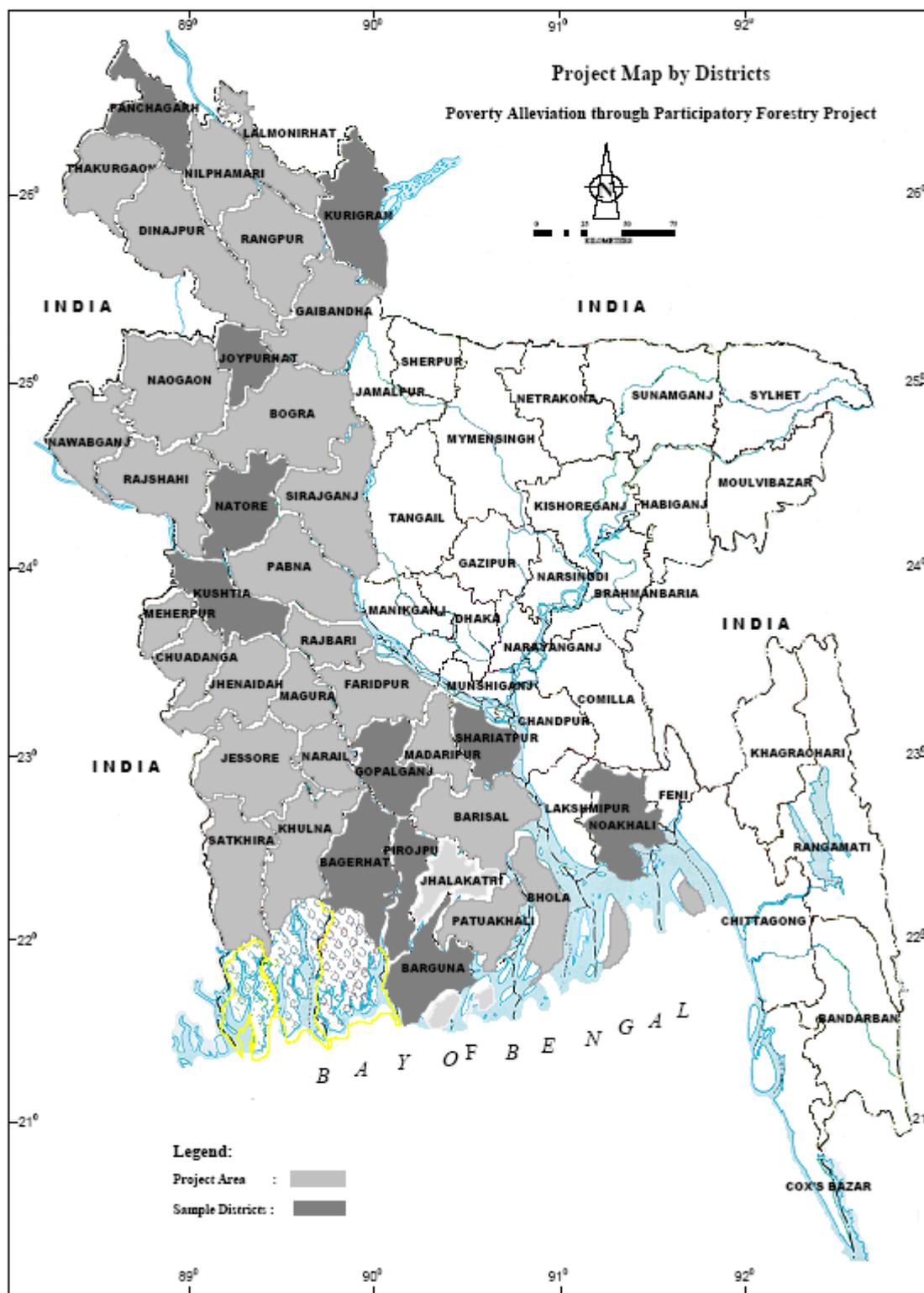
F. Project Implementation Arrangement

7. Forest Department (FD) under the Ministry of Environment and Forest implemented the project as Implementing Agency. One Project Director in the rank of Deputy Conservator of Forests was appointed for overall coordination and supervision of the implementation activities while he was also responsible for other activities. A Project Management Unit (PMU) was established in the Forest Department and Project Implementation Unit (PIU) was set up at the respective divisional levels to oversee day to day operation and supervision of the project implementation. The PIU was headed by the concerned Divisional Forest Officer (DFO). The functions of project implementation at division level did not limit to but included: (i) identification of specific project sites; (ii) execution of participation and benefit sharing agreements; (iii) preparing monthly, quarterly and annual reports; (iv) submission of accounts to project office; and (v) representing the Forest Department in various coordination meetings at the division, district, and upazila. The FD was responsible for maintaining a register having particulars of the participants, description of the plantations including the number of trees, and maintaining proper accounts of the sale proceeds and benefit shares.

8. The participants were responsible for planting and maintenance including climber cutting, cleaning, double stem cutting, pruning and thinning, and protection from damage or pilferage; operate the tree farming fund; harvesting intermediate and final products; contributing to re-establishment costs as per agreement.

9. Forest Department was responsible for selecting participants in consultation with the local government institutions associated with the plantation site/activities. Criteria for selecting participants included: beneficiaries be local people (living within 1km of the plantation) who are landless, owner or occupants of less than 50 decimals land, destitute women, and ethnic minorities. The project provided provisions of selecting both husband and wife as signatories of the agreement to ensure gender equity. In case of strip plantation however, affected people and adjacent farmers were given preference.

10. Participatory group and management committee in consultation with local government institutions were supposed to form groups with 10-25 participating members. The group members formed management committee. Three advisers were selected - one from FD, one from the civil society, and one from participating group members. The functions of the committee were to assist FD in implementing project activities, protect and maintain social forestry plantations, management of TFF, ensure implementation of terms and conditions mentioned in the agreement and solve all disputes that might arise during implementation of the project in consultation with representatives of the FD.



SECTION II DESIGN OF IMPACT EVALUATION STUDY OF THE PROJECT

A. Introduction

11. The Implementation Monitoring and Evaluation Division (IMED), Ministry of Planning, Government of Bangladesh selected the “Poverty Alleviation through Participatory Forestry Project” for impact evaluation during 2010-2011. The evaluation study was outsourced to Eusuf and Associates.

B. Objectives of Impact Evaluation

12 The objectives of the impact evaluation are to:

- Assess the implementation status of tree plantation program in all marginal, vacant and unused land under the project;
- Assess the status of direct participation of the local community in developing/establishment of tree resources of the country as per the project objective;
- Assess the implementation status of the training program imparted on social forestry, social forestry rules, and tree farming fund;
- Assess whether the project implementation was successful in terms of motivating people towards establishment of tree resources, alleviation of rural poverty; and also arresting the depletion of forest resources; and
- Identify the strengths and weaknesses of the project and suggest measures to overcome the weaknesses for future projects.

C. Methodologies and Tools

13. The methodologies for the impact evaluation included: review of implementation status of the project, assessment of the growth of plantations, assessment beneficiary participation, and assessment of benefits and impact of the project using appropriate tools. The consultants reviewed implementation status using secondary materials and discussion with concerned officials of FD. The growth of trees in the plantations was assessed by plantation audit using technically sound methods and tools. Plantation audit included review of planting and re-planting trees as per design, measurement of circumference and height of tree top, and diameter of tree umbrella, etc. Beneficiary participation and their benefits and impact were assessed through survey and interview and focus group discussions.

14. The consultants used different approaches and methodologies and tools for collecting data such as: review of secondary documents, key informant interview, visits to project area by experts and discuss with stakeholders, survey and data collection from sample beneficiary households, conducting plantation audit, administration of focus group discussion, holding a field level stakeholder workshop, getting approval of technical committee and steering committee on study design and study findings, and sharing draft final reporting in a national workshop. The methodologies and tools were developed following the objectives of impact evaluation and key output and outcome indicators as needed.

15. In all, four sets of data collection tools were prepared (Appendix 1) for collecting necessary quantitative and qualitative information. Considering the nature of the components and activities, the impact evaluation placed higher importance to qualitative information as needed. Qualitative information was gathered primarily from key informant interviews, field observation, and discussions with beneficiaries. One set of semi-structured questionnaires was used to collect primary data from sample beneficiary households. Three other sets of questionnaires were used to interview key informants, plantation audit, and focus group discussion.

D. Sampling Technique

16. In sample size for survey of beneficiary household was estimated using prevalence rate of beneficiaries and several other relevant sub-indicators. Confidence level of 95%, precision level of 5%, and design effect of 1.5 (multi-stage sampling) were used. Given the prevalence rate, population size, confidence level, and design effect, the sample size was estimated using the general formula (Cochran):

$$n = \frac{n_0}{1+n_0/N} = \frac{n_0}{C} \quad \text{Where } C = 1 + \frac{n_0}{N}$$

$$n_0 = \frac{(Z_{0.95}^2 PQ) (\text{deff})}{e^2} = 576.24, \text{ where}$$

N= Population size = 2,03,588 (estimated), n= Sample size, n₀= Initial sample size, P= Prevalence rate (using 0.5 for maximum value), Q= 1-P, deff=design effect = 1.5, Z_{0.95} =1.96 and e= precision rate=0.05

17. Thus the corrected sample size (n) of beneficiary households for survey was estimated using the above formulae.

$$n = \frac{n_0}{1+n_0/N} = \frac{n_0}{C}, \text{Where } C = (1 + n_0/N)$$

$$= 574.61, \text{ Say } 575$$

E. Sample Frame

18. IMED suggested for increasing the sample size to around 1,500 to ensure higher quality standards of survey data. The consultants agreed to two plantations from each of the three plantation types from of the 11 selected districts. The consultants also agreed to randomly select 25 beneficiary households from each plantation for survey. Thus, the final sample size was 1,650 (25 households/plantation x 66 plantations).

19. The consultants surveyed randomly selected 66 plantations (22 woodlot, 22 agro-forestry, and 22 strip plantations) from all six divisions (100% geographical coverage at division level). Two districts per division except Chittagong division (where project included only the

Noakhali district) were selected. While selecting districts the nearest district (other than headquarters district) and one district farthest from the divisional headquarters was selected. The selected 11 districts are shown in map (p.6). Thereafter, two plantations from each of the three plantation types (woodlot, agro-forestry, and strip plantation) were randomly selected from each of the sample districts and finally 66 plantations were randomly selected and surveyed. The final sample frame is in following table 2.1.

Table 2.1: Final Sample Frame by Division

	Division(s)	District(s)	Plantation(s)	Sample Frame (Beneficiaries/Households)			
				Woodlot	Agro-forestry	Strip	Total
1	Rangpur	2	12	100	100	100	300
2	Rajshahi	2	12	100	100	100	300
3	Khulna	2	12	100	100	100	300
4	Dhaka	2	12	100	100	100	300
5	Barisal	2	12	100	100	100	300
6	Chittagong	1	6	50	50	50	150
	Total	11	66	550	550	550	1,650

20. During survey, the sample frame was adjusted keeping the final sample size to 1,650. Because, number of woodlot, agro-forestry, and strip plantations widely varied in different divisions and districts from original estimation. The actual sample frame is presented at table 2.2 hereunder. The actual sample frame is more representative of the number of plantations of the three plantation types. The finally adjusted sample frame is at table 1.4. The impact evaluation team conducted a survey of 1,650 beneficiary households using the semi-structured questionnaire as at **Appendix 1 (Annex A)**.

Table 2.2: Actual Sample Frame by Division

	Admin Division(s)	District(s)	Plantation(s)	Sample Frame (Beneficiaries/Households)			
				Woodlot	Agro-forestry	Strip	Total
1	Rangpur	2	12	241	93	117	300
2	Rajshahi	2	12	420	31	49	300
3	Khulna	2	12	0	0	299	300
4	Dhaka	2	12	0	0	0	300
5	Barisal	2	12	0	0	200	300
6	Chittagong	1	6	154	0	46	150
	Total	11	66	815	124	711	1,650

F. Plantation Audit

21. The impact evaluation team conducted plantation audits in 66 selected plantations using a checklist as at Appendix 1 (Annex B). The trained enumerators collected information of area of each plantation, number of beneficiaries, species used, number of trees planted, number of trees survived, distance from nearest trees, average girth of trees at chest height, estimated height of tree top, amount of by-products collected, etc. The plantation audit provided useful information about the design of the plantation, type of species planted, survival rate, growth of trees, quality of maintenance, potential of revenue earning at felling, etc. Details of finding of plantation audit are at Operating Performance of Plantations (Section IV).

G. Key Informant Interview

22. The impact evaluation team also carried out key informant interviews of field level officials of the Forest Department, informed beneficiaries, local timber traders, and local elites. The enumerators conducted the key informant interviews using a checklist as at Appendix 1 (Annex C). The trained enumerators interviewed the key informants and collected information of beneficiary selection, goals and objectives of project, selection of species, role played by beneficiaries and forest department, supports from project, strengths and weaknesses of project, survival rate of trees, growth of trees, maintenance of plantation, suggestions for improvement of the plantations, collection and sharing of by-products by beneficiaries, etc. The key informant interview provided useful information about the establishment of plantations, maintenance of plantations, potentials of constraints of tree plantation, etc. Details of the finding of key informant interviews are at Feedback of Key Informant Interviews.

