



Community Operations Manual (COM) Part – One



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Forest Department, Bangladesh
Ministry of Environment, Forest and Climate Change





Community Operations Manual (COM)

Part – One

**Knowing about Sustainable Forests and Livelihoods
(SUFAL) Project Including Collaborative Forest
Management Institutions, Forest Protection and
Conservation**

Sustainable Forests and livelihood (SUFAL) Project
Forest Department
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
2021





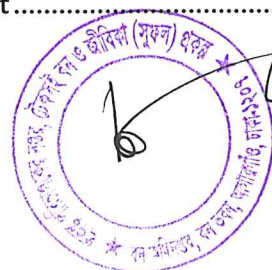
Abbreviations

AIGA	:	Alternative Income Generating Activities
APD	:	Assistant Project Director
ANR	:	Assisted natural Regeneration
ACF	:	Assistant Conservator of Forest
BFD	:	Bangladesh Forest Department
BO	:	Beat Officer
BFRI	:	Bangladesh Forest Research Institute
CCF	:	Chief Conservator of Forest
CFMC	:	Collaborative Forest Management Committee
CFMCC	:	Collaborative Forest Management Coordination Committee
CMC	:	Co-Management Committee
DFO	:	Divisional Forest Officer
DPD	:	Deputy Project Director
ESMF	:	Environmental and Social Development Framework
FAC	:	Finance and Accounts Committee
FDC	:	Forest Dependent Community
FPCC	:	Forest Protection and Conservation Committee
FCV	:	Forest Conservation Village
IPAC	:	Integrated Protected Area Co-management
MoEFCC	:	Ministry of Environment Forest and Climate Change
NGO	:	Non-Government Organization
NTFP	:	Non Timber Forest Product
PA	:	Protected Area
PMU	:	Project Management Unit
PD	:	Project Director
PSC	:	Project Steering Committee
PIC	:	Project Implementation Committee
PC	:	Procurement Committee
RO	:	Range officer
SAC	:	Social Audit Committee
SECDF	:	Small Ethnic Community Development Framework
SFNTC	:	Social Forestry Nursery and Training Center
SSP	:	Site Specific Planning
SUFAL	:	Sustainable Forests and Livelihoods
TOF	:	Trees Outside Forests
UP	:	Union Parishad
UNO	:	Upazila Nirbahi Officer
VCSC	:	Village Credit and Saving Committee
RIMS	:	Resource Information Management System
WB	:	World Bank
WCCU	:	Wildlife Crime control Unit



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1.0 Understanding of Community

Bangladesh Forest Department (BFD) has initiated Sustainable Forests and Livelihood (SUFAL) Project which has many aspects. It is a very much diversified project and local community will like it. Understanding of some of its aspects by community are mentioned here:

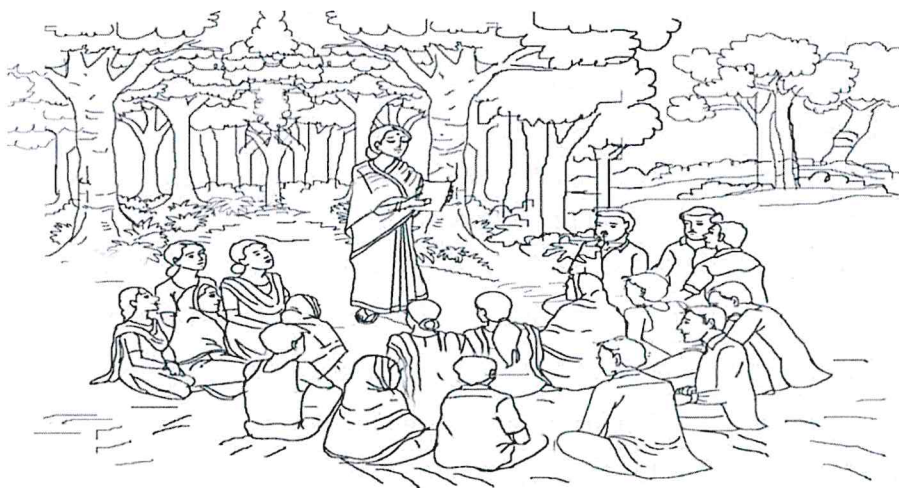


Figure 1: Community level meeting of the forest dependent community



The SUFAL Project will help to build the village institutions which will give importance to the forest dependent families especially extreme poor, women headed, vulnerable and small ethnic minority in and around the vicinity of forests.



The forest dependent communities will involve in forest protection and conservation activities and get the maximum benefit from the project.



The funds from the project will be disbursed from the PMU through cost centers/DFO Offices to the village institutions which are organized as collaborative forests and co-management institutions.



All decisions on sustainable management of revolving fund for alternative income generating activities are with the institutions.



The Forest Department staff and others who are facilitating the community will adopt a supporting and friendly approach.



1.1 Aim

By implementing this SUFAL project in the village level, community will be able to-

- form the village level institutions and make them stronger, and
- improve the lifestyle of the forest dependent communities by engaging themselves in forest protection, conservation and create alternative livelihood options/alternative income generating activities.
- improve the collaborative forest management/co-management activities at village level under the concern forest Beat for forest protection, conservation and restoration and overall wellbeing of forest dependent communities.

1.2 Achievements

Above mentioned targets will be achieved by-

- Bringing together all the forest dependent communities in the villages by setting up village-level institutions as Collaborative Forest Management Committee (CFMC) and sub-committees of CFMC viz. Forest Protection & Conservation Committee (FPCC), Village Credit and Savings Committee (VCSC), Social Audit Committee (SAC), Finance and Accounts Committee (FAC) and Procurement Committee (PC).
- Providing revolving fund support to forest dependent communities for starting alternative income-generating activities for the livelihood improvement and well-being.
- Providing support to forest protection and conservation activities for restoring the forest ecosystem services which will generate year-round income for the communities.



Figure 2: Organizing forest dependent community



1.3 Core Values

All the forest dependent communities in the villages need to work hard to improve the livelihood status. They will success in achieving the target if they follow some important principles while working together. These principles are called 'Core Values'. Community will decide that all the project participants in the villages must follow the 'Core Values' in their activities. These principles are as follows:

1. Project participants will unite and work together for their development

They may be poor individually, but if they join hands, they can achieve a great success together.

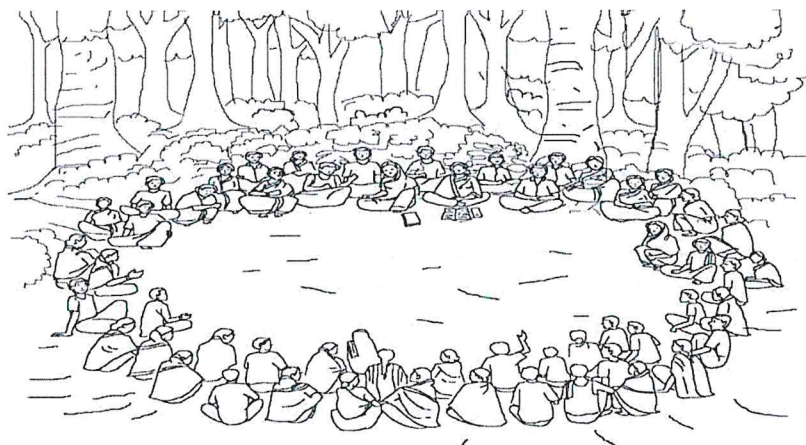


Figure 3: A gathering of community at Forest Conservation Village

2. They will first try to solve their problems by themselves. They will seek outside help only if when it is needed

Solving their problems by themselves will improve their capacity. This is how they will get the much-sought and most suitable solutions to their problems.

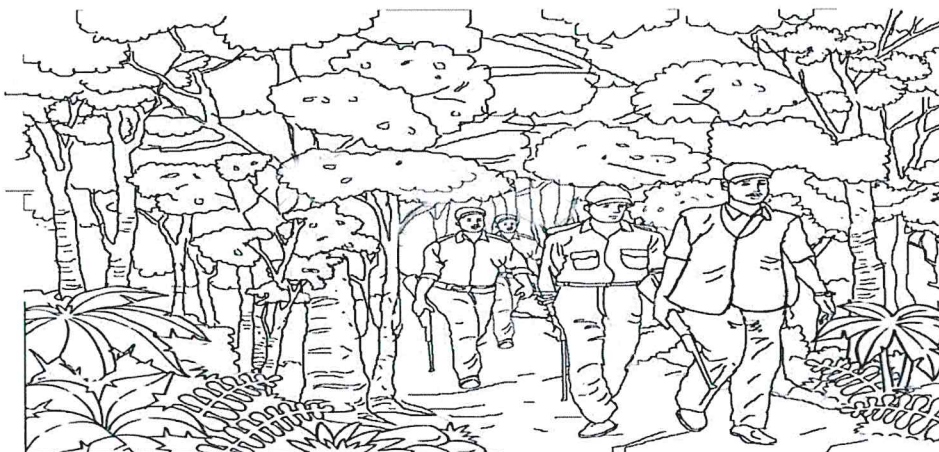
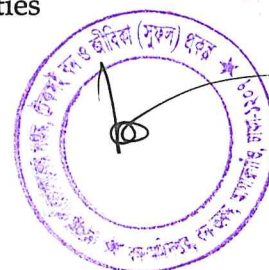


Figure 4: Forest protection support to BFD by communities



3. They will maintain transparency and accountability in all of their activities.

All the project participants need to know about their activities, as they are answerable to Collaborative Forest Management Committee (CFMC) and/or Protected Area Co-Management Executive Committee (CMEC) for those. Forest Protection and Conservation Committee (FPCC), Social Audit Committee (SAC), Finance and Accounts Committee (FAC), Procurement Committee (PC) and Village Credit & Saving Committee (VCSC) need to work together as agreed in the Collaborative Forest Management Committee (CFMC) and/or Co-management Executive Committee (CMEC) meetings.



Figure 5: Livelihood of forest dependent communities

4. Participants will take all of their decisions based on the opinions of majority

They know each other and everyone must respect and listen to each other. Even if they have a different opinion, they agree and follow the decisions supported by the majority of the members. This is essential to ensure their own benefits and ultimate wellbeing of their community.

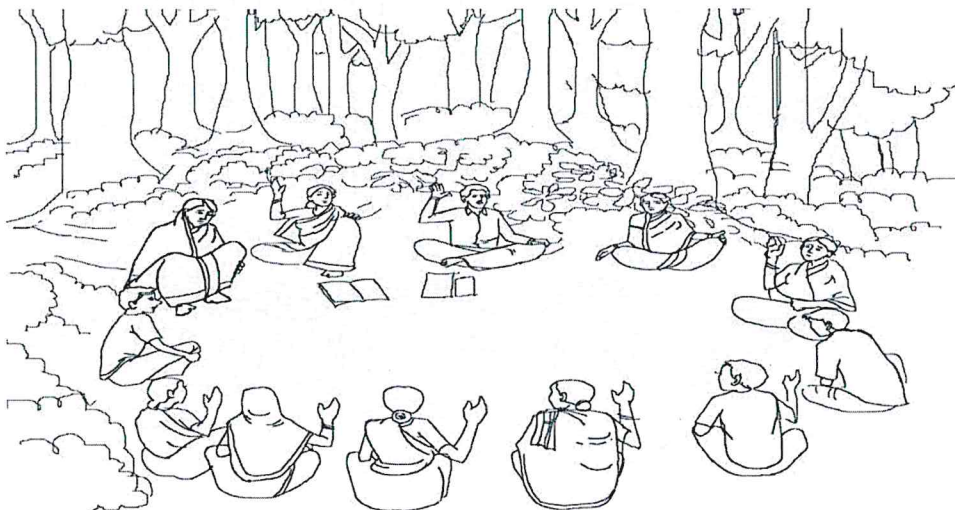
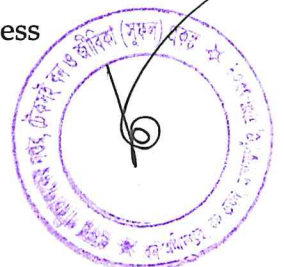


Figure 6: Each member has equal right in decision making process



5. All the forest dependent communities have the equal rights and opportunities.

All the forest dependent communities, including the poor, women, youths, and vulnerable, ethnic minority will have the equal opportunities and rights for work and benefits from the project as well as their own resource utilization.



