

**NINA** Norsk institutt for naturforskning

# Tanguar Haor Wetland Biodiversity Conservation Project - an Appraisal

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**NINA Project Report 16**



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**NINA** Norwegian Institute for Nature Research

# Tanguar Haor Wetland Biodiversity Conservation Project – an Appraisal

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## Preface

In a letter dated November 7, 2001, the Directorate for Nature Management (DN) requested the Norwegian Institute for Nature Research (NINA), represented by Dr. Kjetil Bevanger, to lead an Appraisal Team to evaluate the project proposal "Tanguar Haor Wetland Biodiversity" as a follow up of the "Conservation BGD 0049 National Conservation Strategy Implementation Project – 1: Implementation of management plans in environmentally critical areas". The terms of reference (ToR) for the evaluation is given in Annex 1. The Appraisal Team consisted of four experts; Dr. Anjan K. Datta, Ms. Momtaz Shirin were recruited by NORAD, Dhaka, whereas Mr. Andre-Thomas Eid and Dr. Kjetil Bevanger were recruited by NORAD and DN respectively.

The field work lasted from 16-26 November 2001 (cf. Annex 2 for Mission Programme). The project draft report was discussed at NORAD/Dhaka 25 November 2001.

The Appraisal Team wants to thank the NCS staff, led by S. M. Munjurul Hannan Khan, and Lena Hasle and Erik Berg at the Norwegian Embassy in Dhaka. We also want to express our gratitude to the IUCN country representative Dr. Ainun Nishat for his assistance and input and to project officer Dhruva Kanta Kunde and his staff during the site visit to the Tanguar haor. As team leader I want to thank my collaborators in the evaluation team in particular for excellent work and a positive and productive attitude to a difficult task.

Trondheim, 20 December 2001

Kjetil Bevanger  
Team leader

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## Summary

The Tanguar haor wetland system, is located in the north-eastern part of Bangladesh (25°09'-25°12'N 91°04'-91°07'E) in Tahirpur and Dharmapasha Thanas of Sunamganj district under Sylhet Division, close to the Indian border. The haor covers roughly 10,000 hectares of land, has about 60 000 inhabitants and 82 villages. During the monsoon (June-October) the area get more or less inundated under water.

The Northeast region of Bangladesh is known as the Haor Basin (HB). The HB must be considered as a unique ecosystem of national and international importance. Each of the HB wetlands are key elements of a complex hydrological, biological and ecological system, supporting a significant assemblage of rare and vulnerable species of plants and animals, including endemic species. The seasonally flooded haor support major rice growing agriculture and abundant aquatic vegetation provides rich grazing for domestic livestock and sources of fuel and manure for the local people. Managed properly by taking the ecological characteristics into consideration, these wetlands can provide the villagers with abundant protein and food.

The district authorities have collected revenues over years, leasing out wetlands only to trained people in fisheries, although there are several fishermen in the local communities who could benefit from the haor wetland fisheries.

The Tanguar haor, being declared as an "Ecologically Critical Area" by the Bangladeshi government in 1999, and as Bangladesh's second RAMSAR site since 10 July 2000, is particularly threatened by overexploitation of fishery stocks, deforestation and large-scale waterfowl harvesting. The area has so far been ruled by wealthy and politically well connected people for a long period, and the local fishermen have (even forcefully) been excluded from this resource, which have lead to significant impoverishment. The old leasing system has now been abandoned, and at present no organised system for resource utilisation is in place.

During the 1990s Bangladesh completed two major conservation initiatives; the National Conservation Strategy (NCS) and the National Environmental Management Action Plan (NEMAP). Under the NCS the "National Conservation Strategy Implementation Project – 1" (NCSIP-1) has been undertaken. The main purpose of NCSIP-1 has been to prepare management plans in biologically rich and intensively used ecosystems.

One of the two main ecosystems included in the proposed project is the Tanguar haor wetland system. A Tanguar Haor Management Plan (THMP) was finalised in February 2000. The project is aiming at poverty alleviation through income generating activities, community based management and sustainable resource utilisation.

An achievement of the goals will fully depend on the successful integration of the different elements – they should not be treated separately.

The proposed project focus on the poorest of the poor within Bangladesh and can be regarded as a socio-economic development programme. The people in the Tanguar haor area are heavily dependent on (both for subsistence and income generating activities) the utilisation of natural resources throughout the year.

The proposed activities are in line with the present MoU between GoB and GoN on several issues.

A crucial element of the project is tied to a successful establishment of a new leasing system. This again will depend on the future commitment and involvement by the community/villages, and their ability to form strong Community Based Organisations (CBOs) covering different groups, interests and tribal ethnic/non-tribal villages. A governmental commitment and ownership, to the work in the Tanguar haor will depend upon a "bottom up" process/pressure, in order to force different sectors and governmental bodies (in particular at district level) to restructure and change their priorities and old practices.

The THMP and the proposed follow-up contain all the necessary elements that have to be dealt with regarding the implementation phase. At the same time several decisive elements of importance to a successful implementation, is insufficiently dealt with.

The Appraisal Team considers it premature to make a final conclusion on the future prospect for the proposed follow-up. It is suggested that the MoEF/NCS-Office should be given an interim period of 6 months in order to come up with more specific information, as well as taking practical steps and show further commitment to the proposed implementation of the programme.

The Appraisal Team suggests that the technical constructions and human resources established during the NCSIP-1 phase should be maintained at an appropriate minimum level during this period. Consequently an interim budget has to be set up.

# 1 Introduction

The Tanguar haor is located in the north eastern part of Bangladesh (25°09'-25°12'N 91°04'-91°07'E) in Tahirpur and Dharmapasha thanas of Sunamganj district under Sylhet Division. The haor covers roughly 10,000 hectares of land. During the monsoon almost the whole area gets inundated under water that flows through the Baulai-Surma river system which is one of the main Brahmaputra tributaries at the base of the Meghalaya Hills adjacent to India. In the dry season most of the water recedes from the land, and only 25-30% land area remains under water, which are classified as *beels*. According to available statistics there are at least 46 *beels* within the defined boundaries of this particular *haor*. The area is located at an altitude of 2.5-5.5 meters above the sea level.

With an estimated population of between 130 and 140 million, and a land surface of 148,393 km<sup>2</sup> the population density in Bangladesh is more than 900 per square km, which makes the country one of the most densely populated areas in the world. With the present estimated birth and population growth rate these figures probably will increase significantly in the years to come.

A large part of the Bangladesh territory remain within the Bengal Basin. This vast lowland floodplain contains the largest delta in the world formed by the Brahmaputra and Ganges river system. Due to its geomorphological characteristics the basin once was one of the largest wetland ecosystem in the world. Ten to five thousand years ago human occupation began and over these thousands of years the Bengal basin has been converted into the single largest rice growing area in the world.

As a consequence of the wetland dynamics, the human population of Bangladesh is not evenly distributed in the country. The fact that the main territory of Bangladesh remain within the Ganges, Brahmaputra and Meghna floodplains, makes a rather restricted land surface available to the people during the wet season. Most of the rainfall occurs between the months of May and September, when the summer monsoon brings torrential rains. During this period about five million hectares (out of total 14 million ha of land) are normally inundated due to river overflow, which actually transform a significant part of the country (approximately 70%) to a wetland area for some months. Given these conditions it is obvious that the natural resources are under tremendous pressure.

Though, in spite of significant migration to the area, population density of the HB in relative terms remains low compared to the rest of the country. In 1991, the Tahirpur thana, where Tanguar haor is located, had 7 unions, 131 mouzas, 234 villages and a population of 133,569. There are relatively few villages within the Tanguar haor. The majority is to be found in the outskirts. There are about 82 villages in and around the wetland. Most of them, especially those within the haor, are small and generally have a population in the range of 300-700. The villages to the north of the wetland, in the region close to the Indian border,

are generally larger and some have populations close to one thousand.

## 1.1 Bangladesh' commitment to biodiversity protection

Bangladesh signed and ratified the Convention on Biological Diversity (CBD) in 1992 and 1994 respectively. Moreover, the country has ratified, accepted and acceded to CITES, World Heritage Convention, RAMSAR Convention, Climate Change Convention and Convention to Combat Desertification. Bangladesh consequently adheres and commit to the conservation of biodiversity and the environment.

During the 1990s Bangladesh completed two major conservation initiative; the NCS and the NEMAP. As a follow-up of NEMAP, Bangladesh has been carrying out a project titled "Sustainable Environment Management Programme" (SEMP) with 26 components, of which three are directly concerned with the conservation of biodiversity in the wetlands and in the floodplains of the country through local community participation. Bangladesh has also initiated the preparation of Biodiversity Strategies and Action Plan (BSAP) for conservation of biodiversity under the sponsorship of the GEF. Under the NCS the NCSIP-1 has been undertaken. The main purpose of NCSIP-1 has been to prepare management plans in biologically rich and intensively used ecosystems. One of the two main ecosystems included in this project is the Tanguar haor wetland system in the Northeast region of Bangladesh. A THMP was finalised in February 2000.

A majority of the Bangladesh land surface has been forested, however, the deforestation process has been speeded up as the human population has increased. At present no more than 4% of the land area is forested. Until 2000 and the RAMSAR declaration of the Tanguar haor, the Sundarban mangrove forest reserve was the only wetland area under active protection.

In general there is no possibility that endangered ecosystems or species could be dealt with one at a time. To devise priorities to new protected areas are not easy, however, the following criteria should be particularly addressed: centres of diversity, centres of endemism and hotspots of extinction. In a global perspective Bangladesh certainly has been a hotspot area regarding species diversity, and some areas in the east and north, including the Tanguar haor system, still remain as a biodiversity hotspot. Fortunately Bangladesh endeavour in developing national conservation strategies has significantly contributed to increased awareness about biodiversity questions among the Members of the Parliament (MPs) as well as local village people. The Bangladesh IUCN Country Office has recently prepared a Red Data Book of animals for the country. Among globally threatened species are the whitewinged wood duck, python, and river terrapin. The country is also inhabited by species as tiger, elephant and Ganges dolphin.

Due to the population density, much of the original habitats in Bangladesh have been cleared for settlement, cultivation and food production of rice and other commodities. The impact on biodiver-

sity, in terms of loss of species, will never be known. Thinking of flowers and invertebrates, the number is probably immense. Even reptiles, fish and bird species have disappeared and probably become extinct. The threats to the future survival of species will become even greater, as the number and area of pristine habitats shrinks.

## 1.2 The rationale of wetland conservation in Bangladesh

Bangladesh' permanent wetlands are classified according to their morphological characteristics into *beel*, *jheel*, or *haor* systems. The principal wetlands are rivers and streams, shallow freshwater lakes and marshes (*haors*, *beels*), water storage reservoirs, fish ponds, and seasonally flooded, cultivated plains. Due to these permanent and perennial waterbodies, Bangladesh once had one of the largest freshwater fisheries in the world. At present only small fractions remain due to drainage for agricultural purposes approximately six months of the year. Estimates of 30% reduction in the fish catches over the last 25 years have been made. The decline in fish yield, often associated with biodiversity reduction in general, has been severe and is continuing.

It is the north-east region of Bangladesh which is known as the Haor Basin. In this area there are about 400 haors and *beels* varying in size from a few hectares to more than two thousand hectares. Haors are flooded every year by the monsoon floods and most of them retain some water throughout the dry season. The HB must be considered as a unique ecosystem of national and international importance. Each of the HB wetlands are key elements of a complex hydrological, biological and ecological system, supporting a significant assemblage of rare and vulnerable species of plants and animals, including endemic species. The whole area support large numbers of migratory waterbirds arriving from northern Palearctic regions upon the onset of winter.

