



Terminal Evaluation Report

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Community Based Adaptation to Climate Change through Coastal Afforestation in Bangladesh

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| Project title | <i>Community-based adaptation to climate change through coastal afforestation in Bangladesh</i> |
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| UNDP PIMS ID | 3873 |
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| Executing agency | Ministry of Environment and Forest |
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Abbreviations

| | |
|---------|--|
| ADR | Assessment of Development Reports |
| BCCRF | Bangladesh Climate Change Resilience Fund |
| BDT | Bangladesh taka |
| BFRI | Bangladesh Forest Research Institute |
| BWDB | Bangladesh Water Development Board |
| CBA | Community-Based Adaptation |
| CBACCAF | Community Based Adaptation to Climate Change through Coastal Afforestation |
| CNRS | Center for Natural Resource Studies |
| DAE | Department of Agriculture Extension |
| DLS | Department of Livestock Services |
| DoF | Department of Fisheries |
| EKN | Embassy of the Kingdom of the Netherlands |
| FD | Forest Department |
| GEF | Global Environmental Facility |
| GoB | Government of Bangladesh |
| IUCN | International Union for the Conservation of Nature |
| LDCF | Least Developed Country Fund |
| M&E | Monitoring and Evaluation |
| MoEF | Ministry of Environment and Forests |
| MoL | Ministry of Land |
| MTR | Midterm Review |
| NAPA | National Adaptation Program of Action |
| NGO | Non-government organization |
| NIM | National Implementation Modality |
| PIF | Project Identification Form |
| PMU | Project Management Unit |
| PIR | Project Implementation Report |

Executive summary

Project description

The project Community Based Adaptation to Climate Change through Coastal Afforestation (CBACCAF) was implemented between 2009 and 2015 with funding from the Least Developed Country Fund (LDCF) and the United Nations Development Program (UNDP), additional funding from the Swiss Agency for Development and Cooperation (SDC) and the Embassy of the Kingdom of the Netherlands, as well as in-kind contribution from the Government of the People's Republic of Bangladesh (GoB). The total budget amounted to 8,550,398 Dollars of the United States of America (USD), including GoB's in-kind contribution valued at 1,000,000 USD.

The project was implemented by the United Nations Development Program, as GEF agency and the Department of Forest (part of the Ministry of Environment and Forests), as national agency with the support of the Bangladesh Forest Research Institute, Department of Agricultural Extension¹, Department of Livestock Services and Department of Fisheries², as well as the Bangladesh Water Development Board and the Ministry of Land as implementing partners and members of the Project Board.

The project had a field component, implemented in coastal Upazilas (sub-districts) of the districts of Chittagong, Noakhali, Bhola and Borguna, and a policy and documentation components of national scope.

Terminal evaluation

The terminal evaluation of the CBACCAF project has been conducted by an independent team composed of one international consultant, with expertise in climate change adaptation and UNDP-GEF project cycle, and a national consultant, with expertise in agriculture, gender and policy. The evaluation team conducted visits to all project sites and interviewed ca. 200 participants, including national and local government officials, UNDP officials, project management unit's team members and representatives of beneficiary communities.

The terminal evaluation assessed five project dimensions: project formulation, project implementation, including monitoring and evaluation (M&E), relevance, effectiveness and efficiency of outcomes, i.e., the degree to which the outcomes addressed national and local priorities, the degree to which the project has achieved its targets and how cost-effectively has this been achieved.

The strategy

The project strategy is based on Bangladesh's National Adaptation Plan of Action, published in 2005, and on the conceptual framework that vulnerability of coastal populations to climate

¹ Ministry of Agriculture

² Ministry of Livestock and Fisheries

hazards is determined by their exposure, increased by environmental degradation and low adaptation capacity.

Thus, the project intended to help coastal dwellers increase their resilience by building up their natural, physical, human and social capital stocks, i.e. forest cover and associated ecosystem services, productive infrastructure and technology, as well as community-based associations. Moreover, this would have co-benefits, beyond adaptive capacity, including impacts on education, gender equality, as well as global environmental benefits, including enhancement of habitats for biodiversity and CO₂ sink.

Furthermore, a catalytic effect was sought by the inclusion of measures to feed experiences from the field back into the local and national policy framework, by making recommendations for policy making and documentation and dissemination of lessons learned.

Summary of main findings

- The project strategy was well formulated and its logic was sound and based on solid assumptions, corroborated by peer reviewed literature and Bangladesh official policy.
- Virtually all targets of the project outputs have been achieved or exceeded
- The project's management structures were reliable and responsive, and included participation of local and national government officials and an effective field management team
- Project impacts include significant income generation through improved agricultural production, land tenure for landless communities, ca. 90 km² of newly planted mangrove forest, as well as limited, but locally significant, increase in primary school enrolments
- Project impacts are sustainable at local scale, i.e. embankment communities of coastal unions of Bangladesh, and in the short term, i.e. 5 to 10 years. However, sustainability over larger timeframes and geographical scales will largely depend on **physical factors**, i.e. relative sea level changes determined by deltaic dynamics of accretion and erosion and global sea level rise, as well as **socio-political factors**, i.e. population dynamics and revenue streams for local government (which determine competition for land)
- The main risk to short term sustainability would be the occurrence of severe cyclones and associated floods within the next five years. While this is not unlikely, the ultimate effects on the project benefits would be determined by the presence/ absence of other resilience drivers such as microfinance schemes and sound disaster management.

Summary of conclusions, recommendations and lessons learned

Conclusions

The project logical framework is solid and consistent, i.e. with logical connection between outputs, effects (outcomes) and objective. However, while it is true that no major disturbance, natural or political hampered the progress of the project, the possibility of an extreme weather event, i.e. a severe tropical cyclone affecting project sites should have not been assumed away, as such events do hit coastal Bangladesh at least twice in a decade.

The project has been developed out of Bangladesh' explicit national priorities, as it was one of the priority actions cited in the country's National Adaptation Plan of Action submitted in 2005 to the UNFCCC.

Project implementation did not suffer any major setback and the governing bodies adequately supported the project implementation unit. In particular, both the implementing (UNDP) and executing (FD) agencies provided adequate and proactive support both in technical and administrative terms, thus enhancing significantly the performance of the project. Thus, administration of the project did not suffer any major backlogs, and was able to implement all its activities expending almost all funds of the GEF grant.

However, additional commitments amounting to over three million USD by the Swiss Development Cooperation Agency and the Embassy of the Kingdom of the Netherlands in 2012 (two years into project's implementation). The additional funds, motivated by the project's success had the effect of halting implementation for up to 10 months, while the administrative procedure of revision of the project document was concluded.

Moreover, the project's successful livelihood models have prompted a new LDCF grant (USD 5.7 million) for a project, *Integrating Community-Based Adaptation into Afforestation and Reforestation Program*, which, in coordination with the World Bank supported Climate Resilient Afforestation and Reforestation Project (USD 35 million) will upscale the mangrove-based coastal protection and agricultural models to ten unions in the districts of Noakhali, Patuakhali, Bhola and Pirojpur.

An important factor in the project's successful adaptive management was a robust monitoring and evaluation system, which was improved by suggestions made by the midterm review team. Monitoring was appropriate to local realities and was conducted, at least partially, as regular tasks of line government agencies. Moreover, the project has been very successful in engaging actors and stakeholders at different levels, from local government officials to international environmental and development organization. These successes are to be attributed not only to the general success of the implementation, but also to a well design and executed communication and awareness strategy.

Project outcomes have been found to be very relevant, both at national level (support of policy objectives) as at local level (support for livelihoods). Moreover, the project has been very effective in delivering its outputs and achieving the intended outcomes: significant increase of the surface of mangrove cover in the active delta (90 km²), significant improvements in household income, and local capacity, both in terms of awareness and adaptation process (local officials) and aqua and agricultural know-how (communities). Also the project analyzed relevant policies for the coastal zone (Land Use, Forest, Coastal and Environmental policies) and

submitted policy recommendations to enhance the climate resilience of said policies. Adoption of the recommendations submitted into the Forest Policy (systematic allocation of land to forest or agriculture use and widening of the forest reserves) is very likely.

However, actual implementation of the agricultural and plantation models at field level involved high transaction costs (research, negotiations) due to limitations in availability of appropriate land (newly accreted land).

Rates of investment return were very satisfactory ranging between 100% for ecosystem services (carbon sequestration) to 120% for agricultural models.

Financial sustainability of the agricultural models is likely in most project sites: even if some respondents are still far from self-reliance and expect further support to access agricultural inputs, most community respondents of the terminal evaluation manifested a high degree of confidence in the continuation and success of their models. Security of land tenure facilitated by the project plays an important role in the confidence shown by community members.

Although the influence of local power groups promoting encroachment in coastal forest and other anthropogenic threats to the forest, including firewood gathering and grazing are still present, relevant stakeholders, including the field offices of the Forest Department, communities and local government officials continue to support the project objectives and achievements. Moreover, the acquired know-how and individual capacities, together with the enabling policy framework also contributes to make sustainability of project benefits likely.

However, the likelihood of the occurrence of a major climatic disturbance, i.e. a severe or very strong tropical cyclone and the increase in population and coastal assets value (including the ones provided by the project) at the vulnerable coastal strip, and foreshore in particular, makes environmental sustainability less likely. A long-term strategy must be developed to reduce exposure of populations and assets to climate related hazards.

Nonetheless, the project impact will be likely significant in the midterm (less than 10 years) both in terms of increased adaptive capacity (increased household income, assets and school enrolment) and biodiversity and resilient of the coastal forest.

Recommendations

Recommendations by the terminal evaluation are focused on four issues: land availability and agreements for field activities, self-reliance of community beneficiaries, long-term strategy for coastal areas and research and monitoring of biodiversity.

1. Given the fact that suitable land availability is limited and to some degree contested among different state agencies, future projects should base project targets (in terms of hectares planted or conserved) on accurate field surveys or on percentages of available land. Formal agreements among relevant state agencies must be signed prior to begin of field implementation and followed up to ensure coordination among agencies at field level.
2. Individual households show difference in initiative, self-reliance, confidence and expectation. Project implementation units must be aware of this fact and encourage self-reliance by identifying “champions” among the community that can motivate

others, while being aware of the risk of widening pre-existing socio-economic or class gaps within the community. Also, projects must develop strategies for access of necessary inputs, e.g. fertilizers or fish feeds and test or implement low cost alternative such as organic fertilizers or integrated pest management when feasible.

3. Circa 9,000 coastal households have benefited from project demonstrations and at least 900 have significantly increased their income and thus their adaptive capacity and resilient. However, their success is based on a climate-sensitive, exposed activity. Therefore, a long-term strategy for the coastal strip must include education programs and promotion of off-farm jobs and resettlement politics and development plan that reduce exposure of settlement and infrastructure to climate-related hazards.
4. Research and monitoring of the expected increase in biodiversity (other than mangrove diversity) and resilience of a more species diverse and spatially complex ecosystem must be encouraged and facilitated by the relevant state agencies, namely Forest Department, Forest Research Institute and Local Government.

Lessons learned

The success of the project was based on four drivers:

1. Appropriate governing structures that included all relevant stakeholders, at both national and local level.
2. Empowered, project management unit (PMU) i.e. supported by implementing and executing agency and leadership and technical skills by project manager and PMU staff.
3. Detail and thorough monitoring and effective reporting of monitoring data, in terms of project data (financial expenditure and indicator framework), as well as beneficiary and biophysical data.
4. Proactive involvement of communities in the management of natural resources, as long as they are being supported with livelihood alternative that allow them to abandon, or at least decrease, activities detrimental to ecosystem functions that provide critical services, coastal protection in this case.

Evaluation rating table

| Criteria | Rating | Justification |
|---|-----------|--|
| Monitoring and evaluation | | |
| Overall quality of M&E | S | Excellent data collection and data management. Monitoring and evaluation findings, e.g. from the MTR incorporated into project work plans |
| M&E design | S | Some deficiencies in the project's indicator framework were corrected after the midterm review |
| M&E plan implementation | HS | The project efficiently and systematically recorded and managed relevant information on progress of activities |
| IA & EA execution | | |
| Overall quality of project implementation | S | Implementing and executing agencies provided adequate support to a highly motivated and empowered PMU |
| Implementing agency performance | S | UNDP provided sufficient technical, administrative and risk management support throughout the project implementation timeframe |
| Executing agency performance | S | Forest Department effectively participated in the management structures and ensure cooperation at field level |
| Outcomes | | |
| Overall quality of project outcomes | | |
| Relevance | R | Project strategy is an explicit action of Bangladesh NAPA |
| Effectiveness | HS | All outcome targets achieved, with the exception of "adoption of policy measures" for all four policies reviewed. Adoption of policy recommendations is beyond the control of the project. However, adoption of recommendation for forest policy, administered by the executing agency is virtually certain. |
| Efficiency | HS | Project delivered outputs within expected timeframe; Excellent benefit-cost ratio, i.e. ratio of project benefits (household income and environmental benefits to investment (project expenditure). |
| Sustainability | | |
| Overall sustainability | ML | 5-10 years' sustainability likely <u>in absence of major disturbances</u> , due to land tenure security, local government support and accretion/ erosion ratio consistently more than one |
| Financial sustainability | L | Midterm sustainability warranted through donor support, including the LDCF project ID 5636 and interest by the Forest Department in continuing afforestation efforts through social forestry schemes |
| Socio-economic sustainability | L | Local government and Forest Department support high, as long as revenue streams for said organizations not affected (i.e., interference with land lease by local government). Risks also include population growth by natural regeneration and emigration from eroded chars |
| Institutional sustainability | L | Inclusion of the project's recommendations into the national forest policy (and others) could reinforce this dimension, but the required legal instruments and know-how is already in place |
| Environmental sustainability | ML | Moderate likelihood of a major disturbance that would severely damage productive infrastructure and provoke population changes. |
| Impact | | |
| Environmental status improvement | S | Increase in forest cover over 96 sq. km, with very likely positive effects on biodiversity and certain increase in CO2 capture (241 Mt CO2 annually) |
| Environmental stress reduction | S | Land tenure and improved livelihoods have reduced dependence of landless population (at embankments) from forest products to some degree |

For rating scales and definitions please refer to [annex 4](#).

1. Introduction

1.1. Evaluation purpose

Terminal evaluations for UNDP-supported GEF-financed projects are mandatory, unbiased, independent assessments of the relevance, effectiveness efficiency and of a project in achieving its intended results, as well as unintended results, performance of the project partners and the sustainability of outputs as contributions to medium-term and longer-term outcomes (UNDP, 2012) (GEF, 2008)

The purpose of the terminal evaluation of a UNDP-GEF project is to promote accountability and transparency by assessing and disclosing the extent of project accomplishments, and, more importantly, to synthesize lessons that can help to improve the selection, design and implementation of future GEF financed UNDP activities.(UNDP, 2012)

1.2. Ethics

The evaluation has been conducted according to the United Nations Evaluation Group's Code of Conduct for Evaluators, as required by the UNDP and GEF evaluation policies and guidelines. The code of conduct includes the evaluator's duties to preserve anonymity of primary sources, treat all stakeholders with respect and dignity both at gathering information and communicating results, and to disclose all findings, including scope or methodological limitations (UNEG, 2008).

A code of conduct signed by the evaluation team members is attached to this report as [annex 5](#).

1.3. Methodology of the evaluation

The terminal evaluation (TE) was conducted in December 2015 by a team of independent consultants: an international consultant with expertise in the GEF project cycle and climate change adaptation and a national consultant with expertise in gender, agriculture and policy.

The TE is thus an independent assessment of the project formulation, implementation, results, impacts and sustainability as defined by the UNDP-GEF guidance for terminal evaluations. Additionally, some aspects of project implementation (agency performance and monitoring and evaluation), as well as results (based on their relevance, effectiveness and efficiency) and sustainability (opposite of likelihood of risks affecting continuity of project benefits) are rated according to standard tables described in [annex 6](#).

Project formulation is analyzed for the quality of the formulation of results (compliance with SMART³ criteria) and country ownership, i.e. participation of national government and non-government officials in the identification and preparation of the project.

³ Specific, Measurable, Attainable, Relevant and Time-bound as defined in the UNDP Handbook on planning monitoring and evaluating for development results.

Project implementation examines the financial disbursements, including co-finance and administrative controls, including audits, communication strategies, as well as, more importantly agency performance. The assessment of agency performance, both for implementing, i.e. UNDP and executing, i.e. Forest Department, is based on the quality of administrative, technical and risk management support, as well as country ownership for the national implementing/ executing agency.

Project results are assessed against the criteria of **relevance, effectiveness and efficiency**:

- **Relevance** is a measure of the importance of the project outcomes and objective to the needs and challenges faced by vulnerable coastal people of Bangladesh and the policy responses to climate change and vulnerability at national level.
- **Effectiveness** is the degree to which the project has achieved the expected outcomes, measured by the indicators of the logical framework analysis.
- **Efficiency** is a measure of how cost-effectively was the project implementation. Following UNDP-GEF guidance, cost-effective factors include the compliance with cost incremental criteria and securing committed co-funding, completion of outputs and achievement of outcomes within the expected timeframe and budgetary constraints and/ or benefit-cost ratio compared with similar projects. The TE opted for the two first criteria, as there was not available data for a meaningful comparison with other forestry/ agricultural projects.