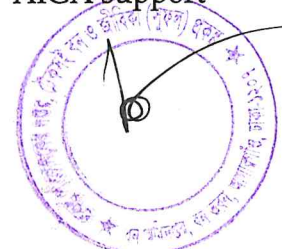
Figure 7: Discussion on utilization of own resources

6. They must remain self-respectful and honest in all of their activities.

Being honest in their activities, will help them promote trust, understanding and harmony in their forest dependent villages at the forest Beat in every work.



Figure 8: Off-farm activities by forest dependent community by AIGA support



7. They will save as much as they can and repay the loans in time.

All of them will pool their savings with the Village Credit & Saving Committee (VCSC). They will repay the loans taken by them from project fund as agreed in CFMC meeting.



Figure 9: VCSC is performing receipt and payment of revolving fund

8. They will complete their activities as per agreed plans.

They will implement the activities exactly as per the agreed plan. They will stick to the budget, time and other conditions.

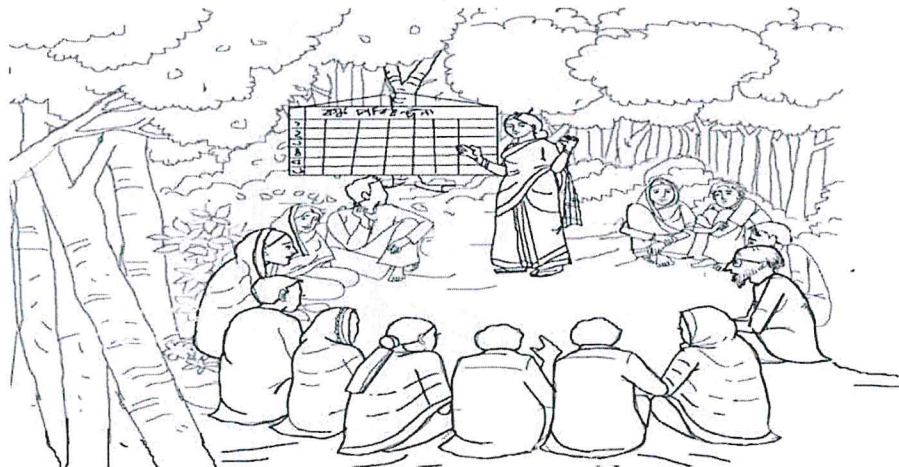


Figure 10: Preparing Annual work plan



9. They will use their resources wisely and honestly.

They will use their funds, their potentials and natural resources carefully. They will use those in a way so that the future generation could be benefited from that. They will also avoid involvement of illegal felling and forest encroachment.



Figure 11: Community Participation in Village development work

10. They will take shelter and help others to take shelter in safer places during any disaster.



Figure 12: Development of leadership among the women



1.4 Why is this COM

The purpose of the Community Operations Manual (COM) is to facilitate the fullest participation of the communities in the Sustainable Forests and Livelihood (SUFAL) Project by helping them understand the basic concepts and norms of the project. Answering questions, they may have, setting out procedures which they must follow. It is a guideline which will require now and then during planning and implementing the village development & alternative income generating activities (AIGA)s and maintaining the assets created through the project.

1.5 Whom is this COM for

This COM is primarily for the poor and extremely poor households of forests dependent communities and community groups participating in SUFAL. However, others such as the BFD, project staffs, NGO and the CFMC/CMEC will also find it useful for their purposes.

1.6 What is there in this COM

The COM describes various village level institutions, including their roles and responsibilities, financial and technical arrangements available at the village, division and PMU level, institutional arrangements needed to make the project success, skills and capacities. It will require developing flow of funds from various sources, including community contributions and many more such things as will help to move ahead and make success the project.

The COM comprises of the following sections outlining the project components and roles and responsibilities of the implementing agencies, procedures for village development and AIGA fund management for improving public sector management of forest resources and increasing participation of communities in forest conservation and restoration including implementation arrangements for coordination between BFD, NGO, forest dependent communities and local governments institutions and procedures for financial management, auditing, procurement, safeguard issues of World Bank and Grievance Redress Mechanism. It also provides details of reporting processes, details of implementation, monitoring mechanism and activity level plans.

1.7 How will community use this COM

The COM is primarily a reference book that needs to be followed during the formation of village level institutions, selection of appropriate beneficiaries, implementation of different AIGAs and accounts maintenance, auditing and record keeping with information on what and how they will do in the project and sub-project activities.



It is a systematic presentation on the concepts, processes and procedures related to the project. In order to make best out of this COM, they need to go step by step. Reading one topic at a time will always help to find the way about the COM, there is a table of contents right in the beginning of the manual which enlists all the chapters and sections in an order. The COM uses different symbols, drawings and illustrations to help understand things in perspective. However, they are all imaginary and do not represent any real people, family or place.

COM is a dynamic document until it becomes under the legal framework. It may be changed over the time; different items of the COM may be deducted if found inappropriate or more new items may be added when it will be operational.



2.0 SUFAL Project and its major Targets

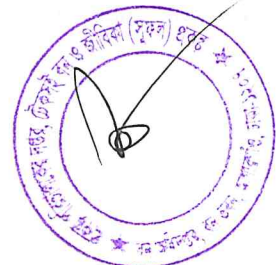
2.1 Overview of the Project

The Government of Bangladesh has approved an investment project called Sustainable Forests & Livelihoods (SUFAL) Project for a period of five (05) years from 01 July 2018 to 30 June 2023 with an estimated total budget of Taka 15027.217 million (equivalent to IDA loan of US\$175.00 million and GoB contribution of US\$3.90 million). This project is being implemented by Bangladesh Forest Department under the Ministry of Environment, Forests and Climate Change.

The SUFAL project will be implemented in three different forest types, i.e. hill forests, plain land forests and coastal eco-system and floodplain forests. It envisages restoration of degraded and denuded forest ecosystems including Protected Area (PA) and conserves biodiversity through sustainable forest management practices for enhancing ecosystem services, livelihoods opportunities, carbon sequestration, climate change resilience and improves PA networks in selected forest landscapes of Bangladesh. The SUFAL project will establish plantations on newly accreted char land through a collaborative forest management arrangement with forest dependent communities. It will also support establishment of additional tree cover in areas outside forests, creating alternative income generating activities for forest dependent communities. Forest extension services will help for capacity building to private sector.

The project will also develop alternative livelihoods of targeted people from the most poor, vulnerable, forest dependent communities and ethnic communities through conservation-focused Alternative Income Generating Activities (AIGAs) and market-based value chain development.

The project duration will be five (5) years, from July 2018 to June 2023. The project will be implemented in 28 districts which comprised of 169 upazilas. The proposed districts will cover three different ecosystems of hill, plains and coastal forests that will cover around 92.77 million population which consisted in 20.29 million households, and covers one-third of total population in Bangladesh.



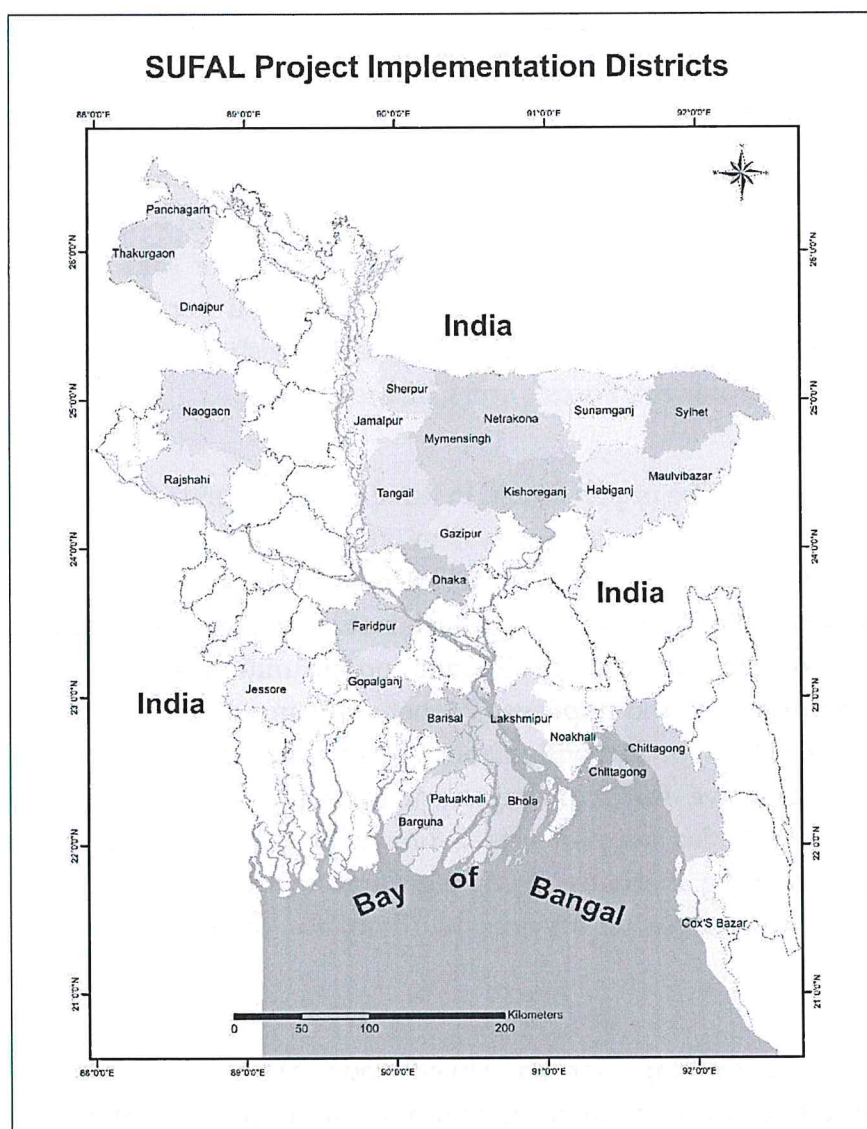


Figure 13: SUFAL Project Area

2.2 Project Objectives

The overall objective of the project is to improve collaborative forest management and increase access to alternative income generating activities for forest dependent communities in targeted sites.

This will be achieved by: (i) improving public sector management of forest resources and increasing participation of communities in forest conservation and restoration and, (ii) reducing direct dependence and exploitation of forest resources by offering alternative livelihood sources to dependent communities and improving the enabling environment for trees outside forests. Together, these will result in the eventual



improvement of forest cover and ecosystem functions, coastline protection and increased employment opportunities for some of the poorest and most vulnerable forest dependent communities, including women and small ethnic communities.

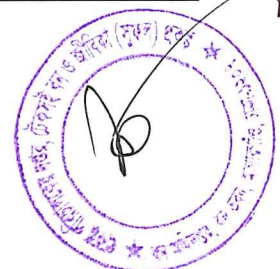
Specific Objectives of the project is given below:

- To improve organizational effectiveness by strengthening institutions, information systems and providing necessary training to forest officials and staffs;
- To strengthen collaborative forests and Protected Areas management for enhancing forest restoration, wildlife protection, biodiversity conservation and ecosystem services;
- To increase access to alternative income generating activities (AIGAs) including forest extension service & planting trees in Trees Outside Forests (ToF) areas to reduce forest exploitation and improving environment;
- To monitor forest restoration and enhanced tree cover in the ToF areas.