H. Focus Group Discussion

23. Further, the impact evaluation team carried out focus group discussions with field level officials of the Forest Department, informed beneficiaries, local timber traders, and local elites. The enumerators conducted the focus group discussions using a checklist as at Appendix 1 (Annex D). The trained enumerators conducted the focus group discussion and captured useful qualitative informants and feedback of beneficiary selection, participation of the beneficiaries, perceptions of the people about social forestry and its benefits, selection of species, roles and responsibilities of beneficiaries and forest department, strengths and weaknesses of project, survival rate of trees, growth of trees, maintenance of plantation, suggestions for improvement of the plantations, collection and sharing of by-products by beneficiaries, etc.

24. The focus group discussion provided useful information about the establishment of plantations, maintenance of plantations, potentials of constraints of tree plantation, strengths and weaknesses of project, suggestions for improvements, etc. Details of the feedback of focus group discussion are at feedback of focus group discussion.

SECTION III STATUS OF PROJECT IMPLEMENTATION

A. Status of Physical Progress of Project Implementation

25. The physical progress of project implementation is far below the target. Progress of establishing 2nd rotation woodlot, agro-forestry, and strip plantations is very low – 14%, 23%, and 31% respectively for woodlot, agro-forestry, and strip plantation (table 3.1). The poor physical progress of establishing 2nd rotation woodlot, agro-forestry, and strip plantation indicated a low priority attached by the project on number of important factors. The low progress deferred felling of matured trees whereby delayed the gain of benefits of the participants from revenue share, loss of additional plantations and potential amount of forest resources. The slow progress may affect sustainability of the participatory forestry program though reducing motivation of the participants through frustrations. The effect of the low priority attached to establishment of 2nd rotation plantations has multiple effects on sustainability, motivation, economy, and poverty reduction through forestry.

Table 3.1: Status of Physical Progress of Implementation

Types of Plantations		Unit	Status of Implementation		
			Original	Actual	%
1	Establishment of 2 nd rotation woodlot plantation	ha	744	104	14
2	Establishment of 2 nd rotation agro-forestry	ha	240	54	23
3	Establishment of 2 nd rotation strip plantation	km	1,950	598	31
4	Maintenance of new/2 nd rotation woodlot	ha	4,156	3,665	88
5	Maintenance of new/2 nd rotation agro-forestry	ha	660	539	82
6	Maintenance of new/2 nd rotation strip plantation	km	11,110	10,557	95
7	Establishment of institute plantation (lakh plants)	no	2	2	100
8	Establishment/maintenance of charland plantation	ha	300	300	100
9	Maintenance of pond/tank plantation	ha	5.20	5.20	100
10	Maintenance of Barind Gullies plantation	km	187	187	100
11	Maintenance of SFNTC and SFPC plantation	no	195	50	25.6
12	Training of beneficiaries/participants	no	6,744	4,911	72.8

Source: Forest Department (Project Completion Report)

26. Physical progress of maintenance of new and 2nd rotation plantation is however significantly high compared to targets – 88%, 82%, and 95% respectively for woodlot, agro-forestry, and strip plantations (Table 2.1). Likewise, physical progress of establishment of institutional plantation, establishment/maintenance of charland plantation, maintenance of pond/tank plantation, and maintenance of Barind Gullies plantation (generally strip plantation) is as high as 100% in all the four components (Table 3.1). On the other hand, physical progress of maintenance of SFNTC and SFPC is too low (only 25.6%) although this is just maintenance of existing structures and physical facilities (Table 3.1).

27. The physical progress of establishing and maintenance of strip physical especially of institutions is exceedingly high and overly satisfactory. This is due to strip plantation and institutional interest and patronization and support from the respective public institution. The main reason of low achievements in establishing 2nd rotation plantations is less attractive financial rates of the activities related to establishing new plantations. The study noted that although the FD headquarter officials consider that lack of fund is the main reason of low overall progress, underlying primary reason is the unattractive rates of carrying out various plantation activities. The field level officials stated that the rates being low and unworkable the

field offices did not feel interested as much for establishing new and 2nd rotation plantations. In stead, they went for maintenance of existing plantation that is easy and rates are relatively better and attractive. Besides, the participants in general take the major burden of maintenance activities with and without much financial and other supports from the FD.

28. The study noted that the project of too short duration of two years was prepared and implemented without any time extension and therefore, there were less changes of providing outdated and unworkable rates. Besides, had the rates been too low and unworkable how 14%-31% achievements could be made in establishment of 2nd rotation plantations. The rates were not that attractive and the project attached high importance to maintenance of plantations than the establishment of new plantations.

29. The project involved the community in plantation development and management and maintenance. Actually, there should be one beneficiary for one ha or one seedling kilometer plantation development but in reality there are more than one beneficiary per ha or seedling kilometer as there is too much of demand for participation. Moreover, for vested interest group or power group pressure, to accommodate someone who remained outside the group might cause harm to the plantation had to be included. Beneficiary per hectare or per kilometer seedling is presented in table 3.2. In addition, seedlings were planted in institutions, in the bank of tanks/ponds.

Table 3.2: Average Number of Participating Beneficiaries per Unit Area

	Plantation Typologies	Total Area (ha/km)	Total Beneficiary	Beneficiary/ha or /km
1	Establish 2 nd Rotation Woodlot Plantation	104	370	3.6
2	Establish of 2 nd Rotation Agro-forestry Plantation	54	123	2.3
3	Establish 2 nd Rotation Strip Plantation	526	3,266	6.2
4	Establish/maintenance of Charland Plantation	1,065	1,040	1.0
5	Maintenance of New Woodlot Plantation	566	951	1.7
6	Maintenance of New Agro-forestry Plantation	17	85	5.0
7	Maintenance of New Strip Plantation	2,352	10,273	4.4

Sources: Forestry Survey 2011; Note: ha = hectare, km = seedling kilometer

30. The study noted that in average there are 3.6, 2.3, and 6.2 beneficiaries per ha respectively for 2nd rotation woodlot, agro-forestry, and strip plantations. On the contrary there is only 1 beneficiary per km for establishment of charland plantation. The number of beneficiaries per ha for maintenance of new woodlot, agro-forestry, and strip plantations are respectively 1.7, 5.0, and 4.4. It is considered that in order to benefit larger poor population for poverty reduction during a long 10 years rotation the number of beneficiaries should be higher per unit area. Summary of beneficiaries per unit area of different plantation types is at table 3.2.

31. The project design did not emphasize specific areas suitable for the three plantation types (woodlot, agro-forestry, and strip). As a result, all three types of plantations were tried everywhere should enough unused public land existed. In fact, woodlot plantation needs about 1 ha land area of any shape while strip plantation is suitable for unused lands along road, tank, pond, gullies, embankment, yards of major institutions and offices, etc. Agro-forestry is suitable for same type of unused land area with fertile land to grow agricultural crops.

32. The study noted that woodlot plantations are predominantly established in three major forest divisions of Dinajpur, Rangpur, and Rajshahi. Woodlot plantation is also found in limited number in Bogra and Noakhali forest divisions. In other areas of the project woodlot plantation is rare such as Faridpur, Pabna, Kushtia, Jessore, Bagerhat, Barisal, Bhola, and Patuakhali. The study also noted that woodlot plantation could be established in all over the project area but due to unavailability of enough unused public land woodlot plantation could not be established every where.

33. As mentioned before, agro-forestry has three limitations namely, enough unused public land, suitability for agriculture production, and preference of the participants. The study further noted that physical progress of establishing agro-forestry plantation is only 54 ha compared to a target of 240 ha (23%), and the main reason is lack of preference of the participants.

34. The participants as well as the field officials of FD indicated that although conceptually the agro-forestry sounds very attractive, practically it is not economically that rewarding. Selected crops can be grown initially during the first few years with low returns and thereafter when the trees around grow high cultivation becomes more difficult and expensive while production, yield, and quality falls. The consultants noted that experience with the agro-forestry plantation is same almost everywhere.

B. Capacity Enhancement through Training and Beneficiary Participation

35. The project attached high importance to training. Training is important for participatory forestry to understand social forestry, know the social forestry rules and provisions, role and responsibility of the participating beneficiaries, role and responsibility of the forest department, level of participation from the participating beneficiaries needed, etc. The training also covered awareness raisin among the community in general and the participating beneficiaries in particular, social responsibility for environmental protection and conservation of marginal public lands through tree plantation, and management of Tree Farming Fund (TFF). The training also covered income generating activities.

36. The project had provision of training for the participating beneficiaries. The project targeted to train 6,744 person days but actually achieved 4,911 person days. The physical achievement is 73%. The financial allocation for the training was Tk.1,34,90,000 and actual expenditure is Tk.8,79,000. Financial progress is 65% of allocation. Details of allocation and achievement of training component is at table 3.3.

Table 3.3: Detail of Achievement of the Training Program

	Particular(s)	Target		Achievement (%)
1	Training (person days)	6,744	4,911	73%
2	Budget allocation (taka)	13,49,000	8,79,000	65%

Source: Forest Department (Project Completion Report)

37. The field staff of the Forest Department motivated the community to participate in participatory social forestry for producing forest resources using un-used land and reduce poverty from the shares of harvest of forest resources. Strong commitment of the Government and Forest Department was attached to the motivation and participation of the local poor for generation of forest resources.

38. The project provided three days training for the participants. The field level staff of the Forest Department provided training. The training included organization and development (80%), relationship between agriculture and ecosystem (66%), income generating activities (67%), TFF (46%), and other issues (19%).

39. Although the training is a very important component of the participatory social forestry projects the project provision was not adequate in overall coverage, content, and duration. Two participants from each of the participatory beneficiary households should be covered initial training. The training should be arranged at field level preferably at the plantation level so that all participants can participate and learn technical point hands on and apply the knowledge properly. This may increase participation and reduce cost of training.

40. Each training course of 3 days may be held in three different days instead of continuously for three consecutive days in upazila level whereby the beneficiaries find difficulty to attend affecting their other activities and incurring huge cost at beneficiary level as well as project level. The training contents may also in greater details social forestry rules, raising and maintenance of plantations, plant nutrition and growth, timber value and its use, transparency of accounting for maintenance, prevention of depletion of trees, remedial; measures, agro-forestry, etc. The training needs should be assessed in all similar projects considering area specific training needs and training contents.

C. Status of Financial Progress

41. The original cost of the project was Tk22.00 crore (Tk.12.9695 crore for 2006-2007, and Tk.9.0305 crore). The Government allocated Tk.14.8863 crore and the remaining amount of Tk.7.1138 was expected to come from the Tree Farm Fund (TFF). The ratio of Government and TFF allocation was 68:32. Details are at Table 3.4.

42. Actual cost was Tk.12.1684 crore (55% of original cost). The utilization during the first year was 44% (2006-2007) and that during the second year was 72% (2007-2008). Utilization of GOB fund was 58% and that of the TFF was 49%. Details are at Table 4.4.

Table 3.4: Status of Financial Progress

Item(s)	Project Cost (Taka in Crore – Rounded)		
	GOB	TFF	Total
Original Cost (2006)	14,88,62,000	7,11,38,000	22,00,00,000
Year 2006-2007	8,97,40,000	3,99,56,000	12,96,95,000
Year 2007-2008	5,91,23,000	3,11,82,000	9,03,05,000
Actual Cost (2008)	8,70,88,200	3,45,95,800	12,16,84,000
Year 2006-2007	4,09,93,200	1,55,49,000	5,65,42,000
Year 2007-2008	4,60,95,000	1,90,47,000	6,51,42,000
Utilization (% original cost)	58.50	48.63	55.31

Source: Forest Department (Project Completion Report, p.4-5)

43. The study noted that utilization is only 55% and thereby 45% of the allocated funds remained unutilized although establishment of 2nd rotation woodlot, agro-forestry, and strip plantations remained below 31%. Consequently, trees planted under the forestry sector project long back could not be fell and harvested even though those are over matured for harvesting. The reasons are precisely, low financial rates provided in the costing for activities related to

establishment of 2nd rotation plantation; fear of losing lands after felling (if cannot be used again soon through 2nd rotation). The reasons of poor utilization of the funds allocated for the establishment of woodlot, agro-forestry, and strip plantations are discussed in detailed at para 25-34.

44. Overall status of utilization of project funds is quite low compared to the allocation. The low utilization is not justified as the three reasons of low utilization are not strong enough compared to the very strong dual objectives of poverty alleviation through increasing forest resources. More importantly, it is learnt from the Forest Department that the allocated Government fund was available and sufficient TFF funds could also be tapped from the potential revenue of TFF after felling. Details of the allocation and actual spending for project management and plantation development are at Table 3.5.

