Netherlands Commission for
Environmental Assessment
Dutch Sustainability Unit

# Assessment of the Report: "Building Community Resilience Through Integrated Water Management"

A sustainability assessment

## Bangladesh

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Netherlands Commission for Environmental Assessment
Dutch Sustainability Unit

# Advisory Report by the Dutch Sustainability Unit

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# 1. INTRODUCTION

The NCEA/DSU received a request from DGIS/RNE-Dacca on 18 October 2012, to assess the report: *"Building Community Resilience Through Integrated Water Management"* (September, 2012).

The aim of this assessment is to assess to what extent environment and climate issues are integrated into the programme that is proposed in the report. This assessment has been executed as a desk review (further information: see inside cover page).

### Assessment framework

The programme was assessed against 7 criteria (see table 1). For each of the criteria the following four questions have been answered:

- Is the criterion relevant for the proposed programme?
- What is the current context concerning this criterion?
- Does the proposed programme take this criterion into account?
- Are there opportunities to contribute to (or to strengthen) the integration of this criterion in the programme?

Table 1 gives an overview of relevancy, coverage and availability of options for further improvement for each of the 7 criteria.

# 2. CONCLUSIONS ON MAINSTREAMING OF ENVIRONMENT AND CLIMATE

### General

The Report "*"Building Community Resilience Through Integrated Water Management"* (September, 2012) describes the rationale of the proposed interventions of the programme. Generally, the interventions appear to be relevant with respect to climate, land and soil degradation, water resources, forests and renewable energy. On these issues we give some additional suggestions that could be included in the programme to improve its focus and effectiveness.

The programme strategy is not clearly addressing nature conservation and health issues.

We conclude that:

- The programme would benefit from a clear problem analysis of the relationship between governance, land & resource management and nature conservation. This may probably need some more reflexion with stakeholders.

- The program document does not provide information on the country-specific EIA legislation, river basin plan(s), land use planning or climate change strategy. For this reason we have not been able to assess to what extent the program addresses these issues:
    - No reference is made to the long term strategy for climate change adaptation at the project sites. Especially, climate change adaptation measures require a long term strategy to justify investments;
    - Linkages with basin management are not made. These should be provided to be able to judge whether the proposed interventions are aligned with the basin management plan;
    - An assessment of the need for EIA according to the Bangladesh regulatory framework of the proposed interventions is required and recommended.

In chapter 3 of this report assessment findings are described and justified, and recommendations are elaborated that can be used for the further development of the programme.

**Table 1: Sustainability assessment framework – environment and climate criteria**

| Environment and climate criteria | | a. | b. | c. |
|---|---|---|---|---|
| Climate; | *programme takes the expected climate chance impacts into consideration* | + | + | - |
| Land and soil degradation; | *programme decreases land and soil degradation* | + | + | + |
| Water resources; | *programme increases water safety, security, quality and access to water* | + | + | + |
| Nature conservation; | *programme maintains / increases nature protected zones* | + | - | + |
| Forests; | *programme contributes to sustainable forest management* | + | + | + |
| Renewable energy; | *programme strengthens the use of renewable energy* | + | + | + |
| Health; | *programme avoids or decreases environmental pollution load influencing health* | + | - | + |

Legend:

a. + = relevant - = not relevant

b. + = covered - = not covered

c. + = all relevant issues covered - = additional opportunities available

# 3. ASSESSMENT

## Climate

*What is the current context?*

Most of Bangladesh is flat and situated at almost sea level. The country is among the most vulnerable to climate change, particularly due to sea level rise, flooding of floodplains and cyclones. The proposed intervention sites are prone to these risks.

*Does the proposed programme take this into account?*

Components 1, 2 and 3 directly target risks related to climate change. Components 4 and 5 will also contribute to resilience to climate related risks.

*Are there opportunities for (further) integration in the programme?*

The programme appears to be well focused on risks related to climate change and there is no need for further elaboration on that issue here. However, climate related risks in a low altitude landscape such as the Bangladesh coastal zone requires a long term strategy for dynamic land management, allowing natural growth by sedimentation and flexibility with regard to land use and human settlement. In the long term, construction of dikes may not be a solution due to physical limitations and costs of maintenance and drainage.

## Land and soil degradation

*What is the current context?*

By nature, the Bangladesh delta landscape is characterised by erosion and sedimentation. Sedimentation results in new fertile land and is a natural process compensating sea level rise. Sedimentation depends however on silt supply, which in its turn depends on river bed erosion in the delta or upstream. Deforestation increases vulnerability to erosion, but flat landscapes such as most of Bangladesh are not very vulnerable to rain erosion.

*Does the proposed programme take this into account?*

Component 1 involves the plantation of mangrove species on newly accreted land in order to accelerate sedimentation and conserve land. In the components 2 and 3 tree planting is proposed for the same purpose.

*Are there opportunities for (further)integration in the programme?*

Interventions in water systems such as changes in drainage systems may require EIA to assess and eventually mitigate effects of erosion patterns.

## Water

*What is the current context?*

The principal water issues in Bangladesh are related to water quality and flooding:

(1) Water quality is threatened by increasing salinity due to reduced fresh water supply by rivers in some areas and flooding of land by salt or brackish river water. Organic pollution due to the high population density and extensive use of pesticides, antibiotics and other chemicals in agriculture and shrimp farming (antibiotics) cause wide spread pollution of surface water. Due to the natural presence of arsenic in the subsurface of southern and eastern Bangladesh, ground water is often not appropriate for drinking water. The combination of these factors causes problems for the availability of drinking water and opportunities for farming.

(2) The most important causes of flooding are climate change (see above), and upstream land use changes degrading the water absorption capacity of the river basin.