2.3 Project Components

The Project activities will be implemented under four (4) components:

Component Number	Component	Sub-component
Component 1	Strengthening Institutions, Information Systems and Training	Strengthening Organizational Capacity, Applied Research, Training, Strengthening Information Management Systems and Forest Inventory, and Communications & Outreach programs.
Component 2	Strengthening Collaborative Forests and Protected Area Management	Institutionalizing Collaborative Forest Management, Restoration of Degraded and denuded Forests, Coastal Green Belt and Field Infrastructure, Improving Protected Areas (PAs) and Wildlife Management
Component 3	Increasing Access to Alternative Income Generating Activities, Forest Extension Services & Trees Outside Forests	Community Mobilization and Organization, Alternative Income Generating Activities (AIGAs), Extension Services and Trees Outside Forests (TOF).
Component 4	Project Management, Monitoring and Learning	Project Management, Monitoring, Reporting and Evaluation.



2.4 Project Target

Component-1: Strengthening Institutions, Information Systems and Training

- Report of administrative and operational procedures of BFD's organizational reform proposal including Forest Manual prepared for decision making by MoEFCC will be reviewed;
- Forest Management Information System (FMIS) using ICT to plan, manage and monitor collaborative forest and PA management will be established;
- Tissue culture facilities in 3 SFNTCs (Chattogram, Gazipur and Jashore) to produce 7.5 lac improved propagules will be developed;
- Training will be imparted to 2000 private nursery owners on improved nursery technique and 1000 saw mill owners on improved saw mill operations;
- 1,159 nos. of officers and staffs will be offered training for knowledge and skill development on collaborative forestry and PA management;
- Two international convention/workshops will be organized in Dhaka;
- largescale outreach and day observation programs will be organized for motivation and awareness building of 20.0 lac people;
- An innovation window will be created for applied research and technology transfer on forestry and wildlife matters.

Component-2: Strengthening Collaborative Forests and Protected Areas Management

- Site Specific Plans for each of the plantation sites will be prepared;
- Five (5) Collaborative Forest Management Plans will be prepared by two Management Plan Divisions (Targeted divisions: Chattogram (North and South), Cox's Bazar (North and South) and Sylhet Forest Divisions);
- Six (6) PA Management Plans will be developed for enhancing wildlife and PA management;
- Collaborative Forest Management Rules (draft) will be developed;
- Report of the Ecosystem Service Valuation of the selected PAs will be used in policy making;
- 52,720 ha. of degraded and denuded forest lands including wildlife habitat will be restored in the plain land and hill forests through ANR/Enrichment/mixed, medicinal, fodder and NTFP plantations under collaborative forest management approach;
- 24, 880 ha. accreted coastal areas will be covered by afforestation to create a belt of trees as a barrier against seaborne storms;



- 2,500 ha. Wildlife habitat in 20 PAs and 1,330 ha. corridor will be improved through fodder and food bearing tree plantation that will help wildlife conservation;
- 08 endangered wildlife species will be brought under specific conservation program;
- Wildlife and PA management activities will be enhanced in 32 PAs;
- Red Listing of plants will be accomplished;
- Sheikh Kamal Wildlife Center, Gazipur (SKWC) will be made functional through offering training to 87 officials and staffs on wildlife management and wildlife crime control matters;
- SMART Patrolling will be introduced in selected PAs;
- Invasive Alien Species (IAS) control plan will be prepared in 05 PAs;
- Bird census including bird ringing will be carried out in the country and measures will be taken for enhancing birds of prey conservation;
- Shark and Ray including other important species conservation strategy and non-detrimental findings (NDF) will be prepared;
- Measures will be taken to reduce human and elephant conflict as per approved Elephant Conservation Action Plan;
- 93 nos. Office and residential buildings of 24,126 sq.m. will be newly constructed and old BFD HQ of 6,833 sq.m. will be renovated;

Component-3: Increasing Access to Alternative Income Generating Activities (AIGAs) Forest Extension Service & Trees Outside Forests (ToF)

- Village (community) development fund will be created to support 600 villages involving 40,000 forest and PA dependent communities around 330-338 Beats including five (05) selected PAs;
- 600 CFMC/VCF-ECs will be formed for collaborative forest and PA management and will be institutionalized through forming different sub-committees (procurement, accounting, social auditing and monitoring etc.);
- 600 CFMC/VCF-EC bank accounts will be opened and operated by 600 CFMC/VCF-ECs;
- 05 new CMCs will be formed and supported by AIGA opportunities;
- 10,800 members of the collaborative forest management institutions will be capacitated by offering training on community operations manual;
- The project will sequester about 33 million tons of Carbon in 40 years, making it as a major carbon sequestration project of Bangladesh and the World Bank;



- 63.5 lac seedlings including 7.5 lac improved propagules will be sold/distributed in the trees outside forest (TOF) areas to enhance tree cover in the country;
- 3,460 km. strip plantation will be established;
- 7 NGOs will be engaged for community organization, database entry and AIGA activities of the communities.

Component-4: Project Management, Monitoring, and Reporting

- Robust accounting system will be created by developing computerized software;
- Community database with online access facilities will be created for 40,000 CFM members;
- Forest plantation monitoring system will be established using remote sensing image;
- Timely reporting facilities will be developed within BFD;
- Third party monitoring of the project achievement will be established;



3.0 Project Implementation Arrangement

For successful implementation of project activities, following institutional arrangement has been established.

3.1 Project Management Structure

The Ministry of Environment, Forest and Climate Change (MoEFCC) is the sponsoring ministry of the SUFAL Project. Project Management Unit (PMU) established in Bangladesh Forest Department (BFD) headquarters will execute the implementation of the project components. Overall project implementation arrangement has been shown in the following diagram.

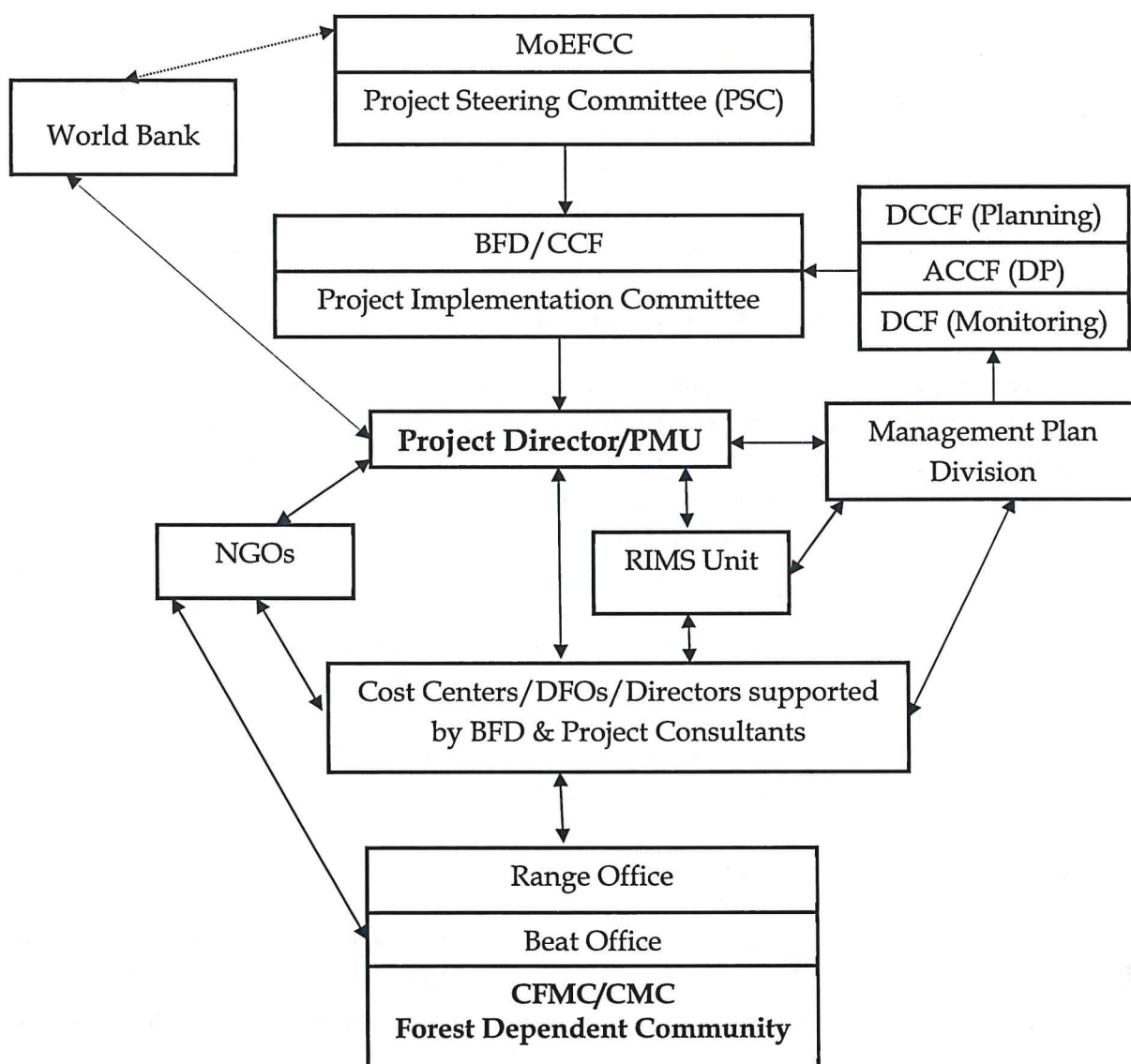


Diagram 1: Project Management Structure



3.2 Project Steering Committee

Project Steering Committee (PSC) is the highest body of the project which is established by the MoEFCC with the representatives from relevant Ministries, Government Departments/Agencies.

Role and responsibilities of the PSC are:

- To review the recommendation of the Project Implementation Committee for addressing problems that arise during project implementation and to take decision accordingly;
- To give guideline or to formulate policies which are required for implementing project activities;
- Any other matter related to project implementation;
- The committee will meet at least once in every three months;
- Recommend for approval of policy, regulatory and institutional recommendations from the project;
- To approve changes in the project implementation arrangements, if necessary;
- The committee may co-opt members, if necessary.

3.3 Project Implementation Committee

Project Implementation Committee (PIC), headed by the Chief Conservator of Forests (CCF) is established to guide and enhance the project performances. It will review the progress of the project on a regular basis and shall provide suggestions for proper implementation and improvement. The committee may visit the field to assist successful implementation of the project, if necessary.

Roles and responsibilities of the PIC are:

- To give necessary assistance or suggestions for implementing project activities;
- If any problem arises during project implementation, then to give necessary decision to solve the problem;
- The committee will meet at least once in every three months;
- The committee may co-opt members, if necessary.

3.4 Project Management Unit

Project Management Unit (PMU) headed by a Project Director (PD) has been established within BFD at central level. The PMU will have relevant qualified specialists who have specialization on Financial Management, Account, Procurement, Social and Communication, Environment. Four Deputy Project Directors (DPD) will supervise the day-to-day field activities and to provide technical guidance for different components. A Project Manager will coordinate the day-to-day managerial



activities and provide technical guidance and input for the different components. Each DPD will be assisted by Assistant Project Director (APD). Concern BFD officials will work closely with the specialists. The office of the PMU has been established at the main building of BFD at Ban Bhabon, Dhaka.

3.5 Role and Responsibilities of the Project Director

The Project Director (PD) will have full freedom to make decisions related to the project as well as financial management decisions independently within the financial powers delegated to the PD under the "Delegation of Financial Powers for Development Projects" issued by GOB.

3.6 Project Management at Forest Divisional level

A total of 27 Divisional Forest Offices will be treated as cost centers of the project. Each of the cost centers will be headed by the Divisional Forest Officers (DFO) and will be responsible for implementation of project activities. Each DFO will be supported by one Junior Consultant-Accounts through project financing. Similarly, Procurement Specialist and Junior Procurement Specialist will support PMU and all cost centers for procurement activities. The afforestation and reforestation programs will be executed in the field by the Beat Officers and Range Officer will be responsible for monitoring and reporting to the DFO.