Table 3.5: Detailed Project Cost – Allocation and Actual

(Lakh Taka)

Major Expenses	Budget			Actual Expenses			
	GOB	TFF	Total	GOB	TFF	Total	Used (%)
A Project Management							
1 Postal	1.00	0	1.00	1.00	0	1.00	100
2 Petrol and lubricant	42.01	0	42.01	21.613	0	21.613	52.45
3 Stationery	5.00	0	5.00	11.00	0	11.00	220
4 Publicity	4.00	0	4.00	4.00	0	4.00	100
5 Training	13.49	0	13.49	8.79	0	8.79	65.20
6 Maintenance of motor vehicle	32.00	0	32.00	16.674	0	16.674	52.11
Subtotal (a)-Project Management	97.50	0	97.50	63.077	0	63.077	64.69
B Development of Forest Resources							
7 Maintenance of new woodlot plantation	45.501	15.675	61.176	22.416	7.245	29.661	48
8 Establishment of 2 nd rotation woodlot	107.448	90.307	197.755	14.739	12.215	26.954	14
9 Maintenance of 2 nd rotation woodlot plantation	46.718	104.395	151.113	19.246	48.316	67.562	45
10 Maintenance of new agro-forestry plantation	3.211	1.099	4.310	1.751	0.572	2.323	54
11 Establishment of 2 nd rotation agro-forestry	15.528	17.309	32.837	3.496	3.882	7.378	22
12 Maintenance of 2 nd rotation agro-forestry	1.937	4.347	6.284	0.430	1.254	1.684	27
13 Establishment of institute plantation	23.200	0	23.200	23.200	0.000	23.2	100
14 Maintenance of new strip plantation	505.580	127.214	632.794	361.129	91.005	452.134	71
15 Establishment of 2 nd rotation strip plantation	109.883	93.152	203.035	34.669	28.621	63.29	31
16 Maintenance of 2 nd rotation strip plantation	388.411	238.636	627.047	234.904	139.838	374.742	60
17 Establishment and maintenance of char land	95.600	15.541	111.141	71.734	10.259	81.993	74
18 Maintenance of tanks/ponds rehabilitation	0.212	0.040	0.252	0.118	0.023	0.141	56
19 Maintenance of barind gullies plantation	16.591	3.665	20.256	11.973	2.730	14.703	73
20 Maintenance of SFNTC	11.800	0	11.800	3.000	0	3	25
21 Maintenance of SFPC	19.500	0	19.500	5.000	0	5	26
Subtotal (b) – Development Works	1391.12	711.38	2102.50	807.805	345.96	1153.765	55
Grand total (a+b)	1488.62	711.38	2200.00	870.882	345.96	1216.842	55

Source: Forest Department (Project Completion Report)

D. Monitoring and Evaluation

45. The project monitoring and evaluation was not adequate and management information was too weak. Consequently, necessary data about the project implementation is not maintained in the project headquarters at Dhaka. There was not full-time Project Director who was involved in number of other important assignments. The experts of the impact evaluation found difficulty getting necessary data from all levels – head office and down to the field levels. Lack of necessary information at the project office level stood as a serious impediment to capturing

secondary data. Likewise, the field offices also did not properly maintain the data separately for the project. The field offices informed that they generally keep information of field operation carried out through revenue budget together. Data of major projects funded by donors are maintained separately in prescribed formats. In addition, the consultants noted that respective officials are generally new in their stations and find difficulty segregating data by projects. It is interesting that in many cases the local offices find difficulty identifying the plantations established under the project.

46. The consultants emphasize upon the need for proper monitoring and evaluation of project activities and generating sound management information and inventory system for the plantations. The forestry operations are now quite diversified of several intensive activities relating to conservation as well as development of social forestry. Most of the activities are carried out by field offices of the department primarily the divisional offices. The divisional offices enjoy fairly big financial, administrative and, operational authority. The delegation of authority or decentralization of authority is a strong point in favor of dynamic field operations. The evaluation study considered that there is need for more decentralization for smooth field operations and bringing effective dynamism in the operation of the forestry development.

47. Given the type of organization and nature of activities in the backdrop of the spread of workstations, the Forest Department needs strong monitoring and evaluation with head quarter at Dhaka reporting to the Chief Conservator of Forests (CCF) having networks in the divisions. The monitoring should involve progress monitoring of both conservation and community forestry in terms of program achievements, plantation audit and growth performance evaluation, plantation management by participants, participant development, operation of benefit sharing arrangement, benefit monitoring (forest as well as participants), auction management and distribution of participant shares, field staff performance, tree farming fund management, etc. The information are needed for planning annual targets, changing implementation approaches and designs, and providing feedback to the Ministry and in planning process of the Forest Department.

E. Tree Farming Fund

48. The project design followed the provision of Tree Farming Fund for the subsequent plantation rotations. The purpose of the provision of tree farming fund is to involve the participants more actively in the establishment, maintenance, management including caring and guarding, increasing ownership and responsibility, and reducing dependence on the forest department, and financial burden of the government. Under the provision, the forest department set aside 10% of the sale proceeds of the earlier plantation as the tree farming fund towards meeting part of the costs of second rotation plantation, maintenance and, management until felling at maturity. The provision is that 50% of the cost of second rotation plantations is met from the Forest Department and the remaining 50% come from tree farming fund (10% of the sale proceeds of earlier rotation). In case, there is any shortfall, the participants make good with voluntary labor.

49. It is found that utilization of TFF was less than the amount utilized from the government portion. This happened because the amount of TFF was not sufficient for second rotation plantation and participants were not willing to supplement their portion providing their labor. Felling of trees was insufficient due to less growth, small plot size, fear of grabbing by vested interest group soon after felling if not re-planted.

50. In case, the sale proceeds after felling is high and 10% of that is enough to meet 50% of the estimated cost for plantation development and maintenance of the second rotation then there is no difficulty except management of the TFF. But where the harvest is not good and the sale proceed is low (the tree farming fund is not enough to meet the remaining 50% of the estimated cost of second rotation plantation) there is serious problems for the field officers as they are not sure if the participants will ensure meeting the shortfalls through voluntary labor. The sale proceeds are highly variable depending on the species, geographical area, land typology and land productivity, quality of care and maintenance, market prices, etc.

51. While the evaluation study underscores the need for the participants to increasingly come forward to take the plantation development on equal partnership arrangement and bear equal cost of plantation development with the Forest Department, the evaluation also appreciates the difficulty of the participating beneficiary groups whose shortfall is significantly high calling for larger voluntary labor contribution because of low harvest.

SECTION IV STATUS OF THE PLANTATIONS ESTABLISHED

A. Introduction

52. The Impact Evaluation carried out an assessment of the operating performance of selected plantation models in terms of growth and production, and sustainability measured in terms of survival and financial returns to investments. The performance of three major plantation models such as (i) second rotation woodlot plantation, (ii) second rotation of agro-forestry plantation and (iii) second rotation strip plantation are presented in the following paragraphs. The purposes of the assessment of operating performance of the models are to monitor species, survival rate, and growth of plant, maintenance (pruning and thinning) and, also to assess financial feasibility of the plantation models. The consultants carried out a plantation audit using structured data collection tool and standard practices in vogue as at Appendix 1 (Annex B). Details of findings of plantation audit are at **Appendix 2**.

53. The consultants while visiting plantation models in the project forest divisions undertook actual data of species, seedlings planted, seedlings replanted, average girth at breast height, estimated height of top, cost of plantation, cost and return of agro-forestry, outputs and value of by-products, outputs and value (timber, poles, and fuel wood) at felling of plants after maturity, cost and output and value of alternative use of the plantation plots, etc. In addition to the data collected by the consultants trained supervisors and field surveyors collected the information under the guidance of the consultants from three plantation models from all 13 forest divisions under the project. The data were analyzed in detailed and the findings are presented in the following paragraphs.

54. The evaluation study team has estimated the sustainability of the plantations in terms of survival rates and financial returns to investments for raising the plantations at enterprise level. The plantations are raised through participation of the Forest Department and the participants. Both Forest Department and the participants put money and labor (officials and staff of FD put money and relentless efforts) and the participants put money as well as hard labor and guard the plants against nature and theft until felling. The output includes number of benefits — renewable fuel energy (by-product such as leaves, twigs, branches, fuel wood), compost fertilizer (biomass of leaves, etc.), agro-forestry products, timber poles, timber logs, shelter and food for birds and biodiversity, climate balance, increased land productivity, and last but not the least bringing the forestland back to the Forest Department from the land grabbers.

55. The team has also estimated that the existing forestland have low opportunity costs for using alternate economic applications and considered initial investment made by the Forest Department and the participants in cash, materials, and labor. The operating costs were estimated as cash and labor incurred for caring and guarding. Returns have been estimated as cost of byproducts (used at home or sold in markets), sale proceeds of timber and pole and fuel wood, opportunity cost of alternative use of the land. Though both Forest Department and participants incur money and labor and share benefits the return has been estimated at enterprise level to see the sustainability of the plantation model as an enterprise. The net returns of the Forest Department and the participants might be different. As the investments and returns are more or less equal the financial returns at the respective levels of the Forest Department and the participants might also be closer to the rate of returns to enterprise level.

1. Establishment of Second Rotation Woodlot Plantations

56. A survey was undertaken in 19 second rotation woodlot plantations in four forest divisions namely, Dinajpur (three plantations), Rangpur (one plantation), Rajshahi (14 plantations) and Noakhali (one plantation). The survey selected second rotation woodlot plantations of 2006-2007 (nine plantations) and 2007-2008 (ten plantations). The plantations established in 2006-2007 grew in last four growing seasons, and plantations established in 2007-2008 grew in three growing seasons as of the survey in February 2011.

57. The size of each plantation ranged between 0.32 1 to 34 hectares (average 9.30 hectares). The number of beneficiaries varied from 4 to 68 with average of 5.0 beneficiaries per hectare. In 19 plantations there are 424,850 plants with average of 2,414 plants per hectare. Out of the total 19 plantations audited, pruning was undertaken in only one plantation in 2010. It is noted that the 19 plantations used as many as 13 different species. Akashmoni is found in as many as nine plantations followed by eucalyptus in seven plantations, arjun in three plantations, and mangium and jurul and buccain in two plantations each.

58. Average growth of the species in last 3-4 growing seasons in the surveyed plantations in four different areas such as Dinajpur, Rangpur, Rajshahi, and Noakhali is summarized in the following table 4.1. The growth measured in terms of girth at breast height and height of tree top. The growth of the plants of same species planted at the same year is found to widely vary among the plantations at different locations due to site conditions and level of care. The impact evaluation estimated the survival rates of all the 19 plantations studied for assessing immediate sustainability. It is found that the survival rates varied between 90.4% and 92.1% with average of 91.1%. The average survival rate and growth of woodlot plantations is normal.

Table 4.1: Average Growth of Selected Species – Second Rotation Woodlots Plantations
(Growth in January 2011)

Species	Section(s)	Growth of Plants in January 2011 since Year of Plantation	
		Planted in 2007-8 (3 GS)	Planted in 2006-7 (4 GS)
Akashmoni	GBH (cm)	20.1	22.2
	Height (m)	6.9	7.0
Eucalyptus	GBH (cm)	22.5	23.3
	Height (m)	8.0	8.2
Arjun	GBH (cm)	16.5	17.9
	Height (m)	4.1	4.4
Manjium	GBH (cm)	26.1	27.3
	Height (m)	7.9	8.8
Jarul	GBH (cm)	18.9	19.8
	Height (m)	4.9	5.5
Buccain	GBH (cm)	21.9	22.8
	Height (m)	4.2	4.9

59. The survival rate and good growth performance of various species in the 2nd rotation woodlot plantations indicated sustainability of the second rotation woodlot plantation. The consultants observed high level of commitment and enthusiasm among the beneficiaries about the potential of woodlot plantation and high returns at felling. The consultants also noted high demand and price of the products of woodlot plantations in the market. The consultants also reviewed the volume of products harvested in the first rotation in the plantations and revenue

and share of the beneficiaries. All these indicated a high return to the labor of the beneficiaries after felling.

60. The consultants considering very early stage of growth of the plantations did not undertake financial analysis of the returns from the plantations. It is too early to undertake a financial return to investment. The estimation will consider initial investments made by the Forest Department and the participants, expenditure incurred in maintenance of woodlot plantations during life, income from by-products during life (punning and thinning and other materials like leaves and twigs, etc.), income from outputs at felling (timber and fuel wood), loss of opportunity cost of alternative use of the land in the plantation in life, etc.

2. Second Rotation Agro-forestry Plantations

61. Impact evaluation survey audited three second rotation agro-forestry plantations in Dinajpur forest division. Agro-forestry plantations are in fact rare as the beneficiaries do not prefer agro-forestry plantations for various reasons. All the three plantations were established in 2007-2008. The size of each plantation ranged between 6 to 10 hectares with average of 8 hectares per plantation. Number of beneficiaries varied between 12 to 50 with average of 35 beneficiaries per plantation and about 4.4 beneficiaries per hectare. In the three plantations there are 19,580 plants with average of 816 plants per hectare. No pruning was undertaken till 2010. It is noted that the three plantations used as many as four different species namely, Akashmoni, Mangium, Eucalyptus, and Jarul. Akashmoni is found in all three plantations, mangium in two plantations, eucalyptus in two plantations, and jarul in one plantation.

62. Average growth of the species in the three agro-forestry plantations is summarized in table 4.2. The growth measured in terms of girth at breast height and height and height of tree top of the plants of same species planted at the same year is found to widely vary among the plantations at different locations due to site conditions and level of care. The impact evaluation estimated the survival rates of all three plantations studied for assessing immediate sustainability. It is found that the survival rates varied between 77.0% and 81.7% with average of 80.0%. Although the survival rate is slightly low but is considered normal for the agro-forestry plantation.