Impact measures the changes caused by or attributed to the project in terms of reductions of vulnerability and environmental benefits. In the case of the TE the values used were adaptation capacity for vulnerability and extent of natural habitats and carbon sequestration services for environmental benefits.

Sustainability rates the opposite of the likelihood of realization of financial, socio-economic, institutional and environmental risks for the continuation of project benefits, defined here as the impacts of the project.

- **Financial risks:** the risk that project benefits will not continue after the end of the project due to financial constraints, either public or private.
- **Socio-economic risks:** the risk that project benefits will not be sustained due to lack of know-how or enabling policy or regulatory framework.
- **Institutional risks:** the risk that it will not be in the interest of relevant stakeholders to sustain project benefits.
- **Environmental risks:** the risks that environmental factors (biodiversity loss, habitat destruction, subsidence), or their drivers (population, technology, affluence, climate change) will negate project benefits.

The terminal evaluation has followed the guidance issued by UNDP and GEF for the conduct of terminal evaluations and has therefore triangulated information from primary sources, by means of field visits and interviews with project stakeholders and beneficiaries, as well as secondary sources, including all documentation produced by the project, as well a peer review and grey literature.

Project stakeholders included representatives of the implementing agency, UNDP, officials of the executing agency, the Forest Department, as well as two of the other implementing

partners, the Department of Agricultural Extension (DAE) and Department of Livestock Services (DLS). Moreover, local government officials at district and Upazila, as well as representatives of the household beneficiaries were interviewed at all project sites. Qualitative methods were used for the collection of primary information: semi-structured interviews for officials and focus group discussions for project beneficiaries. Documentation reviewed included project reports, particularly Project Implementation Reports (PIR), financial documents, minutes of Project Board meetings, as well as policy documents and peer reviewed literature.

The mission itinerary and list of persons interviewed, as well as documents consulted can be found at [annexes 1](#) and [2](#) respectively.

To enable collection of information and interviews with local government officials and beneficiaries an evaluation mission was conducted between the December the 2nd and 15th. All five project sites were visited.

Representatives from project beneficiaries, i.e. communities residing at the outer embankment at all project sites were interviewed by focus group discussions, included women. Discussions were led and moderated by the national consultant in Bengali. Table 1 summarizes the number of respondents and their location.

Staff of the project management unit and government officials from the Forest Department were present in all interviews with community members. Although this should normally be avoided (UNDP, 2012), in this case, the trust developed between the project implementing partners and the communities made it advisable that the evaluation team were accompanied at all times by said officials to allow a more effective interaction, which would not have taken place were the communities left alone with total strangers, as was the case of the evaluation team.

This report has been reviewed by the project implementation team and the UNDP. Comments made have been answered and, in most cases, incorporated into the report. Details can be found in [annex 8](#).

Limitations of the TE

1. The allocated time for field visits limited the interaction with representatives of the four communities to group interviews of ca. one hour. This limited the interaction to the confirmation of basic data on project benefits and sharing of the perspective of the most outspoken community members. However, efforts were made to encourage participation of all participants, particularly women.
2. The TE team was not in control of the number of participants attending the community groups, as these were convened by the project and executing agency staff. Again this is due to both the limited time allocated for field interviews and, more importantly, the time availability of community members, as people have other, more important commitments. Thus, it is very likely that attendance was partially motivated by interest in expressing their views by the most outspoken members of the community.
3. Field visits were also constrained by security concerns by the UNDSS, particularly regarding the international consultant. This meant limitations in the time allocated to field visits, by preventing overnight stays at most locations.

4. Comparison of cost-effectiveness in terms of benefit-cost ratios was not possible due to the lack of available data from other forestry/ agricultural projects implementing by other multilateral agencies, especially World Bank and ADB; although both agencies make their project completion reports and evaluation reports public and accessible through their web sites, the level of data aggregation prevented comparison.

Table 1. Beneficiary households and interviewees

| Project site ⁴ | Interviewed (household representatives) | Direct beneficiaries ⁵ (households) | % interviewed |
|---|---|---|---------------|
| Naltona (Barguna Sadar, Borguna) | 30 | 216 | 24 |
| Jahajmara (Hatiya, Noakhali) | 70 | 272 | 30 |
| Raipur (Anwara, Chittagong) | 25 | 256 | 29 |
| Char Kukri-Mukri (Char Fasson,Bhola) | 33 | 152 | 17 |
| Total | 158 | 896 | |

⁴ Union name (Upazila, District)

⁵ Beneficiaries of a long-term lease agreement and aquaculture-forestry-livestock and agriculture

2. Project description

2.1. Problems the project sought to address

The project Community-Based Afforestation to Climate Change through Coastal Afforestation is one 15 adaptation strategies included in Bangladesh's National Adaptation Program of Action (NAPA) of 2005. In fact, coastal afforestation as means of coastal protection has a long tradition in Bangladesh, which has created a virtual green wall along many areas of the active Ganges-Brahmaputra-Meghna delta, i.e. East of the Sundarbans to Chittagong. The successive coastal afforestation programs were based on the observed protection that the massive natural Sundarbans mangrove forest granted to Bangladesh Western districts. Thus, coastal afforestation started around 1966 and had reached 1,700 km² by 2008, undertaken by Bangladesh's Department of Forest, with international support from the World Bank and Asian Development Bank. At the same time, Bangladesh, also with the support of international donors, started a program to protect coastal agricultural land from saline water intrusion through an elaborated network of embankments, effectively creating a network of polders, covering a surface of over 12,000 km², mostly planted with high yield rice varieties that increased yields by 200-300%.

Coastal polders, embankments and coastal forests were developed through an iterative, trial-and-error process that enabled solving of the many problems encountered along the way, including appropriate mix of mangrove species, drainage problems associated with the building and maintenance of embankments and degradation of newly planted forest due to overexploitation. These challenges were answered by establishing standard afforestation guidelines involving pioneer species such as *Sonneratia apetala* and *Avecinnia officinalis*, adoption of tidal river management practices, afforestation with non-mangrove species along the embankments and development and enactment of instruments for benefit-sharing with coastal communities (social forestry rules).

However, as the project was being developed from its NAPA concept, some challenges affecting communities on coastal areas remained unchallenged:

- Monospecific stands of *Sonneratia apetala* were vulnerable to borer attacks and high mortality of young trees, leading to important gaps in the structure of the plantations, thus reducing the effectiveness of the coastal protection service provided by them.
- Landless communities, many of them refugees from eroded areas upstream, survive on seasonal fishing and build their settlements at the outer slopes of the embankment (foreshore), encroaching on forest land (public or *khas* land under the jurisdiction of the forest department, but not necessarily covered in trees).

Landless communities were thus confronted by a highly vulnerable and insufficient livelihood and exposure to cyclones and storm surges. Also, they were exposed to exploitation by well-connected local groups that would extort payments in exchange for the "right" to encroach public land. Moreover, encroachment of forest land also led to further degradation of the coastal forest and further loss of its effectiveness as a barrier against cyclonic winds.

Thus, the project strategy intended to strengthen the coastal forest by improving afforestation techniques, hence reducing communities' exposure to climate hazards, as well as to diversified and improved coastal livelihoods, to increase adaptive capacity, and reduce stresses on coastal forests.

The design of the strategy benefited from lessons learned from the implementation of several forestry projects implemented in Bangladesh during the last decade, such as the Coastal Greenbelt project or the Char Development and Settlement program. Lessons learned stressed the need for livelihood development and strong participation and empowerment of beneficiary communities.

2.2. Start and duration

The project concept was developed on the years 2006-07, and the Project Identification Form (PIF) was approved by the GEF council in May 2007. A project preparation grant (PPG) of USD 100,000 was used to develop the full project document, which was submitted and approved in 2007 and finally endorsed in December 2008.

Implementation started in 2009, with a timeframe of four years, i.e. 2009-2013. However, the final closure of the project did not occur till March 2015. The delay was mostly due to the process of revision of the project document after commitment of additional funds by two different development agencies in 2012.

2.3. Total resources allocated

The project final total budget amounted to 8,550,398 USD, including a 3,300,000 USD grant from the Least Developed Country Fund (LDCF), as well as co-funding from the UNDP out of its core funds amounting to 1,100,000 USD. The Government of Bangladesh, through its Department of Forest provided an in-kind contribution valued at 1,000,000 USD.

Additional grants were secured in 2012 from the Swiss Agency for Development and Cooperation (SDC) and the Embassy of the Kingdom of the Netherlands (EKN) that amounted to 2,170,000 and 980,398 USD respectively.

2.4. Implementation arrangements

The project was implemented by the UNDP, which provided administrative and technical support, under its national modality of implementation, with the Department of Forest as executing and responsible agency. Other implementing partners included the Department of Agricultural Extension, Bangladesh Forest Research Institute, the Department of Fisheries and the Department of Livestock Services, Ministry of Land and Bangladesh Water Development Board, which, together with the Forest Department formed the Project Board. Also the International Union for the Conservation of Nature (IUCN), the Center for Natural Resource

Studies (CNRS), Participatory Management Initiative for Development (PMID) and the Bangladesh Centre for Advanced Studies (BCAS) participated in different project activities.

2.5. Description of field sites

The coastal zone of Bangladesh comprises 47,201 km², 19 districts and 147 Upazilas with a total population of 38 million people, or 28% of the total population, mostly rural dwellers. In 1998, 52% and 24% of the population of the coastal zone was classed as poor and extremely poor respectively. Small farmers and artisan fishers together form approximately 69% of coastal population. At least 30% of the coastal population is landless.

About 12 million people live in the exposed coast, i.e., Upazilas (sub-districts) exposed to the sea including chars (newly accreted land) and offshore islands. The coastal zone is projected to sustain more than 60 million people by 2050.

Specific site selection was conducted during the project preparation grant (PPG) stage of the project, based on expert opinion collected from the Forest Department, Bangladesh Forest Research Institute officials, the Center for Environmental and Geographic Information Services (CEGIS), CNRS, BCAS and local NGOs. For each site, a detailed survey was commissioned by the project with the purpose of selecting specific location for productive infrastructure, forestry and other activities, as well as the direct beneficiaries of said activities.

Project sites are fairly similar to each other, and also represent well a typical union of Bangladesh's coastal fringe, in terms of climate, climate hazards, exposure and poverty levels. The main livelihood at all sites is agriculture, although seasonal sea fishing retains some importance.

Figure 1. Exposure of the coastal zone of Bangladesh to climate hazards (BMD; CEGIS, 2011).

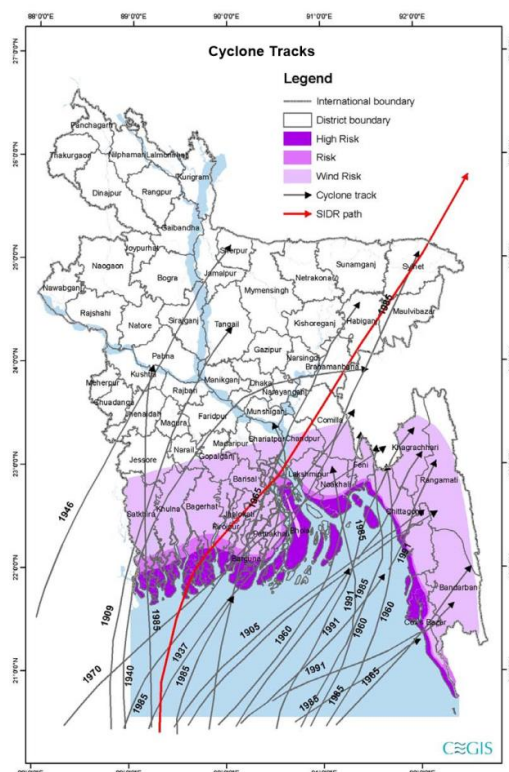
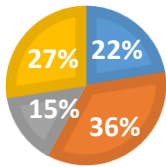
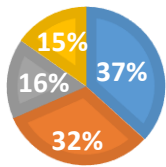
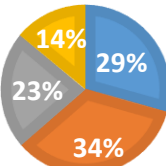
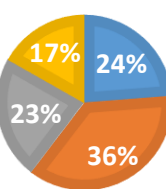


Table 2. Basic data of project sites

| Site | Population ⁶ (households) | Occupation ⁷ | Direct beneficiaries ⁸ |
|--|---|--|--------------------------------------|
| Char Kukri Mukri (Char Fasson, Bhola) | 2,070 | <div> <div>Unemployed</div> <div>Household work</div> <div>Agriculture</div> <div>Othes</div> </div>  | 1622 |
| Roypur (Anwara, Chittagong) | 5,022 | <div> <div>Unemployed</div> <div>Household work</div> <div>Agriculture</div> <div>Other</div> </div>  | 1550 |
| Sukchar and Burichar (Hatiya, Noakhali) | 3,960 | <div> <div>Unemployed</div> <div>Household work</div> <div>Agriculture</div> <div>Other</div> </div>  | 1631 |
| Naltona (Barguna Sadar, Borguna) | 4,069 | <div> <div>Unemployed</div> <div>Household work</div> <div>Agriculture</div> <div>Other</div> </div>  | 1621 |

⁶ IUCN (2011) Adaptation Management Plans⁷ IUCN (2011) Adaptation Management Plans⁸ Al-Hussainy (2015) Field Notes, PMU (2016) List of Beneficiaries

3. Findings

3.1. Project formulation

3.1.1. Logical framework analysis:

Finding 1: The project results included four outcomes articulated in 16 outputs. Results are well formulated, i.e. they use change language and are consistent with SMART criteria.

Table 3. Project strategy

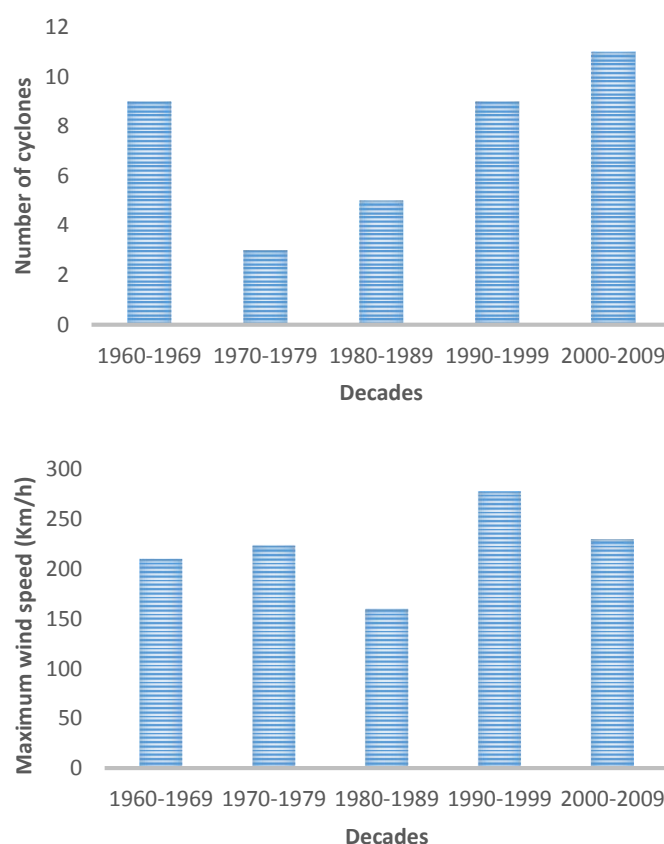
| Outputs | Outcomes | Objective |
|---|---|---|
| Community based adaptation initiatives (CBA management plans) defined for 4 Upazilas | Enhanced resilience of vulnerable coastal communities and protective systems to climate risks | to reduce vulnerability of coastal communities to the impacts of climate change-induced risks in four upazilas in coastal districts |
| Climate resilient and community-based coastal afforestation measure implemented | | |
| Climate resilient livelihood options enabled and promoted | | |
| Warning communications for extreme events improved | | |
| National planners and policy makers trained in climate-resilient coastal development | Climate risk reduction measures incorporated into coastal area management frameworks | |
| District officials trained in facilitating community-based adaptation | | |
| Upazila officials trained in promoting and facilitating local climate risk resilience | | |
| Union officials and community-based organizations trained in climate risk reduction | | |
| Community awareness campaign on climate risk and community-based adaptation defined and implemented | | |
| Policy effects on livelihood resilience analyzed and policy recommendation developed | National policies revised to increase climate risk resilience of coastal communities | |
| Land use policies promote sustainability of protective system in coastal areas | | |
| Coordination mechanism for climate-resilient policy development and coastal planning establishments | | |
| Coordination mechanism for climate-resilient policy development and coastal planning established | | |
| Project lessons captured in, and disseminated through the adaptation learning mechanism | Learning, evaluation and adaptive management enhanced | |
| Project knowledge shared with other regions and countries facing climate-induced coastal hazards | | |
| Project knowledge incorporated into other coastal afforestation livelihoods programs in Bangladesh | | |

Finding 2. The project document does not specify risks or mitigation strategies but rather understands as risks the probability of its assumptions not being valid. In this sense, the project design basically makes two implicit assumptions that would ensure a stable scenario for the implementation of the project:

1. Absence of major meteorological disturbances
2. Absence of major political disruption, i.e. standard law and order and support by the main stakeholders of the project

Conclusion 1. While it is true that no major disturbance, natural or political hampered the progress of the project, the possibility of an extreme weather event, i.e. a severe tropical cyclone affecting project sites should have not been assumed away, as such events do hit coastal Bangladesh at least twice in a decade (figure 2). Moreover, while it is indeed sound to assume the continuous support by the project stakeholders, particularly the national implementing agency, the project could have identified local conflict over jurisdiction or with local vested interest as a risk, and had a corresponding mitigating strategy ready. In fact, availability of land for the implementation of the adaptation measures included in the project did become an issue that involve significant transaction and costs in terms of time invested by the project management unit team to locate and negotiate its lease.