According to the "Wetland Resources Specialist Study", under Northeast Regional Water Management (FAP-6), the total HB consists of 47 major haors and some 6,300 *beels*, of which about 3500 are permanent and 2800 are seasonal. The current conditions of these wetland systems still support major subsistence and commercial fisheries. Moreover, seasonally flooded plains support a major rice growing industry and an abundant aquatic vegetation providing rich grazing for domestic livestock and resource for fuel, food and fertilisers for the local people.

The Tanguar haor, declared as Bangladesh's second RAMSAR site on 10 July 2000, is particularly threatened by overexploitation of fishery stocks, deforestation and large scale waterfowl harvesting. The area has so far been ruled by wealthy and politically well-connected people for a long period, and the local fishermen have (even forcefully) been excluded from this resource which have lead to significant impoverishment. This leasing system has now been abandoned, and at present no organised system for resource utilisation is in place.

The Tanguar haor has been identified to provide habitat for at least 135 fish and 208 bird species, 92 waterbird and 98 migratory bird species, including 10 "IUCN Red Book listed" species and 22 "CITES listed" species. About 30-40,000 migratory waterfowl converge on the area during the northern winter months, and rare species such as Pallas's fish-eagle *Haliaeetus leucorhynchus* are relatively common and breed in the area.

The Tanguar haor forms the core area of the northern haor system, which includes several other haors. It is a complex of large and relatively undisturbed *beels*, and of outstanding importance for its diverse waterfowl populations. The Tanguar haor itself consists of a group of large *beels* to the west of Patnai Gang, close to the Indian border. Its principal *beels* are Pana, Raur, Tangua, Aina, Arabiakona and Samsar.

### 1.3 The human dimension

The seasonally flooded haor and *beel* margins support a major rice growing agriculture, and abundant aquatic vegetation provides rich grazing for domestic livestock and sources of fuel and manure for the local people. Managed properly by taking the ecological characteristics into consideration, these wetlands would provide the villagers with abundant protein and food, and preserving wetlands could obviously be more profitable than converting them into arable land in the long term. However, conversion of wetland areas into agricultural land still remains a desire although little remain, and the district authority has leased out some part of the wetland areas for agricultural purpose. Moreover, it is also learned that there are several districts where all their wetlands have already been converted into agricultural lands. Landless families and peasants for their own survival have over the years also converted several haor areas in Bangladesh into cultivable land.

Land management in these wetland areas are claimed to have been accidental because e.g. lower-level officials defies normal procedures and allocates *khas* lands based on "personal judgement", i.e. to obtain personal gains. The district authorities have also leased out wetlands only to trained people in fisheries, although there are several fishermen in the local communities who could benefit from the wetland haor fisheries. Moreover, the national strategies within the different sectors (water, agriculture, fisheries, forestry) have been unclear and poorly coordinated. However, the pressure faced by the GoB earlier to change wetland areas into agricultural areas, seems to have been relieved as the national policy changed in the late 1990s towards a more "ecologically based" view regarding the utilisation of the wetland areas.

Due to the geographical factors and the population density, Bangladesh constitute exceptionally complicated systems both in terms of ecological and sociological dynamics. To establish a sustainable resource management system, under the given conditions, may be experienced as an impracticable task at a first glance, and it impose a gigantic challenge to all level of management authorities. However, there are several positive attitudes to be observed among official authorities as well as NGOs and

other bodies, and it occur to be a will to see opportunities rather than resignation.

The overall future success of the Tanguar haor as a sustainable RAMSAR wetland will rest on the implementation success of the THMP. In general policies directed at the conservation of wetlands have frequently been formulated and implemented by agencies other than those responsible for conserving and managing wetlands for resource production like fish outtake. Typically, conservation strategies have focused on establishment and maintenance of a wetland to fulfil ecosystem, species and landscape conservation objectives. Allocation of wetlands to meet these conservation objectives has been competitive with, and often subsidiary to, allocation for other uses. In the absence of policies integrating conservation strategies across wetlands managed by different agencies, there has often been poor coordination in the realisation of conservation objectives inside and outside protected areas, and consequent sub-optimal achievement of conservation objectives.

Fortunately the THMP rationale is that local communities are likely to be the best caretakers of the environment, being in their own interest to manage locally available resources in a sustainable manner. Without taking into consideration the important social issues like the huge size of local population and widespread poverty, the THMP implementation would not be feasible. Taking this into consideration, the present project should not be classified within the frames of a biodiversity project, and the name of the project - "Tanguar Haor Wetland Biodiversity Conservation" - should be rephrased making it clear that it is a project aiming at poverty alleviation, community based management and sustainable resource utilisation.

### 1.4 The Tanguar Haor Wetland Biodiversity Conservation Project

The project proposal was sent to the Royal Norwegian Embassy (RNE) in a letter dated June 6 2001, signed by the Senior Assistant Secretary at the Economic Relations Division, Ministry of Finance. This new project profile on the implementation of the management plan of the Tanguar Haor has been developed at MoEF, and in the letter to the RNE it is requested to consider financing of the project for the next phase of the NCSIP-1 of MoEF. The estimated project cost was 4 million US \$.

**The overall project goal** is to ensure the long-term conservation of the Tanguar Haor, the most important freshwater wetland area in Bangladesh in terms of biodiversity. Through a restoration programme the project will

- safeguard the habitats important for biodiversity maintenance
- curb threats to biodiversity
- reduce pressures on the natural resources by means of resource substitution and a poverty alleviation programme
- and develop the local capacity for sustainable resource utilisation



**There are two operational objectives of the project** of which the first is to achieve long-term sustainable management of the area's natural resources. To achieve this the project will curb threats, restore and protect depleted habitats, develop sustainable management practices, end unsustainable leasing practices, and facilitate active local participation in resource management.

The second is to achieve community-based management of the area's natural resources. This will involve a capacity building programme that includes management training, village organisation, awareness and education programmes, and developing well-understood and locally supported resource management methods.

The decline of fisheries production and gradual loss of some of the biodiversity of the area has led to the declaration of Tanguar Haor as "Ecologically Critically Area" on 19<sup>th</sup> April 1999. As a result of the NCSIP-1, Tanguar Haor has come under MoEF control from February 12<sup>th</sup> 2001.

In order to fill the void, NCSIP-1 of MoEF initiated the Tanguar Haor Pilot Activities in January 2000. These activities did run until June 2001, focusing on three activities in five target villages:

- replanting of swamp forest trees in several trial plots
- a conservation awareness campaign (mainly focusing on waterfowl conservation)
- community organisation

According to the project document the general impact of the Tanguar Haor Pilot Activities have been modest due to economic constraints. As the local capacity for managing the fisheries resources in the haor is very low, MoEF will continue to manage the resource with the potential investor, at least until management capacity is developed within the local community.

Without major investments and intervention the transition to sustainable, community-based management is expected to take at least a decade, and probably much longer. However, this is only as long as conditions remain the same, and it is highly likely that the leaseholders, who are politically well connected, will use the intervening period to consolidate their position and maintain *de facto* control over the resources. With continued leaseholder dominance and limited MoEF presence, the present annual restocking with exotic fish species and illegal waterfowl hunting practices are expected to continue. As the result, the current trends of decline in waterfowl numbers will continue, and species will disappear from the area altogether. In addition, many of the indigenous fish species that are now uncommon are likely to become extinct.

The present trend of decline in area of swamp forest and reed-land is likely to continue; the swamp forest habitat is likely to disappear from the area altogether, and with it associated wildlife and plant species. Under this scenario, the risk is real that within 1-2 decades, the Tanguar haor can no longer provide the inhabitants with natural resources for income generating activities and subsistence, or be of global significance for maintainan-

ce of biodiversity. Under the baseline situation, it is very important to implement the THMP without further delay.

The THMP version as of February 2000, and the project proposal, have a three-pronged approach towards achieving biodiversity conservation and sustainable resource management involving:

- *Restoration and protection* (four activities):
  - Swamp forest restoration
  - Fisheries assessment, sustainable management and restoration
  - Protection of beel-edge habitat
  - Protection of wildlife and its habitat
- *Threat reduction* (three activities):
  - Resource substitution
  - Income generation
  - Welfare uplifting
- *Capacity building* (four activities):
  - Establishing community-based management
  - Training in sustainable management of non-fishery resources
  - Conservation awareness programme
  - Environmental education programme

The team has been informed by the NCS Co-ordinator that Activity 1 (Swamp forest restoration) and 3 (Protection of *beel*-edge habitat) is now defined as one activity, a decision fully supported by the team.

The different sections of the present report are basically tied to the ToR, but each section and/or subsection is mainly in reference to the 10 (11) above quoted activities.

## 1.5 Design of the present report

The design of the present report is basically determined by the Terms of Reference. However, it is also based on the experience that voluminous reports rarely are read in full length. To meet the need for those too busy to read the whole report the "Conclusions" are presented as chapter 2, immediately after the chapter "Introduction", and the Appraisal Team "Recommendations" as chapter 3. For those particularly interested, the "Findings" are presented as chapter 4. It is recommended that this "particularly interested group" read chapter 4 before the "Conclusions" and "Recommendations". Hopefully this design of the report does not create too much confusion for the reader.

## 2 Conclusions

### 2.1 General conclusions

Through interviews, field trip and reviewing different documents stated in the ToR (Appendix 1) the Appraisal Team has come up with the following conclusions:

- The THMP and the proposed follow-up contains all the necessary elements that have to be dealt with regarding the implementation phase.
- At the same time several decisive elements of importance to a successful implementation, is insufficiently dealt with.
- The Appraisal Team considers it premature to make a final conclusion on the future prospect for the proposed follow-up.
- It is suggested that the MoEF/NCS-Office should be given an interim period of 6 months in order to come up with more specific information, as well as taking practical steps and show further commitment to the proposed implementation of the programme.
- The Appraisal Team suggests that the technical constructions and human resources established during the NCSIP-1 phase, should be maintained at an appropriate minimum level during this period, consequently an interim budget has to be set up.

### 2.2 Specific conclusions

The proposed activities and their objectives are relevant, but need to be reorganised and phased into a sequentially laid out timetable. Realistic ambitions must be balanced with the challenges that will face the programme during its implementation.

#### 2.2.1 Project goals

The achievement of the two main goals, will fully depend on the successful integration of them – they should not be treated separately.

#### 2.2.2 Project effectiveness

In order to evaluate the programme as it evolves, due consideration has to be given to identify quantitative and qualitative indicators on relevant activities. A detailed flowchart has to be prepared, focusing the proposed budgets and expected goals to be achieved at given times.

#### 2.2.3 Project design and organisation

The huge and complex task, which this project is supposed to undertake, can not simply be delegated to the community itself. What will be crucial and most practical, is to develop a collaborative approach, which creates opportunities for the local people to participate, as they work along with the government agencies. The core to the success is clear delineation of roles and responsibilities of various actors and sharing of the benefits, which

would accrue from the different activities. The process of developing community based organisations (CBOs) is one of the core activities, on which the project needs to concentrate, as the success of many other programmes is contingent upon this.