Table 4.2: Average Growth of Selected Species – Second Rotation Agro-forestry Plantation
(Growth in January 2011)

Species	Section(s)	Growth of Plants as in February 2011 Planted in 207-2008 (3 GS)
Akashmoni	GBH (cm)	19.8
	Height (m)	5.8
Eucalyptus	GBH (cm)	21.6
	Height (m)	7.6
Manjium	GBH (cm)	25.7
	Height (m)	7.8
Jarul	GBH (cm)	17.2
	Height (m)	4.7

63. The rate of survival and growth of trees of various species suggest potential sustainability of the agro-forestry plantations. However, the survey and plantation audit undertaken with the three agro-forestry plantations indicated that agro-forestry is marginally

practiced. Agricultural practice is limited and production and yield is insignificant. The beneficiaries as well as the local staff of the forestry department indicated that agricultural practice is difficult and risky and less rewarding for lack of access to water, excessive labor, high investment, low production and quality, and too low returns to investment. The consultants consider that agro-forestry as such is not that feasible and rewarding like the woodlot plantations.

3. Second Rotation Strip Plantations

64. The survey and plantation audit was carried out in 13 second rotation strip plantations in seven forest divisions namely, Dinajpur (one plantation), Rangpur (one plantation), Bagerhat (three plantations), Jessore (six plantations), and Patuakhali and Noakhali (one plantation each). Out of the 13 surveyed second rotation plantations one was established in 2006-2007 and twelve in 2007-2008. The size of each plantation ranged between 3 to 15 kilometers (average 8.4 kilometers). Number of beneficiaries varied between 15 to 73 with average of 6.3 beneficiaries per plantation kilometer. In all the 13 plantations, there are 97,000 plants with average of 829 plants per kilometer. Average distance between plants is 1.21 meter which is reasonable. No pruning was undertaken in any of the plantations till 2010. Akhashmoni is found in all 13 plantations but other species are not found in all plantations. The use of different species is presented in the following table at 4.3.

Table 4.3: Prevalence of different Tree Species in Strip Plantations

Species	Prevalence in Number of Plantations	
	Number of Plantations	Percent
1 Akashmoni	13	100
2 Mehogani	12	92
3 Buccain/Neem	11	85
4 Rain tree	9	69
5 Sisso	8	61
6 Jack Fruit	7	54
7 Jarul	7	54
8 Arjun	7	54
9 Gamar	6	46
10 Eucalyptus	4	31

65. Average growth of the species planted in the 13 strip plantations in different locations is summarized in the following table 3.4. The growth measured in terms of girth at breast height and height of tree top. The growth of the plants of same species planted at the same year is found to widely vary among the plantations at different locations due to site conditions and level of care. The survival rates also varied slightly between 78.5% and 79.8% with average of 78.2%. The survival rate of strip plantation is generally low compared to the woodlot and agro-forestry plantations. However, the average survival rate of strip plantations surveyed and audited is normal.

Table 4.4: Average Growth of Selected Species – Second Rotation Strip Plantation
(Growth in January 2011)

Species	Section(s)	Growth of Plants in January 2011 since Year of Plantation	
		Planted in 2007-8 (3 GS)	Planted in 2006-7 (4 GS)
Akashmoni	GBH (cm)	19.5	21.9
	Height (m)	6.7	7.2
Mahogany	GBH (cm)	18.4	19.4
	Height (m)	6.3	7.2
Sisso	GBH (cm)	14.5	15.4
	Height (m)	6.3	7.8
Rain Tree	GBH (cm)	24.1	25.5
	Height (m)	9.5	10.0
Manjium	GBH (cm)	25.5	26.8
	Height (m)	7.3	8.2

66. The impact evaluation based on reasonable rate of survival and considerably good growth performance of various species planted in the strip plantations consider that the strip plantations are sustainable. The survival and number of trees survived and its high growth in 3-4 years indicated a good harvest on maturity with high output of forest resources. It is also expected that given the potential returns from the investments the strip plantations is expected to fetch high returns to investment and all parties will be immensely benefited.

67. Impact evaluation team collected information of the cost of establishing unit area of woodlot plantation, agro-forestry plantation, and strip plantation from the beneficiaries and local level staff of the forest department. The cost includes major items such as raising seedling, nursing seedling, planting seedling, pruning and thinning and maintenance. The average cost of establishing one hectare of woodlot plantation and one hectare agro-forestry, and one kilometer strip plantation are estimated as at table 4.5 here under. The data are reported information of the beneficiaries and field level staff of the forestry department. The rates are the average for costs of different locations. The average cost as estimated may not be same as the standard costs set in the forest department. The standard cost includes several other cost items about which the beneficiaries have no idea. It is noted that the cost of raising woodlot is the most expensive among the three plantation types. Indeed, return is also the highest of the three plantations.

Table 4.5: Estimated Average Plantation Cost – Estimates of Beneficiaries

Major Plantation Activities	Cost per Hectare		Cost per Km
	Woodlot	Agro-forestry	Strip Plantation
1 Raising seedling	2,625	2,385	2,038
2 Nursing	180	450	451
3 Planting	10,450	5,050	6,160
4 Pruning and maintenance	2,142	2,150	2,983
Total	15,397	10,035	11,632

SECTION V FEEDBACK OF KEY INFORMANT INTERVIEW AND FOCUS GROUP DISCUSSION

A. Feedback of Field Level Key Informant Interview

68. The impact evaluation study collected important quantitative and qualitative data from concerned field level key informants including the field officials and staff of the Forest Department using semi-structured key informant interview schedules as at **Appendix 1 (Annex C)**. The key informants were interviewed from all 13 forest divisions of the field level officials. The findings of key informant interview are summarized in the following paragraphs. Detailed data of key informant interview is at **Appendix 3**.

69. The respondents opined that the project beneficiaries were selected based on the specific criteria. The criterion was landless (77%), agriculture labor (15%), vulnerable women (69%), widow (62%), poor having monthly income less than Tk.400 per month (46%), farmer (23%) and people in the vicinity of the plantation (15%). Perception of the respondents about selection of the beneficiaries was in line with the criteria specified in the project document.

70. Key informant interview gathered information of achievements of selected activities such as, distribution of land to the beneficiary, signing of benefit sharing agreement, signing of contract with land owner agencies, formation of group and management committee, new plantation, re-plantation, and achieving target survival rate and presented in table 5.1. The officials listed flood and cyclone as main causes of lower than targets.

Table 5.1: Target and Achievement of Selected Activities

Activities	Target	Actual	%
Distribution of land among the beneficiaries	22.13	16.81	76.0
Signing of PBSA	219.23	172.62	78.7
Signing of contract with land owning organizations	7.85	6.69	85.2
Formation of groups and management committees	10.08	9.92	98.4
New plantation (hectare)	25.81	21.19	82.1
Re-plantation (hectare)	17.19	12.58	73.2
Plant survival rate (average)	75.38	64.77	85.9

71. The key informants also reported that the average plant survival rate is 86%. On the other hand, 77% officials said that the average survival rate is good while 23% said that the achievement is very good. Only 8% key informants understand the causes of mortality of plants as cyclone and flood while the rest have no idea about it.

72. The officials listed various measures suitable for prevention of mortality and they also applied those measures (there were multiple answers). While 62% mentioned special care is most essential, other factors were also quoted such as good quality seedling (54%), use of stick (46%), involving beneficiaries under IGA program (46%) and irrigation (39%). The suggested preventive measures are presented in table 5.2.

Table 5.2: Remedial Measures undertaken to Prevent High Mortality

Remedial Measures Undertaken	Respondents	Percentage
Irrigation	5	38.5
Pole	6	46.2
Sufficient care	8	61.5
Involving beneficiaries under IGA program	6	46.2
Supplying high quality plant and seed	7	53.8
Other	1	7.7

73. The project made people aware about the concept of social forestry especially in the project area for ensuring proper participation and conservation of forest resources. The key informants (85%) confirmed that they had taken necessary measures to make the community aware of the project. The survey team gathered feedback from the officials of the forest department about supply of inputs and services to the beneficiaries. The inputs and services provided included: sapling, seed, fertilizer, equipment, skills for monitoring of growth of sapling, control of diseases, creating opportunity for formation of local social organization, timely thinning and pruning of plants, protecting plants, harvesting and selling forest products, providing benefits to beneficiaries according to agreement, monitoring tree farming fund, and preservation of document. The feedback is summarized at table 5.3.

Table 5.3: Supply of Inputs and Services to Beneficiaries

Inputs and Services	Number	Percent
Supplying sapling and seed	11	84.6
Supplying fertilizer	10	76.9
Supplying equipment	5	38.5
Monitoring of growth of sapling	8	61.5
Control of diseases	8	61.5
Creating opportunity for formation of local social organization	10	76.9
Thinning and pruning of plants timely	7	53.8
Protecting plants	12	92.3
Harvesting and selling of forest products	6	46.2
Providing benefits to beneficiaries according to agreement	7	53.8
Monitoring of tree farming fund	10	76.9
Preservation of document	12	92.3

74. The key informants also provided feedback about the reasons of inadequate supply of inputs and services. They listed insufficient fund, inadequacy of inputs and inadequate supply of equipment and insecticides. It may be concluded that the supply of inputs in quantity is generally considered normal and this is not harmful for survival and growth.

75. The study gathered important other information through the key informant interviews regarding coordination meeting at various levels. The coordination meetings were held quite regularly and on average sufficient number of meetings was held. Indeed, few respondents (15%) indicated lack of willingness of officials of the forest department and non-cooperation of beneficiaries as the main reasons for not holding meetings. In average 7, 11, 7 meetings were held respectively of the committees at the district, upazila, and group levels. Interestingly, while there should have been frequent meetings at group level there was only one meeting of the beneficiary groups.

76. The key informants offered their opinion about the assistance and cooperation they received from the beneficiaries during implementation of the project. The assistance and cooperation included: nursing plants, regular maintenance, attending meetings regularly, participating training, attending problem, etc. The beneficiary participation and assistance to project implementation is summarized at the following table (table 5.4).

Table 5.4: Level of Cooperation from the Beneficiaries in Plantation

Type of Assistance and Cooperation	Key Informants from FD	Percentage
Look after of plant	12	92
Regular maintenance	11	85
Attending in meeting regularly	4	31
Participation regularly about problem and success	2	15
Attending in training program regularly	3	23

77. The key informants offered feedback of the benefit received by the beneficiaries from the project. One of the most important benefits is the ability to pursue similar activities properly using achieved skills of the training provided by the project. The other benefits included: technology, inputs, credit, training, and income generating activities, communication with organizations, empowerment, fire wood/fuel and share after felling trees (table 5.5).

Table 5.5: Project Benefits to Beneficiaries – Key Informant Perception

Type of benefits	%
Technology	38.5
Supply of inputs	38.5
Credit	7.7
Training	46.2
Income Generating Activities (IGA)	38.5
Communication with organization	7.7
Empowerment	38.5
Fire wood/Fuel	53.8
Received share after felling trees	30.8

78. In addition to the benefits of the participants, the society also shares some benefits from the project such as: employment, supply of fuel/fire wood, improvement of environment, motivation and awareness of afforestation. The perception key informants about over all benefits of the project to society are presented in table 5.6.

Table 5.6: Opinion of Officials of FD about Social Benefits of the Project

Type of social benefits	%
Employment	54
Supply of fuel/fire wood	54
Improvement of environment	54
Encouragement for afforestation	54
Awareness buildup about afforestation	39

79. The key informants offered their assessment about the sustainability of the project. It is noted that 92% FD officers consider that the project activities are sustainable. Their key causes of sustainability are: increased confidence on forest department, increased efficiency and

awareness and ability to procure inputs, availability of inputs locally, enhancement of awareness of the people in the society; and introduction of benefit sharing arrangement. The reasons of sustainability of the achievement are presented in table 5.7.

Table 5.7: Opinion of FD Officials about Sustainability of the Project

Sustainability and it Reasons	Percentage
Sustainable	92
Increase of confidence of beneficiaries	77
Increase of efficiency of beneficiaries	62
Availability of inputs locally	39
Increase of awareness of people of the society	62
Introduction of sharing system	39

80. The key informants offered opinion about the usefulness of the project at national level. They opined that the project is important, because, the project ensured natural balance, produce timber and fuel wood, involve people in forest management, conserve forest, reduction depletion of forest and government owned unused land, reduce operating cost of plantations, and enhance income of participants that reduce poverty. The usefulness of the project at national level as perceived by key informants is presented in table 5.8.

Table 5.8: Usefulness of the Project at National Level

Type of usefulness	Percentage
Development of natural balance	92
Overall wood production	69
Overall participation for forest management	69
Ensuring conservation of forest	23
Reduction of operating cost	8
Increasing income from investment	15

81. There is mixed opinion of the field level officials of the FD for facing problems in implementing the project. Some of them (46%) faced problems in implementation of the project while the other (54%) did not face any major problems as such.

82. The key informants identified few strengths and weaknesses of the project. The identified strengths are: project playing important role in raising awareness about plantation, reduce poverty; increase social forestry through partnership, improve financial conditions, common people get opportunity for participating forestry activities with government, and highly rewarding financial benefit, offer natural beauty, balance environment, inspire people for forest activities, and increase skills of the common people in social forestry. The major weaknesses include: inadequate manpower and logistic in FD to support implementation, unwillingness and non-cooperation of landowners, lack of allocation of budget for project activities, short duration of the project, and inadequate training.

83. The key informants offered few valuable suggestions for future similar projects and forestry activities. The suggestions are: effective steps to expand forest activities, manpower, skill, organization, acquire khas land/unused land/char land, increase and conserve forest, ensure conservation of biodiversity, overall environmental balance, improved training on forestry, adequate budget, and improving monitoring and management information system, and

cooperation and coordination of public–private at all levels (community, landowner, district/upazila/union administration, department of forestry).