3.7 Project Management at Circle Level and HQ Level

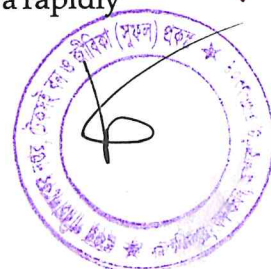
There will be four more potential offices which will be treated as cost centers of the project. Wildlife and Nature Conservation Circle, Dhaka, Forest Academy, Chattogram, BFD HQ and PMU are those offices.

4.0 Strengthening Capacity of Bangladesh Forest Department (BFD)

The SUFAL Project will focus on improving the capacity of BFD by arranging administrative and operational procedures, research work and information systems to enable implementation of different components of the SUFAL project. This capacity building of BFD will enhance the sustainability of CFM functions towards forest conservation. Therefore, activities related to the capacity building of BFD are briefly mentioned below:

4.1 Strengthening Organizational Capacity

The SUFAL Project will support strengthening of organizational capacity with a long-term view to meet its mission and goals and the changing needs of forestry in a rapidly



growing country. It will focus on the long-term needs of BFD including IT, GIS and other systems and business processes, staffing plan, operational modalities of the wildlife and territorial divisions to reduce overlaps and duplication. Similarly, the jurisdiction and working relation between law enforcing agencies and WCCU will be reviewed and established. The Project will support the adoption of the upgraded Forestry Master Plan which was drafted during 2016 and the adoption of the new Forest Policy. Valuation of ecosystem services of selected PAs will be done by engaging specialists under the project. It will ensure procurement of necessary equipment to enable operation of field activities. Training facilities will be improved in SKWC for wildlife training and necessary computers, software, printers, photocopiers, GPS, survey equipment and other tools will be purchased in alignment with BFD business processes specially for RIMS Unit and Development Planning Unit and field. Reconstruction, renovation and repairs of different office, staff accommodation and other buildings owned by BFD will be carried out to improve working conditions in the field.

4.2 Applied Research

A number of applied researches works relevant for the success of the project will be undertaken by BFRI and transfer research findings to the field as part of technology transfer. Project Director will oversee the development of the research strategy and to provide guidance and feedback on research performance and direction, including those for wildlife and biodiversity conservation.

4.3 Innovation Window

The project will provide grant as "Innovation Grant" for research proposal on forest, nursery, wood and non-wood processing technologies, biodiversity conservation, wildlife management that promotes objective of SUFAL project. The window will remain open to proposals from individuals, PhD/Master researchers, educational institutions, NGOs, etc. Each field-based proposal should be endorsed by concern DFO of the place of research interest and policy proposal should be endorsed by Project Director. Final decision will be taken for awarding, if found suitable and useful for the BFD. An Innovation Grant Manual (IGM) is prepared in this regard.

4.4 Training

Some specific training, prior to project implementation, will be arranged, such as training of the BFD staff (i.e. in Resource Information Management Systems Unit, Development Planning Unit, Beat and Range Officers and DFOs) in the procedures to



be followed in preparing the Site-Specific Plans, and fiduciary training in procurement and financial management.

Other specialized training will include new developments in forestry, wildlife (including biodiversity elements as well as legal regulations and enforcement), climate change, Collaborative Forest Management, Project Planning and Management, Forest Inventory, Forest Governance, Forest Economics, etc., for BFD, BFRI and MoEFCC officials.

Forest dependent communities will be trained for skill development for implementation of different AIGAs, cottage industries and handicraft including those based on bamboo and cane products, small wood processing/artisanal furniture workshops, under planting of medicinal plants, cane, *Murta* as conservation and restoration of forest ecosystem.

4.5 Strengthening information management systems and forest inventory

A strategy for information management systems will be developed followed by the development of a robust Forest Management Planning System (FMPS). The Resource Information Management System (RIMS) unit will be adequately resourced (via staff and resources) to maintain and develop the FMPS.

4.6 Communication & Outreach

Under a communication and outreach plan, the PMU will be responsible for communication and dissemination of information on collaborative forest and PA management from the project. The PMU will also pursue an outreach program to motivate both the participating partners as well as others about the activities under the project. The experiences and lessons learnt from the project will be shared with relevant officials of BFD, co-partners and the decision-makers for effective project management and implementation. A number of approaches will be developed for different target audiences and may include audio-visuals, television spots and print media.



5.0 Institutionalization of Collaborative Forest Management

5.1 Village level institution under CFM

Under the collaborative forest management, project activities like restoration and afforestation will be implemented in the forest Beat where project participants will be selected from adjacent villages within 1-3 kms. Concern village will be known as Forest Conservation Village (FCV) consisting of 200-500 households and village level CFM committees will be formed. During the baseline survey, it may exist more villages in the forest Beat and all villages or part of the village has no equal impact on afforestation and forest restoration activities. Depending on context, small portion of adjacent village which have the impact on afforestation/forest restoration can be combined together as a FCV and accordingly concern village level institutions will be formed. Concern Beat Officer will make such decision. Consultation with the BFD, NGO will facilitate in this regard.

In case of Protected Areas (PAs), the village level institutions will be reformed as per provisions of Rule 31(2) of the PA Management Rules, 2017 to facilitate smooth implementation of Community Development Fund (CDF), Livelihood Development Fund (LDF) or other activities as mentioned in Article 2.6 of COM Part- 2.

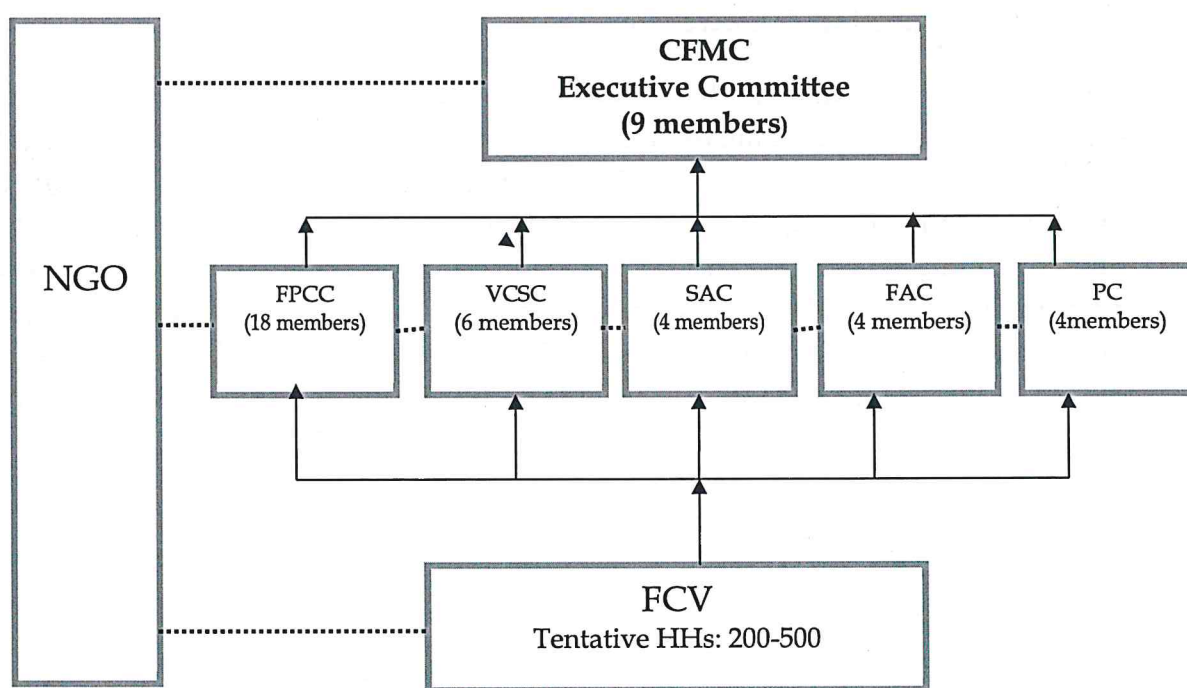


Diagram 2: Diagram of village level institutions for CFM



5.1.1 Formation of CFMC

Collaborative Forest Management Committee (CFMC) will be treated as executive committee which is formed by comprising of nine (9) members. This committee will be led by a Chairman who will be elected from Forest Conservation Village (FCV). Member Secretary will be Beat Officer or his nominated staff. Five (5) members will be elected from the five sub-committees (FPCC, SAC, VCSC, FAC & PC). One (1) member will be selected from existing social forestry group members. In that case, social forestry committee will select one member as their representative and another one (1) member will be selected from CMEC of nearest Protected Area (PA). If there is no PA, then both of these members will be selected from social forestry group members. The structure of CFMC is as follows:

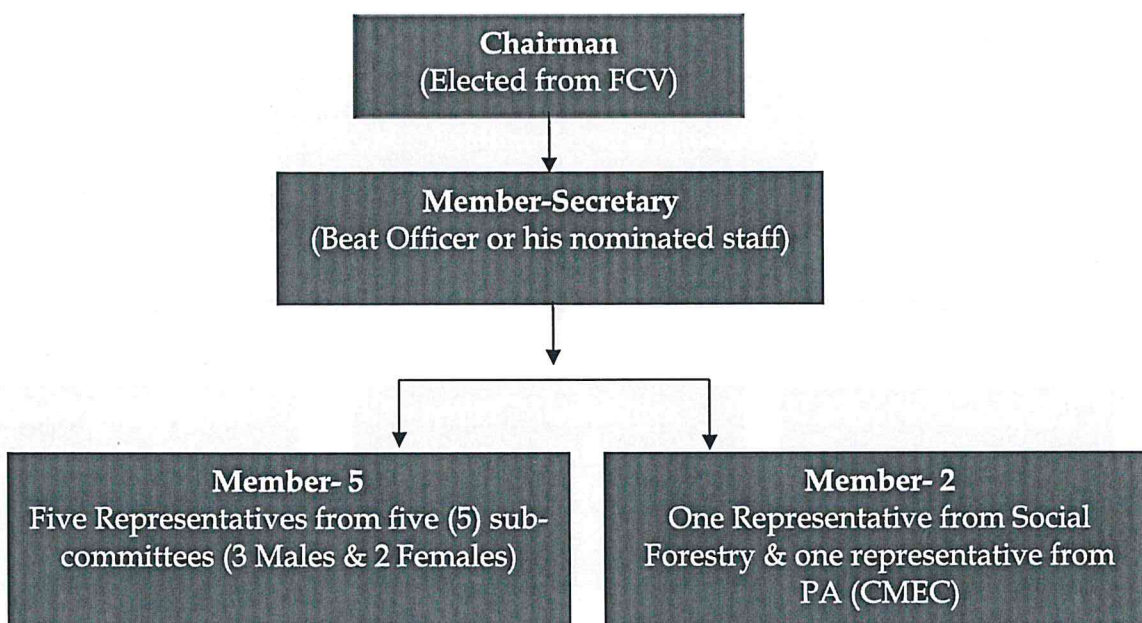


Diagram 3: Structure of Collaborative Forest Management Committee

5.1.2 Sub-Committee under CFM

Under CFMC, following five (5) sub-committees will be formed for protection and conservation, AIGA fund management, auditing, procurement etc. Details roles and responsibilities are mentioned in COM Part 2. These sub-committees are –

1. Forest Protection & Conservation Committee (FPCC): 18 Persons (9M & 9F)
2. Social Audit Committee (SAC): 4 Persons (2M & 2F)
3. Finance & Account Committee (FAC): 4 Persons (2M & 2F)
4. Procurement Committee (PC): 4 Persons (2M & 2F)
5. Village Credit & Savings Committee (VCSC): 6 Persons (3M & 3F).