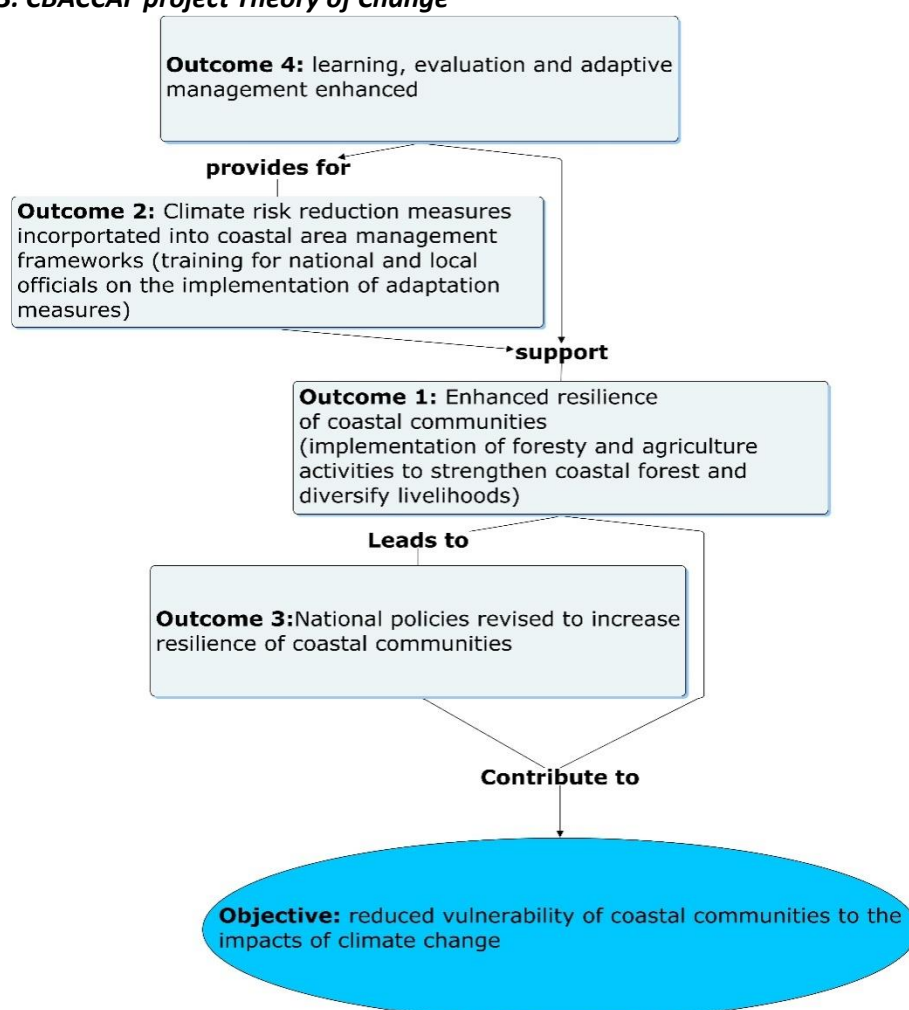
Figure 2. Number and severity of tropical cyclones hitting coastal Bangladesh in the last 5 decades. A severe tropical storm has peak winds over 165 km/h (IUCN, 2011).



Finding 3. The project incorporated numerous lessons learned from past projects, including the series of World Bank and ADB supported forestry projects, including the Forestry Sector Project (1997-2006), Forest Resources Management Project (1992-2001), Extended Forest Resources Management Project (2002-2004), and the Coastal Greenbelt Project (1995-2002), as well as Red Cross supported Community-Based Disaster Preparedness Program. The Forestry Sector Project is of particular relevance, as it paved the way for the introduction of the Social Forestry Rules of 2004 that regulate benefit sharing between communities and Forest Department on joint management forestry undertakings. The main lesson learned out of these projects can be summarized in: a) the importance of forestry for coastal protection and, more importantly, b) the necessity of empowering and strongly involving local communities in the management of the coastal forests.

Finding 4. The project logic revolves around outcome 1, which involved the design and implementation of particular adaptation measures, basically improved afforestation methods and enhanced livelihood options. Outcome 3, should collect lessons learned from the field and revise and suggest modifications to the main government policies affecting the coastal areas, namely Land Use Policy (2001), Forest Policy (1994), Coastal Zone Policy (2005) and Environmental Policy (1992). Outcome 2 and 4 would be ‘support’ outcomes providing training for national and local officials, and documenting and disseminating lessons learned from this project.

Figure 3. CBACCAF project Theory of Change



Finding 5. The Midterm review found some outputs of the project, namely output 1.4, *Warning, communications for extreme climate events improved*, output 2.1, *National planners and policy makers trained in climate resilient coastal development* and output 3.1 *Land use policies promote sustainability of protective systems in coastal areas*, to be too ambitious or not relevant enough for the project. Thus, the project board dropped output 1.4 and modified the targets for output 2.1 and 3.1, in line with the recommendations of the Midterm review.

Finding 6. Outcome 3 assumes modification of policies to include climate-related risks and support increased resilience of coastal communities will occur within the project's implementation timeframe. However, modification of policy follows an established, due procedure that is out of the control of the project.

Conclusion 2. the project logic is solid and consistent. Realization of the project's effects (outcomes) will necessarily lead to the objective, provided project assumptions hold true. Of course, the project can only submit suggestions for policy modification and will have no power to control if and when policy reforms are effected. However, given the fact that the project is being implemented by the Forest Department, in close coordination with other relevant ministries for the coastal zone⁹, it would be, a priori, safe to assume that such policy recommendations would be seriously considered and would have a fair chance of being incorporated into the policy framework, IF, the adaptation measures of outcome 1 are indeed successful.

3.1.2. Country ownership

Finding 7. The project does indeed address country priorities as they are explicitly stated in the National Adaptation Plan of Action (2005) that originated this project. Moreover, protection of the coastal zone against meteorological hazards it is a stated goal of several important recent policy documents such as the Sixth Five Year Plan (2011-2015), and the Bangladesh Climate Change Strategy and Action Plan (2009).

Finding 8. National officials either working with the UN system or with the national government actively participated in identification of the project concept, the development of the project document and the final implementation of the project.

3.1.3. Partnership/ management arrangements

Finding 9. All stakeholders are included in the governance structures of the project. Thus, at the national project board level, Directors of the main implementation partners, namely the Department of Livestock Services, the Department of Agricultural Extension and the Bangladesh Forest Research Institute were all deputy project directors, with the position of national project director reserved for the chief conservator of forest of the responsible agency-the Forest Department. Also represented on the project board were representatives from the UNDP, civil society organizations, and district commissioners.

⁹including the Ministry of Agriculture, the Ministry of Fisheries and Livestock and the Ministry of Land (through the district commissioners at field level)

Finding 10. The project governance structures were replicated at district and Upazila level as co-management committees, with participation of the beneficiary communities.

Finding 11. Project activities were mostly within the mission and capacities of the participating agencies, as it meant an extension of activities already being conducted by them. For the 'extra mile' activities, namely the active involvement of communities and the climate-proofing of national policies, the project provided its own experts, either members of the project management unit, or external experts for specific activities.

Finding 13. The four years provided for the implementation of the project would have been enough for the completion of the activities, assuming the absence of major climate-related emergencies. The fact that the actual implementation of the project exceeded the allocated timeframe is mostly related to administrative processes arising from the additional funding mobilized by the project, which will be discussed in the next section of this report.

Finding 14. Project activities were covered under the current legal framework for the project period: forest land for afforestation purposes under the Social Forestry Rules (2004) and implementation of afforestation trials and support for livelihood options under the operational plans of the Bangladesh Forest Research Institute and the Department of Agricultural Extension and the Department of Livestock Services respectively.

Finding 15. The allocation of forest land to communities for agricultural purposes fell into a grey zone and actual allocation involved significant efforts in negotiation and research by the project management unit.

Conclusion 3. The project originated in an explicit adaptation measure included in the country's National Adaptation Plan of Action submitted in 2005 to the UNFCCC. Although the development of the project document was led by the UNDP, the national government was also proactively involved and committed during the PIF and PPG stages, and adequate preparations and arrangements for the project's implementation were made in the preparation phase.

3.2. Project implementation

3.2.1. Project level monitoring and evaluation systems

Finding 1. The project logical framework included one or two indicators per outcome, with a total of 5, as well as two indicators for the project's objective. Moreover, all of the outputs of the project strategy had an associated indicator that tallied the delivery of said output.

Finding 2. The project's original indicator framework corresponded with SMART criteria for indicators, i.e. indicators were specific, measurable, attainable, relevant and time-bound and each counted with an appropriate baseline and achievable target. However, the midterm review (MTR) found some weaknesses at some of the indicators at outcome level and suggested changes, which aligned the indicators better with the project strategy and hence helped measure progress better (Table 4). All suggestions of the MTR were accepted, thus improving the quality of the original design and enhancing the value of the indicators for adaptive management.

Finding 3. The project document included a description of the means of verification for the indicators, as well as explicitly assigned monitoring responsibilities to the project manager. Indeed, monitoring of a vast amount of variables including hectares of different afforestation methods, income generation and others were carefully tallied, recorded and documented by the project management unit.

Finding 4. Moreover, as evidenced by the acceptance of the modification suggested by the MTR, monitoring played a central role in the management of the project and results from monitoring activities prompted action by the management unit and governance bodies.

Finding 5. Monitoring of specific forestry activities were also undertaken as part of regular monitoring processes by the Department of Forest and the Bangladesh Forest Research Institute. Moreover, both organization have the mandate and would normally have the means to continue monitoring of newly planted forestry plots in the future. A third party evaluation of coastal afforestation through GIS mapping has also been conducted by the UNDP in 2014. However, future monitoring of agricultural activities and income generation would not continue, as this was an undertaking of the project management unit.

Conclusion 1. The project counted with a robust monitoring and evaluation system, which was improved by suggestions made by the midterm review team. Monitoring was appropriate to local realities and was conducted, at least partially, as regular tasks of line government agencies. Actual project monitoring was conducted seriously and professionally and monitoring results played an important role in managing the project. Therefore, the terminal evaluation rates design, actual implementation and overall quality of the project's monitoring and evaluation system as highly satisfactory

Table 4. Indicator framework and modifications

| Project document | | MTR modification | |
|--|---|---|---|
| Indicator | Target | Indicator | Target |
| Number of households that have increased adaptive capacity to climate change-induced risks in targeted coastal districts | 80% of households able to anticipate climate risks and select the most effective risk reduction option 75% of Ministry of Land (MoL), and Ministry of Environment and Forests (MoEF) officials and coastal management planners are able to identify climate-induced risks in coastal areas and are capable of prioritizing planning and implementing effective adaptation measures with the involvement of communities | NA | NA |
| Percentage of locally designed, sustainable adaptation measures demonstrating effectiveness in reducing climate vulnerability | 80% of the adaptation measures employed by the project demonstrate their effectiveness and sustainability in reducing climate vulnerability in coastal communities | Percentage of satisfactory performance of the Afforestation (plantation survival and growth) and Livelihood measures (increased food security, incomes and income diversification) of the project beneficiaries | >90% of the afforestation areas are assessed as effective and sustainable in post-plantation surveys >80% of the households participating in the project have increased food security and income to adapt to climate risks |
| Percentage of national planners, district authorities, and communities able to identify climate risks and prioritize, plan and implement effective adaptation measures | 75% of MoL and MoEF civil servants at the national level and in targeted districts are able to identify climate risks and prioritize, plan and implement measures for adaptation in coastal areas | Percentage of unions, Upazilas and districts in the project sites that have plans and programs/budgets to address climate change risks | >75% of local authorities in the project sites have adopted or strengthened plans and strategies to address climate change >50% of the local authorities are implementing afforestation and livelihood support measures in the inundation zone (between coastal forest and embankment) |

| Project document | | MTR modification | |
|---|---|---|--|
| Indicator | Target | Indicator | Target |
| <p>Number of policies and government action plans that support climate resilient development</p> <p>Percentage of civil servants reporting that policies have been revised to improve climate resilience in coastal communities</p> | <p>2 national policies or action plans on coastal management and 2 on land use are revised to promote sustainable, climate resilient development</p> <p>75% of national-level civil servants in the MoL and MoEF report that the policies of those ministries have been adjusted to improve climate resilience in coastal communities</p> | <p>Specific policies have been adopted in support of the project's adaptation measures</p> | <p>Policies are adopted to support designation of land for community-based reclamation, model plantation practices and the implementation of co-management processes</p> |
| <p>Number of proposals, papers, and other documents that incorporate learning from the project</p> | <p>By the end of the project, at least 4 proposed or on-going coastal afforestation, or CBA programs draw on lessons and knowledge generated through the project</p> | <p>Introduction of new adaptation measures and guidance as a result of learning exercises from the current project</p> <p>Number and area of replication of the project's adaptation measures</p> | <p>>Adaptation measures piloted by the project are consistently modified and/or further improved, based on project experiences</p> <p>>All of the local authorities in the vicinity of the project sites have implemented some of the piloted adaptation measures outside of the project sites</p> |

3.2.2. Management arrangements

GEF Partner Agency (UNDP) execution

Finding 6. The GEF implementing agency, the United Nations Development Program (UNDP) did provide the project with adequate administrative and technical support, proactively managing risks and taking keen interest in the good performance of the project.

Finding 7. However, the project was delayed by the government administrative procedure associated with the modification of the project document due to the addition of 3,150,398 USD to the project budget by the Swiss Agency for Development and Cooperation (SDC) and the Embassy of the Kingdom of the Netherlands (EKN). Ironically, although this supposed almost a doubling of the original GEF grant, it caused a halt to project operations till the amendment to the project document could be duly authorized by the national authorities. During this period, which lasted almost 10 months, the UNDP ensure the continuation of basic operations, e.g. keeping the PMU staff, with their own core funds.

Executing Agency/Implementing Partner's execution

Finding 8. The Ministry of Environment and Forest, through its Forest Department acted as the national implementing agency for the project, under UNDP's National Implementation Modality (NIM). The project was very much aligned with the Department's own mandate and goals and thus the project counted with sufficient administrative and technical support both at national and field levels. The project management unit was located at the Department's headquarters in Dhaka.

Finding 9. However, actual allocation of forest land for the project's agricultural activities, as well as some of the innovative afforestation methods involved a significant amount of research and negotiation by the project management unit with the local branches of the Forest Department. This is related to the traditional approach by forestry officials to perceived encroachment of landless people into forest land.

Finding 10. The other main national implementing agencies, the Department of Agricultural Extension (DAE), the Department of Livestock Services (DLS), and the Bangladesh Forest Research Institute (BFRI) participated at high level in the project's governance structures, obtaining each a slot as deputy project director. Each of the aforementioned agencies played specific roles and activities in the project in line with their expertise, under the leadership and coordination of the national project director, from the Ministry of Environment and Forest. The Ministry of Land and the Bangladesh Water Development Board participated in the project board.

Conclusion 2. Both the implementing (UNDP) and executing (FD) agencies provided adequate and proactive support both in technical and administrative terms, thus enhancing significantly the performance of the project. Therefore, the terminal evaluation rates both agencies' performance as highly satisfactory. However, a better coordination at field level could have avoided the significant transaction costs involved in actual allocation of land plots for the project's agricultural activities.

Recommendation. Develop a formal agreement with the Forest Department for the systematic assignment of plots within forest land, specifically in the land between the embankment and the coastal forest. Particularly, such agreement should specify conditions to be met by beneficiaries, the tenure arrangements and a maximum amount of territory per union to be allocated to said activities. However, given the significant differences in ecological and hydrological conditions at different sites, any limit set would need to have sufficient flexibility to avoid imposing centrally design measures to a local environment for which they may not be adequate.

Stakeholder engagement

Finding 11. At local level, i.e., Union, Upazila and District level, local government officials were well aware of the project and were supportive of its objectives. In fact, union officials cooperated with the project by shouldering the construction of access paths to project sites at Sonatola, Naltona of Barguna as well as Aladigram, Burir Char of Hatiya and the construction of a school at Jahajmara, Hatiya of Noakhali.

Finding 12. Local government officials also actively participated in the project's co-management committees at union and district level. The project strategy referred to a degree of conflict between local authorities and Forest Department (FD) related to the use of coastal land once consolidated, i.e. after 20 years of afforestation. While some degree of competition for land may exist among different administrations, e.g. Bangladesh Water Development Board (BWDB), FD and district government/ Ministry of Land (MoL), this has not been found to affect project sites in any significant manner. Moreover, at least in one project site, court cases against encroachers, illicit fellers etc. have been abruptly reduced.

Finding 13. The project conducted extensive awareness and information activities, involving training of over 1400 local government officials, publication of knowledge products, documentaries and training manuals, as well as organizing national dialogues and facilitating participation of local officials, policy makers in international conferences.