B. Feedback of Focus Group Discussions

84. The impact evaluation study among several methodologies adopted focus group discussion as a method and tool for capturing important qualitative data and feedback. In all, 17 focus group discussion sessions were conducted in seven forest divisions namely, Dinajpur (two FGD), Rnagpur (two FGD), Rajshahi (four FGD), Bagerhat (two FGD), Jessore (three FGD), Patuakhali (two FGD) and Noakhali (two FGD). The guidelines and checklists for conducting the focus group discussion are at **Appendix 1 (Annex D)**. The feedback of the focus group discussions is summarized in the following paragraphs. Detailed feedback is at **Appendix 4**.

85. Each FGD session was attended by 10-12 participants consisting of project beneficiaries, local leaders, project staff, teachers and other categories of people. The major points discussed in the focus group discussions included priority in selection of beneficiaries, capacity building of individual and organization, afforestation, increase of forest resources, extent of poverty alleviation, impact on environment, level of participation of beneficiaries, decision making process, problems in implementing, measures for resolving the problems, expected outcome, strengths and weaknesses of the project and recommendations for improvement of the similar projects/programs in future. The information generated represents more or less the opinions of the participants. Indeed, the opinions sometimes significantly varied from group to group as usual.

86. The participants opined that the beneficiaries of the project were landless people who are capable to maintain and protect the plants and forests, marginal farmers, destitute women, day-laborers, most of the people selected as project participants were poor destitute and farmers, owners of roadside lands, people living in and around the forest areas, economically and socially destitute people, people living below poverty-line. However, a combination of both poor and rich formed each group – the rich have command in the community while the poor have labor and personal services to invest in establishing, maintaining, and guarding the plantations. The participants expressed that generally the beneficiary selection was free from any influence.

87. There were some strengths and weaknesses in selecting project beneficiaries. The strengths are: well planned project, focused on poverty reduction, potential of additional income for the poor, awareness development, benefit from plantation at felling, absence of outside influence in beneficiary selection. Groups were formed with people of the local areas; widows were given preference for inclusion as the project beneficiaries. Due to the project, general awareness has been created among the people about the benefit of tree plantation as a result people have expressed willingness to form group and implement project activities.

88. The participants indicated that beneficiary selection was influenced by the local rich people and politician as a result the poor people did not get access as needed, particularly the destitute. Besides, there interpersonal conflict and groupings among the rich and poor exist that affect proper maintenance of the plantations. They also informed that it was difficult to convince the illiterate people to join the group in plantation activities even though they know the benefits. Besides, the participants mentioned frequent political influence, bureaucratic complexities and red tapeism that affected project implementation.

89. The participants of the FGD mentioned that capacity building of the individuals is a plus point of the project for group formation, training of beneficiaries, conducting seminar and meetings, holding rally and drama, awareness creation for afforestation and self help, distribution of seedlings, creation of interest for plantation, and awareness for environmental impacts and usefulness of trees.

90. The participants of the FGD pointed out that several activities were not effective, namely: inadequate training, only those who could make personal contacts were selected for training, in selecting group leaders sometimes group members' opinion were not taken into consideration and bureaucratic procedures were followed for group formation, after second rotation plantation no training was provided, weaknesses in selecting plant species, different types of plant species were not selected, destruction of plants by cattle, and inadequate supervision.

91. The participants of the FGD further mentioned that due to the project the beneficiaries could undertake afforestation activities such as plantation in their own land for woodlot and strip plantation. The feedback of the FGD included that woodlot and strip plantation was very effective where there were enough unused lands. In areas where unused khas lands are unavailable, strip plantation was suitable – along the land isles, road side. The participants of the FGD emphasized on strip plantation as such plantation can be established all over the country. It was also noted from the FGD that agro-forestry is not feasible and financially rewarding.

92. The participants of the FGD opined that people in the project area have become motivated enough through the project and started tree plantation of their own and already many tree have grown. However, they mentioned that in some areas the growth of plantations is not satisfactory due to unsuitable soil condition, wrong selection of species, low dose or no application of irrigation and fertilizer, lack of technical skill, and lack of access to forest department for consultation.

93. The participants of the FGD sessions further opined that through the project is very suitable for denting poverty without much risks and vulnerability. The project started benefiting participant right from beginning and will bring huge potential financial benefits to all parties including the beneficiaries. However, few participants did not agree that the project may alleviate poverty of every participant in everywhere on a sustainable basis especially those who are landless and vulnerable. They see several disturbing factors that are impediments to sustainable poverty reduction of the landless poor – lack of skills and experience, lack of training, lack of adequate awareness, lack of access with considerable share, vulnerability from risks of cycle and flood.

94. The feedback of FGD provides a general impression that besides direct benefits and impacts of the forestry activities the project will help protect the community from vulnerabilities caused by natural disasters, erosion of land, bio-diversity conservation, wild life conservation, air pollution, ecological balance, fresh air with balanced oxygen, cyclones, flood, storm, diseases, shadow for pedestrians, fruits, natural fertilization.

95. Participation of the beneficiaries in the project is active and spontaneous. The project has helped Forest Department to recover and retain unused government whereby both government and beneficiaries are benefited. The government benefited from saving part of the operating

cost through sharing with the community, effectively watching and maintaining the plantations without any cost, and retaining the unused government land. The participants benefited enormously from training, wage, cash, materials, access to the rewarding financial activity without owning the land, income without much investment, improved local environmental, firewood, and finally huge financial return from sale of timber at felling.

96. The participants opined about the process of decision making at various stages of the project implementation. The decisions were made collectively by beneficiaries, people's representatives and officials of the forest department. Interference by the elites and others was almost absent. The beneficiaries could implement their decision partly in planting trees through partnership, watching and maintain and nursery preparation, set monthly meetings, and agree the schedule for watching the plantations on consensus.

97. Several problems and constraints were reported in the focus group discussions. The major problems and constraints included: pressure from the elites for committee formation, plant damage by cattle, pressures from the influential elites in selecting beneficiaries, beneficiary selection guideline was not followed, nepotism in selecting the beneficiaries, democratic procedures were not always followed in selecting group leaders, beneficiaries do not know their due share, corruption in forming groups resulting less interest of beneficiaries in tree plantation, unilateral decision in taking care of the plants, bureaucratic complexities, rich people were selected as beneficiaries, corruption and political interference in selecting beneficiaries and inadequate caring of plants for protection of the plants, less training opportunities, inadequate fertilizers, less supply of seedlings, excessive rain, drought, pest attack, and damage of the plants by cattle and stealing of immature plants.

98. The participants of the FGD offered number of pragmatic solutions of the problems they reported. The solutions include: joint meeting of beneficiaries and authorities of the forest department, seeking help of local administration, beneficiaries together sent letters to forest officials, lodge cases against local influential people who occupy illegally khas lands that could not be recovered, solution of the problems jointly by all members with assistance of the staff of forest department.

99. Based on past and present experiences the participants opined that the project is more profitable compared to past projects and will bring 100% benefit to the beneficiaries. They have also identified some risks of the project and the risks are interference by the vested interest groups and miscreants, natural disasters, damage by cattle, stealing of trees, non cooperative attitudes of some members, inadequate watching, less use of fertilizers, inadequate wage and inadequate supply of appliances for plant nursing and care.

100. According to the participants of the FGD sessions the project has several strengths such as: people are interested to participate, strong motivational efforts, attractive financial gains, improvement of environment and ecology, wild life conservation, increased availability of firewood, recovery and retention of unused government land, local people get inspiration for tree plantation, employment and income generation opportunities, opportunity of income from by-products and also share of timber at felling.

101. According to the participants of the FGD sessions the project has some weaknesses. They have listed the weaknesses as selection of right varieties of plants, weakness of supervision

by the authority, holding irregular group meetings and beneficiaries meeting with the officials, no provision of allowances for the guards, inadequate irrigation facilities, lack of awareness of the mass people about the need for plantation, improper use of fertilizers, damage of plants by cattle, stealing of trees, poor monthly salary of the guards, poor supervision, inadequate training opportunities, not handing over agreement to the beneficiaries, inadequate supply of appliances, inadequate supply of seedlings, lack of awareness of beneficiaries about price of timber, reducing agricultural and grazing land.

102. The participants put forward some recommendations for similar projects in future. The recommendations are: supervision by the authority need be strengthened, more care of the trees and plants to be ensured, replacement of trees on the damaged spot to be ensured, irrigation and proper use of fertilizers to be ensured, transports for the officials of the forest department are provided; cooperation of the local administration is needed to protect the forest. They also suggested that lands of the forest department to be identified and local people should be informed, social forestry may be included in educational curriculum, land laws need be simplified, needs based training to be provided, more and more similar projects to be undertaken in future, wider media facilities (radio, television, news paper, and drama) should be used for publicity.

103. Further, the participants of FGD suggested to increase the salary of the watchmen; recruitment of permanent watchmen, forest land to be protected from the illegal people and river erosion. They also recommended that government should take stern actions against the unscrupulous rich people for their illegal activities with public land, project size needs to be expanded so that more people can be brought under coverage. The participants also suggested for distribution of lands and share among the group members equitably, training to be arranged for all the beneficiaries, practical application of learning from training need be ensured, unity among the members to be ensured, awareness about afforestation to be raised. Finally, the participants suggested to increasing the number of employees of the forest department; and placing high emphasis and attention by the government on forest development.

SECTION VI PROJECT BENEFITS AND IMPACTS

A. Introduction

104. The project was implemented during 2006-2007 and 2007-2008 and the impact evaluation was carried out in 2010-2011. The new plantations established under the project was be matured and trees fell and shares distributed by around 2015-2016 (after 8-10 years). At the time of impact evaluation the trees were 3-4 years old and are expected to be matured and felled after another 6-7 years. The prime benefit and financial return of the project is from share of the time on felling after 8-10 years. Until felling the financial benefits are very limited and marginal. The beneficiaries received trainings, wage for planting (few members who were engaged to put labor), return from leaves, twigs, branches, fire wood from thin plants during thinning and pruning, etc. The aggregate financial benefit from the by-products is insignificant compared to the share of revenue at felling. Therefore, although the project was completed three years ago from the time of impact evaluation, it is too early to assess full benefits and real impact.

105. The impact evaluation study carried out a household survey of sampled participating beneficiaries to collect primary data for assessing tentative benefits and impacts of the project. The tentative benefits and impacts were assessed by comparing the data of before and after the project. The data was collected through recall method using a semi-structured questionnaire (**Appendix 1, Annex A**). The design of the household survey including sampling technique and sample frame, methodologies and tools are discussed in Section I of the report. Major findings of the survey are summarized in the following paragraphs. Detailed data of the household survey is presented in **Appendix 5**.

B. Major Finding of Survey – Tentative Benefits

1. Profile of the Selected Beneficiaries

106. The survey was carried out in all five divisions under the project. However, sample households were drawn from random sampling of household involved in the establishment of woodlot, agro-forestry, and strip plantation activities under the project. Eventually, survey had to be conducted in areas where one or more of the three plantation types were found prominently. Sample plantations are shown at table 6.1. The consultants drawn sample households survey from the randomly selected plantations for survey. It is noted that woodlot was established prominently in Naogaon, Noakhali, Rangpur, Panchagor, and Panchagor. Agro-forestry is are and found in Naogaon, Noakhali, Rangpur, and Dinajpur. Strip plantation is found everywhere.

Table 6.1: Concentration of three Plantation Types

No.	District	Woodlot		Agro forest		Strip forest	
		No.	%	No.	%	No.	%
1	Barguna	0	0.0	0	0.0	100	6.1
2	Dinajpur	49	3.0	71	4.3	64	3.9
3	Jhinaidah	0	0.0	0	0.0	150	9.1
4	Jessore	0	0.0	0	0.0	150	9.1
5	Naogaon	420	25.5	31	1.9	49	3.0
6	Noakhali	154	9.3	0	0.0	46	2.8
7	Panchagarh	68	4.1	22	1.3	10	0.6
8	Pirojpur	0	0.0	0	0.0	100	6.1
9	Rangpur	124	7.5	0	0.0	42	2.5
	Total	815	49.4	124	7.5	711	43.3

107. Generally head of the sample household was interviewed (95% head of household and 5% other members of the household). Among the sample households, among the household heads interviewed, 86% are male headed and the rest 14% households are female headed. Out of the total respondents, 50%, 7%, and 43% respectively established woodlot, agro-forestry, and % strip plantation. Details are at table 6.2.