In case of PAs, Village Conservation Forum (VCF) will form Executive Committee of Village Conservation Forum (VCF-EC) and other sub-committees with the selected project beneficiaries and they will perform the project activities such as protection and conservation of forests, management of community fund, implementation of sub-projects under community fund and management of AIGAs as per provisions of COM under direct supervision of CMEC.

5.2 Beat Level institution under CFM

A coordination committee will be formed in case of more than one CFMC in the Forest Beat. This coordination committee will be known as Collaborative Forest Management Coordination Committee (CFMCC).

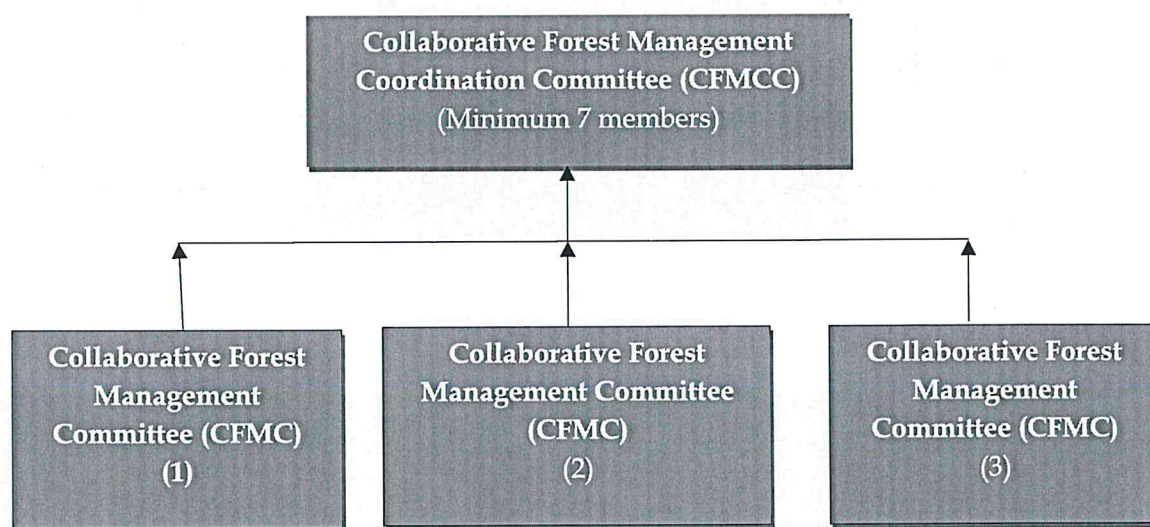


Diagram 4: Diagram of CFMCC at Forest Beat level

5.2.1 Formation of CFMCC

The Collaborative Forest Management Coordination Committee (CFMCC) will be formed by electing one (1) Convener from CFMCs. Concern Beat Officer (BO) will be the Member-Secretary of the Committee. Each CFMC have one (1) representative as member. UNO will nominate one (1) male/female member for this committee. UP Chairman will nominate one (1) female member. Two (2) members will be taken from Social Forestry Committee and CMC of the nearest Protected Area. In case of equal vote Beat Officer will take the decision. In case of PAs, Executive Committee of People's Forum (PF-EC) will perform the role of CFMCC.



5.3 NGO engagement and Role and their Responsibility

Seven (7) experienced NGOs will be engaged under the project to facilitate the communities for implementation of CFM in the project area of hill forest, plain land and coastal regions. Their role and responsibilities are -

- To assist consulting firm to conduct baseline survey of communities in and around the target area;
- To develop community mobilization plans, which will ultimately let the community acquire the knowledge and skill to handle funds not only for community benefits as grants, but also to recycle the fund among the members of their community to enhance their livelihood;
- To help communities to be capable to self-select members for participating in collaborative management of forests; ensuring adequate gender balance, representation from ethnic minorities, deprived groups etc.
- To advice, educate, train and support communities in forming six community-based committees;
- To develop capacities of communities in managing/administering the functions of different committees, financial management, accounting and financial reporting, loan disbursement and realization, participation in alternative income generating activities, procurement of goods, forest restoration, plantation establishment and protection;
- To identify and support the design and implementation of alternative income generating activities;
- Assist and educate the community on participation of meetings, recording of meeting minutes, arrange follow-ups, etc.
- To arrange capacity building training on the implementation of Community Operations Manual (COM) and the AIGAs;
- To entry data for community profiling;
- To monitor community activities under close supervision of BFD officials at Range and Beat level;
- To collaborate with CMO and DFOs.
- To maintain liaison with PD, DPDs and DFOs.
- To undertake any other actions as desired by PD/DFO, relevance to the assignment but not mentioned in the TOR explicitly.

5.4 Safeguard Policy

Safeguard policy of World Bank will be applied while dealing with communities for collaborative forest management. Project site selection and identification of forest dependent community at the Forest Beat/village is a very important part of project implementation. Under the CFM, forest dependent communities will lead their livelihood harmony to the sustainability of the forest. Environmental and Social Management Framework (ESMF), 2018 will be followed for the project. For this



purpose, free, prior and informed consultation will be done with the community. Social Safe Guard Specialist will assist to implement ESMF, resettlement process framework (RPF) and small ethnic community development framework (SECDF) of the project and ensure compliance of the same. Necessary training will be arranged for the communities on this framework to aware the implementation of ESMF, 2018. In this regard, Divisional Forest Officers, Range Officers and Beat Officers of the cost centers will be trained to implement the environmental safeguard framework. Project Director will appoint one Environmental Safeguard Coordinator who will ensure the implementation of environmental safeguard framework during the implementation of the project. Gender Safeguard Specialist will work to minimize gender gap and improve opportunities of gender sensitive AIGA activities under the project. Necessary training will be arranged for the communities and BFD staffs for smooth operation of the project.

5.5 Grievance Redress Mechanism

Since the project will deal with forest resources and local community, conflicts may arise during the project implementation. So, grievance redress mechanism (GRM) will be followed to address conflict during implementing the project activities. Based on discussion and consensus, the GRM will resolve the conflicts amicably and quickly to ensure unhindered implementation of the project activities. (Details are described in COM Part 4).

5.6 Sustainability

For implementation of the project activities under CFM, various types of institutional arrangements have been incorporated. Initially, the village level institutions linking with the BFD and other stakeholders will be implemented by executive order of the BFD. A review of forest and wildlife related Acts and relevant regulatory instruments will be undertaken and necessary updating will be recommended where applicable. Gradually, all these orders for implementation of CFM will come under legal framework for its sustainability. According to decision of the meeting of MoEF dated 10/10/2021 CFM institutions will be registered with the Department of Cooperatives. In this regard, an MoU will be signed between Bangladesh Forest Department (BFD) and Department of Cooperatives (DoC) for facilitating registration process.



6.0 Alternative Income Generating Activities for Forest Dependent Communities

6.1 Livelihood and Forest Dependent Community

Livelihood is the means of improvement in the quality and dignity of life of an individual person and his/her family that s/he brings about by using the skills, finance and other resources s/he has. This could be getting earning through an employment, or could be based on self-employment activities. A sustainable livelihood strategy and option brings wealth, material well-being (food, health, habitat, quality of life etc.) and social well-being (dignity in community and society, good relation with wider society, community harmony, and peace and happiness) for a family.

Forest dependent communities (FDCs) are the most vulnerable and their livelihoods depend on the forest and its resources. Therefore, forest restoration and conservation activities under Sustainable Forests and Livelihoods (SUFAL) project has a linkage with the livelihood of the FDCs. Alternative Income Generating Activities (AIGAs) is one of the important components of the project for improving livelihoods of FDCs who will be identified through a selection process. AIGAs will help in diversification of livelihood opportunities, increase incomes and reduce dependency on forest products and thereby will enhance the coping capabilities for climate resilience. It is expected that FDCs will develop a more positive relationship towards conservation and in turn, receive more benefits from the forests in project areas. These activities will be implemented within up to 600 villages, covering about 40,000 households around 338 Forest Beats. A community approach will be used to provide training and financial support for asset creation.

6.2 Community Mobilization for implementation of AIGAs

Under the collaborative forest management (CFM)/PA co-management, following activities will be carried out for implementation of AIGAs:

- Mobilization of communities with CFM committees in forest dependent villages for implementing the AIGA program;
- Operating Bank Account and starting community savings;
- Initiating village development activities through a village development fund;
- Training on livelihood diversification, preparation of livelihoods proposals, accounts and book-keeping.
- An important aspect will be organizing and training women and adolescent girls, small ethnic minority and offering them training and choice of income generation options.



6.3 Process for AIGA support

All project beneficiaries including the members of CFMC/VCF-EC and other sub-committees will involve themselves in different AIGAs following Community Operations Manual (COM) in which the procedures for the implementation of the AIGAs are elaborated. These will include to guide on:

- Awareness raising and community mobilization;
- Self-selection of beneficiaries by the community;
- Indicators to assess community/household commitment and motivation to participate in the program;
- Capacity building for preparation of AIGA proposals, managing the enterprise/activity, accounting and reporting;
- Principles and criteria for assessing AIGA proposals;
- Rules for borrowing and re-payment to the AIGA fund;
- Fund flow, reporting and procurement rules for the communities;
- List of activities that may not be financed by the project;
- Principles for decision-making, transparency, inclusion, grievance redress, social audit and application of World Bank's safeguard policies by the community in the use of AIGA funds; and,
- Sustainability.

6.4 Selection Criteria for AIGA Funds Recipients

The AIGAs fund for livelihoods will be maintained as a revolving fund at the community level and will be available to community members for their livelihood benefits. Priority for access to AIGA funds will be given to members of FCV/VCF who are true forest dependent and

- among the poorest and vulnerable in the village;
- women-headed households;
- landless and lack year-round employment; or,
- belong to ethnic minority communities.

Detail selection criteria are mentioned in COM Part-2.

6.5 Different AIGA Opportunities in the Project

In the SUFAL project, forest restoration (afforestation/reforestation) and conservation activities have a direct linkage with the AIGAs that will benefit from intensification and diversification of ecosystem services. Under the collaborative forest management approach, restoration and afforestation including conservation activities within Hill forest, Plain land Sal forest and Coastal areas will generate employment (as man-days)



for the FDCs throughout the project periods. Multiple approaches of afforestation, restoration, conservation, and under planting under the project will generate AIGAs for the FDCs.

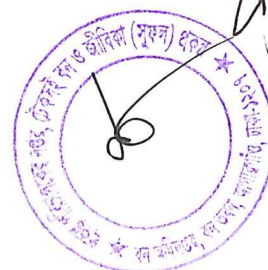
Details relevancy of reforestation to AIGA will be elaborated in the PIP of the project.

- The project will generate employment opportunities in afforestation and restoration activities in Hill forest, Plain Land Sal Forest and Coastal afforestation. It is estimated that a total of 113.47 lac no. of man-days and for construction work 4.35 lac man-days will be created. Besides AIGAs will add 40.0 lac new man-days in the labor market. Thus 157.82 lac nos. of employment opportunities will be created directly from project investment. Under the AIGAs component, large scale employment opportunities will be created by the project activities.
- For establishment of each hectare of plantation, a series of labor-intensive works like seedling raising, plantation establishment and yearly maintenance up to 5 years will be required. It will generate employment for the communities in the concern forest dependent villages.
- A source of income for the community will be selling of pruning and thinning material and these sell proceeds will be deposited to the community fund. By this practice, it will help to increase the revolving fund for AIGAs.
- A large number of seedlings of varieties of indigenous species will be raised in the nursery for plantation and vacancy filling under the project. A portion of quality seedlings will be procured from private nurseries that will develop private nursery initiatives and marketing so that local community will get employment opportunities for their income generation and sustainable livelihoods.
- Forest dependent communities from the concern forest conservation village (FCV) will be engaged in forest protection as required by BFD through FPCC/CPG. By this engagement, they will get financial support which will improve their livelihood.
- Bamboo gives quick return and a source of income. At the same time, it is one of the best raw materials for cottage industries. Bamboo and Bamboo-based secondary product trading is a profitable business in Bangladesh. It is a potential sectors of employment generation for the rural people. Bamboo is used extensively by local communities and plays an important role in subsistence strategies for rural population. Bamboo enterprise are continuously sustaining the national economy through providing employment opportunities for poor, including raw material collection, processing and marketing. So,



Bamboo plantation will help to establish small-scale bamboo-based enterprise in the country which will generate employment for the poor.