Finding 14. The project set up a web site that contains most documents published by the project, including progress reports, project documents and other relevant information: <http://www.cbacc-coastalaffor.org.bd/>

Finding 15. The project has obtained important international recognition, including runner up of the 2013 global contest *Solution Search: Adapting to a Changing Climate*, sponsored by the Nature Conservancy and Rare, winner of the Times of India's *Earth Care Award* 2012, as well as the UNDP's Excellent Performance Award in 2011.

Conclusion 3. The project has been very successful in engaging actors and stakeholders at different levels, from local government officials to international environmental and development organization. These successes are to be attributed not only to the general success of the implementation, but also to a well design and executed communication and awareness strategy.

3.2.3. Finances

Finding 17. The project budget included in the project document of 2008 amounted to 5,400,000 USD, with contributions from GEF (3,300,000 USD, grant), UNDP (1,100,000 USD, TRAC funds, co-finance), and Forest Department (1,000,000 USD, in-kind) (UNDP, 2008).

Finding 18. In 2011, the Swiss Development Cooperation Agency and the Embassy of the Kingdom of the Netherlands (EKN) manifested interest in supporting and contributing the CBACCAF project with additional funds amounting to 3,150,398.00 USD.

Table 5. Project budget 2013

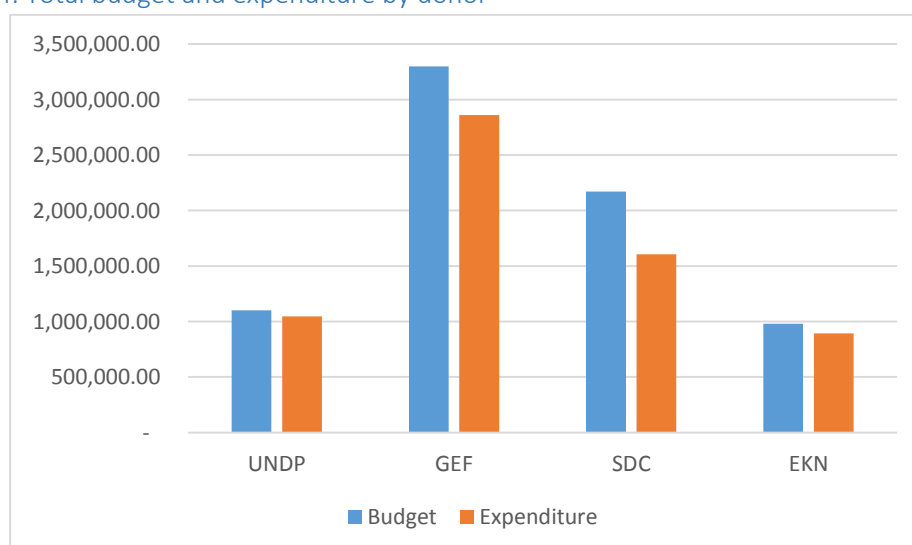
| Donor | Amount (USD) | Expenditure (USD) |
|---|---------------------|---------------------|
| Global Environmental Facility | 3,300,000.00 | 2,862,136.66 |
| United Nations Development Program | 1,100,000.00 | 1,046,386.65 |
| Swiss Development Cooperation Agency | 2,170,000.00 | 1,606,326.29 |
| Embassy of the Kingdom of the Netherlands | 980,398.00 | 891,920.11 |
| Government of Bangladesh (in-kind) | 1,000,000.00 | 1,295,000 |
| TOTAL | 8,550,398.00 | 6,406,769.71 |

Finding 19. Revising the project document to incorporate the new funds involved a long process that took over a year, the revised project document being only signed in January 2013 by the Government of Bangladesh. Meanwhile basic project operations were maintained with UNDP TRAC funds.

Finding 20. There were no other major administrative and/ or financial problems in the whole implementation timeframe.

Finding 21. 75% of the project's revised budget was expended by the end of 2015, including 90% of the GEF grant.

Figure 4. Total budget and expenditure by donor



Finding 22. Co-funding commitments were made by the UNDP, with a grant of 1,100,000 USD and in-kind contribution of the Government of Bangladesh valued at 1,000,000 USD. Actual disbursement amounted to 1,046,387 USD by the UNDP and in-kind services by the Government of Bangladesh, including senior staff time, office space, communication and transportation costs amounting to a total of 121,529,000 BDT, i.e. ca. 1,295,000 USD.

Table 6. Co-finance table

| Cofinance (Type/Source) | IA own financing | | Government | | Other sources | | Total financing | | Total disbursement | |
|----------------------------|---------------------|--------|---------------|--------|---------------|--------|-----------------|--------|-----------------------|--------|
| | (million USD) | | (million USD) | | (million USD) | | (million USD) | | (million USD) | |
| | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual |
| Grant | 1.00 | 1.10 | | | 0.00 | 3.2 | 4.30 | 7.60 | 4.30 | 6.4 |
| Credit | | | | | | | | | | |
| Equity | | | | | | | | | | |
| In-Kind | | | 1.00 | 1.30 | | | 1.00 | 1.30 | 1.00 | 1.30 |
| Non-grant | | | | | | | | | | |
| Other types | | | | | | | | | | |

Finding 23. Unexpended balance has been transferred to a follow-up project, *Integrating Community-Based Adaptation in Afforestation and Reforestation Programs in Bangladesh*. This new project, that is starting implementation now, intends to scale-up the results of the CBACC-CF project. Its total budget amounts to 52,650,000 USD, with funding from GEF through the LDCF (5,560,000 USD), USAID (10,000,000 USD), UNDP (2,000,000 USD) and the World Bank/ Bangladesh Climate Change Resilience Fund (35,000,000 USD), the latter, in turn supported by the Swiss Agency for Development and Cooperation.

Conclusion 4. The project had adequate financial and administrative controls and was able to expend almost all funds with a budget almost double as foreseen in an implementation timeframe only two years longer than the original project document.

3.3. Project results

3.3.1. Relevance of the outcomes

Finding 1. The project's objective and outline of the strategy is explicitly included in the 15 adaptation strategies listed in Bangladesh' National Adaptation Plan of Action. Moreover, coastal afforestation and community involvement in afforestation has been a national goal stretching back to the 1960's and implemented through several forestry projects with international donor support. The Forestry Sector Project has special significance as it promoted the enactment of the Social Forestry Rules of 2004, which regulate co-management, i.e. obligations and benefits for communities from forestry projects undertaken by the Forest Department.

Finding 2. The Sixth Five Year Plan, i.e. Bangladesh Poverty Reduction Strategy Paper, recognizes the necessity of addressing vulnerability issues in the coastal zone, specifically, the issue of landless farmers, by providing public land (*khas* land) for agricultural purposes, as well as increasing crop and non-crop agriculture production suited for the coastal belt (GoB, Planning Commission, Ministry of Planning, 2011).

Finding 3. Livelihood opportunities and access to land was a unanimous concern of local communities at project sites, as well as local government officials. However, communities saw cyclone shelters, rather than coastal forests, as their main disaster reduction strategy and still uncovered need.

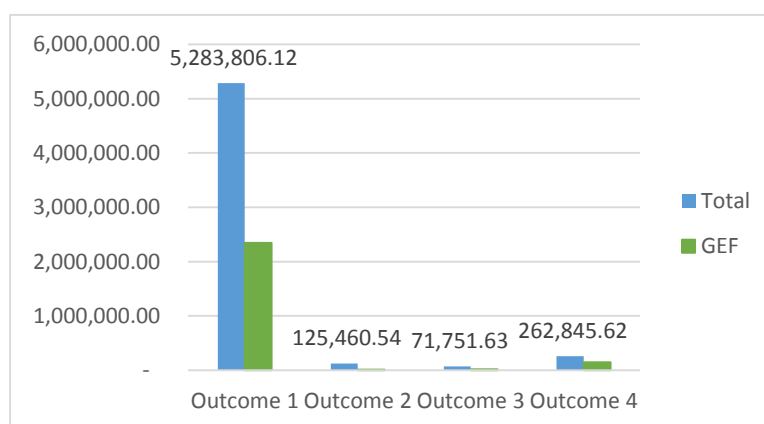
Conclusion. The project strategy, involving adaptation measures based on coastal afforestation and access to agricultural land for landless farming communities was, and it is still, highly relevant to national government goals, as well as explicit needs of coastal communities.

3.3.2. Effectiveness of the outcomes

Outcome 1. Enhanced resilience of vulnerable coastal communities and protective systems to climate risks

Finding 1. Outcome 1 constituted the backbone of the CBACC-CF project, as it is under this outcome that real, field-level adaptation measures will be implemented (Figure 5)

Figure 5. GEF grant and total amount expended per outcome in USD



Finding 2. The project implemented five different adaptation measures: mangrove plantation, non-mangrove mound plantation, non-mangrove dyke plantation (integrated homestead systems), non-mangrove strip plantation and demonstration afforestation with mangrove species. The different plantation models follow the status of the land: thus, newly accreted land was to be planted with mangrove species, moderately accreted land, behind the coastal forest, would be planted with non-mangrove species on mounds, dyke plantations of both trees and vegetables in moderately high accreted land, and strip plantation along embankment roads. The targets for each plantation model were defined in the project document as: 6,000 hectares of mangrove plantation, 500 hectares of mound plantation, 224 hectares of dyke plantation, as well as 100 hectares of demonstration afforestation, and 1,000 km of strip plantation. However, land availability issues (described below) for dyke and strip plantation and failure of the mound plantation model caused a review of the targets by midterm. The midterm review reported that achieving the original targets was highly unlikely and recommended review them and adopting as overall outcome targets to succeed in 90% of afforestation areas and 80% of the household livelihood activities. Thus, new targets were changed in the reviewed project document in 2013 to 9,000 hectares of mangrove plantation, 332 hectares of mound plantation, 112 hectares of dyke plantation, as well as 200 hectares of demonstration afforestation, and 680 km of strip plantation

Finding 3. Mangrove plantation. Since 1966 the Forest Department has been implementing afforestation along the coastal belt of the active delta, mostly with *Sonneratia apetala*, as this is a pioneer species that demonstrated its resilient in the field test conducted by the FD and Plantation Trial Units, now with the Bangladesh Forest Research Institute. Having reached 1,700

Km² by 2008, the coastal afforestation program can be considered a great success. However, the use of only one species makes such plantation prone to attacks by plagues, such as stem borers. Also, high sapling mortality and the changing hydrological conditions, specially inundation time as the accreted land is progressively raised, has caused important gaps within the plantations that diminish their effectiveness as barriers against cyclonic winds. Some natural regeneration is already taken place including mostly young trees of the species *Excoecaria agallocha*, *Avecinnia officinalis*, *Heritiera fomes* and others. However, artificial enhancement of this secondary growth is necessary to replicate a quasi-natural forest that could boost coastal protection.

Finding 4. Therefore, the project, through the Bangladesh Forest Research Institute has successfully planted 9,000 hectares of mangroves. The original target of 6,000 hectares was raised to 9,000 hectares in 2013.

Finding 5. Two hundred hectares of new plantations were established by the project along or within existing monospecific mangrove stands of *Sonneratia apetala* and included 10 species that are present in the Sundarbans natural mangrove ecosystem including the three cited above and *Nypa fruticans*, *Bruguiera sexangula*, *Xylocarpus mekongensis*, *X. granatum*, *Lumnitzera racemosa*, *Phoenix paludosa* and *Aegiceras corniculatum*, . All these species occur naturally in Bangladesh.

Figure 6. Multispecies plantation on the seaward side of an old *Sonneratia apetala* plantation



Finding 6. However, not all areas selected by the project could follow the logic of strengthening the existing “green wall” by covering the gaps replicating natural regeneration. Other than in Naltona (Barguna Sadar) and Char Kukri Mukri (Char Fasson) the project supported more traditional pioneer afforestation with *Sonneratia apetala* in close cooperation with officials of the Forest Department at union level. Among others the project supported afforestation in a newly accreted char over 12 km East of the island of Hatiya.

Finding 7. The Forest Department and Bangladesh Forest Research Institute have among their mandates the regular monitoring of mangrove areas. Although budget or personnel constraints can limit sometimes the extent of the monitoring activities, officials of both government agencies manifested their firm commitment to monitoring activities, which will allow to establish the degree of success of the project’s supported plantations.

Conclusion. The efforts of the project have resulted in a significant increase of the surface of mangrove cover in the active delta. However, selecting the specific sites for plantation activities involved a very active engagement by the project management office to coordinate with both the Forest Department and the Forest Research Institute. As a result, high transaction costs were involved (in terms of staff time and implementation time) and the actual plantation sites reflect both a systematic approach (multispecies regeneration of gaps in monospecific stands) but also the ad hoc allocation of some of the areas.

Recommendation. The Forest Department and Bangladesh Forest Research Institute must develop criteria before the start of the implementation of afforestation activities that define the scope and the approach. Such criteria must be communicated and consulted at site level, with sufficient time to allow for corrections and adjustments according to local conditions yet still aligned with the general criteria.

Finding 8. Non-mangrove mound plantations. The initial target of 500 hectares was revised by the midterm review in the light of the limited land available (moderately accreted land) to 322 hectares. The project managed to exceed the revised target and come close to the original target by completing 332 hectares of mound plantation.

Finding 9. The objective of this method was to plant fruit trees and some vegetables on mounds raised ca. 1 m over the surface, on forest land behind the protection of the coastal forest. However, mortality due to soil salinity and grazing by forest animals and domestic cattle has greatly diminished the effectiveness of this model.

Finding 10. Dyke plantation and integrated agricultural models. The model includes the construction of a fishpond limited by dykes on which fruit trees, shade trees or trees for firewood are planted at intervals, while the rest of the dyke surface is left to plant vegetables. Netting over the pond was also installed to allow cultivation of climbing crops, such as bottle gourd (*Lagenaria siceraria*). In the fresh or brackish water ponds tilapia, carps or even mudcrabs (*Scylla serrata*) were fattened (fingerlings either captured from the wild or acquired at hatcheries).

Finding 11. Beneficiaries for the agricultural models were selected at all project sites by the co-management committee and the staff of the project management unit, based on income criteria (less than 1,500 USD annually or 4 USD daily) and land ownership criteria (less than 1 acre or 0.4 hectares).

Finding 12. The original target of 500 hectares included in the project document had to be revised in the same manner, and for the same reasons as the mound plantation model, to 100 hectares by the time of the midterm review. However, the project managed to increase the surface to 112 hectares. At Char Kukri Mukri a modification of this system was implemented involving bigger, communal (as opposed to household) ponds.

Finding 13. The combination of dyke plantations, vegetables and aquaculture has proven to be the most successful output of the project. The project granted the management of pond and dyke to 896 households, mostly landless residents of the outer embankments. The agreement signed with the households and guaranteed by the district government and Forest Department grants the rights to exclusive exploitation of said agricultural model to the beneficiary family for the span of 20 years, renewable. Land tenure security, as well as a clause preventing the

possibility of ceding or selling the land by the beneficiary households was the key to the success as households implemented enhancements, new crops and aquaculture species on their own initiative. Although more than one year since the last visit of project staff to the beneficiaries had passed by the time of the field mission for the terminal evaluation in December 2015, dykes and ponds were in excellent condition and in full exploitation. Incomes are reported to have increased for all beneficiary households, and confirmed by the beneficiaries themselves to the evaluation team. Primary school enrolment and provision of vegetables at affordable prices to the local markets are two additional benefits from this intervention. In fact, the so named FFF/ VFF model (for forest/ vegetable, fruit, fish) and the associated increase in income has been the main driver behind the international awards obtained by the project.

Finding 14. The average annual income of a typical project beneficiary would be around 509 USD, or, at 1.4 USD/ day, below the international poverty line of 1.90 USD a day. At the time of the evaluation mission, beneficiaries of the project were making an annual average of ca. 800 USD or 2.2 USD a day just out that poverty line, while some households who were also included in a Department of Forest social forestry component were earning an additional net annual income of over 1,400 USD or around 4 USD a day.

Finding 15. Mangrove afforestation has involved 1032 households, 548 households have been engaged in mound plantation, and 3400 households in strip plantation, i.e. a total of 5,876 direct beneficiaries with tangible financial benefits.

Finding 16. The project supported the all plantation models with an extensive training program that attained 12,700 people (200 over the target). The trainings included establishment of nurseries and plantation management. Additionally, the Department of Agricultural Extension and the Department of Livestock Services and department of fisheries also extended training to over 30,000 households (see table 7 and [annex 5](#)).

Table 7. Beneficiaries summary table

| Agency | Training | Demonstration | Total households |
|---------------------------|----------|---------------|------------------|
| FD | 12,700 | 5,876 | 18,576 |
| DAE | 5,222 | 2,210 | 7,432 |
| DLS | 1,855 | 850 | 2,705 |
| DoF | 540 | 373 | 913 |
| BFRI | - | 213 | 213 |
| Holistic (DAE, DLS, DoF) | 50 | 50 | 100 |
| BWDB and UDMC | - | 180 | 180 |
| Total | 20,367 | 9,752 | 30,119 |

Figure 7. FFF/VFF model



Ponds and dykes. Fruit trees and vegetables can be observed, as well as netting for gourds. View towards the embankment (landward)



Vegetables are grown on the dykes: in this case, daikon (*Raphanus sativus*). The field is lined by *Acacia auriculiformis* trees, preferred by the communities for the quality of its timber for construction and for firewood



Tilapia, carps and even mudcrab (*Scylla serrata*) are fattened in the ponds. This household in particular, decided to undertake crab fattening on their own initiative, without advice from the project or the Department of Fisheries. Crab larvae are collected in the wild.