The project proposes a co-management system of the *beels*. Effectiveness of the new leasing-system, would depend on the strength of the organisation. If the real stakeholders are well represented and the decision making structure is a democratic one, only then the system will function and succeed. External inputs will be needed, both in terms of knowledge and financial capital. Given the economic status of the majority people, they themselves would not be able to initiate the above mentioned income generating activities. Provision of micro credit support along with planned management of land and water resources, would facilitate the process of change.

The rationale of the conservation awareness programme is sound, but the approach and methodology of implementation needs to be developed further.

#### 2.2.4 Project relevance

The proposed project is focusing on the poorest of the poor within Bangladesh. The people in this area are heavily dependent on (both for subsistence and income generating activities) the utilisation of natural resources throughout the year.

The project can be regarded as a socio-economic development programme, creating opportunities for income generation, based on sustainable utilisation of the natural resources. The proposed activities are in line with the present MoU between GoB and GoN on several issues.

#### 2.2.5 Sustainability

##### 2.2.5.1 Economic feasibility

A crucial element will be a successful establishment of the new leasing system. Mechanisms and rules of procedure should be established to secure some of the revenues going to the Government (lease money), being used for the management of the Tanguar haor. In addition other income generating activities have to be developed (duck keeping, turtle breeding, handicraft) and credit institutions have to be set up.

##### 2.2.5.2 Environmental aspects

Illegal trapping and hunting of birds in the Tanguar haor must be reduced through stronger enforcement by governmental bodies from the district level. Fishery research activities have been strengthened in Bangladesh by the establishment of a national Fisheries Research Institute. But still there is a need for an extensive fisheries survey. A minimum standard of awareness among the authorities at different levels needs to be worked on.

### 2.2.5.3 Institutional aspects and infrastructure

The future commitment and involvement by the community/villages will heavily depend on their ability to form strong CBOs covering different groups (men and women), interests (fishing, agriculture, hunting) and tribal ethnic/non-tribal villages. A governmental commitment and ownership, to the work in the Tanguar haor will depend upon a "bottom up" pressure, in order to force different sectors and governmental bodies (in particular at the district level) to restructure and change their priorities and old practices. According to the proposal, the PMU will implement the project activities through its District and Field Offices. The success of the project to a great extent will depend on the effective functioning of these offices. The NGOs and CBOs in the planning and implementation of its various activities should be given proper place in the institutional setting of the project.

Given the recent development of the SEMP, and the uncertainty of the present status, the team does not suggest any merging of the NSC-Office with the SEMP-administration.

### 2.2.6 Specific issues

A monitoring scheme within the Tanguar haor system should be designed to detect undesired trends over time.

### 2.2.7 Uncertainties

The following uncertainties should be in focus:

- The behaviour of former leaseholders, and their loyalty to the new system
- The degree of involvement by the Deputy Commissioner and the different Governmental bodies on district level, and the functionality of the proposed "District Advisory Committee"
- The formation of CBOs and the "bottom up" involvement by the villages

## 3 Recommendations

### 3.1 General recommendations

Despite the weaknesses identified in the project proposal, the Appraisal Team recommends that the project should be supported, and not be rejected at this stage. However, specific issues (like the continuation of ongoing CBO formation) have to be singled out and the activities broken down, and sequentially spread out in order to obtain a better view of what realistically will be achieved during the time span of the project. (see 3.2).

Phase I of the project/programme will end by December 31st 2001. There is no possibility that NORAD will be able to conclude on a revised programme proposal and a possible continuation of the proposed phase II before that date. The Appraisal Team recommends a continued involvement at some level (a *transition* or *interim period*). In order to keep up a certain momentum within the programme (before the level of possible involvement is decided) it is important to identify/clarify what will be the optimum level of maintenance in order to secure the institutional memory and infrastructure from Phase 1. Thus, the team suggests that the technical constructions and human resources established during the NCSIP-1 Phase, should be maintained at a minimum level during the interim period.

In order to make a qualified assessment of the level of activities needed, a detailed overview of costs at different levels has to be presented, i.e. a *detailed interim budget* has to be worked out.

Given the ambitions and complexity presented in the project proposal, a suggested implementation phase of five years seems to be unrealistic. The project will need a timespan in thinking and implementation of at least 10-15 years.

The data collected through Phase 1 of the project should be utilised, to establish a basis for a monitoring-set-up. Possibility of remote sensing (to record possible changes) should be assessed. Regardless of upcoming activities, it could be useful to have some kind of monitoring in place to see how the Tanguar haor evolves (changes on the surface) over time – whether the changes are natural or caused by human intervention. Such a reference point could be useful to the proposed project, GoB and the RAMSAR Secretariat.

### 3.2 Specific recommendations

Generally, all the proposed activities and their objectives are relevant, with respect to the efforts that have to be made towards future sustainability and community participation. The aims/objectives of the different activities though, operate on different levels within the hierarchy of goals, some are meant (5 and 6) to achieve the ends of others (2,3 and 4). The activities need to be reorganised and phased into a sequentially laid out timetable and realistic ambitions must be balanced with the challenges that will face the programme during its implementation.

### 3.2.1 Project goals

It has to be clearly stated that the achievement of the two goals, will fully depend on the successful integration of the two – they should not be treated separately – both with respect to work on poverty alleviation as well as focusing on the ecological perspective (preservation of biodiversity- RAMSAR/obligations of the GoB).

### 3.2.2 Project effectiveness

In order to evaluate the programme as it evolves, due consideration has to be given to identify quantitative and qualitative indicators on relevant activities. Budgets, staff, activities and achievements have to be critically evaluated and clear benchmarks have to be stated within given intervals. A detailed flowchart has to be laid out, consisting proposed budgets and expected goals to be achieved at given times.

### 3.2.3 Project design and organisation

The huge task of restoring the **swamp forests** can not simply be delegated to the community itself. What seems to be most practical is to develop a collaborative approach, which creates opportunities for the local people to participate, and work along with the government agencies. The core to the success is clear delineation of roles and responsibilities of various actors and sharing of the benefits which would accrue from this activity. Lessons could be drawn from the SEMP experiences and other similar experiences of the country. Services of the IUCN (which is an implementing agency of SEMP project) could be valuable particularly in bringing experiences of other regions both in terms of management of wetland swamp forest and/or forest in general. However, this has to take place during the planning and design stage of the programme. In addition the Forestry Department do run different afforestation programmes in Bangladesh, which should be looked into for possible synergy effects.

The success of the proposed **fishery activities**, will depend on the types of community level organisation that the project can develop, and the mutual degree of trust and confidence they can earn from each other. The process of community building should be the core activity, on which the project should concentrate, as the success of many other programmes is contingent upon this. Well-experienced facilitators would be required for development of community-based organisations. Although they could be recruited directly by the project, the better option would be to engage credible NGOs for the task. While talking to the district officials it was indicated that the Bangladesh Rural Development Board (BRDB) could be given the responsibility to organise the people. BRDB has experience of organisation building but have very little (or no knowledge) of management of natural resources. Findings indicate that the possible involvement of BRDB has to be critically assessed. One advantage of BRDB though, is that their local groups are registered groups, and have the ability to seek loan from any state owned financial institution.

The activity described in the Project Profile in fact reflects the opinion of the people. But the critical concern is to define the degree of dependence of the villages on these *beels* for their livelihoods, and what role each of these villages should play in the management of this important resource. Before giving any definite shape of organisation the project should deploy its resources to understand the social network and mobility of the people in the 82 villages in terms of their dependence on the *beels* in pursuing their livelihoods.

The number of *beels* located in the Tanguar haor, and the tradition of defining them as one single unit, is a matter of concern. According to knowledgeable sources Tanguar haor comprises a total of 42 large and small *beels*. But so far the Ministry of Land (MoL) has treated this as one large water-body and administered the auction. The project is also considering Tanguar haor as one management unit. While most of the villages have remained unorganised and their degree of interest in the management of the fishery is yet to be ascertained, as an interim arrangement, Tanguar haor as one single unit is fine. But subsequently, for future management, the *beels* have to be clearly divided, based on hydrology and other ecological conditions such as fish movement and habitat characteristics.

Given the time requirement of the organisation building process and the way fishing is organised in the area (Tanguar haor is of no exception) without breaking up of the larger unit into several smaller units the local people will never be in command of the production and management of the fisheries. If this proposition is accepted the project should take the initiative to create legal provisions so that management responsibility of the TH could be divided into several sub units which could be transferred to a larger number of groups across the area. This will create a scope for wider participation and resolve many of the potential conflicts between the villages and groups, and groups of local people vis-à-vis the outside investors.

The project proposes a co-management system of the *beels*. Effectiveness of the *new leasing-system* would depend on the strength of the organisation. If the real stakeholders are well represented and the decision making structure is a democratic one, only then the system will function and succeed. During initial years of such co-management, active support of the project should be there, and financial rules and norms must be clearly worked out. Non-transparent financial system would be a major deterrent to organisational growth and stability.

The other important issue that merits consideration is the role and involvement of the investors. The investor should be a junior partner in the co-management venture although he will be paying half of the costs. The community and the project should enter into a short-term agreement with an investor. If possible, more than one investor should be encouraged to participate, particularly to ensure social checks and balance. Adequate care should be taken to secure that investors, due to their social and economic power, do not succeed in buying the community leaders and in actual operational terms become the *de facto* controller of the whole enterprise.

A prerequisite for the THMP goal achievement is that the awareness, regarding the importance of biodiversity and the establishment of a sound natural resource management practice is raised and communicated to all relevant bodies, and that considerable efforts are made from the authorities to identify possible threats.

Development of **village fuel-wood plots** is a very sound activity and through CBOs dialogue could be established with the private owners for this programme. In case of private land, long-term contract for use of land must be ensured. Details are to be worked out based on proper economic analysis so that the producers (majority of whom would probably be the land-poor and landless) do not end up losing their capital.

Concerning **rice husk fuel sticks and efficient stoves**, the fuel efficient stove is a tested technology and the project should provide the linkages with right agency and ensure technical support from the agency concern during the initial stage of the programme. The scarcity of stick could be addressed through planting of *Sesbunia*, which is fast growing and also grows on swamp land.

**Duck keeping** is a household level economic activity. The constraint to this activity, is non-availability of extension services specially to tackle mortality. Through CBOs village level extension workers, primarily the women, could be recruited, and services of the Department of Livestock could be made use of for training the extension workers. The project office should facilitate this.

**Fishponding** is an activity, which could be undertaken in the small ditches and channels of the area. Given the hydrological characteristics of the area the activity will be seasonal. The idea of involving the Department of Fishery (DoF) for training the villagers is a sound proposition.

Undertaking of the above activities would require external inputs, both in terms of knowledge and financial capital. Given the economic status of the majority people, they themselves would not be able to initiate the above mentioned income generating activities. Provision of micro credit support along with planned management of land and water resources would facilitate this process and could even open up several other new avenues of productive employment for the local people. If the public land and water is management with people's participation then the level of poverty, which is an endemic problem of the area and creates lots of pressure on the natural environment, will be significantly reduced.

This calls for a policy framework that defines and creates conditions for development of sustainable livelihoods through integrated management of land, water and other natural resources of the area with participation of the majority people. Participation is important as it gives the most vulnerable groups a greater choice to meet the risks they face. Most of the activities are stated as the project objectives, but they need to be made operational through an iterative process of planning and flexible decision making structure.