- *Murta* Plantation as under planting in hill forest and plain land forest is a one of the AIGA option which will support the cottage industry particularly for the women as *Sheetalpati* is very costly natural mat have popularity in the local and foreign market. Ultimately it will improve the forest ecosystem services in project sites of Hill forest and Plain Land Forest as well as income generation.
- Medicinal herbs and shrubs planting as under planting in the project sites of Hill Forest and Plain Land Sal forest will also improve the forest ecosystem and at the same time, will generate additional income for the forest dependent communities. Once a large number of local people collect medicinal plants from the forest and supply to the different industries which support their livelihood. Due to monoculture, medicinal herbs and shrubs has been overlooked. Under the SUFAL project, the medicinal plants will be planted as under planting so that a substantial amount of income will be generated from marketing of these products.
- Cane plantation in Hill Forest and Plain land Sal forest will be another income generating activities by the community. Cane is commercially known as 'rattan' which is another important non-timber forest product (NTFP) and has a global demand. It is a climbing palm used extensively in furniture production. In recent years, the demand for rattan products has increased considerably and there is ready market for rattan locally and this has resulted in its over exploitation. In Bangladesh seven species of cane has been reported to be growing. It grows both in forests and other localities. It grows in shaded areas and in the forests and forms an understory.
- In general, the project will not promote pre-selected AIGAs because there is a high risk of introducing AIGAs without following certain criteria set for matching with project objectives. Therefore, it is strongly recommended to go for consultation with communities of the collaborative forest management institution before undertaking AIGAs for achieving project objectives. However, both on and off-forest income generating activities such as those listed below may be financed:
 - Homestead NTFP production;
 - Nurseries for timber, fruit, vegetable, flower, fuel wood, fodder, medicine and other NTFPs bearing species;
 - Sustainable fisheries where applicable;
 - Service providers/technicians for fuel efficient cooking stoves, biogas, kerosene stoves and small electronics;



- Cottage industries and handicrafts including those based on bamboo and cane products;
- Small wood processing/artisanal furniture workshop;
- But project will not support any AIGAs in relation to the following criteria:
 - Hindering intensification and diversification of forest ecosystem (e.g. single spp. plantation);
 - Cause to biodiversity loss (e.g. planning with invasive spp.);
 - Enhance climate change risks at local level (e.g. choice of specie that enhance soil erosion, reduce carbon sequestration potentials etc.);
 - Promoting government forest land into non-forestry practices (e.g. AIGAs within forest land);
 - Hampering ecosystem processes (e.g. burning during plantation activities);
 - Marginalize poor and small ethnic communities (e.g. forest restoration on land customarily owned or occupied by indigenous or tribal people);
 - Increase gender gap (e.g. CFMC formation and training without gender sensitivity);
 - High pollution risk (e.g. Dying or related activities);

7.0 Different Approaches for Conservation and Restoration Under the Project

Under collaborative forest management program, different approaches will be applied to restore degraded and denuded forests, including newly accreted coastal land which cover a total of approximately 79,000 ha. The key approaches for restoration include: (i) Assisted Natural Regeneration (ANR) where protection and planting to fill gaps (up to 20%) is considered adequate for restoration; (ii) Enrichment Planting, includes areas where the vacancies are much larger and up to 60% of the areas require replanting; (iii) establishment of plantation with slow and fast growing indigenous species in areas which are devoid of any significant tree cover. Reforestation/plantation program also includes the protection and conservation of rare and endangered species and improving wildlife habitat and corridors.

Bamboo, Cane, *Murta*, and medicinal plants etc. will be planted as under planting on the basis of the local site conditions and interest of local communities especially for increasing their livelihood opportunities through enhanced ecosystem services.

For better understanding probable share of livelihood opportunities from project investment and project outcome are shown in Table- 1 and briefly discussed different restoration and afforestation program along with the arrangement of increased access to AIGAs for the FDCs.



(In Percentage of Livelihoods¹ Opportunities with Respect to 365t Days of Employment Per House Hold Head Per Year)

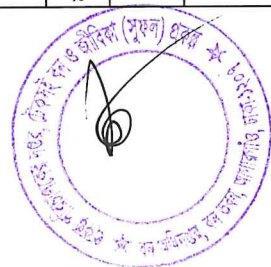
¹ Livelihoods opportunities calculated in percentage with respect to 365 days of employment having minimum wage of Tk.500/- per days.

² Livelihood opportunity derived from the income of GHG emission reduction, carbon sequestration, eco-tourism, under planting etc.

Sl. no.	Activity/ Operations	Seedling s/ ha	Project Investment						Project Outcome							Remarks on Co-benefits ²
			Strengthening Collaborative Forests and PA Management			Increased Access to AIGAs			Resource Harvest from Forests				Livelihoods Using AIGA Fund			
			Resource Building Through Restoration of Degraded and Denuded Forests Ecosystems			Livelihood Opportunity Using AIGAs Fund			Ecosystem Intensification		Ecosystem Diversification		Avoiding Forest Resources Harvest (Withdrawal)			
			Labourer for Afforestation/ Reforestation	Community Patrolling	Under Planting	Training and Trades	Value Chain & Market	Community Development Fund	Annual/ Bi-Annual Harvest	Long Term Harvest	Annual/ Bi-Annual Harvest	Long Term Harvest	Eco-tourism	Trade	Value Chain & Market	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	Hills: Medicinal Tree plantation	@ 25 00	40-45%	10-15%		10-15%	-	1-2%	-	-	20-25%	10-15%	-	10-15%	-	-
9	Hills: Rare and Endangered Spp.	@ 25 00	40-45%	-	-	20-25%	-	1-2%	-	-	-	-	-	10-15%	-	5-10%
10	Hills: Bamboo plantation	@ 62 5	-	-	10-15%	-	10-15%	1-2%	30-35%	-	-	-	-	20-25%	20-25%	-
11	Hills: Murta (Typha spp) Plantation	@ 44 44	-	-	30-35%	-	10-15%	1-2%	30-35%	-	-	-	-	10-15%	-	
12	Hills: Teak Coppices Management (coppice)	@ 10 00	15-20%	-	-	10-15%	-	1-2%	-	20-25%	-	-	-	15-20%	-	
Wildlife and PA																
13	PA: PA & Wildlife Corridor-Enrichment	@ 15 00	25-30%	-	-	10-15%	-	1-2%	-	-	-	-	40-45%	10-15%	-	10-15%
14	PA: Habitat improvement - PAs	@ 15 00	25-30%	-	-	10-15%	-	1-2%	-	-	-	-	40-45%	10-15%	-	10-15%
Plain land Sal Forests																
15	Sal: Enrichment Plantation by Sal Associates	@ 15 00	25-30%	-	10-15%	-	10-15%	1-2%	-	-	10-15%	20-25%	-	25-30%	25-30%	10-15%
16	Sal: Mixed Plantation with Fast Growing Spp.	@ 25 00	40-45%	-	20-30%	10-15%	-	1-2%	5-10%	20-25%	-	-	-	25-30%	10-15%	5-10%
17	Sal: Stand Improvement with line sowing & nurse crop (Sal Associates)	@ 15 00	25-30%	-	10-15%	-	10-15%	1-2%	-	-	10-15%	20-25%	-	25-30%	25-30%	10-15%



Sl. no.	Activity/ Operations	Seedling s/ ha	Project Investment						Project Outcome							Remarks on Co- benefits²
			Strengthening Collaborative Forests and PA Management			Increased Access to AIGAs			Resource Harvest from Forests				Livelihoods Using AIGA Fund			
			Resource Building Through Restoration of Degraded and Denuded Forests Ecosystems			Livelihood Opportunity Using AIGAs Fund		Community Development Fund	Ecosystem Intensification		Ecosystem Diversification		Avoiding Forest Resources Harvest (Withdrawal)			
			Labourer for Afforestation/Reforestation	Community Patrolling	Under Planting	Training and Trades	Value Chain & Market		Annual/ Bi-Annual Harvest	Long Term Harvest	Annual/ Bi-Annual Harvest	Long Term Harvest	Eco-tourism	Trade	Value Chain & Market	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	Sal: Sal Coppice Management	@ 10 00	15-20%	-	-	10-15%	-	1-2%	-	20-25%	-	-	-	15-20%	-	-
19	Sal: Rare and Endangered Spp. (Sal Associates etc.)	@ 15 00	25-30%	-	-	20-25%	-	1-2%	-	-	-	-	-	10-15%	-	5-10%
20	Sal: Murta Plantation	@ 44 44	40-45%	-	-	-	10-15%	1-2%	25-30%	-	-	-	-	30-35%	10-15%	-
21	Sal: NTFP Under plantation - Medicinal herbs	@ 25 00	-	-	40-45%	10-15%	10-15%	1-2%	20-25%	-	20-25%	15-20%	5-10%	-	5-10%	-
22	Sal: NTFP Under plantation - Cane	@ 10 00	-	-	15-20%	10-15%	10-15%	1-2%	10-15%	-	-	-	-	30-35%	-	-
23	Sal: Bamboo plantation	@ 62 5	-	-	10-15%	-	10-15%	1-2%	30-35%	-	-	-	-	20-25%	20-25%	-
Coastal Greenbelt/ Mangroves																
24	Mangroves: Coastal Mangrove Afforestation	@ 44 44	40-45%	5-10%	-	20-25%	10-15%	2-3%	-	20-25%	-	-	-	20-25%	-	10-15%
25	Mangroves: Coastal Mangrove Enrichment Plantation	@ 30 0	10-15%	5-10%	-	30-35%	5-10%	2-3%	-	20-25%	-	-	-	30-35%	-	10-15%
26	Mangroves: Golpata Plantation (seedling/k m)	@ 10 00	15-20%	5-10%	-	30-35%	5-10%	2-3%	20-25%	-	-	-	-	30-35%	-	10-15%
27	Mangroves: Mound Plantation	@ 15 00	25-30%	5-15%	-	40-45%	10-15%	2-3%	-	10-15%	-	-	-	20-25%	-	10-15%
28	Mangroves: Jhaw Plantation	@ 25 00	40-45%	5-10%	-	30-35%	5-10%	2-3%	20-25%	-	-	-	-	30-35%	-	10-15%



b. Addressing safeguard issues

- Condition that triggers safeguard issues and possible risks for the indigenous peoples, tribal peoples or other traditional peoples or to which these groups have a collective attachment
- Risk that the intervention might negatively affect vulnerable groups in terms of material or non-material livelihood conditions or contribute to their discrimination
- Inequalities between women and men or adversely impacts the situation or livelihood conditions of women or girls
- Risk on cultural rights, social frameworks including traditional frameworks and norms
- Potential opportunities to secure and, when appropriate, enhance the economic, social and environmental benefits to women
- Protection of cultural resources such as tangible, movable or immovable cultural resources with archaeological, historical, cultural, artistic, religious, spiritual or symbolic value for a nation, people or community
- Scope of free, prior and informed consent (FPIC) from groups affected by restrictions
- Possible measures for mitigating adverse impacts
- Any information gap that needs assessment
- Opportunity to promote the use or development of economic benefits from cultural resources or natural features with cultural significance.

c. Social and environmental impact

- Social risk of resettlement, migration, access restriction to land and natural resources, human rights, traditional rights, social cohesion, human-wildlife conflicts, health and safety etc.
- Environmental risk of pollution, use of pesticide, fungicide, GHG emission, degradation of soil, soil erosion or siltation, including wider impact at landscape to transboundary level
- Influence on the water flow, water quality, aquifer recharge, sedimentation, river hydrology, water pollution etc.
- Effect on ecosystem function and services
- Mitigation options for social and environmental risk.

d. Biodiversity conservation, wildlife protection and sustainable use of natural resources

- Potential threat to biodiversity loss and challenge to sustainable use of natural resources
- Impact on the area of high biodiversity value to local people
- Potential risk and livelihood impact for the use of exotic species and invasive species
- Potential livelihood benefits through biodiversity conservation and wildlife protection



e. Climate change risk

- Potential climate change risk of the area (Prone to floods, drought, landslides, cyclone, storm surges, etc.)
- Potential impact on people's livelihoods due to climate change
- Change in vulnerability of communities and ecosystem due to climate change
- Climate change risk on the effectiveness and sustainability of intervention
- Climate change adaptation and mitigation benefits
- Opportunities to enhance the adaptive capacity of communities and ecosystem to climate change.