Finding 16. An unintended benefit of the FFF/ VFF model was the improvement of soil salinity conditions behind it, allowing for two crops a year of BR47 rice in over 3,000 hectares of land beyond, i.e. seaward from, the embankment.

Finding 17. A possible limitation in production would be access to necessary inputs for both agricultural and aquaculture models, i.e. seeds, fertilizer, insecticides, fish feeds etc. This in particular has led to premature harvest of tilapia in at least one site. However, attitude by respondents in front of limitation differed among sites, with some beneficiaries not deterred and confident in their ability to continue production and even train other communities to initiate their own agricultural exploitations. Factors cited by communities and experts to explain this confidence include the extra income obtained by the communities (in some cases reaching 300% of the baseline income!) and access to microcredit schemes. However, other communities express distress at the end of project support and lack of self-reliance and confidence in their ability to continue production without further support.

Finding 18. The project has supported the formation of 17 community based organizations (cooperatives or farmer's associations), duly registered with the Cooperative Department. These associations differ in financial and organizational strength but are still active do provide support to the farmers and a forum for resolution of problems. The associations are sustained by the members through monthly quotas and have, at least some, opened bank accounts.

Finding 18. Strip plantation. 680 km of mostly forestry species, particularly *Acacia auriculiformis* were planted along roads, including embankment roads. This fell short of the original target of 1,000 km of strip plantation included in the project document. Again, availability of land for the strip plantation was the main limitation. Strip plantation were planted under the social forestry

rules of 2004 that provide for co-management responsibilities and shared benefits with communities adjacent to the plantation

Conclusion 1. The agricultural/ aquaculture models introduced by the project have been very successful and have had a significant impact in the lives of the previously landless beneficiaries of the project. The key to the success is the productivity of the dyke and pond structures and the land tenure security obtained by the beneficiaries. Their ownership and self-reliance was evident at the sites visited by the terminal evaluation mission. The main limitation of the model has been, as in the case of the mangrove plantation, the availability of land of the required characteristics. Moreover, selecting specific sites involved a significant investment of time and resources as well as causing a deviation from the project logic, to some degree, in the sense that the model was geographically dispersed. Thus, the agricultural models (dyke and mound) were not always behind an enhanced mangrove forest and strip plantations did not always reinforce outer embankments.

Conclusion 2. While data on income increase exist only for the 896 households who benefited from the integrated homestead/ community integrated models (FFF, VFF models) the project has reached many more households through different trainings and demonstrations, as well as involvement in social forestry schemes (strip plantation).

Conclusion 3. Sustainability of the project supported agriculture, aquaculture and livestock production differs among communities and individual households: while some households and community association show more initiative and problem solving ability, other seem to expect further assistance for the various inputs, e.g. fertilizers, feeds, medication needed.

Figure 8. Strip plantation initiated by the project along an interior road.



The trees, more than three years old now are mostly the preferred *Acacia auriculiformis*. Harvest is foreseen within the next 5 to 7 years and benefits, as well as management obligations, are shared according to the social forestry rules of 2004.

Recommendation 1. Land as limiting factor for projects aiming to increase coastal forest area are not new nor exclusive to this project. For instance, the World Bank supported project Forest Resource Management completed in 2002 had to reduce its mangrove plantation targets, in terms of hectares, by 20% due to non-availability of appropriate land. Drivers controlling the availability of land are environmental and political. In forest land under the control of the Forest Department environmental factors prevail, namely, presence or not of newly accreted land. On *khas* (public) land under the control of the district government political factors would have more importance, namely, competition with concession that contribute to the financial stream for the local government. Moreover, the new plantation modality, i.e. multispecies, was based on research and initiatives of the Bangladesh Forest Research Institute (BFRI) and hence their reduced field presence limited the amount of plantation.

As much of the suitable land, i.e. newly accreted land for mangrove plantation would be controlled by a combination of tectonic, sedimentary and sea level dynamics mangrove, cover targets should be either fixed, but based on detailed field surveys or flexible, establishing targets based on availability of newly accreted land, e.g. “100% of newly accreted land planted with several mangrove species”. Moreover, cooperation among Forest Department and BFRI should be enhanced and possibly formalized through MoU or any other formal agreement, to avoid shortcomings due to the different field presence of both agencies.

Recommendation 2. Issues of availability of inputs after project end must be considered, and, when suitable, the possibility of developing local alternative to expensive or unavailable inputs, e.g. organic fertilizer production, integrated pest management or unconventional fish feed. Suitability will depend on local factors and expected yields based on the effectiveness of the alternative inputs, e.g. fish protein requirements are notoriously more rigid than land animals. Moreover, individual initiative seems to be an important driver of sustainability, with more engaged or pro-active households leading solutions to shortcomings and limitations. Thus, project field staff could work to identify champions among the communities and, as the CBACCAF did, facilitate the establishment of associations to serve as venue for the exchange of solutions and sources of seed money to cover for pre-harvest expenses.

Outcome 2. Climate risk reduction measures incorporated into coastal area management frameworks

Finding 1. The project organized and conducted training on climate change, and design and implementation of adaptation measures at community level. 950 government officials at Upazila and Union level were trained. Additionally, cross/ exposure visits were organized and conducted for 121 district level government officials. All government officials interviewed for the terminal evaluation manifested their satisfaction with the training received and stated that they feel better capacitated in matters related to adaptation to climate change as a result of the trainings and/ or exposure visits.

Finding 2. The project commissioned two internationally and nationally recognized non-government organizations (NGO), the International Union for the Conservation of Nature (IUCN) and the Center for Natural Resource Studies (CNRS) to develop adaptation management plans for the four Upazilas and eight unions involved with the project, based on a comprehensive participatory rural appraisal studies.

Finding 3. The adaptation management plans were concluded in 2011 and include a thorough description of the Upazilas in environmental and socio-economic terms, as well as a comprehensive analysis of the vulnerability of coastal communities. Moreover, the plan includes a detailed technical description of the possible adaptation interventions, based on livelihood diversification that combine agriculture, livestock and aquaculture.

Finding 4. The adaptation measures suggested are the ones implemented with the support of the CBACC-CF project: enhanced/ enriched¹⁰ mangrove plantations and associated mangrove nurseries, ditch and dyke plantation, Forest, Fish and Fruit model and/or rice culture combined with aquaculture, strip plantations at roads and embankments, cattle fattening, poultry and aquaculture.

Finding 5. In terms of disaster preparedness and awareness, both local government officials and community respondents refer to their own past experience with tropical cyclones, by far the most feared natural hazard. The unanimous disaster preparedness strategy cited was provision and habilitation of further cyclone shelters.

Conclusion. Although the project did not include any instrument to measure acquired capacity, such as a scorecard or surveys, the self-assessment of capacity by local government officials and community representative is unanimously positive. The adaptation plans include a richness of environmental and socio-economic data, as well as a detailed technical description of agriculture-based livelihoods that can be used to further develop preparedness or adaptation plans. However, the value of the mangrove forest as an effective protection would need to be proven in the likely event of a cyclone hitting the project sites within the next five years: provided that most of the population will take refuge in the currently available cyclone shelters, if the level of property destruction is less than expected for a given intensity of the storm, both communities and local governments will be persuaded of the importance of maintaining a healthy forest “green wall” as coastal protection.

¹⁰ This refers of course to the use of different mangrove species, as opposed to the more “traditional” monospecific stands of *Sonneratia apetala*

Finding 1. The project team developed recommendations to be included in the four most relevant national policies for the coastal zone: National Forest Policy (1994), National Land Use Policy (2001), National Coastal Zone Management Policy (2005), and National Environmental Policy (1994).

Finding 2. The most relevant policies affecting the coastal zone, particularly the active delta are both the land policy and the forest policy. This is related to the relative strength at field level of the government organizations in charge of implementing them. In this case, the most important state agencies present are the local government, with jurisdiction over public land, and the Forest Department, with jurisdiction over forest land. Following national policy, newly accreted land would fall under the jurisdiction of the Forest Department for 20 years for the sole purpose of consolidating said land through afforestation. After this period, the land would be considered consolidated enough to be dedicated to other uses, e.g. agriculture or settlement and reverted to the jurisdiction of the Ministry of Land for its allocation through the local governments. However, this straight line is not always followed due to pressures by local interest groups, leading to institutional conflicts between local governments and the Forest Department that sometimes must be settled at the highest level of the state, i.e. decisions by the prime minister, e.g. constitutions of a National Environment Committee in 2009 to resolve settlement disputes and the government decision of 2011 to divide 900 km² of forest land into equal parts for public land for agriculture and settlement and forest reserve.

Finding 3. The project's recommendation for the land transfer mechanism under the National Forest Policy includes the extension of the coastal forest belt in newly accreted land to a minimum width of 500 m from the coastline (or occupation of the whole new accreted char with forest reserve if the distance from coast to coast would be less than 500 m), as well as an increase in the maturation time for the mangrove forest of 10 years, thus making the land available for other uses only after 30 years after plantation and then only per recommendation of a technical committee that would include environment and land ministry officials.

Finding 4. Other policy recommendations of the project include accounting for the carbon sink value of the coastal forest, substitution of exotic with indigenous species in new afforestation areas, accounting for the biodiversity value of forest land, and prohibition of use of soil in consolidated accreted land for uses other than agriculture.

Finding 5. High level officials of the Forest Department assess the adoption of the policy recommendations submitted by the project, as very likely as otherwise confirmed in reports of the World Bank-supported project Climate Change Resilience Fund. Moreover, the 500-meter-wide coastal forest belt is included as an objective in the next Five Year Plan (2016-2020).

Conclusion. The main policy recommendation of the project tackles the critical issue of allocation of land use rights and forest protection. The vision of the project is the result of a wide consensus among national forest practitioners and shared to some degree by local government officials and communities. The project has indeed deliver the outputs, i.e. the policy recommendations and the position of the project within the Forest Department makes it very likely that said recommendations will be incorporated. However, the actual implementation of said measures at field level would depend to a great degree on local dynamics, including inter-government relations (including at personal level), population dynamics and results of

disturbances, i.e. the degree to which coastal forest will mitigate loss of life and property in the next severe cyclones and associated surges.

Recommendation. A clear and transparent mechanism for land tenure and transfer in public lands, including forest reserves is necessary for a climate sensitive and participatory arrangement of property rights at coastal areas, which, in turn, will determine the vulnerability of coastal populations to a high degree. Although it is highly unlikely that a four or five-year project would actually change local dynamics and the vision and interest of local pressure groups in the whole of the coastal zone of Bangladesh, this project, CBACC-CF, has shown that the right approach is the direct interaction at field level with local government, Forest Department and local communities. This approach, also used by other projects, like the Char Development and Settlement Program ensures the empowerment of vulnerable communities and the development of institutionalized mechanism for land allocation.

Outcome 4. Learning, evaluation and adaptive management enhanced.

Finding 1. The project has produced an extensive array of communication and learning products, including 17 training manuals on livelihood diversification, adaptations measures, agricultural and livestock keeping techniques, as well as aquaculture, all in Bengali and available through the project's website: <http://www.cbacc-coastalaffor.org.bd/>

Finding 2. The project has also released brochures, posters and fact sheets that have been also made public at workshops and events, as well as through the project's office at the Forest Department in Dhaka and through its web page.

Finding 3. Finally, the project has published, and also made available through its web page, a series of relevant technical papers, such as the Upazila Adaptation Management Plans, with their comprehensive data and technical descriptions, as well as a number of other technical papers on ecosystem resilience, community-based adaptation, innovative agricultural models and social forestry. Moreover, the project has facilitated research by academic institutions on the project's experiences. Over 10 peer-reviewed papers are currently in preparation.

Finding 4. The project management unit (PMU) kept a comprehensive and detailed database on all project activities and results, including GIS database of the extent and situation of project activities, detail data on revenue by project beneficiaries from project-supported activities, as well as exhaustive financial records. Moreover, minutes of the project board and the midterm review and response thereof demonstrate that the data collected by the PMU was effectively used for adaptive management.

Overall conclusion on effectiveness of project outcomes. Based on the largely achieved project targets and the demonstrable efforts by the project unit and the implementing and executing agencies to overcome challenges to implementation the terminal evaluation rates the effectiveness of the project outcomes as highly satisfactory. The cases where the original project targets were not achieved, such as at outcome 1, the failure can be tracked to over ambitious targets set in the project documents that did not reflect the actual field challenges faced during implementation of activities at field level. Table summarizes the outcome achievements of the project.

Table 5. Progress towards outcome targets.

| Project Strategy | Indicator | Baseline Level | End-of-project Target | MTR status | EOP Level | Rating | Justification for Rating |
|---|--|-----------------------|--|--|---|--------|---|
| Outcome 1. Enhanced resilience of vulnerable coastal communities and protective systems to climate risks | Percentage of satisfactory performance of the afforestation (plantation survival and growth) | 0% afforestation | 90% of the afforestation areas are assessed as effective and sustainable in post-plantation surveys | Mangrove: 6,000 hectares Dyke (FFF): 40 hectares Mound: 322 hectares Strip: 615 km Demonstration species: 100 hectares | Mangrove: 9,650 hectares Dyke (FFF): 112 hectares Mound: 332 hectares Strip: 680 km Demonstration species: 200 hectares | HS | The project indeed achieved the reviewed indicator target of 90% success in afforestation. Although some of specific output targets were downgraded this was in line with MTR recommendations and in response to constraints not anticipated at project design. |
| | Percentage satisfactory performance livelihood measures (increased food security, incomes and income diversification) of the project beneficiaries | 0 livelihood measures | 80% of the households participating in the project have increased food security and income to adapt to climate risks | 840 households have actively expanded their livelihood options through the project | 5876 households upazilas have actively expanded their livelihood options through the project | HS | The project achieved the reviewed indicator target of 80% of the households participating in the project have increased food security and income to adapt to climate risks. While data on income only exist for ca. 900 households, the project has reached out to ca. 30,000 households with training and demonstrations |

| Project Strategy | Indicator | Baseline Level | End-of-project Target | MTR status | EOP Level | Rating | Justification for Rating |
|---|--|--|--|--|---|--------|---|
| Outcome 2. Climate Risk Reduction Measures Incorporated into Coastal Area Management Frameworks | Percentage of unions, upzillas and districts in the project sites that have plans and programs/budgets to address climate change risks | No mechanisms and budgets available to local authorities to address climate change risks | 75% of local authorities in the project sites have adopted or strengthened plans and strategies to address climate change | Out of 196 civil servants at the national level in 4 targeted districts, 151 trained and able to implement adaptation measures | 950 government officials at Upazila and Union level were trained. Adaptation plans adopted for the four upazilas | HS | The project has exceeded training targets and has, according to local officials, raised their capacities to address climate change issues. Adaptation plans have been concluded with participation of local officials and support by local government has been extended to establish synergies with project accomplishments |
| | | | 50% of the local authorities are implementing afforestation and livelihood support measures in the inundation zone (between coastal forest and embankment) | ND | Livelihood support measures count with support and co-finance by local government, e.g. road or educational infrastructure, as well as land title grant | HS | |

| Project Strategy | Indicator | Baseline Level | End-of-project Target | MTR status | EOP Level | Rating | Justification for Rating |
|---|---|----------------|---|---|---|--------|--|
| Outcome 3. National policies revised to increase climate risk resilience of coastal communities | Specific policies have been adopted in support of the project's adaptation measures | | At least 2 national policies on coastal zone and 2 on land use are revised to promote resilient development | ND | Policy suggestions by the project submitted for four relevant policies: land, forest, environment, coastal | HS | Most relevant policy recommendations for forest policy highly likely to be adopted as reported by high level officials of the MoEF. |
| | | | 75% of national-level civil servants in the MoL and MoEF report that the policies have been adjusted to improve climate resilience in coastal communities | | | S | |
| Outcome 4. Learning, Evaluation, and Adaptive Management Enhanced | Introduction of new project adaptation measures and guidance as a result of learning exercises from the current project | | Introduction of new project adaptation measures and guidance as a result of learning exercises from the current project | Dissemination of project lessons on-going | 17 training manuals and technical papers, disseminated at national and international workshops and the project webpage. | HS | The project has contributed to generate and disseminate knowledge on coastal adaptation and has been awarded international recognition by the UNDP, Conservation International and others. GEF 6 will fund upscaling the project model to 10 more coastal unions |
| | Number and area of replication of the project's adaptation measures | | | | The project has prompted funding by GEF to replicate its model in ten unions in four districts | | |

3.3.3. Efficiency of the outcomes

Efficiency equates to cost-effectiveness or the “productivity” of the investment. For GEF terminal evaluations, cost-effective factors include compliance with incremental cost criteria (benefit-cost ratio bigger than one), completion and delivery of outputs, and comparison of benefit-cost ratio with other similar projects. Only the two first factors are considered in this report.

Cost-effectiveness of the project is based on a financial analysis that assumes that

- a) Changes in prices have been minimal for the implementation period and can be neglected in the analysis, based on current (2015) prices.
- b) Constant exchange rate between Bangladesh Taka (BDT) and Dollar of the United States of America (USD) fixed at 77.64 BDT/ USD, period average for 2011-2015.