Table 6.2: Respondents by Gender and Plantation Types

	Type of forest	Male		Female		Total	
		No.	%	No.	%	No.	%
1	Woodlot	710	43.0	105	6.4	815	49.4
2	Agro forest	98	5.9	26	1.6	124	7.5
3	Strip forest	614	37.2	97	5.9	711	43.1
	Total	1422	86.2	228	13.8	1650	100.0

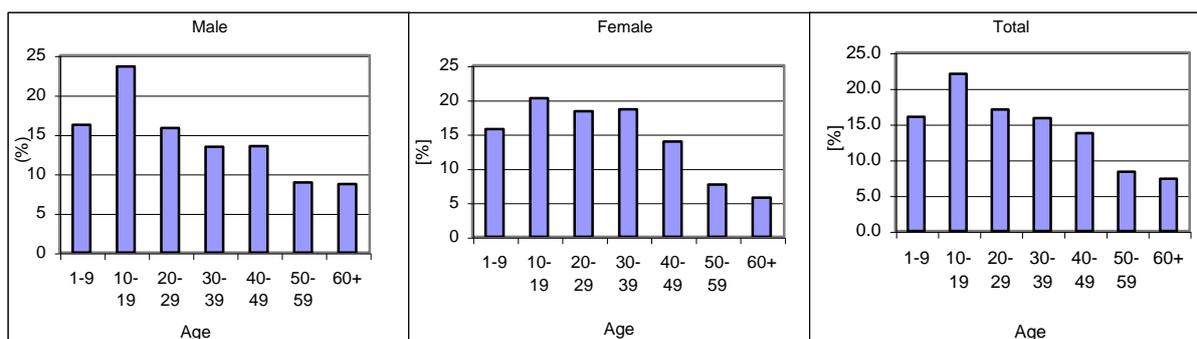
108. There are 4.5 members in average per surveyed households that compares with the national average of 4.9 (Statistical Pocket Book Bangladesh 2009, page 8). Number of male per 100 female is 117 which are higher than national average 105 (Statistical Pocket Book Bangladesh 2009, page 8). Family size by gender and age are shown at table 6.3 & figure 5.1.

109. It is important to note that members below 15 years and above 64 years total 31.88% and the rest falling between 15-64 years total 68.12%. The number of members falling between under 15 and above 64 is dependent on the people between 15-64 years with a dependency ratio of 46.81%. The dependency ratio of members of beneficiaries is quite high although this well compares with national dependency ratio 75.38%. Details are at table 6.3.

Table 6.3: Members per Household and Age of Members

Age Group (Years)		Household Members by Gender and Age					
		Male		Female		Total	
		Number	%	Number	%	Number	%
1	0-9	646		537		1,183	
2	10-14	517		370		887	
3	15-64	2,652		2,396		5,048	
4	Above 64	184		109		293	
	Total Members	3,999		3,412		7,411	
	Members employed					4,466	
	Members unemployed					2,945	
	Dependency Ratio		50.79		42.40		46.81

Figure 6.1: Family Members by Age



110. The survey noted that while 7% members in the household are below five years (below schooling age), 5% are illiterate, 25% can sign only, 25% read up to grade 5, 25% read up to grade 10, and 14% SSC passed and above.

111. The survey noted main occupations are in order of number of household members are domestic worker, students/apprentice, unpaid family worker, self-employed, agriculture day laborer, and regular paid labor employee. The members of most of the households in addition to main occupations undertake secondary occupations such as self employment, un-paid family work, agriculture day labor, domestic worker, etc. Details are at table 6.4.

Table 6.4: Occupations of Members of Beneficiary Households

No.	Main occupation	Main Occupation		Secondary Occupation	
		Members	%	Members	%
1	Regular Labor - Paid Employee	265	3.6	11	0.1
2	Self Employed	523	7.1	272	3.7
3	Unpaid Family Worker	1240	16.7	249	3.4
4	Day Laborers (Agriculture)	300	4.0	123	1.7
5	Day Laborers (Non-agriculture)	49	0.7	28	0.4
6	Domestic Worker	2030	27.4	27	0.4
7	Apprentice	1927	26.0	3	0.0
8	Others	1077	14.5	57	0.8

112. Survey found an alarming scenario of the phenomenon of using forest land for housing purpose and also becoming functionally landless. The survey found that before the project 88% households were on their own land, 8% households on forest land (khas land), and 4% households on others land. After the project, project 84% households were on own land, 12% on forest land (khas land), and 4% on others land. Unused lands are being recovered but all lands are not being used for productive purpose. Details are at table 6.5.

Table 6.5: Households on Own Land, Forest Land, and Others Land

Location of dwelling house	Before (N=1650)		After (N=1650)	
	Number	Percent	Number	Percent
1 Own land	1446	87.6	1386	84
2 Forest land	135	8.2	196	11.9
3 Other	69	4.2	68	4.1
Total	1650	100	1650	100

113. Housing conditions in respects of number of houses per family has improved slightly - 35% households had one house (room) before the project and this has decreased to 23% after the project. Number of 2-4 room houses increased by 23.6% to 34.3% households. Details are at table 6.6.

Table 6.6: Change of the Condition of Households

Number of house		Before (N=1650)		After (N=1650)	
		Number	Percent	Number	Percent
1	1	575	34.8	386	23.4
2	2	687	41.6	730	44.3
3	3	237	14.4	328	19.9
4	4 and above	151	9.2	206	12.4
Total		1650	100	1650	100

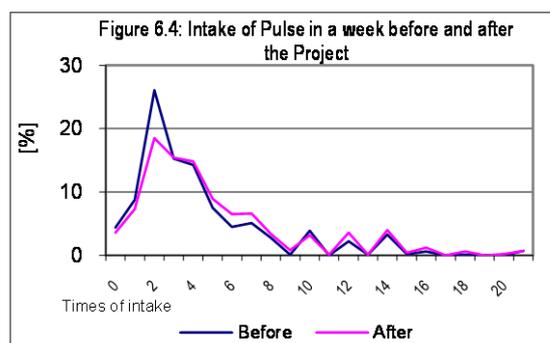
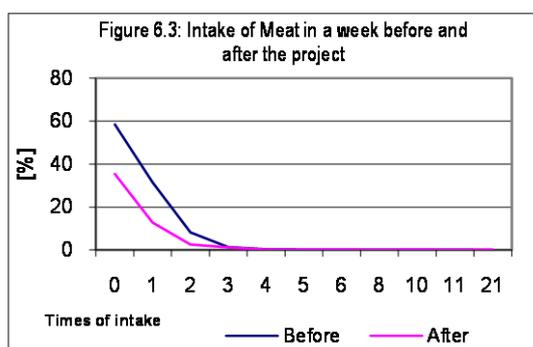
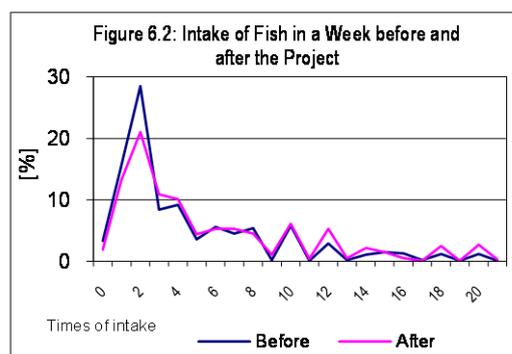
114. Selected beneficiaries are poor were indeed at all standards before the project – 57.1% beneficiary households have less than 50 decimal land including about 8% without any land (one of the definitions of land poor). Indeed the beneficiaries are not expected to acquire land resources through the project income in only 3-4 years and the position remained unchanged as proper. The survey noted that the remaining 43% beneficiaries are not land poor rather about 23.1% are rich rural households with over 100 decimal lands. Details are at table 6.7.

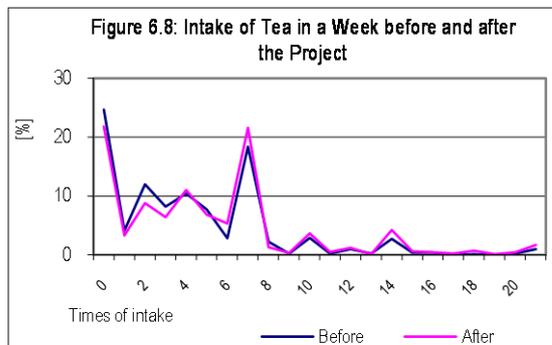
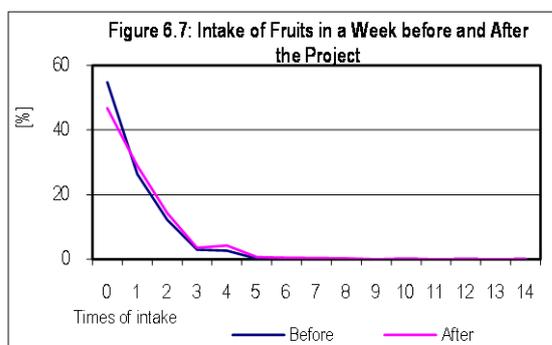
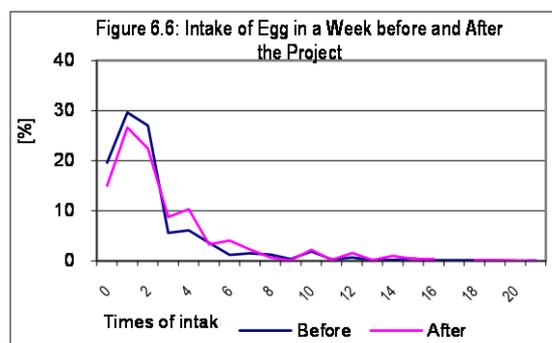
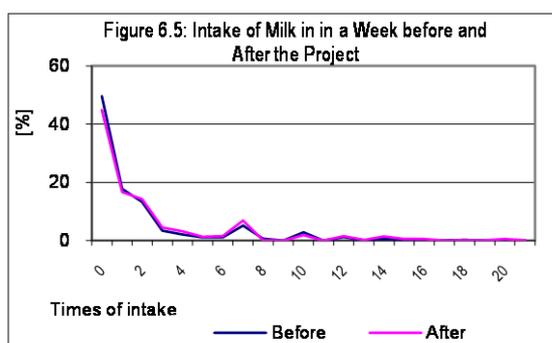
Table 6.7: Land Ownership of Beneficiary Households

Own land (decimal)	Before [N=1650]		After [N=1650]	
	Amount	Average	Amount	Average
1 0	121	7.3	128	7.8
2 1 – 50	821	49.8	813	49.3
3 51 – 100	343	20.8	327	19.8
4 101 – 200	206	12.5	218	13.2
5 200 Above	159	9.6	164	9.9

2. Food Intake and Nutritional Standard

115. The impact evaluation assessed nutrition standards in the beneficiary households to see the changes during and after the project. The project provided training for awareness including hygiene and nutrition and it is expected that with little financial gain and considerable gain from training and awareness there might be some improvements of nutrition due to additional food intake and change of food habits. The consultants recorded times selected food like fish, meat, pulse, milk, egg, fruit, tea, and sugar over one week before the project and after the project through recall method from all sample households. Data indicated slight positive upward change. Details are at figure 6.2-6.9.





3. Family Income and Expenditure

116. **Annual Income:** Survey data of income of beneficiary household are generally income poor. Average annual household income per capita was Tk.57,856 before the project for an average 4.5 members household – meaning per capita daily income was only Tk.35 (just half of \$1). Only 7% beneficiaries had income above poverty level income of \$1 per capita per day before the project that slightly increased to 12% households after the project. Therefore targeting the beneficiary was proper with focus of poverty reduction. Household annual income is presented at table 6.8.

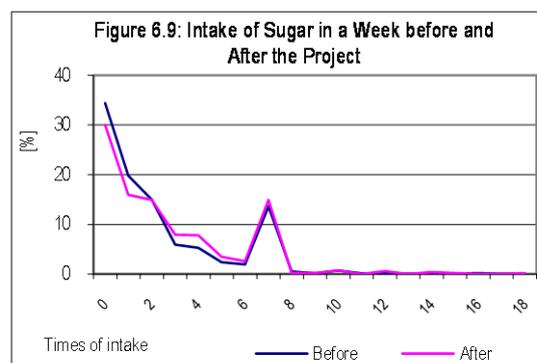


Table 6.8: Annual Income of Beneficiary Households

Source of income	Before		After	
	Amount	Average	Amount	Average
1 Main source of household head	7,43,94,870	45087.8	85239200	51660.1
2 Other source	21066800	12767.8	28011850	16976.9
3 Earning from the project			617450	374.2
4 Total Income	95,461,675	57,855.6	114,248,590	69,241.6

117. About 97% beneficiary households earned from the project an average of Tk.546. The income came from number activities and by-products directly or indirectly. While some of them are involved in more than one income earning activities, the main income from the project came from one or more of the items like: wage from project, training allowance, twigs, leaves, small trees, production of seedling, plantation of seedling, nursing, watching, group management, thinning, cultivation of land and pruning. Details are in table 6.9.

Table 6.9: Average Income from Project for the Sample Households

Items of income		Amount (Taka)	Average (Taka)	Beneficiaries involved (%)
1	Wage earned from project	497,671	302	19
2	Training allowance	110,980	67	19
3	Twigs	44,060	27	4
4	Leaves	49,050	30	6
5	Selling of small trees during thinning	9,770	6	1
6	Raising of seedling	9,233	6	12
7	Plantation of seedling	49,320	30	75
8	Nursing	59,201	36	82
9	Watching	47,373	29	71
10	Group management	5,450	3	7
11	Thinning	386	0	3
12	Cultivation of land	8,091	5	4
13	Pruning	8,515	5	5
Total		899,100	546	

118. **Average Annual Household Expenditure and Savings:** The survey collected annual expenditure of the sample beneficiary households. Average annual expenditure of the sample beneficiary households increased from Tk.50,705 to Tk.66,904 between the period before and after the project. The increase in five years (2006-2007 to 2010-2011) is 16% and 3.2% per annum. The annual increase is lower than the annual average inflation rate in Bangladesh during the same period. Therefore, the increase of expenditure may not be for increase of income. The consultants consider that under the condition of income, expenditure, and status of the project it is unlikely that the beneficiaries have saved money from the project. However, few beneficiaries reported scanty savings that might have been attributed from income from other income sources. The savings estimated through the survey is summarized at table 6.10.