Each SSP Preparation will include:

- Site description of the Beat and map;
- Management objectives of the SSP;
- Community consultations for species selection;
- Selection of plantation types and estimated cost of plantation;
- Social and Environmental risks assessment and mitigation measures (based on the screening checklist of the ESMF)

7.2 Accountability and Quality Assurance of SSPs:

The Divisional Forest Officers (DFOs) will be accountable for quality of SSP preparation and approval of SSP implementation within their respective forest divisions. Sample of the plans will be randomly selected as the reference or baseline for monitoring of the SSP implementation by an independent third-party monitoring agency. In addition to the third-party review, concerned forest officials will verify at least 15% of SSP within his/her jurisdiction. Success will depend on continuous checking of work and feedback, including frequent field coordination meetings amongst groups to coordinate the approach and continue to share best practices.

Under collaborative forest management, restoration of degraded and denuded forest including newly accreted coastal land different approaches will be applied.

7.3 Hill Forests

7.3.1 Assisted Natural Regeneration

Assisted Natural Regeneration (ANR) will be carried out in the forest areas where it requires up to 500 seedlings or other planting materials to restock. Mixing of suitable species for such plantation site will be given importance. Preference should be given to species which exists in the neighborhood.



7.3.2 Stand Improvement with Indigenous Species

Under social forestry program, some plantations mostly with *Akashmoni* in Chattogram and Cox's Bazar have reached a marketable size and ready for harvesting. These plantations will be brought under collaborative forest management through stand improvement and will replace the current *Akashmoni* predominantly with a mix of indigenous species.

7.3.3 Enrichment Plantation

Enrichment Plantation will be carried out where partial vacancy exists but there is no opportunity for establishing the area naturally with seeds of existing mature trees of desirable species. The vacant areas will have to be restocked artificially with suitable indigenous species through enrichment planting. Under this mechanism, these forests require 500 to 1,500 seedlings per hectare on a 2mx2m spacing. Preference will be given to species which are growing in the same area. Both monoculture and use of exotics will be avoided.

7.3.4 Reforestation

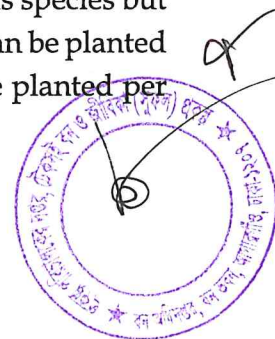
Reforestation will be carried out in the selected forest areas which have nearly or totally lost tree cover and are currently barren or covered with bushy and undesirable vegetation. The main target is to restore tree cover in such areas through establishment of both fast and slow growing indigenous species. Based on the suitability and location, an area will be selected for either short or long rotation plantation establishment.

(a) Mixed plantation with Fast Growing Species

This type of plantation will be established in mostly degraded areas where the site condition has deteriorated. Suitable species mixing for the plantation will be selected from a list of desirable indigenous species. 2,500 seedling or other planting materials will be planted per hectare following 2mx2m spacing as the main target of such plantations is to produce small wood quickly with fast growing indigenous species.

(b) Mixed Plantation with slow growing species

This approach will be carried out in areas which are of relatively better quality in terms of soil condition. Here, the aim will be to create a 'forest' which will give it a 'forest like' look. The main species for such plantations will be Gorjon, Sal, Dhaki Jam, Telsur, Champa, Mehagony, Chikrasi, Jarul, Civit, Bashpata, Puti Jam, Amloki, Bohera, Haritaki, Haldu, Neem, Chapalish, Nagashwar, Kamdev, etc. Teak may be considered in some suitable areas, in mixture with afore-listed indigenous species but not more than 25%. Some leguminous species like indigenous *Albizias* can be planted to enrich soil in the mixture of species. A total of 2,500 seedlings will be planted per



hectare. About half of the saplings will be removed through a mechanical thinning at around 5th year. In the case of long rotation plantations, it will be managed under a selection-cum-improvement system of management, regular removal of trees will be undertaken through intermediate felling to allow the retained trees necessary space for healthy growth.

7.3.5 Medicinal Plantation

Some forest trees are widely used both in traditional as well as allopathic medicine and have a demand in the pharmaceutical industry. As a result, over-exploitation of these species is common in our forests. While this will form a part of the slow growing mixed plantation, it is being dealt with separately to ensure that newly established plantations are included in a component for enriching forest areas with valuable medicinal plants of high economic importance.

7.3.6 Rare and Endangered Species Plantation

A number of species in the hill forests have become threatened and endangered. Necessary actions will be taken to ensure that these species will not become extinct from the forests of the country. Plantation programs can be undertaken for establishment of **seed orchards**, **arboretum** and **seed bank**. The area for seed orchards and arboretum will be defined in consultation with DFOs.

(a) Seed Orchards

Seed orchards will be established in all Forest Divisions under the project support. Two seed orchards of desirable species, 25 hectares each, will be established in each Forest Division. In addition, seed orchards of up to 5 hectares will be established in all SNTCs, where suitable land is available.

(b) Arboretum

An arboretum will be established where at least 50 individual trees of each species will be raised and cared for. The selection of species for the arboretum will be made based on relative scarcity of these species in the country.

(c) Seed Bank

Seed Bank means a frozen room/vault where seeds will be stored at -20°C for long-term storage, quality assessment and to grow living plants in future as and when required. Seed Bank is a place providing space to store thousands of seed samples with advanced seed research and processing facilities. Its purpose is to provide an "insurance policy" against the extinction of plants in the wild by storing seeds for future use. Seed Banks offer the opportunity of conserving large amounts of plant diversity cheaply and very effectively in small areas.



7.3.7 Teak Coppice Management with Compost Fertilizing

A small area of 370 hectares of teak trees of coppice origin will be treated under this category. Post planting operations include multiple stem cutting, retaining the one closest to the ground and in addition, compost fertilization in one year old, 3 weeding each in 1 and 2 year old stands, 2 in year 3 followed by a climber cutting and cleaning operation will be undertaken in the year 4 of the stand.

7.3.8 Improvement of Habitat in PA and wildlife Corridor

Habitat improvement plantation will be established in some selected PAs and corridors through which wildlife moves from one PA to another. These will be similar plantations but purpose will be different.

7.4 Plain land Sal Forest Restoration

The plain land forests, located in the districts of Dhaka, Gazipur, Tangail, Mymensingh, Sherpur, Thakurgaon, and Dinajpur, have become poor in quality because of a number of reasons including human interferences, tenure issues, encroachment, and repeated incidences of fire and grazing. A comprehensive and appropriate interventions will be taken up to restore these *Sal* stands to good condition.

7.4.1 Enrichment plantation by *Sal*, Garjan and *Sal* associates

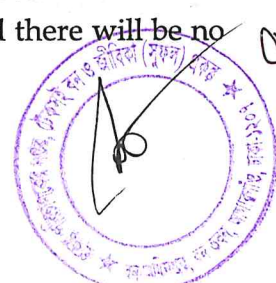
Enrichment plantation technique will be applied in the forest areas where the seedlings requirements will be up to 1,500. *Sal*, other associates of *Sal* and *Grajan* will be planted in these areas in a spacing of 2mx2m. Post planting tending operations will include weeding, vacancy filling, application of fertilizers, etc.

7.4.2 Stand improvement with line sowing and Nurse Crop

Under this intervention, the forest land which is up to 60% devoid of any tree cover will be considered for restocking. Efforts will be made to produce stands of mixed species of *sal* and its associates such as *Haldu*, *Pitraj*, *Kumbhi*, *Jarul*, *Bohera* which had been growing in such areas in the past. *Garjan* would be added to the species mix. 1500 seedling/planting materials will be planted per hacter with the spacing of 2mx2m. Under planting with medicinal plants will be undertaken in suitable areas which have well established tree stands.

7.4.3 Rare and Endangered Species Plantation

Denuded areas will be selected for line plantation by *Sal* and its associates like *Haldu*, *Pitraj*, *Kumbhi*, *Jarul*, *Behera*, *Jalpai*, *Uri am*, *Gutgutiya*, *Bakul*, *Ban Kanchan*, *Mandar*, *Jarul*, *Sadakoroi*, *Kala Koroi*, *Toon*, *Tamal*, *Gamar*, *Konok*, *Parul* and *Sajna* as well as *Garjan*. A total of 1500 seedlings/ha will be planted at a spacing of 2.6mx2.6m. Care will be taken to ensure planting with healthy planting materials and there will be no



grazing or incidences of fire in the early years of plantation establishment. While replanting, special effort will be given to ensure that associates of Sal which have become endangered and rare, comprise at least 20% of the planted planting materials.

7.4.4 Sal Coppice Management with Compost Fertilization

This will be done mainly through removing most coppice shoots growing from a tree stump leaving one or two healthiest ones which sprouted closer to the ground. Proper care for protection, application of fertilizers will be taken. Existing vacancies in the stand will be filled up by planting *Sal* and associated species. Care will be taken to ensure that there are no incidences of fire on the forest floor during dry season. Under planting with spices and medicinal plants will be undertaken in suitable areas during the first 3 years of the plantation establishment.

7.5 Coastal Afforestation

The main objective of this initiative is primarily to stabilize land and create a protective barrier against sea borne storms. The plantations will be established with mangrove species, particularly *Keora*, *Bain* and *Gewa* in the frontline coastal districts and off-shore islands of Bangladesh. Government of Bangladesh attaches a very high priority to the creation of a 'green belt' along the coast of Bangladesh as a barrier against sea-borne storms.

7.5.1 Mangrove plantation

Mangrove plantations will be established in suitable areas of newly accreted mudflats along the coast and surrounding offshore islands where grass has already colonized indicating stabilization of the new land mass created. Under this intervention, a total of 21,080 hectares of coastal plantations are planned to be raised in different coastal forest divisions of the country. On newly accreted land along the coast, species such as *Keora*, *Baen* and in some rare cases *Gewa* will be planted on sites which are sandy and have formed a layer of clay on the top which is thick enough to withstand wave action. Almost 4,444 seedlings per hectare will be required at a spacing of 1.5m x1.5m.

7.5.2 Mangrove Enrichment Plantation

Enrichment plantation will be undertaken to restock the areas which are partially devoid of trees mainly because of human interferences. *Baen* and *Keora* will be used as appropriate in this initiative. A total of up to 1,500 seedlings will be planted per hectare.