The following analysis considers only marketable goods, regardless of actual existence of local markets for the goods, or actual marketing of said goods. Goods considered are then CO₂ sequestered, Wood and aggregated produce (combining agricultural produce, fish and livestock). Monetary costs are obtained from project budget and financial reports. Monetary benefits are obtained from project reports (household net income) and literature values.

Discount rates are not applied as the analysis only compares costs and benefits at EOP, and does not try to compare cash flows.

CO₂ sequestration

Finding 1. Costs: The project invested 82,990,000 BDT (1,068,908 USD), in the plating of 9,650 hectares of mangroves, that is, a cost of 111 USD/hectare.

Finding 2. Stock density at planting time were 4,444 trees per hectare. With an estimated survival rate after 15 years of 0.25, there should be ca. 11 million trees or an effective planted area of 2,413 hectares after 15 years. This value is consistent with stocking density values found for *Sonneratia apetala* in the districts of Chittagong, Barisal and Patuakhali (Islam, Azad, Kabir, & Hossain, 2012).

Finding 3. Estimations of the carbon sequestration power of mangrove vary among studies, ranging from one megaton¹¹ CO₂ per hectare per year based on calculations for *Kandelia candel* plantations in the Red River Delta of Viet Nam (VNU; CRES; MERD, 2015), to 208 ton CO₂ per hectare per year based on calculations for a mature *Rhizophora apiculata* plantation in Malaysia (UNEP, 2011).

Finding 4. Price estimates also show significant variability, depending on market conditions and assumptions of the studies. Thus, the two studies mentioned above cite 37 USD per ton (citing the 2014 World Bank Study on carbon pricing) and 7 USD per ton respectively. This price range is consistent with prices per ton of CO₂ in public and private emission trading systems. For instance, the Emission Trade System of the European Union (6.70 USD), California’s Cap and

¹¹ That is one million tons

Trade Program (11.50 USD), Microsoft internal CO₂ trading (6-7 USD) or Shell internal CO₂ trading (40 USD); all prices for December 2013.

Finding 5. Using the most conservative values possible, i.e. 208 tons/ hectare sequestered and a price per CO₂ ton of 7 USD, the annual value (in 2015) of the carbon sequestration service of the newly afforested area would be valued in a range from 3,513,328 (2,413 hectares) to 14,050,400 USD (9,650 hectares).

Finding 6. Calculations by the project management unit used a price per ton CO₂ of ca. 3 USD per ton and a net sequestration of CO₂ at 100 Tons' carbon per hectare per year. Thus the value of carbon sequestration would amount to 2,895,000 USD, for the total of 9,650 hectares.

Finding 7. Gross benefit-cost ratios would then range between a maximum of 13 to a minimum of 2.7. These ratios do not include transaction costs involved in the actual set-up and administration of an emission trade system that would include forestry or the costs of maintaining the plantations.

Firewood

Finding 8. Based on current prices for firewood of BDT 300 per tree, (PMU, 2015), circa 4 USD, the value as firewood of 11 million trees (i.e. the surviving trees in 15 years) would be 42.5 million USD. Hence, the gross benefit-cost ratio for firewood is 39.8.

Produce

Finding 9. The project established 112 hectares of Forest, Fish and Fruit (FFF) model at a total cost of 36,720,000 BDT, (472,952 USD).

Finding 10. The average income per household per year at the beginning of the project averaged 40,000 BDT (515 USD), or 1.41, just below the international poverty line of 1.90.

Finding 11. Average additional income of households beneficiaries of from the FFF and VFF model amounted to 1,417 USD and 800 USD, i.e. 4 and 2 USD/ day respectively. Thus, the 896 beneficiary household are currently earning an average of additional 1,108 USD on top of their previous 515 USD, i.e. a total of 1,623.5 USD as average net annual income, or 4.5 USD/ day. Total net benefits would then amount to 1,454,656 USD or a benefit-cost ratio in excess of three.

Conclusion. In view of the estimations benefit-cost ratios, the terminal evaluation report rates the efficiency of the outcomes as highly satisfactory. It may be argued that the project in fact does not comply with the second factor of cost-effectiveness considered here, as it completed implementation a year later than expected. However, the TE view is that the delay was caused by additional funding and the duly government procedure to approve the new project document, and that the GEF-funded component was indeed efficiently executed and would have been completed within the original timeframe had not been affected by the aforementioned process.

3.4. Mainstreaming

3.4.1. Linkage of project to UNDP programming instruments and development priorities:

Finding 1. The CBACCAF project was developed between 2007 and 2008 under the previous programming cycle of the UNDP: Country Program Document 2006-2011. An independent evaluation of this programming period, assessment of development results (ADR), conducted in 2010 recorded increasing environmental threats and degradation, as well as strengthened focus of UNDP priorities towards climate change and adaptation (UNDP, 2011). CBACCAF was one of the projects of the UNDP portfolio to give answer to adaptation needs.

Finding 2. Consistent with the previous programming cycle, and in line with the national development priorities and the lessons learned from the ADR, the current country program document focuses on democratic governance and human rights, pro-poor growth with equity and climate change, disaster risk reduction and response.

Finding 3. CBACCAF has contributed, beyond its own strategic area, i.e. climate change and development, to UNDP's strategic area pro-poor economic growth with equity, specifically to outcome 2.1 that aims to *enhance the ability of the poor, especially women, to participate in the economy through better targeted employment and training opportunities, and to improve social protection systems through safety nets and access to micro-insurance* (UNDP, 2011). CBACCAF has contributed through trainings and technology transfer to enable population residing in vulnerable outer embankment settlements to develop viable agricultural production resulting in significant income increases for circa 900 households. Moreover, the project has promoted and facilitated establishments of community associations that can act as social safety nets by developing contingency funds and providing venue for exchange of ideas and solutions.

3.4.2. Project contribution/ linkage to better preparations to cope with natural disasters

Finding 1. The project has acted directly on drivers of vulnerability for coastal populations at the eight field sites: hazard intensity, by enhancing the coastal protection service of mangrove plantations and resilience, by significantly raising the income of circa 900 households.

3.4.3. Project contribution/ linkage to greater consideration of gender aspects

Finding 1. Rural coastal communities in Bangladesh maintain traditional gender roles that exclude women's participation in public affairs. Although women were present in the focus group discussions maintained with representative beneficiary households, they were strictly separated from male respondents and needed special encouragement to participate in the discussion.

Finding 2. Local government officials are aware of inequity issues affecting women and are thus supportive of the integrating approach of the project, i.e. inclusion of women in trainings and livelihood activities.

Finding 3: The project did not conduct any gender assessment, i.e. an evaluation of the different roles and responsibilities of women in the beneficiary communities and an assessment of the changes that the project's new technologies would bring along, i.e. towards more equality or more conflict. The project limited its gender aspects to some degree of women empowerment, encouraging participation of women in project activities.

Conclusion 1. CBACCAF is strongly coherent with the previous and current UNDP program document and has made contributions beyond its focus on climate change adaptation, regeneration of degraded ecosystems and disaster risk reduction, to the critical strategic area of pro-poor economic growth.

Conclusion 2. CBACCAF did make efforts to empower women by trying to integrated them in trainings and other project activities. However, as there was not any 'gender assessment' carried out at the initiation of the project the actual 'gender equality' issues could not be ascertained. Moreover, evolution of traditional gender roles and associated inequity would need the combined efforts of multiple government and non-government initiatives and longer timeframes than that available for a project of the type of CBACCAF.

Recommendation. A project's gender dimension goes beyond encouraging participation of women and tallying their assistance to meetings. Although these actions, as in the example of this project, can certainly contribute to empowerment of women, this would constitute only a limited dimension of "gender". Therefore, a project that aims to achieve important impacts in communities should perform a proper gender assessment prior to the intervention, i.e. an assessment of current gender roles and the expected impact that the project's innovations would bring. Moreover, this analysis should be expanded to include other segments of the household (youth) and community (socio-economic differences), i.e. to enable a measure of what changes, if any, a project is expected and has actually accomplished.

3.5. Sustainability

3.5.1. Financial dimension

Finding 1. Mangrove plantations. Coastal afforestation is expensive, e.g. 111 USD per hectare in the case of CBACCAF, limited by availability of newly accreted land, in the case of the mostly used species, *Sonneratia apetala*, and high initial mortality of seedlings. However, once established, and if degradation drivers, mostly grazing and construction of settlements are controlled, *Sonneratia apetala* plantations are quite resilient. Moreover, as the *S. apetala* forest changes soil conditions and inundation time by favoring accretion and consequent raising of land, the land becomes suitable for other mangrove species that sustain natural regeneration (Islam, Miah, Habib, & Rasul, 2015), either naturally or with artificial support, as in the case of the CBACCAF.

Figure 8. View of a ca. 20-year-old *S. apetala* plantation in Naltona union, Borguna



Finding 2. Representatives of stakeholders involved in management of mangrove plantation, primarily the Forest Department, manifested no doubts about the capacity of their agency to continue the protection and monitoring of the coastal forest, as it is their mandate within the foreseeable future.

Finding 3. Currently the World Bank, through the Bangladesh Climate Change Resilience Fund is implementing the Climate Resilient Participatory Afforestation and Reforestation, that has a total budget of 35 million USD and includes the target of planting 57 km² of mangrove forest, including several species, with a total afforestation budget of 6.7 million USD (World Bank, 2013).

Finding 2. Agriculture production. The terminal evaluation visited model sites one year after the last activities of the project in said sites took place. Production of vegetables and aquaculture was in full swing and all interviewed beneficiaries revealed significant income increases. However, some beneficiaries also expressed concern and were expecting continuation of support for acquisition of agricultural inputs, as well as animal feeds.

Conclusion. Government and external financial support for mangrove coastal afforestation, including the multispecies model supported by this project seems secured at least for the next planning cycle (2016-2020 Five Year Plan). Moreover, agricultural production in most model sites is likely in the majority of the sites seems to be self-sustained and generating increasing income for households, in spite of the lack of self-reliance of some beneficiaries. Therefore, the terminal evaluation rates the financial sustainability of the project benefits as likely.

3.5.2. Socio-economic dimension

Finding 1. Government support for coastal afforestation efforts will continue under the current and next Five Year Plan, as part of the forestry and disaster risk reduction strategies of the Government of Bangladesh (Planning Commission, GoB, 2015).

Finding 2. Respondents from the responsible national agency, the Forest Department at both national and local level assured their commitment to coastal afforestation.

Finding 3. Local government representatives interviewed by the terminal evaluation team manifested their understanding and awareness of the importance of mangrove forests for coastal protection. The fact that mangrove afforestation occurs in newly accreted land also ensures lack of competition between local government and Forest Department, as the former has political (settlements) and financial (concessions) interest in consolidated land.

Finding 4. Criminal gangs, with the support of local “big men” have been involved in rackets to exploit landless people by selling them “rights” to occupy forest land, with consequent degradation or destruction of the forest. However, in the case of this project’s sites, the granting of security of land tenure warranted by the local government will act to prevent such acts.

Conclusion. All concerned stakeholders, Forest Department, local communities and local government are committed to the continuation and enhancement of coastal forest in newly accreted land. Although conflicts among the three mentioned stakeholders may occur occasionally, and the threat of encroachment and the abuse of landless people by local gangs is still present, at the project sites, the combination of cooperation between local government and Forest Department and the land tenure security granted to model beneficiaries makes the socio-economic sustainability of the project benefits likely.

3.5.3. Institutional framework and governance dimension

Finding 1. The line agencies involved in coastal afforestation and livelihood support, namely the Forest Department, the Bangladesh Forest Research Institute, the Department of Agricultural Extension, Livestock Services and Fisheries respectively, currently possess the necessary know-how and capacities to continue to deliver the services included in this project, although there are and surely will be some constraints in terms of budget and staff available that may limit the scope and intensity of support.

Finding 2. Local government officials manifested increased awareness on climate change and adaptation due to the plans, manuals and trainings provided by the project. Also, community respondents, for the most part, express confidence in the continuation of the benefits provided by the project and were, in general terms, satisfy with the capacities acquired with the support of the project.

Finding 3. The current policy and regulatory framework, especially the Forest Policy and Land Use Policy support the enable the implementation of similar activities. Moreover, this enabling environment will only be enhanced if the policy recommendations submitted by the project to the Ministry of Environment and Forest (MoEF) and Ministry of Land (MoL) are incorporated into their respective policies, what seems very likely in the case of the MoEF.

Conclusion. There are sufficient capacities in place at the project sites, as well as a consistent policy support to develop and implement afforestation and livelihood activities in the line of the ones supported by this project. Therefore, the terminal evaluation rates the institutional sustainability as likely.

3.5.4. Environmental dimension

Finding 1. Likelihood of occurrence of a severe cyclone at project sites. Between 1960 and 2007 a total of 56 tropical cyclones hit the coast of Bangladesh, of which 66% or 31 events were very strong or severe cyclonic storms (Quadir & Iqbal, 2008). The last storm to hit the coastal belt of Bangladesh was cyclone Sidr in 2007 that caused 2,388 casualties (Quadir & Iqbal, 2008) and USD 2.3 billion in economic damage (Guha-Sapir, Below, & Hoyois, 2016). This means that the probability of a strong or severe cyclonic storm capable of causing devastating losses in a given year is 0.64 and the return period as of 2007 was eight years (Quadir & Iqbal, 2008).

Finding 2. Likelihood of erosion or coastal submergence. The Meghna estuary receives 1-billion-ton sediment yearly, as a result of erosion processes taking place in the whole of the 1.7 million km² of the Ganges-Brahmaputra-Meghna river basin. In the last five decades the active delta has pro-graded, i.e. accreted seaward, at an annual rate of 17km². However, the erosion-accretion rate is controlled by sediment availability, deltaic subsidence and climate change-driven sea level rise (SLR). Sediment availability is in turn controlled by human activities upstream, e.g. sediment starvation of the Sundarbans due to the construction of the Farakka barrage, whereas there is a lot of uncertainty for the two other drivers, subsidence and current SLR annual rates are likely to be in the range of 1.5 to 1.9 mm. Thus it is likely that seaward accretion will continue, for at least the next decade but could eventually be limited by SLR if all other factors remain constant.

However, although the net rate of accretion is positive, significant erosion does take place, e.g. in Hatiya, a whole union, Suk Char has been almost totally eroded during the last 40 years, with the loss of 7 villages.

Finding 3. Likelihood of massive mangrove mortality. Pioneer species such as *S. apetala* contribute to changing soil and inundation conditions by trapping sediment (as long as accretion prevails) and raising the land making conditions favorable for other mangrove species and eventually non-mangrove species or agricultural use. Natural regeneration of several mangrove species is already taking place without artificial enhancement. Thus, as long as the ratio accretion/ erosion is more than one, natural regeneration and survival of a more diverse mangrove forest is likely.

Finding 3. Likelihood of increasing exposure to climate hazards. Population of the coastal zone is projected to reach circa 60 million by 2050. Moreover, erosion may drive more people settled at river banks to newly accreted land seawards.

Conclusion. Exposure to climate hazards in the coastal zone, in terms of people living in the coastal areas and development, i.e. an increase in the value of assets, including infrastructure, production landscapes and settlements in the coastal, is likely to increase in the next decades. In fact, the CBACCAF has increased exposure by supporting establishment of vulnerable (because they are climate-dependent) production models in foreshore areas. This, together with

the high likelihood of a severe or a strong cyclonic storm hitting projects areas in the next decade makes the sustainability of the project benefits not likely in the long term. However, the increased household income generated by the project activities have undoubtedly build up adaptive capacity and has, at least partially, increased the awareness levels, through trainings and even primary school enrollment rates. This, i.e. the economic viability of the agricultural models and the relative stability of the seaward accretion areas contributes to the likelihood of sustainability in the short term (10 years or less). Therefore, the terminal evaluation must rate the sustainability of project benefits, in its environmental dimension as **moderately likely**.

Recommendation. The viable livelihood provided to almost a thousand households in the project sites must be used by them to build up assets, particularly human capital in terms of education for the next generation that will allow families to move out of farm jobs. A midterm strategy to abandon climate sensitive activities in the coastal area, or at least in the foreshore, must be encouraged and by the government and its development partners by facilitating generation of non-farm jobs. A sound population and resettlement policy must be also developed to avoid migration to exposed areas.

The foreshore area should be eventually left to forestry purposes, as was the policy recommendation of this project, to enhance natural protection of backshore infrastructures and settlements.

However, all these would depend on a high degree in the interplay among factors such as population growth, economic growth, and deltaic dynamics that are way beyond the scope of any individual project.

3.6. Catalytic role

Finding 1. The project has contributed strongly to the development of a new agricultural modality in the coastal zone, the Fish, Fruit and Forest (FFF) model and variants thereof, which have been successful in increasing household income and food security. While integrated aquaculture-livestock-agriculture homestead systems are common in Bangladesh and in South East Asia in general, implementation at the foreshore, benefiting landless communities was a unique contribution by this project. Viability of the demonstrations seems very likely in the short term (less than a decade) for most sites.

Finding 2. The project has ignited the development of a project to upscale the agricultural models in close cooperation with a World Bank supported project on coastal afforestation. The new project, Integrating Community-Based Adaptation into Afforestation and Reforestation Programs (PIMS 4878), has an implementation timeframe of five years (2015-2019) and it is funded by a GEF/LDCF grant of USD 5,650,000. This new project plans to reach out to 60,000 vulnerable coastal dwellers, by expanding FFF models and other livelihood options initiated by the CBACCAF project.