Table 6.10: Savings by Beneficiary Households

Amount of Savings (Taka)	Before		After	
	Number	Percent	Number	Percent
1 1-500	9	0.5	6	0.4
2 501-5,000	93	5.6	110	6.7
3 5,001-10,000	43	2.6	90	5.5
4 10,001-15,000	12	0.7	38	2.3
5 15,001-20,000	28	1.7	31	1.9
6 20,001-30,000	12	0.7	20	1.2
7 30,001 and above	46	2.8	77	4.7

119. The survey estimated the liabilities of the sample households. It is noted that 32% beneficiary households had credits before the project that increased to 52% after the project. The size of credit is indeed low- 58% and 52% households had loans below Tk.10,000 respective before and after the project. Details are at table 6.11.

Table 6.11: Loan/Credit of Beneficiaries

Amount of credit (Taka)	Before		After	
	Number	Percent	Number	Percent
1 1-500	28	1.7	31	1.9
2 501-5,000	166	10.1	220	13.3
3 5,001-10,000	117	7.1	203	12.3
4 10,001-15,000	39	2.4	87	5.3
5 15,001-20,000	56	3.4	82	5.0
6 20,001-30,000	34	2.1	75	4.5
7 30,001 and above	92	5.6	169	10.2
Total	532	32.4	867	52.5

4. Standard of Living

120. The impact evaluation assessed the standard of living of the beneficiaries using different indicators such as condition of house, condition of household assets, access to electricity, water, sanitation, health seeking behaviors, and connection with service organizations and facilities, etc. Survey data indicated improvement of the condition of houses – number of beneficiaries with better housing (tin shed) increased slightly during the project. On the other side of the scale number of households with kacha house decreased from 1,279 to 1,193 (decrease is 5.2%). The improvement might be due to partly awareness training from the project and additional income from sources other than the project.

121. Data of household assets like furniture, utensils, equipment and tool, etc. have increased between 2006-2007 and 2010-2011. The household assets included: cot, chouki, chair, table, almira, radio/cassette player/CD player, television, mobile phone, sewing machine, torchlight, bicycle, motorcycle, country boat, engine driven boat, rickshaw/van, cart, power tiller/plough, paddy thresher, ladder, weedier, cow/buffalo, goat/sheep/pig, duck/hen/pigeon and fishing net, etc. Again these essential assets might have been acquired by the beneficiaries from income other than the scanty income from the project.

122. Survey indicated an increase of the access of the beneficiary households to electricity. Hurricane looks like extinct along with the kerosene lamps and replaced by electricity due to rapid expansion of the rural electrification. Access to sanitary latrine has increased from 28% to 35% during the project partly due to awareness increased through the project training. Access to safe water has also improved due to government special drives and also for the project awareness building training.

123. Although most of the beneficiary households seek treatment from religious person, quake doctor, homeopathy doctor and ayurbeth, yet still there is considerable change of health seeking behavior of the beneficiaries. Three out of every four households take treatment from qualified doctors when any member of the family falls sick. The beneficiaries have gained enough empowerment and increasingly taking services from local banks, NGOs, hospitals, pharmacies, postal, and communication agencies.

SECTION VII FEEDBACK OF FIELD LEVEL STAKEHOLDER WORKSHOP

A. Introduction

124. The project design included a provision of field level stakeholders' workshop. The purpose of the workshop was to share with the stakeholders at the grassroots level the various issues relating to project design, implementation, benefits and impact, strengths and weaknesses with reference to the tentative findings of the impact evaluation, and seek suggestions for future.



125. Accordingly, a half day workshop was held at Hotel Naz Garden Bogra on the 2nd April 2011. The workshop was attended among others the Secretary, IMED, Ministry of Planning; concerned senior officials of the IMED, field level officials of the Department of Forests, and a good number of participants of the project. The consultants of the impact evaluation team from Eusuf and Associates facilitated the workshop. The workshop was organized jointly the IMED and Eusuf and Associates. The workshop was presided by Mr.Md.Abdul Quiyum, Director (Deputy Secretary), Evaluation Sector, IMED. List of participants is at **Appendix**.

126. The study team leader explained the background of the project, sources of financing, components of project, provision of poverty alleviation in the project, opportunities to produce forest resources using marginal and unused land for economic use, develop and management of forest resources involving local people, reduction of forest resources by local people, maintenance of plantations raised under forestry programs and institutionalization of social forestry program. He also presented the methodology and tools used for conducting the evaluation study. He stressed on the benefits enjoying and problems faced by the stakeholders of the project should be evaluated.



127. Major findings of the impact evaluation study were presented by the study team leader who also facilitated the workshop. All participants joined the discussions and made useful contributions through providing their opinion, experience gained in the project, strengths and weaknesses of the project, achievements and failures, potentials and constrains of the projects, and offered invaluable suggestions and remedial measures for overcoming the difficulties in future similar projects and programs.

B. Open Discussion and Conclusions

128. The participants discussed the different aspects of the study such project output and impact indicators, physical and financial progress, growth of selected species of all types of plantations – woodlot plantation, agro-forestry plantation and strip plantation, survival rate of seedlings and agro-forestry plantation, perception of beneficiaries and key informants about

benefits of the project, strengths and weaknesses of the project and recommendations for future similar projects.

129. It was noted that the average growth rates of trees shown in the study finding for different plant types are generally consistent to the reality. However, the consultants mentioned that the growth rate is slightly different in different areas due to the soil and cultural practices and care. The growth rate in general was found normal in every location under the study indicating plantation of good quality samplings and proper nursing and care by the beneficiaries. The designs of woodlot, agro-forestry, and strip plantations were followed in almost all plantations. However, agro-forestry design has not been generally followed as people did not prefer agro-forestry at all rather they went for woodlot plantations.

130. The local officials of the Forest Department informed in general that the concerned public land owning departments such as Roads and Highways Department, Local Government Engineering Department, Bangladesh Railway, and Bangladesh Water Development Board did not show necessary interest and cooperated in the implementation of the important national program. However, Bangladesh Water Development was relative more cooperative.

131. It was also informed in the workshop that instead of providing lands for plantation Bangladesh Railway leased out their land to other agencies. The land owning agencies sometimes cause inordinate delays to sign agreements with beneficiaries causing overall delays in project implementation. The officials of the Forest Department indicated that cost of plantation had gone up over the rate allocated in the project as a result progress of establishing new plantation was slow and lower than targeted.

132. Few participants pointed out that while selecting species market value of the species is to taken into consideration. They suggested that although jarul is a good tree otherwise with good growth and eco-friendly, yet Jarul may not be planted as it has low market value. The participants also suggested to considering those species having faster growth and higher volume of timber in shorted period.

133. The participants also suggested that similar projects should be taken in areas where there are plenty of marginal lands such as greater Rajshai, Bogra, Rangpur, and Dinajpur districts. It was also mentioned that there are huge char lands along the vast Padma. People take lease of these char lands for agricultural cultivation but not for tree plantations although tree plantation brings higher returns in the long run.

134. Participants informed that thousands of nurseries are available but hardly few nurseries raise saplings scientifically. The Forest Department is helpless in ensuring the quality of samplings partly due to their lack of authority and partly for lack of necessary manpower and legal rights to do that. In most cases the inexperienced nursery operators cut taproot which can not release adequate water to the atmosphere. These plants survive with cancer and fail make any impact on environment. If plants are planted properly then these will contribute to the climate and increase the rainfall as a result ground water will come up. The participants suggested for formulating policy for ensuring quality of samplings through a legal framework and enforcing the law through Forest Department.

135. One of the beneficiaries mentioned that has had been working since 1989 that he works hard in guarding trees at night to stop depletion and theft. He also mentioned that he had seven other participants in the group and each got Tk.70,000 as share from the last rotation. All participants are happy and went for the follow-on rotation.

136. Another beneficiary mentioned that after successful completion of the first rotation joined the group for second rotation. He suggested that it would be better if they get agreement early. He expressed that 85% plant can survive if due care is ensured. He indicated that survival rate under the Forest Department is low. The experienced beneficiary also mentioned that although they went for agro-forestry but finally changed to woodlot and planted trees in the vacant space that was kept for agricultural crops. He informed that no crop grows after first year of plantation.

SECTION VIII MAJOR STRAENGTHS AND WEAKNESSES OF THE PROJECT

A. Introduction

137. The consultants identified major strengths and weaknesses of the project based on findings of review of secondary materials, discussion with beneficiaries, discussion with senior officials of executing agency, key informant interview, focus group discussion, and feedback of local level participatory evaluation workshop. The strengths and weaknesses of the project are very important to prepare and implement similar future projects and programs.

B. Strengths of the Project

138. The project had several important strengths in its design and implementation arrangements that helped implement the project and contributed to ensure enough benefits and impacts to the beneficiaries, national economy, and improvement of environment. The major strengths are listed hereunder at table 8.1.

Table 8.1: Major Strengths of the Project

Major Strengths of the Project	
1	People are already aware to a great extent of the benefits of tree plantations and social forestry
2	The project raised awareness among the people about afforestation and environmental improvement
3	The project reduced depletion of tree resources and increase of forest resources
4	The project contributed to poverty reduction through participatory forestry
5	The project involved community to work with government through social forestry
6	The project offered opportunity of attractive income from share of revenue
7	The project recovered marginal public lands and optimize its use for generating forest resources
8	The project provided training for the beneficiaries on social forestry, IGA, social awareness, etc.

139. **People are already aware to a great extent of the benefits of tree plantations and social forestry:** One of the most important strengths of the project is the achievement of the Government in nationwide heightened awareness and increased interests in tree plantation for afforestation and environmental improvement, and benefiting from revenue of harvest of trees on maturity. The previous achievements in social awareness served as a plus point and a strength of the project.

140. **Raising Awareness among the People about Afforestation and Environmental Improvement:** In addition to previous awareness of the people, the project provided motivation and training for creating heightened awareness among the beneficiaries. Though the training was inadequate yet it acted as one of the strengths in implementing the project and achieving outputs and outcomes.

141. **Reduce Depletion of Tree Resources and Increase of Forest Resources:** The project reduce depletion through involving local people who have full social control on those people in the community who are otherwise threats to the plantations. The project has involved those people in the project and reduced the threat of depletion of trees.

142. **Contribute to Poverty Reduction through Participatory Forestry:** The project directly reduce poverty at beneficiary, community, and national levels and increase forest

resources in addition improvement of environment. Therefore, the project focus of poverty is an important strength of the project.

143. **Involve Community to Work with Government through Social Forestry:** The project design in unique and involves community at large in planting and maintenance. This helps the FD to select plantation, select beneficiaries, plant and maintain trees without much difficulties. The social approach to involve community ensures participation, low cost of maintenance and protection, etc. Community involvement is one of the major strengths of the project design

144. **Offer Opportunity of Attractive Income from Share of Revenue:** The project offers beneficiaries attractive returns from the project in terms of wage, income from by-products, and sale of trees at felling. Each beneficiary gets huge money as shares. In addition, local Union parishad gets a good share. The share of the Government is also attractive compared to net investment.

145. **Recover Marginal Public Lands and Optimize its use for Generating Forest Resources:** The project recovered marginal public lands belonged to BWDB, RHD, BRW, etc. in one hand and also use these lands for plantation purpose to keep lands under possession from land grabbers and produce huge timber for construction industries, fuel, etc.

146. **Provision of Training for the Beneficiaries on Social Forestry, IGA, and Social Awareness:** The project train beneficiaries to enhance their employable skills to fetch income from new income generating activities. This provision is also one of the major strengths that attracted the beneficiaries.

C. Major Weaknesses of the Project

147. The project had several strong weaknesses as well in its design and implementation that negatively impacted on project implementation affecting progress and benefits and impacts. The major weaknesses are at table 8.2.

Table 8.2: Major Weaknesses of the Project

Weaknesses of the Project	
1	The project was implemented by the FD with inadequate number of manpower and logistic facilities
2	The project had to work against the unwillingness and non-cooperation of Land Owners/ Land Occupiers
3	The project had serious lack of budgetary allocation for the important social forestry project
4	The project duration was too short (only two years compared to five years in case of most other projects)
5	The project had inadequate provision for training than needed
6	The project provided low and unworkable rates for establishing new plantations
7	Field officials placed high emphasis on maintenance of plantations and low importance to new plantations

148. **Inadequate manpower and Logistic Facilities in FD:** Consequent upon inadequate manpower and logistic facilities in the Forest Department the project implementation was badly affected. The project did not employ any additional manpower and also did not engage non-government NGOs at the field level to assist beneficiary selection, mobilization, and training. Forest Department implemented number of similar projects in the past with additional project staff and engaging large number of NGOs and achieved high level of progress and benefits.

149. **Unwillingness and Non-cooperation of Land Owners/ Land Occupiers:** The public sector major agencies such as Bangladesh Water Development Board, Bangladesh Railway, Roads and Highways Department, etc. are the owners of most of the unused marginal lands. The project planned to utilize these unused lands for plantations. The Forest Department did not receive necessary co-operations from the land owners that also partly affected progress of establishing new plantations

150. **Lack of Budgetary Allocation for Social Forestry:** The project faced necessary fund resources as needed. Only 58.50% and 48.63% of the allocated funds respectively from Government and TFF were available. Government part was not fully released as allocated and the funds expected to be available from TFF was not adequate due to low revenue earned from felling of earlier rotation. Consequently, the project achieved much less than expected especially for establishing new plantations.