Concerning welfare uplifting, health, education, water supply and sanitation provisions are virtually non-existence. The project should try to play a facilitating role in bring the government delivery system to the area (where applicable) and on others may enter into collaborative programme with experienced NGOs. For water supply, installation of tubewells could be done in collaboration with the Department of Public Health (DPHE), which is a government department and responsible for rural water supply and sanitation. The DPHE, however, may not have adequate budgets for comprehensive coverage of the project area, thus some subsidise should be considered from the project budget.

In implementing this programme women's group would be the best vehicle. Tubewells could be installed for community use in agreed accessible spots. Before sinking of tubewells, the community should be organised and asked for small contribution to a common fund for future maintenance of the facilities. Maintenance should be community's responsibility, and that should be done through women's group. Women should be given training on tubewell maintenance. In other parts of the country there are ample experiences where women have demonstrated the success of such an approach. Lessons could be drawn from them.

For the sanitation programme, focus should be the household. Community latrines in most cases failed mainly due to maintenance, and even created severe health problems. The project in co-operation with the DPHE, should work out an implementation plan. Low cost water sealed toilets could be given to the residents of the project area on a subsidised price. Construction of rings and slabs should be done locally through involvement of the local people. The DPHE should provide training and the equipment while the local entrepreneurs (either individual or group) should be encouraged to make these. Before construction of rings and slabs, a survey should be conducted to ascertain the needs and people's willingness to subscribe the programme. During this survey households could be categorised into 2-3 categories according to their economic status. Depending on economic status project should decide on the amount of subsidy (e.g. 25%, 50%, 75%) each category should be given. The rationale of such differentiated approach should be made clear to the community through meetings and discussions. People who will be willing to get the toilet should be asked to make an advance deposit. This is to avoid unwarranted delay in disposal of product.

On health, major emphasis should be on health education. In co-operation with the Department of Health, the Traditional Birth Attendant (TBA) and the rural medical practitioners could be trained. If qualities of these services are improved that would be a great contribution to the society.

The rationale of the conservation awareness programme is sound, but the approach and methodology of implementation needs to be developed further. Engaging NGOs for developing awareness materials could be considered favourably, but the programme has to be carried out by the line agency (e.g. Forest Department's extension wing) in co-operation with the CBOs.

Community level informal social institutions could be a good starting point for dissemination of information.

The idea of developing education materials, especially to make the younger population aware of their immediate environment and the process of change, deserves specific attention. Publication of small leaflets, booklets, posters and celebration of "environment day" through bringing out rally, organising discussions and music could add a new dimension to the programme. The idea of developing a new curriculum in collaboration with an NGO, and finally getting it approved by the Ministry of Education seems to be rather optimistic, given the way the system works in Bangladesh. However, through motivation of teachers and parents and with support from the Education Department officials, local arrangements could be made for organising periodical lessons on the subject. Rhymes and folk songs could be used for general awareness and some specially designed for a child-to-child programme. Experiences of immunisation and health education programme suggest that children are very effective in dissemination of information and monitoring the state of the nature.

The team supports the involvement of religious leaders in the conservation planning process and awareness building. This may contribute to a strengthened confidence between the villages and the project, and hopefully secure a better ownership of the objectives and outcomes.

There is an assumption that the project and its activities will increase women participation and contribution to the household economy and IGA, but there are few indications of how and at what capacity. The schemes like swamp forest, fishery and different IGA activities can create economic opportunities for women, but under the present circumstances it is hard to see how. If the objective were to encourage women to participate more, it would be more effective to strengthen adult literacy course/programs, girl's education and other interventions that will empower them. Co-operation among women as laid out in the Taguar haor management plan, will greatly depend on this, as some of the components need technical knowledge, skills, which are not in place at the moment. Adequate training and design strategy needs to be more in tune with the specific needs of the haor women, suited to their cultural needs as well as to the issue of gender sensitivity.

Concluding from present findings, based on talks with three different groups of women, the impact assessment needs in depth research. As acknowledged during the VGD session, it is difficult to capture free expressions from women related to their problems. Lack of clarity in answers made it difficult to judge the level of sufferings and the desires of women in general.

### 3.2.4 Project relevance

Elements covered directly or indirectly by the proposed project:

1. Poverty alleviation (targeting the poorest of the poor in Bangladesh)

2. Natural resource management related to income-generating activities (both global/regional and local perspective)
3. Strengthening community participation and management
4. Empowerment of local communities, through capacity building (creation of CBOs)
5. Gender and ethnicity (the involvement of women/tribal villages)
6. Micro economy (fund/credit/income generation)
7. Migration (through welfare uplifting slow down the increased migration towards Dhaka)
8. RAMSAR – assist GoB in meeting their obligations.

The proposed project is focusing on the poorest of the poor within Bangladesh. The people in this area are heavily dependent on (both for subsistence and income generating activities) the utilisation of natural resources throughout the year. The focus of the project is on the transition, from one type of unsustainable leasing- and income-generating system (excluding the communities) towards a more sustainable community based leasing system. With all its proposed activities, the long term perspective of the project can be viewed as a socio-economic development programme, that creates opportunities for income generation based on sustainable utilisation of the natural resources. The proposed activities are in line with the present MoU on several issues.

### 3.2.5 Sustainability

#### 3.2.5.1 Economic feasibility

The question of self-sustaining management will have to be viewed in a long term perspective (10-15 years). The crucial element of this long term achievement will be the establishment of the new leasing system. The new system, as the old system did, will provide revenues for the GoB (taka +10 million/year) and over time a part of this would contribute to the gradual build up of a fund related to the fishery activities.

Due to the obligations of the GoB concerning the RAMSAR site, mechanisms and rules of procedure should be established to secure some of the revenues being used for the management of the Tanguar haor. In addition other income-generating activities have to be developed (duck keeping, turtle breeding, handicraft) and credit institutions have to be set up.

#### 3.2.5.2 Environmental aspects

There is a need for an extensive fisheries survey. Fishery research activities have been strengthened in Bangladesh by the establishment of a national Fisheries Research Institute (FRI). It is headquartered in Mymensingh, with substations in Chandpur for riverine fisheries, Mymensingh for aquaculture, and Chittagong for marine fisheries and fisheries technology. The Department of Fisheries has also initiated a process of developing a national fisheries resources database. It is, however, likely that in future specialised external expertise may be warranted.

If the recommended stop of all trapping and hunting of birds in the haor is enforced, the lack of these data are not a decisive

problem. If, however, the level of harvest remain, this obviously represents a major threat to waterbird population, and it could be regarded as a violation of the RAMSAR site obligations, by GoB. It is, though, necessary to obtain more knowledge on the dynamics of the waterfowl population in the haor system; e.g. where are the main feeding areas for the different bird species, and also what are the birds impact on the ecosystem in terms of fertilising effect. Thus, the recommendations made in the THMP is satisfying.

It is important to establish a minimum standard of awareness among the authorities at different levels, of what the natural properties of the Tanguar haor ecosystem *de facto* are. So far no document available to the team has given a comprehensive description of the Tanguar haor as a dynamic ecosystem, indicating that a deeper insight into the ecological components are known, or understood. A study focusing on the dynamics of the Tanguar haor ecosystem is needed, as well as some kind of educational or uplifting programme for decision makers at different levels and in different sectors; a programme which should give some basic education on ecosystem functions as well as the RAMSAR Convention and its obligations.

### 3.2.5.3 Institutional arrangements and infrastructure

The GoB represented by the MoEF on the central level, and the District Commissioner on the regional level, need to “move into the Tanguar haor”/execute their authority and re-establish some sort of order in the interim period, in order to stop the unsustainable harvesting within the haor. (the present NCSP-1 project and its “field officers” have by no means the necessary resources, nor the necessary legitimacy (particularly in the eye of the former leaseholders/MoL to carry out the enforcement of control needed to protect the Tanguar haor from further degradation.).

According to the proposal, the Project Management Unit (PMU) will implement the project activities through its district office and field offices. The district office will be a new set-up headed by a Deputy Director; who will come from the government cadre service. The district office will supervise the field level activities and maintain liaison with the district administration as well as the district level advisory committee that is proposed to be formed. The success of the project to a great extent would depend on the effective functioning of this office. The district office must be given adequate authority and back-up support to mobilise the services of the various line agencies. The delineation of roles and responsibilities of this office vis-à-vis the PMU and the district level Advisory Committee must be made very clear so that the office can function with certain degree of autonomy. The Deputy Director will be the Member-Secretary (proposed) of the District Advisory Committee.

Active support of the district administration and the Police (for enforcement of laws) will remain critical for the success of the project. Functional legitimacy of the District Project Office in the perception of the other district level agencies and the role of the former, will be a critical factor in facilitating the process of har-

monisation of different agency activities and gradually strengthen their integration at district as well as project level.

In the proposed institutional arrangements, there are no reference to CBOs and NGOs. If the project really subscribes the idea of participatory approach and wants to involve the NGOs and CBOs in the planning and implementation of its various programmes, then they should be given proper place in the institutional setting of the project. If they remain only as service provider or recipient the objective of “community based management of the natural resources”, it will be difficult to achieve the ultimate goal, if not impossible.

The involvement of NGOs and local bodies (CBOs) will be a crucial factor to success. Establishment and maintenance of wetland ecosystem like TH depend on the co-operation and alliances created with local communities and private organisations. NGO's and various community-based organisations will have an increasingly important role to play in organising and mobilising rural people to become active partners and a basis for sustainable wetland use and conservation.

Given the recent development of the SEMP-programme and the uncertainty of the present status, the team do not suggests any merging of the NSC office with the SEMP-administration. Though the future management of TH should be viewed within the context of SEMP, to secure maximum effect of synergy, both with respect to the administrative set up and the professional outcome.

### 3.2.7 Specific issues

A monitoring system in the TH system should be designed to detect undesired trends, beyond normal fluctuations, in populations, species and non-biotic landscape elements, and should have the capacity to convey this information to interested parties, e.g. the government, CBOs, NGOs and scientists.

### 3.2.8 Uncertainties

*Institutional arrangements for Tanguar haor management.* The proposed institutional arrangements namely the National Monitoring Committee and PMU are fine. The District Advisory Committee appears to be an adopted version of the District Development Committee. The success of such a committee would critically depend on the time and interest of the Deputy Commissioner. If the Deputy Commissioner does not take much interest or could not give adequate time then the effectiveness of this committee will remain limited.

The initiative of implementing community based management of the Tanguar haor is a centrally taken decision. There is no formal approach in ensuring participation from different villages in the decision making process. At the same time it is not clear how the former leaseholders or their local clients would react to this idea of community based management, though there seems to be a general consensus among the people in favour of it.

The management of a large collective, with participation 60-70 villages, will remain a huge task and may take years before some degree of cohesion and understanding is reached among the different groups spread over such a large area. Further, success and failure of the proposed project and the new leasing system in turn will determine the groups' degree of dependence on outside investors.

*The new leasing system – MoU between MoL and MoEF.* A number of clauses have been stated in the noted MoU which are crucial for the project, especially in terms of making decision, as to the management modalities of the Tanguar haor. But of equal importance is the lease value/revenues from the haor, that under no circumstances should be less than the immediate past amount. Further, in the first year the amount should be 25% higher and in the subsequent years it should increase 10% per annum.

The MoL agreed to transfer the management right of TH to MoEF for 10 years. The arrangement should be reviewed after each 3 years (first to come: February 2004), and the continuation of the arrangement, will depend on the outcome of these reviews.