Conclusion. CBACCAF has have a significant catalytic role and lies at the base of a set of projects that have mobilized together over USD 40,000,000 of international funding.

3.7. Impact

Finding 1. The project has increased the area of mangrove forest in Bangladesh by the significant amount of 90 km². Even accounting for a mortality rate after 15 years of 0.25, the foreseeable forest cover after that period will still be of circa 24 km². Moreover, the project has contributed to the diversity of the coastal forest by adding new mangrove species that is very likely to make the forest more resilient to insect attack and other plagues. This can also be expected to increase total biodiversity and enhance already occurring natural regeneration of mangrove forest in the Meghna estuary.

Finding 2. The project, working within the Forest Department and in close coordination with local government units has supported co-management of mangrove forest by coastal communities. By doing this, the project has contributed, at least in some of the project sites to a change in the traditional confrontational roles of forest rangers and coastal settlers. Although collection of firewood and grazing still occur within the coastal forest, a reduction of cases has been reported in at least on project site by the forest rangers.

Conclusion. The project has both contributed to reduction in drivers of ecosystem degradation (grazing, encroachment) and has increased diversity and resilience of mangrove forest in at least over 24,000 hectares newly afforested.

Recommendation. The Forest Department and the Bangladesh Forest Research Institute, beyond continuing their mandate of research on planting techniques and monitoring forest cover should also encourage more research and monitoring on biodiversity by other government or non-government agencies. Possible research directions include monitoring of animal populations and fishery interactions.

Finding 3. The project has significantly contributed to increase adaptive capacity of human populations, particularly vulnerable, landless foreshore dwellers by providing them with technology and human capital for self-reliance.

Conclusion. The impact of the project has been significant, at the scale it operated, i.e. in eight unions in coastal Bangladesh, both in terms of biodiversity, as well as adaption capacity for human populations. However, given the likely effects of climate change on sea level change and intensity and frequency of tropical cyclones, this should not be seen as a long term strategy, as increasing exposure at the coastal zone can actually lead to increased risks of loss and damages due to climate hazards.

4. Lessons learned

As exposed above, the project has been successfully implemented, has achieved most of its targets and has had significant and sustainable impacts, at least within its geographical scope and in the short to midterm.

The terminal evaluation identifies the drivers behind this success as:

1. The project governing structures included all relevant stakeholders, at both national and local level. Inclusion of the main implementing partners, at national level, in the Project Board has facilitated implementation at field level and will serve to facilitate the project's policy link, i.e. adoption of policy recommendations submitted by the project. Moreover, the co-management committees at district and union level worked to ensure cooperation and synergies with the local governments and field offices of the national agencies involved.
2. The empowerment of the project management unit was critical for project success. This is not only due to the expertise mix provided by its staff, but, more importantly by the dynamism and capacities of the project manager. Future projects must encourage the selection of project manager that possess leadership skills, and whose technical capacities are known and recognized by relevant stakeholders.
3. Detail and thorough monitoring and effective reporting of monitoring data, in terms of project data (financial expenditure and indicator framework), as well as beneficiary and biophysical data, has effectively supported adaptive management.
4. Including communities in the management of natural resources, as long as they are being supported with livelihood alternative that allow them to abandon, or at least decrease, activities detrimental to ecosystem functions that provide critical services, coastal protection in this case.

5. Annexes

Annex 1. Mission Itinerary and persons interviewed

| Date | Location | Respondents | Position and organization |
|---------|--------------------------------------|------------------------------|--|
| 2 Dec. | Dhaka | Dr. Paramesh Nandy | Project manager, CBACCAF project |
| 3 Dec. | Dhaka | Mr. Aminul Islam | Senior advisor, UNDP |
| | | Dr. Md. Abdul Mueeed | Deputy project director, DAE |
| | | Dr. Golam Rabbani | Deputy project director, DLS |
| 5 Dec. | Bottoli, Anwara, Chittagong | Community members | Juidondi village, |
| | Hatiya, Noakhali | Mr. Korshed Alam Bhujuiyan | Range officer, FD |
| | Jahajmara, Hatiya, Noakhali | Community members | Aladigram village |
| | Hatiya, Noakhali | Mr. Abu Hasnat Md. Moinuddin | Upazilla Nirbahi Officer |
| 6 Dec. | Anwara, Chittagong | Mr. Saiful Islam | Upazilla Nirbahi Officer |
| | | Md. Ekram Uddin | Extension officer, DAE |
| | | Md. Mahbubur Rahman | Assistant fisheries officer, DOF |
| | | Md. Delwar Hossain | Upazilla livestock officer, DLS |
| 8 Dec. | Nishan Baria, Borguna Sadar, Borguna | Community members | Noltona-3 F cooperative Society |
| | | Mr. Ajit Rudra | Divisional Forest Officer, FD |
| | | Mr. Altaur Rahman | Assistant Conservator of Forest, FD |
| 9 Dec. | Borguna | Mr. Mohammad Jahiruddin | Deputy Commissioner, District of Borguna |
| | Barisal | Dr. Sk. Ahiul Islam | Deputy Project Director, BFRI |
| 10 Dec. | Dhaka | Mr. Khurshid Alam | Deputy Country Director, UNDP |
| 13 Dec. | | Mr. Ashit Ranjan Paul | Assistant chief conservator of forests, FD |
| | | Mr. Ishtiaq Uddin Ahmad | Country Representative, IUCN Bangladesh |
| | | Ms. Pauline Tamesis | Country Director, UNDP |
| | | Mr. Khurshid Alam | Deputy Country Director, UNDP |
| | | Mr. Alamgir Hossain | Program Analyst, UNDP |
| 21 Dec. | Kukri Mukri, Char Fasson, Bhola | Community members | Babuganj Ekota FFF Society |
| | | | Muslimpara Adorsho FFF Society |
| | | | Muslimpara Surjomukhi FFF Society |

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Annex 4. Evaluation matrix

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|---------------------|--------------------------------------|--|---|--|---------------------------------------|
| Project formulation | LFA | Are the project results clearly formulated? | Project results are of SMART quality | Project document | Desk review |
| Project formulation | LFA | Is the project strategy based on valid assumptions? | Assumptions are outside project control, are valid, specific and verifiable, are very likely to certain to be present and are necessary conditions for the project strategy | Project document, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | LFA | Have significant risks been identified and mitigation strategies outlined? | Risks have been identified that are outside project control but will have a significant impact if realized, valid, specific and verifiable, are moderately likely to occur but a mitigation strategy is feasible and within project control | Project document, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | LFA | Have lessons learned from other projects been included in the project design? | Extent to which relevant lessons from other projects have been implicitly or explicitly integrated into the project design | Project documents, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | LFA | Are the project results logically connected and internally coherent? | Degree to which the casual mechanisms between outputs, outcomes, objective and impact are valid and coherent (not contradictory) | Project document, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | Country ownership | Is the project concept in line with national development priorities and plans of the country? | Project goals and outcomes contained within the national/ local policy framework or are likely to be included in said policy framework | Policy documents, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | Partnership/ management arrangements | Have the perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process have been taken into account during project design processes? | Extent and depth of consultations conducted during the project development process | Project document, Project inception report, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | Partnership/ management arrangements | Have roles and responsibilities for project implementation been identified and negotiated prior to project approval? | Degree of awareness and agreement by stakeholders with roles assigned in project design | Minutes of project board meetings, stakeholders | Desk review, field visits, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|------------------------|--------------------------------------|--|--|---|---------------------------------------|
| Project formulation | Partnership/ management arrangements | Have the capacities of the implementing partners/ responsible agency been considered at project design? | Extent to which relevant implementing partners have technical/ financial capacities to implement their part of the project | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, field visits, interviews |
| Project formulation | Partnership/ management arrangements | Does the project have a timeframe sufficient for the achievement of its outcomes? | Level of complexity and connectivity of project activities/ Likelihood of unexpected factors delaying project implementation | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, field visits, interviews |
| Project formulation | Partnership/ management arrangements | Is there in place an enabling policy and regulatory environment for the implementation of the project? | Extent to which the activities of the project are within the national/ local policy and regulatory framework | Policy documents, Peer reviewed paper, grey literature, Stakeholders | Desk review, field visits, interviews |
| Project formulation | Gender and development issues | Have wider development and gender issues been considered in project design? | Extent to which gender perspective have been considered/ analyzed in the project design | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, field visits, interviews |
| Project implementation | M&E system | What kind of monitoring tools have been included? | Necessary monitoring and evaluation tools, including annual reports, field visits, midterm review, terminal evaluation, indicator framework have been included in the project design | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Do the project indicators comply with SMART standards? | Compliance of indicators with SMART standard | Project document | Desk review |
| Project implementation | M&E system | Have roles, responsibilities, methods, timeframe, reporting and budget for monitoring activities been defined and agreed with all relevant project stakeholders? | Extent to which roles, responsibilities, methods, timeframe, reporting and budget for monitoring activities been defined and agreed with all relevant project stakeholders | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Were the allocated resources sufficient for the planned M&E activities? | Presence/ absence of constraints for monitoring activities | Project document, Project inception report, Minutes of project board meetings, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|------------------------|---|--|---|---|-------------------------|
| Project implementation | M&E system | Were key project partners involved in monitoring activities? | Extent of partner involvement in monitoring activities | Minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Was information from monitoring activities relevant for decision making? | Extent to which feedback from M&E activities used for adaptive management | Field visit reports, minutes of project board meetings, MTR, management response, PIRs, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Was work planning based on a results based framework? | Annual work plans follow project logical framework analysis | Annual workplans, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Was the monitoring system appropriate to the national/ local context? | Extent to which monitoring data is aligned or mainstreamed with national systems and/ or use existing information | Project document, annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | M&E system | Was the monitoring system appropriate to the national/ local context? | Cost-effectiveness of monitoring tools (i.e. cost in ratio usefulness as defined by users and amount of time/ human resources/ budget invested) | Project document, annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF partner (implementing) agency performance | Did the implementing agency provide adequate and timely technical support to the executing agency and project team? | Quality and timeliness of technical support to the Executing Agency/ Implementing Partner and Project Team | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF partner (implementing) agency performance | Did the implementing agency provide adequate and timely administrative support to the executing agency and project team? | Quality and timeliness of administrative support to the Executing Agency/ Implementing Partner and Project Team | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF partner (implementing) agency performance | Was the implementing agency responsive to unforeseen challenges to the project implementation | Responsiveness to any salient issues regarding project duration and how they may have affected project outcomes and sustainability | Annual report, PIR, minutes of project board meetings, grey literature, media, peer reviewed papers, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|------------------------|---|--|---|---|-------------------------|
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Did the implementing agency provide adequate and timely technical support to the executing agency and project team? | Quality and timeliness of technical support to the Executing Agency/ Implementing Partner and Project Team | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Did the implementing agency provide adequate and timely administrative support to the executing agency and project team? | Quality and timeliness of administrative support to the Executing Agency/ Implementing Partner and Project Team | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Was the implementing agency responsive to unforeseen challenges to the project implementation? | Responsiveness to any salient issues regarding project duration and how they may have affected project outcomes and sustainability | Annual report, PIR, minutes of project board meetings, grey literature, media, peer reviewed papers, stakeholders | Desk review, interviews |
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Was the project aligned with government priorities? Did government organizations consider the project to be in their interest? | Relevant country representatives from government and civil society involved in project implementation as part of the project steering committee | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Was the project aligned with government priorities? Did government organizations consider the project to be in their interest? | National and local government agencies/ departments/ ministries have provided the financial or technical support identified in the project document | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | GEF Executing Agency/Implementing Partner's execution | Was the project aligned with government priorities? Did government organizations consider the project to be in their interest? | Outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans or national/ local government has approved policies and/ or modified regulatory frame works in line with the project's objectives | Annual report, PIR, minutes of project board meetings, grey literature, stakeholders | Desk review, interviews |
| Project implementation | Stakeholder involvement | Is the implementation of the project country-driven? | Relevant national government agencies (those with a stake in project's results or activities) and local government support the project's goals | PIR, minutes of project board meetings, media, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|------------------------|-------------------------|--|---|---|-------------------------|
| Project implementation | Stakeholder involvement | Is the implementation of the project country-driven? | Local and national government stakeholders have an active role in project decision-making that supports efficient and effective project implementation | PIR, minutes of project board meetings, media, stakeholders | Desk review, interviews |
| Project implementation | Stakeholder involvement | Is the implementation of the project country-driven? | Existence of invested interest of stakeholders in the project's long-term success and sustainability | PIR, minutes of project board meetings, media, stakeholders | Desk review, interviews |
| Project implementation | Stakeholder involvement | Has stakeholder involvement significantly contributed to the achievement of the project's outcomes? | Project communication with stakeholders has contributed to their awareness of project outcomes and activities and long-term investment in the sustainability of project results | PIR, minutes of project board meetings, media, stakeholders | Desk review, interviews |
| Project implementation | Finances | Was the project administration efficient enough to make informed decisions regarding the budget at any time and for the timely flow of funds and for the payment of satisfactory project deliverables? | Variance between planned and actual acquisitions and other expenses | Audit report, Combined delivery reports, PIR, minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | Finances | Was the project administration efficient enough to make informed decisions regarding the budget at any time and for the timely flow of funds and for the payment of satisfactory project deliverables? | Number of steps and timeframe needed for approval for expenditures for different amounts | Audit report, Combined delivery reports, PIR, minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | Finances | Was the project able to mobilize the committed cofunding and/ or additional funds? | Extent to which the project has kept track of committed co-funding and recorded actual disbursement and use | Audit report, Combined delivery reports, PIR, minutes of project board meetings, stakeholders | Desk review, interviews |
| Project implementation | Finances | Was the project able to mobilize the committed cofunding and/ or additional funds? | Extent to which co-financers are included in management, engaged in project activities or informed about project implementation | Audit report, Combined delivery reports, PIR, minutes of project board meetings, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|-----------------|---------------------|---|---|--|--------------------------------------|
| Project results | Objective/ Outcomes | How relevant were the project results to the project strategy and national/ local priorities | Extent to which the project supports policy goals and needs of beneficiaries | Project document, PIR, other project reports, publications, national/ local policy document, budgets and others, peer reviewed/ grey literature, project sites, stakeholders | Desk review, interviews, site visits |
| Project results | Objective/ Outcomes | How effective was the project in achieving project results? | Extent to which the project has achieved its targets | Project document, PIR, other project reports, publications, national/ local policy document, budgets and others, peer reviewed/ grey literature, project sites, stakeholders | Desk review, interviews, site visits |
| Project results | Objective/ Outcomes | How efficient has been the project in achieving project results? (one of three indicators) | 1. The project completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, without need for additional funding (Benchmark approach) 2. The project did not exceed the costs levels of similar projects in similar contexts (Comparison approach) 3. Extent to which management arrangements and key partners could have been re-arranged to achieve outcomes with less resources | Project documents, Combined Delivery Reports, peer reviewed/ grey literature, stakeholders | Desk review, interviews |
| Project results | Mainstreaming | How did the project contribute to other development objectives? | Linkage of project to UNDP programming instruments and development priorities | UNDP programming instruments, government policy documents, peer reviewed/ grey literature | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|-----------------|--------------------------|--|---|---|-------------------------|
| Project results | Mainstreaming | How did the project contribute to other development objectives? | Project contribution/ linkage to better preparations to cope with natural disasters | UNDP programming instruments, government policy documents, peer reviewed/ grey literature | Desk review, interviews |
| Project results | Mainstreaming | How did the project contribute to other development objectives? | Project contribution/ linkage to greater consideration of gender aspects, (i.e. project team composition, gender-related aspects of pollution impacts, stakeholder outreach to women's groups | UNDP programming instruments, government policy documents, peer reviewed/ grey literature, stakeholders | Desk review, interviews |
| Sustainability | Financial sustainability | Is there a significant risks that there would be no resources to continue delivering project benefits after project closure? | <p>Likelihood of financial and economic resources being available once GEF grant assistance ends (This might include funding through government - in the form of direct subsidies, or tax incentives, it may involve support from other donors, and also the private sector):</p> <ol style="list-style-type: none"> 1. Financial resources needed for the continuation of project benefits 2. Financial resources available, e.g. establishment of financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (UNDP, 2012) 3. Mainstreaming project activities into the economy or community production activities | Project document, Project strategy documents, UNDP programming instruments, government policy documents, financial outlook, ministry budgets, local budgets, International Partners's programming instruments, peer reviewed/ grey literature, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|----------------|---|--|---|--|-------------------------|
| Sustainability | Socio-economic sustainability | Do project stakeholders see it in their interest to continue delivery of project benefits? | <p>Likelihood of level of stakeholder ownership (including ownership by governments and other key stakeholders) will be sufficient to allow for the project outcomes/benefits to be sustained</p> <ol style="list-style-type: none"> 1. Awareness of project objectives and results by key stakeholders 2. Commitment to project objectives and results by key stakeholders 3. Identification and involvement of champions | Project document, Project strategy documents, UNDP programming instruments, government policy documents, financial outlook, ministry budgets, local budgets, International Partners' programming instruments, peer reviewed/ grey literature, stakeholders | Desk review, interviews |
| Sustainability | Institutional framework and governance sustainability | Are the requisite systems for accountability and transparency, and required technical knowhow for the continuous delivery of project benefits present? | Policy and regulatory frameworks support project objectives | Project document, Project strategy documents, programming instruments, peer reviewed/ grey literature, stakeholders | Desk review, interviews |
| Sustainability | Institutional framework and governance sustainability | Are the requisite systems for accountability and transparency, and required technical knowhow for the continuous delivery of project benefits present? | Development of appropriate institutional capacity (systems, structures, staff, expertise, etc. | Project document, Project strategy documents, programming instruments, peer reviewed/ grey literature, stakeholders | Desk review, interviews |

| Section | Sub-section | Evaluation questions | Indicators | Sources | Methodology |
|----------------|------------------------------|--|---|--|--------------------------------------|
| Sustainability | Environmental sustainability | Are there any environmental risks to project sustainability? | Likelihood that the dimension of natural or anthropogenic environmental changes will negate the achievements of the project | Project document, Project strategy documents, peer reviewed/ grey literature, stakeholders, project sites | Desk review, interviews, site visits |
| Catalytic role | | Has the project demonstrated, contributed to replication or scale-up of any innovative technology/ approach? (one or none of the four indicators of the catalytic scale) | <ol style="list-style-type: none"> 1. Production of a public good 2. Development of demonstration sites, successful information dissemination and training 3. Lessons and experiences are replicated in different geographic areas or experiences are replicated within the same area but funded by other sources 4. Approaches developed through the project are taken up on a regional / national scale, becoming widely accepted, and perhaps legally required | Project document, Project strategy documents, International Partners' programming instruments, peer reviewed/ grey literature, stakeholders, project sites | Desk review, interviews, site visits |
| Impact | | Has the project cause verifiable improvements in ecological/ human status or verifiable reductions in stress on ecological/ human systems? (one or the two indicators) | <ol style="list-style-type: none"> 1. Verifiable improvements/ progress towards ecological/ human status 2. Verifiable reductions in stress/ vulnerability on ecological/ human systems | Project sites, stakeholders, project publications, grey/ peer reviewed literature | Site visits, interviews, desk review |