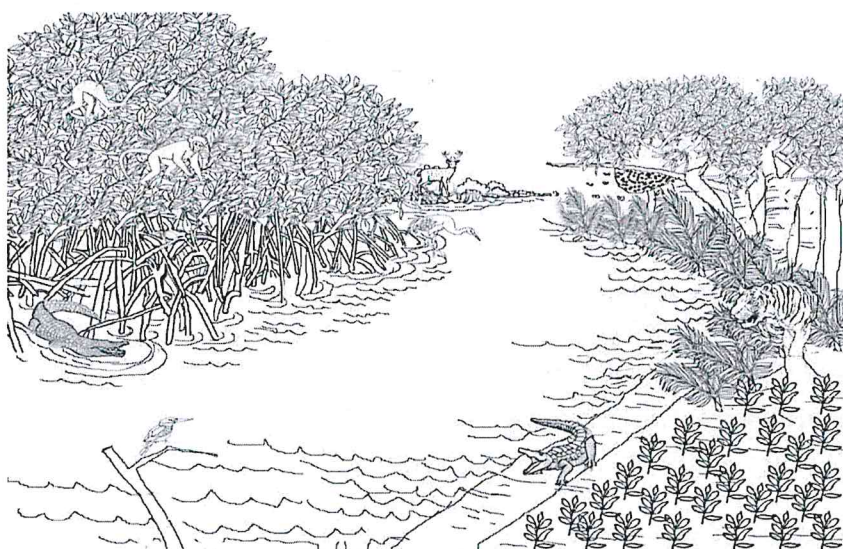


Figure 14: View of Golpata plantation

7.5.3 Mound Plantation

Some coastal plantation areas have reached an elevation where tidal water rarely inundates. Such areas have become unsuitable for mangrove plantations. The mounds will be prepared in a way that the bottom of the mound is wider than the top and has slanting sides. Generally, two different spacing is used. The sites, those are comparatively harder, planting will be done at 2.5mx2.5m spacing and on comparatively softer sites a spacing of 3m x 3m will be used.

7.5.4 *Golpata* Plantation

In coastal areas, *Golpata* plantations will be raised in suitable land which is almost flat with central depressions and in the edges of creeks and canals. Generally, 2 months old seedlings will be taken out of the nursery and planted in the field to keep the root injury at minimal. They may be planted at a spacing of about 2 meter. The sites subjected to heavy siltation or prone to heavy erosion may be avoided for a given time, while raising *Golpata* plantations. In case of such planting of *Golpata*, at least 2 meters long and strong stack must be used against each seedling planted. Since *Golpata* plantations will be linear, the budget may be based on "seedling km.", i.e. planting of 1000 seedlings may be taken as "one seedling km.".



7.6 Tree Outside Forest (TOF)

Private sector engagement, establishment of a timber market information system, training, technology transfer etc. will be the main activities under extension services and trees outside forests component.

7.6.1 Seedling distribution

It is planned to raise and distribute 6.35 million seedlings for planting in the areas outside forests. It is also planned that at least 50% seedlings will be purchased from private sector nurseries for raising plantations in the forests. This proportion will increase over the project life, depending on the capacity, success and monitoring of the quality and price of these seedlings.

7.6.2 Seed Source Identification

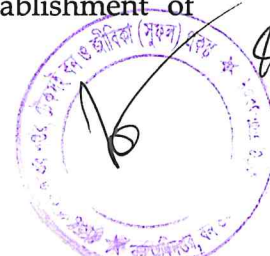
A program for the identification of superior seed source trees, along with improved seed treatment, testing, storage and certification will be developed. It will be implemented by BFD staff, so as to supply higher quality, faster growing planting material and certified seeds of known quality, provenance, and germination rates, to the private sector and farmers under the project supported SFNTCs. Vegetative propagation techniques such as tissue culture will be used to promote improved genotypes.

7.6.3 Nursery Technology Improvement and Extension Services

Nursery technology improvement and extension services to increase technical assistance to SFNTCs and private sector nurseries and individual growers (both on farms and on government lands through the social forestry agreements). The transfer of technology and training will be provided by BFRI under the project. SFNTCs will be developed as demonstration centers in 3 locations - Joshore, Gazipur and Chattogram where training will be offered to BFD staffs and private nursery owners on improving their production protocols. Tissue culture techniques will be introduced in appropriate and established sales centers for certified seeds of known provenance for high value species. A total of 7.5 lac improved propagules will be produced through tissue culture and planted in the marginal public land/ToF.

7.6.4 Strip Plantation

Strip plantations of 3,460 km. will be established on bare and unused land available on the sides of roads, coastal embankments, railway tracks, and river and canal banks under social forestry model. Most of these areas are under the control of different government agencies. Depending on the width of available land, rows of trees will be planted at 2mx2m spacing. Choice of species will depend on site conditions and local preferences. The guidelines of Water Development Board on establishment of



embankment plantations will be followed. Necessary effort will be made to raise strip plantations on both sides of the river and canals to establish a strip of buffer zone or ecotone with 100 to 500 m width. Efforts will be made to develop strategy and monitoring mechanism for out planting trees in the private land along the river bank and canals.

7.6.5 Model Upazila

A total of five Upazilas will be selected from climate vulnerable and poverty zones of the country under this project and a pilot program will therefore be designed to encourage people for planting trees in any form, ranging from scattered tree planting to block planting to strip planting on public lands. Efforts will be made to develop strategy for incentives and monitoring mechanism to plant trees in private land within the Upazila. Preference of species selection will depend on the local context and ownership of the trees will depend on the land ownership.

7.6.6 Development of Market Intelligence on TOF

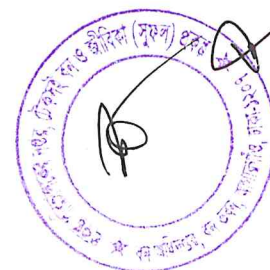
A survey will be undertaken on the demand-supply trends and projections for different timber/fruit species in the country based on which BFD will develop a program with private sector nursery owners to plan a systematic response to market demand for high value timber species. A survey of sawmilling and wood processing industry will be carried out to understand the technological and other constraints hampering the growth of this sector. By the third year of the project BFD will have a comprehensive database on nurseries and wood processing units to help farmers in the tree farming value chain.

7.7 Plantation activities in Hill and Plain land for focus on AIGAs

Some non-timber plantation activities will be implemented in the Hill and Plain land involving the forest dependent communities to generate income and improving forest ecosystem services. These are as follows.

7.7.1 Bamboo Plantation

Bamboo is recognized as a significant source of economic growth and for the improvement of socio-economic conditions of the rural poor. It is a low cost substitute of timber as a construction material and is used for a number of other purposes. Several species of bamboo grow both in the forests, particularly, in the hills as well as in the villages. Most houses in the villages have a bamboo stand. Bamboo is cultivated more extensively in villages in the northwestern regions than elsewhere in the country. Due to an increasing demand and over exploitation, the quality and quantity of the resource is alarmingly getting depleted.



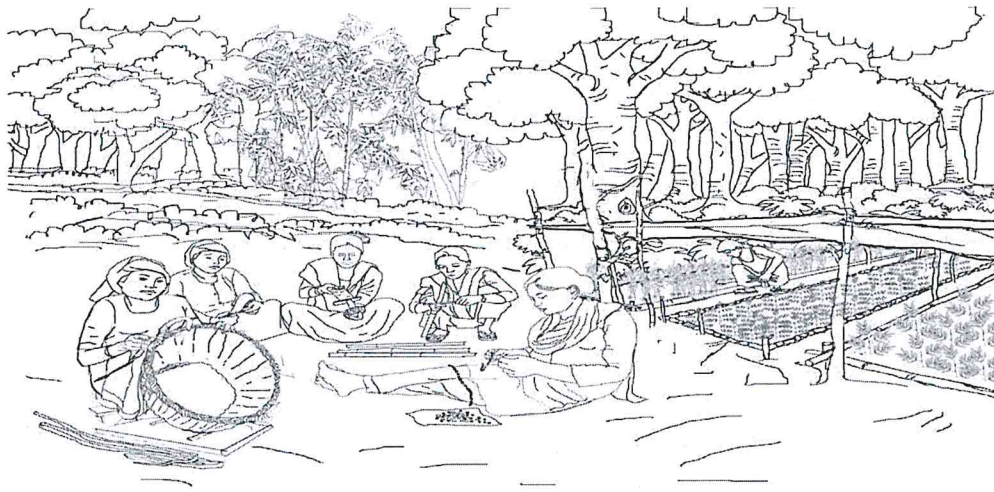


Figure 15: Bamboo based cottage industries

Bamboo gives quick returns, in three to seven years, and forms a source of recurring income. It grows well in moist and well drained soil where the water table is not close to the ground. As flowering of bamboo does not occur regularly, rhizomes are used to be the main source of planting materials. However, this practice is costlier and bulky when there is a need to be transported over a distance. However, it will be preferred option because it grows faster and returns starts accruing as early as at the end of third year. Techniques of planting by *Konchi-kolom* as planting material have been developed in the country and are used for raising bamboo clumps.

7.7.2 Murta Plantation(under planting)

Murta plantation will be one of the important interventions to improve the livelihood of the local community. The thin peel extracted as strands for weaving natural mats locally known as '*SheetalPati*' which has demand in local markets as well as outside the country. It takes 2-3 years to be ready for extraction and it generally attains a height of about 3 to 5 meter & collar-diameter of about 15 to 20 mm. Freshwater wetlands and swampy areas of Sylhet, Sunamgonj, Netrogkona, Tangail, Comilla, Feni and Chattogram are suitable for growing *Murta*. For raising *Murta* plantations, marginal, low-lying sites that retain fresh water for a longer period of the year, generally for about 9 or more months, to a depth of about one foot or so and are not suitable for agriculture, are selected.

7.7.3 Cane Plantation (under planting)

Cane plantation will be established in Hill Forest and Plain land Sal Forest as under planting. Cane is commercially known as '*rattan*' which is another important non-timber forest product (NTFP) and has a global demand. It is a climbing palm used extensively in furniture production. In recent years, the demand for rattan products

has increased considerably and there is ready market for rattan locally and this has resulted in its over exploitation. In Bangladesh seven species of cane has been reported to be growing. It grows both in forests and other localities. It grows in shaded areas and in the forests and forms an understory. Species suitable for plantation include Balla Beth, Jali Beth, Kesak Beth, Bara Beth. Golla Beth, which is the largest in size grows well in gentle slope as well as drained sandy soil. Bara beth grows in dry and degraded hilly areas and *Jali beth* grows in moist areas including sides of creeks and canals. Cane plantation will be raised both as understory in older plantations and natural forests and promotion of cane planting outside forests.

7.7.4 Medicinal Plant (under planting)

Medicinal herbs and shrubs will be planted in Hill Forest and Plain Land Sal Forest as under planting. A very large number of herbs and shrubs grow in Bangladesh, which has high medicinal value and are extensively used in traditional, unani, hakimi, ayurvedic and kabiraji medicine as well as in the cosmetic industry. In addition, these are also used as ingredients for different allopathic medicine in the country. Both the hill forest as well as the plain land sal forest are rich in medicinal plants. A taxonomic study by the Bangladesh Agricultural University has identified 124 medicinal plants of economic value from the sal forests alone.

The project plans to include a plantation component on growing important medicinal plants as an understory in suitable areas in the plain land forests. As it is a new initiative for the Forest Department, it will be useful to carry out a survey of the relative commercial demand of different species. This will help organize a market oriented plantation program and seedling production in nurseries. High demand medicinal species include bashak, bokphool, kalomegh, shotomuli, lemon grass, akond, kalodhatura, dhatura, golap jam, gritakumari, lazzabati, mehendi, mohabhingraj, shial kata, shorpogandha, tulshi and ulatkambal.

7.8. Training on Nursery Raising and Tissue Culture to Private Nursery Owners

Project will take a comprehensive program to build capacity among 2000 private nursery owners so that they can pursue modern nursery techniques and improve the quality of seedlings they produce. In addition, trainings will be arranged for them on tissue culture and recent techniques of vegetative propagation. 1000 Saw mill operators will also be trained so that they can operate more efficiently and also, reduce timber conversion loss during sawing.