## 4 Findings

The major sociological and ecological issues (including biodiversity threats) identified in the THMP during the appraisal mission were:

- widespread poverty among the local community, (i.e. lack of food, malnutrition, lack of health care and education system, lack of family planning etc.)
- lack of alternative income earning opportunities for the local community
- no control over exploitation of fishery resources (the old leasing system was abandoned one year ago)
- increased non-fishery activities leading to resource depletion
- gaps in knowledge about biodiversity to plan properly for its conservation and management and insufficient utilisation of already available information including inadequate awareness of the Tanguar haor conservation values among decision makers and the general public
- insufficient and diffuse institutional collaboration and inter-agency co-ordination
- insufficient policy framework and legislative provisions for biodiversity conservation and protected wetland management
- constraints to enforcing the existing legislation
- waterfowl poaching
- habitat destruction (e.g. last vestiges of swamp forest are under threat) decline of fisheries production
- embankment construction
- exotic fish species introduction
- pesticide pollution
- depletion of other natural resources, such as reed lands and swamp forest
- numbers of migratory waterfowl are dropping
- increased soil erosion/siltation and geomorphological changes due to swamp forest destruction
- outmigration

### 4.1 Assessment of effectiveness

Given the ambitions and complexity presented in the project proposal, a suggested implementation phase of five years seems to be unrealistic. The project will need a timespan in thinking and implementation of at least 10-15 years.

### 4.2 Assessment of project design

See **Table 1**.

#### 4.2.1 Restoration and protection

The rationale behind the *Restoration and Protection Component* is to facilitate the recovery of the *haor ecosystem*, i.e. the habitats and species populations. To successfully implement this component the present unsustainable exploitation of the resources must be relieved. However, without local involvement and rooting through community-based management and ca-



**Table 1.** Assessment of project design for the project activities: + = some relevance; ++ = moderate relevance; +++ = high relevance; 0 = no assessment; - = negative.

Activity/ Assessment of project design	MoU- relevance	THMP- quality	Need further studies	Pilot experi- ence	Feasibility and availability	Local people ownership*	Other stake- holders rele- vance
Swamp forest and beel-habitat resto- ration	++	++	+++	0	+	++	+
Fisheries assess- ment, sustainable management and restoration	+++	+	+++	0	+	+	0
Protection of wild- life and its habitats	0	+++	0	0	+	+	0
Resource substitu- tion	+++	+/-	+++	0	0	++	-
Income generation for local communi- ties at Tanguar ha- or	+++	+	++	0	?**	++	-
Welfare uplifting programme	++	+	+	0	+	0	-
Establishing com- munity-based ma- nagement	+	+	+	0	++	++	-
Training in sustain- able manage- ment of non- fisheries natural resources	+	++	0	0	+***	?	0
Conservation Awa- reness Programme	0	+++	+	0	+	+?	-
Environmental Education Programme	0	++	+	0	++	+	0
* Limited information							
** Role and involvement of BRDP							
*** Would require more involvement of GO							

capacity building, it is not realistic to create a sustainable management system.

This section consists of the following three activities:

- Swamp forest restoration and *beel*-edge habitat protection
- Fisheries assessment
- Protection of wildlife and its habitat

#### 4.2.1.1 Swamp forest restoration and *beel*-edge habitat protection

The aim of this activity is to restore the depleted natural habitats of swamp forest, formerly consisting of **hijal** (*Barringtonia acutangula*) and **koroch** (*Pongamia pinnata*), and the reed beds, dominated by common reed (**nal khagra**) (*Phragmites karka*).

Another activity (former Activity three) is proposed to protect the *beel* edge vegetation and habitats to avoid further degradation.

The swamp forest vegetation in the Tanguar haor have been severely reduced over the last years due to clearing, cutting and burning by the local villagers, related to the extension of agricultural land and to satisfy the need for fuelwood and thatching materials. At least three aquatic plant species are observed to have disappeared. From an ecological point of view these forest are crucial for several tree nesting birds and wildlife in general, but in particular having a wave damping effect. During the monsoon period the TH is more or less a continuous waterbody, with the villages appearing on artificial built mounds. High wind speed creates substantial waves height, and corresponding erosion problems. Changes in the hydro-morphological conditions

(mainly due to deposition of large amount of silt) are also important contributing factor in this process.

Regarding the *beel* edge vegetation several small, peripheral *beels* have been converted into agriculture land (paddy fields), as a consequence of the former leasing system excluding the local population from the fisheries. These paddy fields have added to the loss of natural habitats in the haor system, and in particular, tall emergent reed-land vegetation has suffered. These activities have contributed to the loss of wildlife habitats as well as fish habitats.

The approach taken for the forest restoration is based on methods (seed collection, storage, germination, nursery, planting) developed by the DoF and/or the SEMP project. It is also stressed that a seed stock should be obtained from various sources to avoid genetic uniformity and that the local communities should be involved also in establishing nurseries and maintenance and protection against browsing by livestock. MoEF is supposed to ensure that locals receive usufruct rights. The same methods will also be used for restoration of reed beds.

Regarding the restoration of the *beel* edge vegetation and habitats, the local communities are supposed to co-operate with the project, to clearly demarcate *beel* edge, indicating the areas that may be used for agricultural purposes and what is to be left for natural vegetation cover.

Essential to the THMP goal achievement is raising consciousness regarding the need of biodiversity as part of the long term sustainable use of the natural resources. Considerable efforts should be made by the authorities to identify possible threats to biodiversity, i.e. overexploitation of populations (e.g. by poachers and collectors), habitat destruction (e.g. swamp forest clearance and degradation, pollution, and not at least the threats from alien species, i.e. introduced exotic fish species. However, an important task will also be to identify those areas appropriate for future ecotourism and non-consumptive activities, as well as areas appropriate for consumptive activities.

The content of this particular activity and the proposed approach has its merit. Given the scale at which forest areas are decreasing, the replanting becomes an immediate task. A main question relates to who should carry out this task and what mechanisms should be in place to ensure that the replanted forest do sustain. In these remote parts of the country, the government agencies are hardly represented, and hence it may not be realistic to expect the government line agency (i.e. the Forest Department) to shoulder this task. However, it is not feasible to delegate this huge task to the community itself.

The development of a collaborative approach which creates opportunities for the local people to participate, and work along with the government agencies is crucial. Women activities will be an integral part of this activity, and economic opportunities can be created. Women could gain substantially once they get the freedom to venture outside their homestead. The core to success is clear delineation of roles and responsibilities of various actors and sharing of the benefits which would accrue from this

activity. Lessons could be drawn from the SEMP experiences ("Community Based Haor and Floodplain Management") and other similar experiences of the country. Service of the IUCN (which is an implementing agency of SEMP) could be valuable in bringing experiences of other regions both in terms of management of wetland swamp forest and/or forest in general. However, this has to take place during the planning and design stage of the programme.

#### **4.2.1.2 Fisheries assessment, sustainable management and restoration**

The area is extremely rich in terms of fishery resources. The TH is one of largest and most important "mother fishery" within the country, especially for floodplain fresh water species. Rich leaseholders from outside have mainly focused on commercial gains and have exploited the fish resources of the area. They have had very little considerations for the future sustenance, and thus over-harvest has been a common feature. The government through an open auction, leased out the water body. Participation in the lease though "open", in reality was given to a limited number of rich outsiders. The lease has had a duration of usually three years, and was given to the highest bidder. Under the old system the lease winner was free to nurse and culture any species of fish and harvest all of them as and when he desired. Consequently, to maximise personal economic gain, over-exploitation became part of the norm. Further, due to culturing practices species diversity and/or balances got disturbed. According to the people (particularly the fisher community people) a large number of fish species are no more available in the area while some others are becoming rare.

Even though in the old lease system, the leaseholder was given specific rights to harvest fish from a well-designated area (i.e. only the demarcated area of the *beels*), the leaseholders normally extended their right over a larger area. In fact they exercised control over the total area which gets inundated by water, and during dry periods as well, which is not difficult to manipulate at times. This often lead to severe conflicts and at times became violent as well. In this process the main victims were the small and marginal landowners whose lands are at the edges of the *beels*. At times they did not get access to their own land for planting rice or fishing.

This activity aims to restore depleted *indigenous* fish populations at the Tanguar haor and fish species diversity by restoring numbers of commercially exploited indigenous fish species, restoring fish habitats and creating fish reserves. In co-operation with DoF a restocking programme will be developed. Moreover the activity aims to promote a sustainable fisheries management system and curbing of practices that are unsustainable. It is supposed to recruit either an NGO or consultant in addition to the DoF.

The possible success of the proposed activities within this particular component will depend on the types of community level organisation the project can develop, and the mutual degree of trust and confidence they can earn from each other. The process of community building would be one of the core activities, which the project should focus, as the success of many other

programmes is contingent upon this. Well experienced facilitators would be required for the development of CBOs. Although they could be recruited directly by the project, the better option would be the engagement of credible NGOs for the task. While talking to the district officials, it was indicated that BRDB could be given the responsibility to organise the people. BRDB do have experience of organisation building, but have very little (or no knowledge) of management of natural resources.

The THMP wants to address one of the root causes of unsustainable management by changing the former lease system. Due to the declaration of TH as a RAMSAR site in July 2000, the *beels* of the haor have been dropped from the list of auctions in 2001. The *beels* are now common property (under the administration of MoEF) and local people will now be invited to participate in the management of the resources. This new approach has given rise to new types of problems. In the absence of a new regulatory body, indiscriminate exploitation is now taking place. During the field visit the Appraisal Team saw large number of people with different types of gears engaged in fishing. Local people expressed their concerns as to the present state of affairs. In fact some of them stated that they didn't like to replace the old "leasing to individual" with the new "open access". In their opinion they would like to manage and exploit the fish resources through a co-operative system, where the participating members would be the people who are dependent on these *beels*.

The activity described in the Project Profile in fact reflects the opinion of the people. But the critical concern is to define the degree of dependence of the villages on these *beel* fisheries and what role each of these should play in the management of this important resource. Before giving any definite shape of organisation the project should deploy its resources to understand the social network and mobility of the people of 82 villages, in terms of their dependence on the *beels* in pursuing their livelihoods. From the field level discussions and observations it became evident to the team, that the degree of economic dependency on the haor among the different villages, varies a lot. Women involvement in fishery resources are open only in the monsoon months (June-September). During the monsoon, open water fisheries (especially for consumption), are common for many haor residents, and women from traditional and non-traditional fishermen (who are mostly poor) become engaged in dry-fishing activities. Consequently there is also a potential here for women for income-generating activities.

The activity proposes a co-management system, which involves the following actors: investors, local people and the project. It is envisaged that outside investors would be invited to participate in the co-management of the fish resources. The investors are expected to pay 50% of the lease money in advance, while the other half would come from the community after harvest. Costs of production will also be covered by these two groups equally. While the profit shall be divided among the three (investors, community and the project) at a ratio of 50:30:20.

The possible success of such a management plan would depend on the strength of the institutional set-up. If the real stakeholders are well represented and the decision making structure is a

democratic one, only then will the system survive. During the initial years of such a co-management, active support of the project should be there, and financial rules and norms must be clearly worked out. A non-transparent financial system would represent a major threat to the institutional build up and stability.

The other important issue to consider, is the role and involvement of the investors. The investor should be a "junior partner" in the co-management venture, although he will be paying half of the costs. The community and the project should enter into a short-term agreement with an investor. If possible, more than one investor should be encouraged, to ensure social checks and balance. Adequate care should be taken that the investors, due to his social and economic power does not start to buy the community leaders, and in actual operational terms becomes the *de facto* controller of the whole enterprise.