Annex 5. Evaluation consultants code of conduct agreement form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: José Antonio Cabo Buján

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Kathmandu, Nepal on 02/12/2015

Signature:



Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Dr. Nizamuddin Al-Hussainy

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Dhaka, Bangladesh on 03/12/2015

Signature:

Annex 6. Rating Scales

Rating scale of the terminal evaluation

| Ratings for Progress Towards Results: (one rating for each outcome and for the objective) | | |
|--|--------------------------------|--|
| 6 | Highly Satisfactory (HS) | The objective/outcome has achieved or exceeded all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as “good practice”. |
| 5 | Satisfactory (S) | The objective/outcome has achieved most of its end-of-project targets, with only minor shortcomings. |
| 4 | Moderately Satisfactory (MS) | The objective/outcome has achieved most of its end-of-project targets but with significant shortcomings. |
| 3 | Moderately Unsatisfactory (HU) | The objective/outcome has achieved its end-of-project targets with major shortcomings. |
| 2 | Unsatisfactory (U) | The objective/outcome has not achieved most of its end-of-project targets. |
| 1 | Highly Unsatisfactory (HU) | The objective/outcome has failed to achieve its end-of-project targets. |
| Ratings for Project Implementation & Adaptive Management: (one overall rating) | | |
| 6 | Highly Satisfactory (HS) | Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as “good practice”. |
| 5 | Satisfactory (S) | Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action. |
| 4 | Moderately Satisfactory (MS) | Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action. |
| 3 | Moderately Unsatisfactory (MU) | Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action. |
| 2 | Unsatisfactory (U) | Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management. |
| 1 | Highly Unsatisfactory (HU) | Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management. |

| Ratings for Sustainability: (one overall rating) | | |
|--|--------------------------|---|
| 4 | Likely (L) | Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future |
| 3 | Moderately Likely (ML) | Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review |
| 2 | Moderately Unlikely (MU) | Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on |
| 1 | Unlikely (U) | Severe risks that project outcomes as well as key outputs will not be sustained |

Annex 7. Total Beneficiary table

| Agency | Intervention | Borguna | | | Bhola | | | Chittagong | | | Noakhali | | | Summary |
|----------|------------------|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|---------|
| | | Male (nos) | Female (nos) | Landless (nos) | Male (nos) | Female (nos) | Landless (nos) | Male (nos) | Female (nos) | Landless (nos) | Male (nos) | Female (nos) | Landless (nos) | Total |
| FD | Mangrove | 116 | 70 | | 112 | 13 | 48 | | | | 721 | | 721 | 1032 |
| | FFF | 170 | 46 | 216 | 290 | 70 | 152 | | | | 239 | 81 | 272 | 896 |
| | Mound | 12 | 8 | | 120 | 133 | 155 | | | | 243 | 32 | 350 | 548 |
| | Strip | 1082 | 641 | | 36 | 19 | 18 | 768 | 393 | 986 | 389 | 72 | 461 | 3400 |
| | Training | 1334 | 1288 | | 2143 | 1849 | | 1265 | 667 | 998 | 2168 | 1986 | | 12700 |
| DAE | Training | 682 | 291 | | 916 | 236 | | 1091 | 581 | 469 | 968 | 457 | | 5222 |
| | Demonstration | 574 | 370 | | 315 | 34 | 96 | 440 | 83 | 347 | 318 | 76 | 261 | 2210 |
| DLS | Training | 169 | 181 | | 250 | 267 | | 192 | 225 | 213 | 159 | 412 | 364 | 1855 |
| | Demonstration | 51 | 54 | | 140 | 154 | 110 | 122 | 130 | 213 | 37 | 162 | 164 | 850 |
| DoF | Training | 36 | 28 | | 74 | 47 | | 107 | 91 | 130 | 80 | 77 | 100 | 540 |
| | Demonstration | 72 | 43 | | 57 | 19 | 5 | 61 | 43 | 61 | 62 | 16 | 43 | 373 |
| BFRI | Demonstration | | | | 99 | 45 | 55 | | | | 51 | 18 | | 213 |
| HOLISTIC | Training | 11 | 14 | | | | | 10 | 15 | 25 | | | | 50 |
| | Demonstration | 11 | 14 | | | | | 10 | 15 | 25 | | | | 50 |
| BWDB | Demo Water Mgmnt | | | | 53 | 47 | 46 | | | | | | | 100 |
| UDMC | Demo Water Mgmnt | | | | 43 | 37 | 37 | | | | | | | 80 |
| | | 4320 | 3048 | | 4648 | 2970 | | 4066 | 2243 | | 5435 | 3389 | | |
| | | 7368 | 216 | | 7618 | 722 | | 6309 | 3467 | | 8824 | 2736 | | 30119 |

Annex 8. Audit Trail

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|--|---|--|--|--|
| Complete implementing partners | Project summary table and several other sections | indeed | NA | List completed |
| Unions and districts of the project PIMS 4878 | Executive summary/ Summary of conclusions | indeed | UNDP (2015) Integrating Community-Based Adaptation into Afforestation and Reforestation Program Project Document | changes made according to comment |
| Number of households beneficiaries: 9,000 | Executive summary/ Lessons learned | the paragraph makes reference to the 896 households for whom data is available on income increase. | PMU (2015) PIR PMU (2016) Summary of Beneficiaries PMU (2014) Database of Beneficiaries Al-Hossainy (2015) TE mission notes | Reference to 9,000 households introduced, but making explicit reference to "significant income increases" of ca. 900. Additionally, income increase, based on information provided by the PMU in the Completion Report (2015) has been incorporated as Finding 13b |
| Summary table of beneficiaries and trainings and benefits received | Executive summary/ Lessons learned | Excellent input! | PMU (2016) Summary of Beneficiaries | Table included in section Findings/ Results/ Outcome 1. Table 1 and 2 of report also modified accordingly. |
| Complete list of agencies participating in selection of field sites | Project description/ Description of field sites | indeed | NA | Agencies included |
| A third party evaluation of coastal afforestation through GIS mapping has also been conducted by the UNDP in 2014. | Project implementation/ Project level M&E systems | Excellent observation | Sayd, A.M. (2015) Monitoring of Coastal Afforestation | Sentence incorporated |
| Comment | In reference to section/paragraph | Answer | Reference | Action |
| Specific contributions from local government units | Project implementation/ Stakeholder engagement | Excellent observation | NA | Sentence incorporated |

| | | | | |
|---|---|--|--|---|
| Inclusion of <i>"Alternatively, court cases against encroachers, illicit fellers, etc. have been abruptly reduced in all project sites"</i> . | Project implementation/ Stakeholder engagement | Indeed. But our field notes and information provided by the PMU referred to only Hatiya. Please provide more information on other sites | NA | Incorporation of the sentence as "Moreover, at least in one site..." |
| Specific number of officials trained | Project implementation/ Stakeholder engagement | Indeed | NA | Number incorporated |
| Complete list of funding agencies and amounts for PIMS 4878 | Project implementation/ Finances | Indeed | UNDP (2015) Integrating Community-Based Adaptation into Afforestation and Reforestation Program Project Document | List completed |
| Precise information on mangroves | Results/ Outcome 1 | Indeed | NA | Information incorporated |
| Number of cooperatives supported | Results/ Outcome 1 | Indeed | NA | Information incorporated |
| Highly Satisfactory rating for Efficiency is given no explanation/ justification in the executive summary's ratings table. This should be included. | Executive Summary/ Efficiency | Review referred to first draft (28/01) that indeed gave no justification for efficiency. Second draft (18/02) gave justification. However, on review, the justification was found to be partially inconsistent | | Efficiency rate justification given as: 1. completion within expected framework 2. positive benefit-cost ratios Additionally, the TE team review of the efficiency section revealed several conceptual and methodological mistakes that have been corrected in the last version of the report |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|--|--|-----------|---|
| <p>A rating that requires more justification: Highly Satisfactory rating for Implementing Agency performance with the justification in the executive summary: “UNDP provided adequate administrative support throughout the project implementation timeframe”. Later in the report the evaluators discuss how a 10 month project implementation delay occurred in the middle of the project because of a revision to the original Project Document. Because of this, I’m not sure a HS rating is justified for this category. And it’s the same of the executing agency’s HS rating; later in the report the evaluators state, “a better coordination at field level could have avoided the significant transaction costs involved in actual allocation of land plots for the project’s agricultural activities.” Perhaps both the IA and EA ratings should be HS, but just from the TE report it’s hard to tell how these HS ratings are currently justified with enough evidence.</p> | <p>Ratings/ executive summary/ Implementing Agency/ Executing Agency</p> | <p>The TE report explains that the delay period was entirely due to factors beyond the control of both IA and EA.</p> <p>While it is true that allocation of land for the integrated systems involved significant research and negotiations, this was not due to lack of interest by the executing agency but rather the inherent scarcity of available suitable land and the interplay of several factors at local scales, including the interest of other local and national agencies. Moreover, the project did manage to allocate space for afforestation and agricultural activities with full engagement of the main implementors, including the executing agency (FD), local government and the ministries of Agriculture and Fisheries and Livestock.</p> <p>Other than that, the project was implemented without any major setback.</p> | | <p>As it may be argued that indeed a) UNDP should have foreseen the delay caused by the additional funding and b) the FD could have foreseen the land availability constraints and that the criteria for agency performance include technical, administrative and risk management, as well as ownership (for the national agencies) and the benchmark for highly satisfactory rating (see annex x) include outstanding technical and administrative support, as well as risk management, the TE downgrades the rating for both agencies to satisfactory</p> |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|---|---|-----------|--------|
| <p>A rating that requires more justification:</p> <p>Highly Satisfactory rating for Effectiveness in the executive summary's ratings table is given the justification that, "All project output targets achieved". However, later in the report, the evaluators state that not all output targets, as stated in the Project Document, were achieved. The section on Effectiveness in the report doesn't clearly demonstrate the progress made against each end-of-project target, and vaguely states, "Based on the largely achieved project targets and the demonstrable efforts by the project unit and the implementing and executing agencies to overcome challenges to implementation the terminal evaluation rates the effectiveness of the project outcomes as highly satisfactory. The cases where the original project targets were not achieved, such as at outcome 1, the failure can be tracked to over ambitious targets set in the project documents that did not reflect the actual field challenges faced during implementation of activities at field level." More justification for this rating is required, as well as a more systematic approach to reaching findings and conclusions on effectiveness.</p> | Ratings/ executive summary/ Effectiveness | <p>The TE report conclusion on effectiveness is based on a rigorous and systematic review of the actual achievements of the project based on the EOP targets for every outcome as they were at project completion, i.e. after being reviewed and adapted as part of adaptive management practices and in accordance with the recommendation of the MTR. The conclusion does not need to repeat again the systematic presentation of findings of the whole section on which it is based.</p> | | NA |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|-----------------------------------|--|-----------|--|
| While many findings are presented by outcome, a more systematic method of coming to this conclusion and rating is required. For example, the evaluation team could include the results matrix with the indicators and targets presented, and a column which shows both the progress at the mid-term (if this was presented in the MTR), at the most recent PIR (as reported by the project team) and at the terminal point (as deemed by the evaluators). | Findings/ Results/ Effectiveness | See above | | Outcome achievements have been systematically presented in a narrative form in the report. However, they are now being also presented in tabular form. |
| The evaluators state that the recommendations are focused on four issues: land availability and agreements for field activities, self-reliance of community beneficiaries, long-term strategy for coastal areas and research and monitoring of biodiversity. These seem to be substantive areas to make recommendations, however the recommendations in the executive summary are not clear directives. They should be made more specific. | Executive summary | The TE report makes recommendations on said four issues, summarized in the executive summary, that direct concrete agencies to concrete tasks. | | NA |
| The UNDP-GEF TE Guidance and the GEF M&E policy/ guidance should be referenced in the TE report. | NA | The relevant guidance is mentioned in the report and the documentation list | | Redundant references to the UNDP-GEF guidance have been included at the methodology section for clarity |
| The project's progress as reported by the project team, CO, implementing partners, and Regional Technical Advisors in the annual Project Implementation Reviews (PIRs) should be discussed in the report. | Findings | The TE report based all its findings on the project's progress as reported in the PIRs, including notes by the CO and RTA, as well as the field visits and interviews. | | NA |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|---|--|---|---|
| The report discusses the project's contribution to some UNDP mainstreaming principles such as reducing gender inequality, reducing poverty, and preventing disaster crisis prevention and recovery. In the mainstreaming section, the TE report should additionally discuss relevant human rights aspects of the project as well as the project's linkage to the United Nations Development Assistance Framework (UNDAF). | Findings/ Mainstreaming | The section on mainstreaming should assess: 1. Whether it is possible to identify and define positive or negative effects of the project on local populations, 2. If the project objectives conform to agreed priorities in the UNDP country programme document (CPD) and country programme action plan (CPAP). 3. Whether there is evidence that the project outcomes have contributed to better preparations to cope with natural disasters. 4. Whether gender issues had been taken into account in project design and implementation and in what way has the project | UND-GEF Guidance for the Conduct of Terminal Evaluations, page 21 | NA |
| Page numbers should be added to the report | NA | OK | | Page numbers added |
| The recommendation in the Project Results section after finding 7, roughly pg. 35, is not a recommendation but a conclusion and should be revised as such. The statement reflects on the previous status of what should have been done in the project in the past. If it's meant to be a recommendation, then it should be re-stated to focus on what can be done in the future. | Findings/ Results/ Effectiveness/ Outcome 1 | OK | | Changed "must have developed" to "must develop" |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|-----------------------------------|---|-----------|------------------------------|
| In the Methodology section, the methodology should further be described e.g. a description of the rationale of the methodological approach taken, the rationale and basis for the selection of field visits and persons interviewed. The Report should include a description of the sampling method that was used and its limitations, if any. Additionally, the evaluation criteria used in the TE (relevance, efficiency, effectiveness, sustainability, impact) should be discussed and defined. Any limitations to the methodology should also be outlined. | Introduction/ Methodology | OK | | Methodology section expanded |
| The TE report should also briefly outline the MTR recommendations and how these individual recommendations were or were not addressed in the time since the MTR. | fNA | The TE report mentions cites the main recommendations of the MTR and how they've been addressed by the project management in pages 10, 24, 25-27 and 43 | | NA |
| The TE report doesn't address whether the project developed sustainability strategy/ exit plan. Is the project mitigating risks through a sustainability strategy/ exit plan? Did the project mitigate risks to sustainability identified in the TE? (For example, environmental risks and social risks, including the encroachment in coastal forests through activities such as firewood gathering and grazing) | Findings/ Sustainability | The TE reports dedicates a whole section to sustainability in all four dimensions. | | NA |

| Comment | In reference to section/paragraph | Answer | Reference | Action |
|---|---|---|---|--------|
| Because the annexes weren't included with this TE report (perhaps they were annexed separately or not prepared yet?) | Annexes | Annexes included in draft 18/02/2016 | | NA |
| In addition to the annexes outlined in the ToR, I suggest that the evaluator also include this audit trail with details the most important comments made on the report and how the evaluators addressed these comments. | In addition to the annexes outlined in the ToR, I suggest that the evaluator also include this audit trail with details the most important comments made on the report and how the evaluators addressed these comments. | Audit trail is a standard part of the annexes | UND-GEF Guidance for the Conduct of Terminal Evaluations, page 10 | NA |
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