151. **Short duration of Project:** The type of activities involved in the project for establishing new plantations and maintaining existing and new plantations require longer time and therefore, a project for undertaking these plantation activities should be of longer durations (5-7 years). All previous similar projects had over five year durations. In the present project by the time all necessary activities could be mobilized the time had already expired.

152. **Inadequate Provision for Training:** The project had provision of training for 6,744 beneficiaries that is not adequate to cover all target beneficiaries. Only 4,911 beneficiaries could be trained (73% achieved) partly due to fund constraints. The success of social forestry projects largely depend on motivation and training.

153. **Low and Unworkable Rates for Establishing New Plantations:** The project provided rates of different plantation activities that were not workable everywhere. Neither the rates were revised upward nor the local field official authorized to work at actual field rates. As a result progress of establishing new plantations through felling matured trees of earlier rotation.

154. **High Emphasis on Maintenance of Plantations and Low Importance to New Plantations:** Partly due to low rates of plantation activities associated with new plantation, partly for low revenue anticipated from felling of earlier rotation, and partly for easy to do maintenance with good field rates, the field officials placed high importance to maintenance and low emphasis on new plantations. Low emphasis on new plantation affects generation of forest resources. Delay of felling also affects beneficiary motivation and erodes fragile beneficiary confidence on the Forest Department.

SECTION IX CONCLUSIONS AND RECOMMENDATIONS

A. Instruction

155. The prime objectives of the impact evaluation were to assess implementation of plantation program, direct participation of the local community, implementation of training program, success and failures of project implementation in terms of motivation and poverty reduction and depletion of forest resources, strengths and weaknesses of the project, and suggesting measures for overcoming weaknesses of design and implementation and maintenance in the future. The consultants hold a field level participatory evaluation workshop after completion of field work and initial assessment of the project evaluation. The proceedings of the workshop are **Appendix 6**. The feedback of the participants generally supports the findings of the impact evaluation.

156. The consultants assessed implementation status (physical and financial) including training, operation of the plantations including survival and growth of trees by species and plantation models, level of participation of beneficiaries and benefits of the beneficiaries, sustainability and strengths and weaknesses of the project design and perceptions of the stakeholders. The study findings per objectives of the impact evaluation are presented in respective sections. The consultants based on the findings of the foregoing sections on various objectives of the impact study, recommend the following suggested measures for remedy of the weaknesses and improvement of the project outcomes of similar projects in the future.

B. Major Findings and Conclusions, and Recommendations

1. Planning and Design of Program/Project

157. Findings and Conclusions: The project was designed for only two years to provide bridging the need for continuing the activities completed earlier such as Forestry Sector Programs. The bridging programs should have been larger and adequate enough to provide supports to continue the existing activities accomplished under several major forestry programs funded by the World Bank, Asian Development Bank, Government, and other donors. The duration was too short particularly in absence of any new forthcoming major programs funded by the donors. The resources were inadequate especially the fund resources and only about half that was actually available and released.

158. The financial rate for different activities provided under the project was not sufficient as considered by the field offices to undertake major activities like establishing new and 2nd rotation woodlot, agro-forestry, and strip plantations. Consequently, the field offices implemented essentially the maintenance work of earlier planted plantations. This limited the generation of additional forest resources. Indeed, maintenance is an important and easy activity. Maintenance is a joint activity with the beneficiary and is easy to execute and handle and rates of small activities involved are less specified rather flexible.

159. Recommendations: Given implementation of massive programs on social forestry all over the country in the recent past, the Government should have formulated follow up programs suitable for continuing the on-going programs to support sustainability of the programs. Unless such major programs are undertaken, the outcomes of the earlier programs might not fully

develop and ensure its sustainability and generation of the renewable forest resources. As a result, the motivation and enthusiasm created among the forest department and the people at large may partially face a hick up and retard the growth of the sub-sector. Regaining this loss may require higher investments at a later stage, if immediate actions to design and implement major programs are taken. Small projects like the present one may not be that helpful to address the potential needs of the sub-sector.

160. Considering the size of the resources needed to support the existing and on-going social forestry plantations and initiatives the consultants estimate huge resources to ensure sustained growth. The Government may design and implement major follow up programs in the near future. Such programs may require supports from major donors. The Government may plan for long term nationwide rolling plans for continuous new and re-planting and maintenance of plantations. And develop and implement number of projects under the program following program approach.

2. Project Management

161. Findings and Conclusions: The Project Directors were not on a full-time basis rather the project Directors hold number of positions simultaneously. Consequently, the project activities suffered resulting low progress. In addition the Project Director was changed number of times within the two years short duration. The Forest Department should attach high importance to the small but important project in the future.

162. The study found difficulty getting necessary project related information at any level. This being a local funded small project for short duration the project did not centrally generated a historical data base of the project. The project provided field offices necessary funds and field offices implemented the activities along with other routine activities of the same nature. Therefore, neither project office nor the field offices have separate registry of plantations of the project, separate accounting, separate monitoring and project status. Consequently, most of the field offices find difficulty correctly and clearly identifying plantations established under the project. The consultants while visiting field and conducting survey the field offices were confused in most cases in identifying and locating the present project funded plantations. The Forest Department may also find difficulty to plan and design similar projects without necessary data.

163. Recommendations: The Forest Department should establish strong management information system of all projects and maintain necessary data for proper records and future planning.

3. Selection of Species

164. Findings and Conclusions: The species were generally rightly selected under the project with choice of the beneficiaries. However, future similar projects should be prepared with more care considering area specificities and choice of beneficiaries. Eucalyptus is seen everywhere in the project although the Forest Department discouraged. Beneficiaries prefer eucalyptus for its fastest growth, low mortality, and medium range timber and fuel-wood value.

165. Recommendations: The matter needs further investigation and policy decision. However, the Forest Department may develop a species guidance for different areas indicating which plant row more socially, environmentally, and economically in particular area. In each plantation the Forest Department should advise the participants about species selection and scientific designs of plantation.

4. Beneficiary Selection

166. Findings and Conclusions: Beneficiary selection was generally done well although there is some influences from local power circles. In future beneficiary should be selected more carefully ensuring full transparency free of any influence. The beneficiaries should comprise a group of local people who live closest to the plantations and are involved in tree plantation activities before hand and are capable of establishing and protecting the plantations till maturity and felling. Majority of the participants in the groups should be drawn from the local poor who might take plantation activity seriously as a fortune for gaining considerable amount of money after felling. Local rich people should not be included who might not take due care as they have much better opportunities with higher financial returns.

167. Number of beneficiaries in each type of plantations may be increased to provide access of larger number of beneficiaries especially the poor to ensure poverty reduction. Groups formed with richer people may not contribute to poverty reduction rather discourage and deprive the poor. Higher participation of the rich is contrary to the objective of the project “Poverty alleviation through Participatory Forestry”.

168. Recommendations: In future, beneficiary selection should focus on poverty ensuring poverty reduction through participatory social forestry approach as proper. Beneficiary selection process need be more transparent and based on rigorous poverty ranking undertaken jointly by the forest department and local government agency. The beneficiary selection should require approval of a senior officer of the Forest Department as of now and the senior officer should selectively verify at random before approving.

169. Although there is some operational and technical advantage of keeping same beneficiaries of the earlier rotation in the follow up rotation but it deprives other members of the community. Instead, the beneficiaries may be changed in every cycle to provide access to the opportunity to all potential beneficiaries who remain un-served.

5. Efficiency and Efficacy of Implementation

170. Findings and Conclusions: The project implementation performance is not satisfactory and efficient and efficacious as only 14-31% of the major and prime activities (establishment of new and 2nd rotation woodlot, agro-forestry, and strip plantations) that are directly linked to producing additional forest resources have been achieved. The project made good progress of maintenance instead. Consequent upon low progress of establishing 2nd rotation plantations, felling and harvesting the earlier plantations have been delayed in many plantations due to cutting and distribution of shares upon maturity and re-planting under 2nd rotation through the present project. Financial progress is only 55% due to low physical progress and lack of necessary fund resources.

171. Recommendations: The project should have placed high emphasis on establishing new and 2nd rotation plantations over the maintenance that too could be achieved with enhanced participation of the beneficiaries. The Forest Department should have reviewed the financial rates of different activities relating to the plantations and take necessary actions to achieve the prime objective of the project. The Forest Department should also be careful on this point of providing workable and attractive rates with flexibility for area specificity in designing future projects to avoid this type of stalemate resulting poor physical and financial achievements.

6. Quality of Outputs

172. Findings and Conclusions: Technically the plantations grew well and survival rates of different species in three types of plantations in various area conditions are reasonable. Selection of species is proper and beneficiary preferred and area specific. Growth of the tress of different species is normal as expected with little area specificity. Potential output of timer and by-products at maturity expected to be satisfactory as the growth parameters in 3-4 growing seasons are good. This indicated potentially good harvest and attractive returns to investment at ever growing market rate of timber.

173. Participation of the beneficiaries is generally good. Indeed, there is need for more effective participation and active role playing by the beneficiaries. Participation of the beneficiaries still looks like giving proxy-type role playing just to fulfill the position of private participant while the Forest Department takes active role in providing training, inputs, wage, seedling, cost of planting, maintenance, thinning, pruning, guarding, etc. The role of the Forest Department in the social forestry at all activities especially in maintenance of plantations still seems higher than beneficiaries taking major role as expected. The role of participating beneficiaries should now be beneficiary driven instead of FD driven. Thinning and pruning should be undertaken on time to allow healthy and faster growth of trees without fighting with the weaker plants for existence and sharing limited nutrients and spaces.

174. Recommendations: Forest Department should not delay harvesting through felling trees as scheduled allowing re-planting and offering benefit shares to the participating beneficiaries so that generation of forest resources continues and interests of the participants remain high. Nonetheless, the Forest Department should take steps through the participating beneficiaries to retain the unused lands after felling until re-planting in follow-up rotations instead of delaying felling in fear of loosing the land again.

7. Tree Farming Fund (TFF)

175. Findings and Conclusions: The provision of Tree Farming Fund (TFF) is an innovative provision to create fund from revenue of the earlier rotation (10% of the revenue) to meet the cost of establishing and maintaining the follow up rotation. This is very good and innovation towards sustainable social forestry with collaboration of the public and private. Given that the TFF of earlier rotation is shorter than the funds needed for establishing and maintaining 2nd rotation plantations in areas where harvest and revenue were less due to various reasons including less suitable areas for plantations, the Forest Department finds difficulty to fell the trees as replanting with available inadequate TFF. As the project covered vast areas where woodlots and agro-forestry are not that suitable for lack of unused public lands and growth of plantations are low, 2nd rotation plantation was difficult with the available small TFF. The

Government therefore, may bring improvements of the existing Tree Farming Fund (TFF) system.

176. The project planning did not specify areas suitable for particular plantation types (woodlot, agro-forestry, and strip plantations) so that survival and growth and revenue are higher ensuring higher TFF needed for establishing follow-up rotations. However, the Forest Department may place all TFF funds in one basket and utilize the TFF fund to all areas as needed so that development of follow-up plantations do not fall short of necessary funds

177. Recommendations: In most cases, where the total sale is low due to low production, species, low marketing facilities, etc. the forest department is finding difficulty to cover 50% of the cost of second rotation plantation out of the scanty amount available from 10% of sale proceeds of earlier rotation. The beneficiaries are not able to make good of the huge shortfall of their contributions through labor. Therefore, the consultants suggest the following measures for improving the TFF system.

- The project may retain just 50% of estimated cost of development of the second rotation from the sale proceeds (remaining 50% comes from project) and share the remaining amount as per share rights.
- The project may estimate the cost of second rotation plantation and retain from the sale proceeds an amount (maximum of 20%) needed to meet 50% of the cost of second rotation plantation. In case, maximum 20% of the sale proceeds stands short of requirement, the project spends the amount fell short as a loan to the participant group and the amount will be recovered first from the harvest before distributing shares.
- The project may estimate the cost of second rotation plantation and retain from the sale proceeds an amount (maximum of 20%) needed to meet 50% of the cost of second rotation plantation. In case, maximum 20% of the sale-proceeds stand short of requirement, the project may look for interested investors either a NGO or a bank or any private entrepreneurs whose share will be decided based on a ratio of contributions of forest department, participants' 20% contributions, and investors' contributions.

8. Institutional Strengthening of Forest Department

178. Findings and Conclusions: The impact evaluation observed that the two year bridging project was implemented without any additional manpower. The project was designed and implemented by existing manpower of the head office of the Forest Department and field offices. The project did not engage any NGO as well for providing implementation assistance at field level particularly for social mobilization and trainings. Several similar projects were implemented by the Forest Department in the past with assistance from the World Bank and the Asian Development Bank that utilized consultants, additional manpower, and NGOs. It was found that the Project Directors were transferred number of times thereby several Project Directors worked during the two year project period. All the project directors were part-time.

179. Recommendations: The Forest Department may expand its outreach as well as skills to effectively and profitably manage the overwhelming and rousing trend of social forestry development through increasing professional manpower at all levels especially at the grassroots level. The Forest Department may specifically enhance manpower and skills in planning and implementation of development projects with special focus of social forestry.



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