Independent of the future management system being implemented, there is an urgent need to focus on the biological and ecological foundation for the fisheries. Apparently there is a lack of statistics regarding the catches, and no quotas are imposed on harvest. Hence there is an immediate need for baseline studies with respect to all main issues relating to commercial or large scale fisheries. This fact is poorly addressed in the project document, as well as in the THMP. Without this knowledge in place huge investments in the project in fact could be a hazard. The *beels* are blessed with a long range of well adapted local fish species, although some are at risk or even already extinct. The project suggests that restocking should take place by using indigenous fish species. It will be an inexcusable mistake to continue the practice of introducing alien species that could deplete natural fish stocks completely and cause irreversible damage. In fact, existing alien species should be removed as soon as possible if feasible.

#### **4.2.1.3 Protection of wildlife and its habitat**

The aim of the activity is to enhance the protection of wildlife in Tanguar haor, with particular emphasis on birdlife. The importance of Tanguar haor as a home for a large number of waterfowls is well acknowledged. A large number of Palearctic migrants arrive during November and December and survive in the area before returning to their nesting grounds and wintering areas in the north. Although the legislation in Bangladesh prohibits hunting of wildlife, a large scale illegal outtake occur. This is a delicate problem, as prominent persons in the country actively participate in these activities. This has been possible due to the fact that the laws have not been enforced and respected. Local people catch birds and other wildlife and sell them for sheer survival needs.

The activity proposes to reverse the present situation through a twin-track approach. Firstly, work on people's awareness, regarding preservation of the wildlife in order to maintain the ecosystem. Secondly, protect the birds and their habitats through enforcement of law, and guarding the area against poachers. The proposal of developing a local brigade and warding system to guard the area may be realistic, but the game warders must be

trained and equipped with communication devices in order to keep contact with the control tower. Effective communication will also help to send reinforcement forces and to intervene in case of emergency needs, i.e. a close co-operation with the district authorities is a prerequisite. Construction of several watch-towers would be useful for an effective monitoring of the area, and to combat the present illegal hunting. The towers could also be used for possible ecotourism in the future, although this remote area, at present is scarcely visited by tourist. If there will be no enforcement and control within the near future, it is expected that the Tanguar haor system will be considered de-listed as a RAMSAR site within a few years, as few birds will remain.

#### 4.2.2 Threat reduction

This section consists of the following three activities:

- Resource substitution
- Income generation for local community at the Tanguar haor
- Welfare uplifting

##### 4.2.2.1 Resource substitution

The activities proposed under the programme are feasible and reflect people's need. The land ownership pattern of the area is highly skewed. Half of the population is landless and they work as wage labourer for their survival. Employment in agriculture is seasonal and extremely limited given the crops grown (mainly *boro* rice) and the way production is organised. Fishing used to be a supplementary source of income but due to the government leasing system (of immediate past) many of the locals have been deprived from this as well. As a consequence, the people often over-exploit the natural resources which ever they manage to get access to through legal or illegal means. In the above backdrop, resource substitution and income generation activities are of crucial importance.

Development of *village fuel-wood plots* is a very sound activity. The question is whether these fuel-wood plants are going to be planted on public land, community land or private land. From the project profile it is not totally clear, although indications are there that planting on public land will be the main focus. During the field visit the Appraisal Team could not make time to enquire as to the extent of availability of public land. Only from the Forest Department it was learnt that the department has 3000 acres of land mostly along the foothills of Meghalaya but people for homestead purposes have already occupied all of them. In the given context, private land could also be targeted for planting through a product share arrangement. Through CBOs, a dialogue could be established with the private owners for this programme. In case of private land, long-term contract for use of land must be ensured. Details are to be worked out based on proper economic analysis so that the producers (majority of whom would probably be the land-poor and landless) do not end up losing their capital.

*Rice husk fuel sticks and efficient stoves.* The production of rice husk fuel stick is widely practised in the area. In some areas availability of stick is a constraint, and in these area people make

round cakes of cow dung using straw. The scarcity of stick could be addressed through planting of *Sesbunia*, which is fast growing and also grows on swamp land. The fuel-efficient stove is a tested technology the project should provide the linkages with right agency and ensure technical support from the agency concern during the initial stage of the programme.

*Duck keeping* is a household level economic activity. The constraint to the development of this is access to the extension service specially to tackle mortality. Through CBOs, village level extension workers; primarily the women could be recruited and services of the Department of Livestock could be made use of for training the extension workers. The project office should facilitate this.

*Fishpond* establishment is an activity which could be undertaken in the canals and small channels of the area. Given the hydrological characteristics of the area the activity will be seasonal. The idea of involving the DoF for training the villagers is a sound proposition.

Undertaking of the above activities would require external inputs, both in terms of knowledge and financial capital. Given the economic status of the majority people, they themselves would not be able to initiate the above mentioned income generating activities. Provision of micro credit support along with planned management of land and water resources would facilitate this process and could even open up several other new avenues of productive employment for the local people. If the public land and water is management with people's participation then the level of poverty, which is an endemic problem of the area and creates lots of pressure on the natural environment, will be significantly reduced. This calls for a policy framework that defines and creates conditions for development of sustainable livelihoods through integrated management of land, water and other natural resources of the area with participation of the majority people. Participation is important as it gives the most vulnerable groups a greater choice to meet the risks they face. Most of the above activities mentioned, are stated as project objectives, but they need to be made operational through an iterative process of planning and flexible decision making structure.

##### 4.2.2.2 Income generation for local community in Tanguar haor

See 4.2.2.1

##### 4.2.2.3 Welfare uplifting

Health, education, water supply and sanitation provisions are virtually non-existence in the Tanguar haor area. The project should try to play a facilitating role in bring the government delivery system to the area (where applicable) and e.g. establish collaborative programmes with experienced NGOs. For water supply, installation of tubewells could be done in collaboration with the Department of Public Health (DPHE), which is responsible for rural water supply and sanitation. In case the DPHE does not have budgets for adequate coverage of the project area,

some subsidise should be given from the project budget. In implementing this programme, women's group would be the best vehicle. Tubewells could be installed for community use in agreed accessible spots. Before tubewells are established, the community should be organised and asked for a small contribution to a common fund for future maintenance of the facilities. The community should be responsible for the maintenance through the women's group, i.e. women should be given training on tubewell maintenance. In other parts of the country there are ample experiences where women have demonstrated the success of such an approach. Lessons could be drawn from them.

For the sanitation programme, focus should be on the household. Community latrines in most cases failed mainly due to maintenance, and even created severe health problems. In co-operation with the DPHE, the project should work out an implementation plan. Low cost water sealed toilets could be given to the project area residents on a subsidised price. Construction of rings and slabs should be done locally through involvement of the local people. The DPHE should provide training and the equipment while the local entrepreneurs (either individual or group) should be encouraged to make these. Before the construction of rings and slabs, a survey should be conducted to ascertain the needs and people's willingness to subscribe the programme. During this survey households could be categorised into 2-3 categories according to their economic status. Depending on economic status of the household, the project should decide on the amount of subsidy (e.g. 25%, 50%, 75%) each category should be given. The rationale of such a differentiated approach should be made clear to the community through meetings and discussions. People who will be willing to get the toilet should be asked to make an advance deposit to avoid unwarranted delay in product disposal.

A major emphasis should be on health education. In co-operation with the Department of Health, the Traditional Birth Attendant (TBA) and the rural medical practitioners could be trained. If qualities of these services are improved that would be a great contribution to the society.

### **4.2.3 Capacity building**

This section consists of the following four activities:

- Establishing community-based management
- Training in sustainable management of non-fishery resources
- Conservation awareness programme
- Environmental education programme

#### **4.2.3.1 Establishing community-based management**

As part of the pilot phase initiated in January 2000, 15 CBOs have been established within the Tanguar haor. So far there are only lists of names, no tasks have been designated to the groups. At present, no exclusive women CBOs exist.

#### **4.2.3.2 Training in sustainable management of non-fishery resources**

No activity is initiated so far.

#### **4.2.3.3 Conservation awareness programme**

The rationale of the programme is sound but the approach and methodology of implementation needs to be developed further. Engaging NGOs for developing awareness materials could be considered favourably, but the programme has to be carried out by the line agency (e.g., Forest Department's extension wing) in co-operation with the CBOs. Community level informal social institutions could be a good starting point for dissemination of information.

#### **4.2.3.4 Environmental education programme**

The idea of developing education materials especially to make the younger population aware of their immediate environment and the process of change, deserves specific attention. Publication of small leaflets, booklets, posters and celebration of "environment day" through bringing out rally, organising discussions and music could add new dimension to the programme. The idea of developing a new curriculum in collaboration with an NGO, and finally getting it approved by the Ministry of Education seems to be rather optimistic, given the way the system works in Bangladesh. However, through motivation of teachers and parents, and with support from the Education Department officials, local arrangements could be made for organising periodical lessons on the subject. Rhymes and folk songs could be used for general awareness and some specially designed ones for a child-to-child programme. Experiences of immunisation and health education programme suggest that children are very effective in dissemination of information and monitoring the state of the nature.

#### **4.2.3.5 Assessment of gender within the project design**

Within the Tanguar haor area, a specific gender analysis was not done, as the THMP was designed. Part of the reason being that NCSIP-1 socio-economic survey (BCAS) underestimated the importance of gender issues as a variable for development concerns.

With the exception of the tribal women, women's activities in general are confined to the homestead (Hindu and Muslim). Villages both in the middle and in the periphery of the haor are in general isolated and dominated by an orthodox conservative culture. The majority of women marry between 12 to 16 yr., and 92% of the women are illiterate. The livelihood pattern among women, especially women from the Muslim and Hindu group is one of extreme hardship, relating to homestead, and sometimes working in the crop field during the boro season. The majority of the women are engaged in fish drying, gleaning, husking and preparation of storing crops. Tribal women grow vegetables, fruits and tend livestock. All of these activities are taken on, together with their domestic duties. There are presently few opportunities for women with respect to income generation.

The social status of women in the area is still very much determined by their male head of the household. Women in veil, as well as the separation of men and women, is strictly maintained in accordance with the prevailing social/religious norms. Women's participation in decision making is also limited. With exception of the tribal community, land owned by women is rare.

The NCSIP-1 has recommended mandating women participation, however, there are several obstructions to be overcome to achieve real women upliftment. In the NCS there is a proposal to develop community-based organisations in which women will be included. But from the Focus Group Discussions (FGD), done in three villages (named Joypur, Mujrail and Bangalbhatta in North Sreepur and North Banghikundu) it became clear that women will develop *dependency syndrome* once they are with male in the same CBO. Part of the reason for that is connected to socio-religious handicaps for Hindu and Muslim women in working outside the household. There has so far been no formal gender specific groups formed, either from NGO or GO.

Separate CBOs for women thus have to be established. This demand came forward in all the interviews with women from the different villages. The rationale behind this demand is that this will facilitate better performance, less patron-client relationship, and flexibility to have outside-work in addition to their household chores. This will also reduce the negative impact on women through male domination.

The THMP activities do have a mandate on women participation through women membership in the CBO. About 30% of the members are foreseen to be women. An optimum CBO formation, based on equal income groups, will be crucial to the future success of the women upliftment.