*Does the proposed programme take this into account?*

Component 2 promotes rain water harvesting which has a high potential of providing clean drinking water to communities. Component 4 includes solar based desalinisation.

The programme does not address river basin management. We recommend to analyse to which extent proposed interventions are aligned with the existing basin management plan.

*Are there opportunities for (further) integration in the programme?*

As water is a crucial factor for both biodiversity and communities, screening for EIA is legally required for all interventions in water systems such as dikes, drainage and embankments taking into account assessment and mitigation of impacts on aspects such as vulnerable biological species (sea turtle, migratory birds, fish, cetaceans, etc.), water quality and risks (e.g. flooding, salinisation).

## Nature conservation

*What is the current context?*

Biodiversity is currently under pressure in Bangladesh due to (1) intensive land use, (2) water pollution, (3) a low policy priority for conservation and (4) insufficient law enforcement. Nevertheless, some biodiversity hotspots are still of importance, such as mangrove ecosystems in the coastal zone, freshwater wetlands inland and rainforest in the hilly area of the south-east. The diversity of water related species is significant. Both Cox Bazar and Hakaluki Haor represent important and vulnerable biodiversity hotspots. Hakaluki Haor is a very important resting place for migratory waterfowl and poaching is an issue. Some original swamp forest and evergreen forest remains. Cox Bazar has important coastal wetlands, and it provides nesting ground for threatened

sea turtle species and important resting place for migratory birds. Apart from illegal and unsustainable resource use, tourism driven land grabbing along the unique beach is one of the main threats to the landscape and biodiversity. Char Kukri Mukri Wildlife Sanctuary is a protected mangrove area with specific mangrove species including characteristic Sundri trees various mangrove crustaceans, fish, birds etc. Apart from unsustainable resource use and illegal deforestation (by local authorities for road construction) threatens the ecosystem.

*Does the proposed programme take this into account?*

Component 4 intervenes through "adaptive natural resources management in ecologically critical areas".

*Are there opportunities for (further) integration in the programme?*

Nature conservation requires not only the support from local communities, but even more so from local authorities respecting legal measures, to assure sustainable resource use and biodiversity conservation. We notice that corruption is a key threat to conservation and therefore strategies for commitment and accountability need to be in place and target local authorities[1].

## Forests

*What is the current context?*

Most of Bangladesh was covered by forests in the past, but due to the high population density and agricultural activities, the forest cover has been reduced to approximately 5% (FAO 2011). However, forest plantations have been relatively successful under various projects. The most important driver for natural forest regeneration is land accretion in river systems and mangroves form a significant proportion of the forests in Bangladesh. Forest products are used for construction materials, food and fuel, of which the latter is most in demand for domestic and industrial use (particularly brick manufacturing). Due to its important role in land stabilisation, the programme should address the promotion of forest conservation.

*Does the proposed programme take this into account?*

Component 1 involves mangrove restoration and the promotion of sustainable forest resources. Components 2 and 3 use tree planting for soil stabilisation.

*Are there opportunities for (further) integration in the programme?*

We recommend that, besides mangrove restoration efforts of component 1, forest plantation is integrated in the other components. Aim is to increase resilience against

[1] See the links were reference is made to non-compliance of legislation by local authorities for Char Kukri Mukri and Cox Bazar:
http://www.thedailystar.net/newDesign/news-details.php?nid=239184
http://www.asiaone.com/News/AsiaOne%2BNews/Asian%2BOpinions/Story/A1Story20110108-257069.html

the impact of strong winds and water – for example for the protection of canals, dikes, embankments and ditches – and to provide alternative livelihood resources. Apart from wood producing species, fast growing golpatta and bamboo are species that could be considered as they offer soil protection and the opportunity of sustainable resource use.

## Renewable energy

*What is the current context?*

The use of wood as energy source depends very much on the access to forests and alternative resources. Due to the increasing humans/forests ratio, the price of fuel wood is increasing and fuel use shifts more to other resources such as agricultural residuals and liquefied gas. The distribution of liquefied gas is limited by poor infrastructure and facilities.

*Does the proposed programme take this into account?*

Component 5 includes the promotion of fuel efficient stoves and biogas through "green jobs" development. The distribution of gas cylinders is ruled out as one of the alternatives, because it is considered as "not renewable". There is little assessment of the green business possibilities of gas cylinders.

*Are there opportunities for (further) integration in the programme?*

We have the following recommendations:

a. Reconsider the distribution of gas cylinders, particularly for more urban areas, on the basis of both constraints and green business possibilities.

b. Biogas production has certainly a considerable potential in the rural areas. Issues for its development are supply to various types of users (domestic, collectives, small enterprises), and the diversification/development of different sources of fermentation.

c. In the current situation of rural demand, the fuel demand of the brick industry is relatively large and polluting. Alternative sources of energy supply to the brick industry should therefore be studied.

## Health

*What is the current context?*

Environmental issues related to health are particularly associated with water quality as already mentioned above (see "water"). The main factors are the use of pesticides, fertilisers, antibiotics (in shrimp farming), domestic (organic) pollution, industrial pollution, natural pollution (arsenic, salinisation). Bad water quality may have a direct impact on health (intoxication) or contribute to the transmission of water related diseases.

*Does the proposed programme take this into account?*

Although the programme contributes to the improvement of drinking water through rainwater harvesting and solar desalinisation, it does not address direct threats to water quality.

*Are there opportunities for (further) integration in the programme?*

The programme offers several opportunities to address the causal relation between the water quality and the causes influencing water quality. We recommend that the VCCs under component 4 as well as capacity building activities under component 3 and 5 should be used to educate people about their economic and domestic activities in relation to water quality aiming to improve the quality of water.