Acute poverty, lack of training, lack of credit, together with no access to and control over resources like land, are challenges that have to be dealt with as part of the women uplifting. In addition, there is a trauma of living within the haor-setting, which virtually cut them off from civilisation in the rainy season. For almost nine months, women remain more or less isolated. This is especially true in villages located in the middle of the Tanguar haor.

The Appraisal Team identified a particular interest among women in getting actively involved in Income Generating Activities (IGA) as well as specific preferences within different groups. Socio-economic conditions dictate the choice of IGA activities. Livestock rearing is the IGA that is preferred by Muslim women, whereas fish cultivation is the main preference among Hindu women. The only exception seems to be the tribal women who have enough franchise to venture in anything financially rewarding. These ranges from ecotourism to turtle breeding and fin fish cultivation. The probable reason for this is that women in the tribal societies have welded more power and more literacy. Regarding the need for conservation and general awareness of wetland degradation, the Appraisal Team findings show a rather low involvement among women with respect to these issues.

The new policy agenda from the GoB on gender issues, demands that gender should be included in all development, and be targeted for income and employment. The project activities do not address gender concerns in particular, even though many of the activities heavily rely on women's participation as part of the goal achievements. Among the eleven activities the scope of employment for women is limited, and the position of women is not clarified, i.e. where and how gender issues will be taken care of.

Within the Tanguar Haor there is two ethnically different social groups. One is a Bengali speaking, with a Muslim and Hindu dominant population. The second is tribal. Both groups are mainly confined to homesteads, wherein the tribal-women have a tremendous independence to involve themselves in field crop cultivation. In this situation, different set of IGA needs to be planned, in order to suit the socio-cultural attitudes and beliefs of the Bengali society.

The women of the Tanguar haor have been considered among the prime stakeholders to gain from wetland resource conservation activities, although the present socio-economic attitude would normally not allow women to get involved in conservation activities. However, poverty may compel them to take part. The opportunities for women that will come out of the project activities are rather narrow, and limited to two/three different activities. The possible success will depend on how well organised, motivated and altruistic the CBOs will function.

#### **General project objectives of the eleven (ten) activities.**

The idea is poverty reduction through a three pronged approach. THMP envisaged poverty reduction, conservation of wetland, biodiversity conservation and income generation including an awareness campaign. The gender concern is included in these overall activities.

*Swamp forest restoration and beel-edge habitat protection.* Women participation under this activity is related to seedling raising farms, which will be required for reforestation of swamps, reedlands, and grassland. Economic opportunities can be created. Women could gain substantially once they get the freedom to venture outside their homestead. Limited possibilities are seen for women during boro crop cultivation. Once the project has implemented the zoning process (demarcating the area for agriculture), additional areas that may come out can be awarded jointly (male and female) to the hardcore poor for establishing their economic livelihood. Within the haor, there are prospects for subsistence crops like vegetables and cash crops (e.g. mustard, caraway, chilli, lentil). However women participation in agriculture under the THMP has to be mandated specifically in order to meet the socio-religious politics and traditions of the area.

*Fisheries assessment, sustainable management and restoration.* Women involvement in fishery resources are open only in the monsoon months (June-September). During the monsoon, open water fisheries (especially for consumption), are common for many haor residents, and women from traditional and non-traditional fishermen (who are mostly poor) become engaged in

dry-fishing activities. Consequently there is also a potential here for women for income-generating activities.

The Department of Fishery (DoF) will eventually be involved in the THMP area, to ensure the "Mother Fishery" status of the Tanguar haor. Restocking of the Tanguar haor will regularly take place through fingerlings. Hindu women in CBOs from Hindu villages can participate in the DoF sponsored Fingerling production, which can be done around homestead ponds or elsewhere. Traditionally, among Hindus, fishing is an old profession. These professional Hindu fisher women who are mostly poor, low caste and absolutely landless can participate in this. Fish ponding can become another source of income. In some of the smaller beels (within 3 acres), mixed women and male CBOs can get involved by taking lease for fish production, guided by DoF/THMP.

Within the Threat Reduction Activities (*Resource substitution, Income generation and Welfare uplifting programme*), there are culturally acceptable income earning opportunities for women, like preparing rice-husk fuel stocks and different stoves, duck keeping, fish pond aqua-culture, small business, ecotourism, bee-keeping, turtle breeding, vocational training, operation and maintenance of tube-wells, paramedics etc. Activities 5, 6 and 7 are the only ones, which have the merit of credit facilities that women will need in running small businesses.

In all the activities, but especially under the Resource substitution and welfare uplifting program, the village based women CBO has immense scope for income, as there will be far less hardship associated with field crop cultivation

There is an assumption that the project and its activities will increase women participation and contribution to the household economy and IGA, but there are few indications of how and at what capacity. The schemes like swamp forest, fishery and different IGA activities can create economic opportunities for women, but under the present circumstances it is hard to see how. If the objective were to encourage women to participate more, it would be more effective to strengthen adult literacy course/programs, girl's education and other interventions that will empower them. Co-operation among women as laid out in the Taguar haor management plan, will greatly depend on this, as some of the components need technical knowledge, skills, which are not in place at the moment. Adequate training and design strategy needs to be more in tune with the specific needs of the haor women, suited to their cultural needs as well as to the issue of gender sensitivity.

Concluding from present findings, based on talks with three different groups of women, the impact assessment needs in depth research. As acknowledged during the VGD session, it is difficult to capture free expressions from women related to their problems. Lack of clarity in answers made it difficult to judge the level of sufferings and the desires of women in general.

## 4.3 Assessment of relevance

The present MoU between Norway and Bangladesh, is initially stating some development perspectives with relevance to this particular project:

It is essential to place people first, to encourage human creativity, embrace human dignity and to further strengthen democracy in Bangladesh. To make public administration more accountable and responsive to its clients is seen as a central component of the over all development effort. This includes giving greater responsibility to and access to more resources for local government. It is also agreed that the large scale poverty in Bangladesh is the principal development challenge. Investments in the productive sector suitably attuned to the growth of incomes of the poor are crucial in achieving poverty-reducing growth. And finally there is a need to stress the need to orient the future development strategies of Bangladesh towards the needs and the resources of women.

The overall objective of the development co-operation shall be poverty alleviation, focusing on developing a good educational system (primary education) and promoting increased employment and higher incomes among the poor sections of the population.

Some of the key issues related to the three areas of co-operation, within the *educational area* is: increased participation of disadvantaged groups and strengthening institutional competence and capacity at central and local levels, within the *productive sector*; increased income-generating employment for the poor and finally *strengthening of the democratic process*; increased public participation in decision-making processes, and stronger public awareness.

Gender aspects and environmental considerations shall be an overall concern.

Elements covered directly or indirectly by the proposed project:

1. Poverty alleviation (targeting the poorest of the poor in Bangladesh). Progressive equity distribution of wetland benefits, going overwhelmingly to the poorest
2. Natural resource management related to income-generating activities (both global/regional and local perspective)
3. Strengthening community/local participation and management
4. Empowerment of local communities, through capacity building (creation of CBO's)
5. Gender and ethnicity (the involvement of women/tribal villages)
6. Micro economy (fund/credit/income generation)
7. Migration (through welfare uplifting slow down the increased migration towards Dhaka)
8. RAMSAR – assist GoB in meeting their obligations.

The proposed project is focusing on the poorest of the poor within Bangladesh. The people in this area are heavily dependent on (both for subsistence and income generating activities) the

utilisation of natural resources throughout the year. The focus of the project is on the transition, from one type of unsustainable leasing- and income generating system (excluding the communities) towards a more sustainable community based leasing system. With all its proposed activities, the long term perspective of the project can be viewed as a socio-economic development programme, that is based on a sustainable income-generating utilisation of the natural resources.

The proposed activities are in line with the present MoU on several issues.

In addition, the Environmental Strategy for Development Co-operation from the Norwegian Foreign Ministry is clearly stating that assisting countries with the implementation of international conventions and protocols, will be one of the important areas for bilateral development co-operation. The given fact that the project area has been declared as a RAMSAR-site by the GoB, further strengthen the relevance of this particular project.

## 4.4 Assessment of sustainability

### 4.4.1 Financial aspects

General data on the implementation cost for the THMP and the 10 identified activities are rough estimates, and only give costs in an order of magnitude. Along with a more detailed phasing of the different activities, the costs have to be broken down and specified on the level of activities.

*Ecotourism.* In general, Bangladesh has not been a typical target for tourists due to many different reasons, one of the most important being the lack of infrastructure (roads, high quality facilities etc). In the remote areas of the Tanguar haor this is even more evident. The haor can only be reached by boat, at certain times of the year. In spite of the obvious natural qualities of the area, ecotourism as an important income-source seems irrelevant within the scope and timeframe of the proposed programme.

### 4.4.2 Environmental aspects

*Present conditions.* The present environmental conditions of the Tanguar haor is far from satisfactory from an ecological point of view, although it is said to be the Bangladesh' haor in best shape. A major shortcoming is the lack of swamp forest, and uncontrolled and arbitrary use of the boundary and haor edge areas. Uncontrolled land use practice combined with an uncontrolled harvesting of fish and waterbird resources, will probably turn the area into the same category as the other haor system in the HB within a short period of time. The THMP and the proposed activities have identified the majority of problems facing the area. The proposed actions, if implemented, can contribute substantially to stop the degradation process within the Tanguar .haor.

*The Tanguar Haor Management Plan.* The management plan prepared for the Tanguar haor wetland seems to be the first attempt to combine biodiversity conservation in a freshwater wet-

land with sustainable resource management. The plan includes the main components necessary to embrace both the ecological and sociological dimension, e.g. description and mapping of the area, identification of conflicts, habitat restoration proposals, sustainable resource management proposals and monitoring. The process has been participatory, including the grassroots level, and as such been developed through a practical exercise, where the main stakeholders have been involved.

However, there are shortcomings. Although there seems to be a sort of overall understanding of the dynamics in the haor ecosystem, it is obvious that there is a significant lack of detailed knowledge about crucial factors in space and time necessary for the functioning of a sound haor ecosystem. The Tanguar haor is an extremely complicated wetland ecosystem, with extreme and distinct seasonal changes and a high organic production, which can support not only a large number of animal and plant species, but also an extraordinary high biomass production.

Within the fishery sector the information presented is insufficient. Although there are some knowledge about the number of species in the haor system, stating that a total of 135 native and 9 exotic fish species are to be found, there seems to be limited knowledge about the ecology of the different species, and how they interact. The area has obviously several functions as the year is divided into four fishing seasons; the over-wintering season, (December-March), the spawning season (April-June), the nursery/growth season (June-September) and the flood recession season (September-December). A number of questions could be asked, e.g. which of the species are migratory, and which are stationary? When and where do the different species spawn, and for how long do the migratory species stay in the haor, where do they come from, where do they stay during the different seasons? Where do the fry and fingerlings stay – what are the main food resources etc.

It is particularly alarming that several exotic species are introduced. An improved strain of the Nile tilapia *Oreochromis niloticus* that grows 60 percent faster than other farmed strains has for instance been introduced. What are the effects of the introduced species on the native species? There is no reliable data on the ongoing fish harvest, and there is also a question whether the present fishing methods are sustainable. What is the carrying capacity of the haor? These, and several other questions needs to be clarified in order to understand and create a sustainable management of the Tanguar haor ecosystem.

Thus, there is a need for a baseline fisheries survey, providing answers to these and other questions. Fishery research activities have been strengthened in Bangladesh by the establishment of a national Fisheries Research Institute (FRI). It is headquartered in Mymensingh, with substations in Chandpur for riverine fisheries, Mymensingh for aquaculture, and Chittagong for marine fisheries and fisheries technology. It is, however, likely that international expertise should contribute in the development of the knowledge base.

A main reason for making the Tanguar haor a RAMSAR site, is the fact that a huge number of migratory waterbirds coming



from the higher latitudes of Europe, Eurasia and Asia, remain in the HB during the winter months. There is no estimate of the total number of birds in the HB, however, the estimates for the Tanguar haor range up to 40 000. Although the THMP give some indications about the number and species of birds shot or trapped, there is no hard data on the different species. It seems to be a comprehensive knowledge about the trapping methods used by locals, however, the estimates are obviously hampered by great uncertainty, not at least due to the local catches.

If the recommended stop of all trapping and hunting of birds in the haor is enforced, the lack of these data are not a decisive problem. If, however, the outtake remain, this obviously represents a major threat to the waterbird population, and it could be regarded as a violation of the RAMSAR site obligations by the GoB. It is, though, necessary to obtain more knowledge on the dynamics of the waterfowl population in the haor; where are the main feeding areas for the different bird species, and also what are the birds impact on the ecosystem in e.g. terms of a fertilising effect. Thus, the recommendations made in the THMP are satisfying.

*Tanguar Haor as a RAMSAR Site.* The "Convention on Wetlands" (or "RAMSAR Convention"), adopted in 1971, is the first global intergovernmental treaty on conservation and wise use of natural resources. Compared to more recent ones, the convention provisions are relatively straight forward and general, although over the years the basic tenets has been developed and interpreted. The official name – "The Convention on Wetlands of International Importance, especially as Waterfowl Habitat" – reflects its original emphasis and wise use of wetlands, in particular to provide and secure important habitats for waterbirds.

#### Membership in the RAMSAR Convention

- entails an endorsement of the principles that the Convention represents, facilitating the development at national level of policies and actions, including legislation that help nations to make the best possible use of their wetland resources in their quest for sustainable development,
- presents an opportunity for a country to make its voice heard in the principal intergovernmental forum on the conservation and wise use of wetlands,
- brings increased publicity and prestige for the wetlands designated for the List of Wetlands of International Importance, and hence increased possibility of support for conservation and wise use measures,
- brings access to latest information and advice on application of the Convention's internationally-accepted standards, such as criteria for identifying wetlands of international importance, guidelines on applications of the wise use concept, as well as on management planning in wetlands,
- brings access to expert advice on national and site-related problems of wetland conservation and management through contacts with RAMSAR Bureau personnel and consultants and through application of the RAMSAR Advisory Mission mechanism when appropriate,
- encourage international co-operation on wetland issues and brings the possibility of support for wetland projects, either

through the Convention's own Small Grant Fund or through the Convention's contacts with multilateral and bilateral external agencies.

The parties joining the RAMSAR Convention have several commitments, of which the four main are

1. *listed sites*, i.e. an obligation to designate at least one wetland for inclusion in the "List of Wetlands of International Importance", and to promote its conservation, including, where appropriate, its wise use. Selection for the RAMSAR List should be based on the wetland's significance in terms of ecology, botany, zoology, limnology, or hydrology. The contracting parties (CP) have adopted specific criteria and guidelines for identifying sites that qualify for inclusion in the List of Wetlands of International Importance.
2. *wise use*, i.e. there is a general obligation for the CPs to include wetland conservation considerations in their national land-use planning. They have undertaken to formulate and implement this planning so as to promote, as far as possible, "*the wise use of wetlands in their territory*". Guidelines have been approved on how to achieve "wise use", which has been interpreted as being synonymous with "sustainable use".
3. *reserves and training*, i.e. the CPs have undertaken actions to establish nature reserves in wetlands, whether or not they are included in the RAMSAR List, and they are also expected to promote training in the fields of wetland research, management and warding,
4. *international co-operation*, i.e. an agreement among the CPs to consult with other CPs about implementation of the Convention, especially in regard to transfrontier wetlands, shared water systems, and shared species.

These four major obligations are elaborated on and published in the RAMSAR Handbook series.

It is important to point out that the RAMSAR Convention not only have guidelines for RAMSAR sites, but actually include obligations with respect to wetland conservation considerations in general and that the national land-use planning in the CPs territories should be based on the basic ideas in the Convention. Thus, the CPs have undertaken to formulate and implement land-use and wetland planning so as to promote, as far as possible, "*the wise use of wetlands in their territory*".

Obviously, the GoB has several commitments as a signatory of the Convention. The IUCN system do represent an important tool for the GoB on issues relating to wetland management and conservation in general, and to a RAMSAR site in particular. The international community, through organisations like IUCN, also act as watch-dog with respect to how the wetlands and a RAMSAR site are managed in different, countries having ratified the Convention.

Although the concept of "wise use" is rather general it has a definition, saying that "*The wise use of wetlands in their sustainable utilisation for the benefit of mankind in a way compatible*

with the maintenance of the natural properties of the ecosystem”.

Consequently it is important that there is a minimum standard of awareness among the authorities at different levels what the natural properties of the Tanguar haor ecosystem *de facto* are. So far no document available to the Appraisal Team has given a comprehensive description of the Tanguar haor ecosystem dynamics, indicating that a deeper insight into the ecological components are known, or understood. A study focusing on the Tanguar haor ecosystem dynamics is needed, as well as some kind of educational or uplifting programme for decision makers at different levels and in different sectors; a programme which should give some basic education on ecosystem functions as well as the RAMSAR Convention and its obligations.

#### 4.4.3 Institutional aspects

*The co-ordination of NSC and SEMP.* The Sustainable Environment Management Programme is a follow up to the National Environmental Management Action Plan (NEMAP). The Programme was formulated under the guidance of MoEF in 1996-97. It has identified 26 projects, clustered in five thematic areas taken from NEMAP:

- Policy and Institutions
- Participatory Eco-systems Management (green initiatives at grassroots level)
- Community-based Environmental Sanitation (brown initiatives at grassroots level)
- Advocacy and Awareness
- Training and Education

The Programme is expected to institute national capacity for environmental governance at all levees.

Due to different initial starting problems MoEF in 2000 arbitrarily suspended all activities under the Programme, and initiated an internal review, raising a number of concerns associated with SEMP's management. The concerns were brought to the attention of the Parliamentary Standing Committee on Environment, by the Ministry. This Committee recommended suspension of the entire Programme, pending the outcome of a comprehensive Programme review and assessment.

An independent external evaluation was completed in June 2001. The evaluation report concludes that the Programme suspension has led to a serious setback to the sustainability of outputs and results. Further many of the Sub-Implementing Agencies have lost the momentum achieved after a difficult start up period.

The external evaluation recommends that the Programme should be restarted immediately to avoid irreversible damage. Due to the fragmented design of the Programme it has been difficult to realise synergy, and thereby avoid potential overlapping. The report also highlight the need to consider an active search for synergy. Both SEMP and NSC are co-ordinated by MoEF. As stated under activity 1 - *Swamp forest restoration*, it is important to

look at possible synergy, with learning from relevant SEMP-activities.

Even though the accusations of corruption against SEMP have been dropped, this incident may indicate some of the problems such a large programme is facing, with respect to efficiency and transparency concerning its activities (to which ecosystem management is only a minor part).

Given the recent development of the SEMP-programme and the uncertainty of the present status, the Appraisal Team do not suggest any merging of the NSC office with the SEMP-administration. Though the future management of the Tanguar haor should be viewed within the context of SEMP, to secure maximum effect of synergy, both with respect to the administrative set up and the professional outcome.

*General structure.* In Bangladesh administration is departmentalised. There are national level set-up headed by the Secretary of the Ministry and each ministry has several implementing agencies. Agencies under different ministries of the government have their own mandate. The headquarters of the agencies are all in the capital. Below the national structure there are *District level set-up*, and under them there are *Thana level set-up*. Very few departments have set-up further below, which is the *Union* (lowest level of administrative unit, headed by an elected chairman and another 12 members; of which three are reserved for women). The line agency officials working at union level do maintain liaison with the union office-bearers but are not accountable to the elected council for their activities. Therefore, vertical accountability remains the pivotal factor in the administration. Given the above structure often single-minded devotion to the fulfilment of the mandate is considered to be a virtue. However, as we know development problems do not occur departmentally, and they appear in a complex web of interrelationships needing concerted efforts by more than one agency. The sustainable management of Tanguar haor is no exception to the above reality, and thus the institutional arrangements for the project would require innovation and careful delineation of tasks as well as devolution of power.

*Institutional arrangements for the Tanguar haor management.* The project is proposed to be implemented through MoEF. At the national level, there is a National Monitoring Committee headed by the Secretary MoEF. The other members of the committee are representatives from the ministries of Water Resources, Land, Livestock and Fisheries, Rural Development and Co-operative and 4 representatives of the Civil Society (of which 2 would be institutional representatives and the other 2 individual in their personal capacity). As the name suggest this is a committee for monitoring and have no implementation responsibility.

On behalf of the MoEF, the project is proposed to be implemented by a Project Management Unit (PMU). The PMU headed by a government official will run and manage the day to day business of the project. A number of administrative and support staff are envisaged for the PMU and the PMU office is located outside the Secretariat building of the government.

According to the proposal, the PMU will implement the project activities through its district office and field offices. The district office will be a new set-up headed by a Deputy Director; who will come from the government cadre service. The district office will supervise the field level activities and maintain liaison with the district administration as well as the district level advisory committee that is proposed to be formed. The success of the project to a great extent would depend on the effective functioning of this office. The district office must be given adequate authority and back-up support to mobilise the services of the various line agencies. The delineation of roles and responsibilities of this office vis-à-vis the PMU and the district level Advisory Committee must be made very clear so that the office can function with certain degree of autonomy. The Deputy Director will be the Member-Secretary (proposed) of the District Advisory Committee.

At district level, an advisory committee called "Tanguar Haor Advisory Committee" is proposed. The Deputy Commissioner will be the chairperson of the committee. The other members are Additional Deputy Commissioner (Revenue), representatives of the Bangladesh Water Development Board, Department of Agricultural Extension, Department of Fishery, Department of Forest, Police, Bangladesh Rural Development Board, The Thana Nirbahi (Executive) Officer of the respective thanas, the Chairman of the respective unions and 4 representatives of the Civil Society (2 selected by the Deputy Commissioner and for other 2 criteria are to be defined). The Deputy Director of the District PMU will act as the Member-Secretary of the Committee.

The proposed institutional arrangements namely the National Monitoring Committee and PMU are fine. The District Advisory Committee appears to be an adopted version of the District Development Committee. The success of such a committee would critically depend on the time and interest of the Deputy Commissioner. If the Deputy Commissioner does not take much interest or could not give adequate time then the effectiveness of this committee will remain limited. Active support of the district administration and the Police (for enforcement of laws) will remain critical for the success of the project. Functional legitimacy of the District Project Office in the perception of the other district level agencies and the role of the former will be a critical factor in facilitating the process of harmonisation of different agency activities and gradually strengthen their integration at district as well as project level.

In the proposed institutional arrangements, there are no reference to CBOs and NGOs. If the project really subscribes the idea of participatory approach and wants to involve the NGOs and CBOs in the planning and implementation of its various programmes, then they should be given proper place in the institutional setting of the project. If they remain only as service provider or recipient the objective of "community based management of the natural resources" will be difficult to achieve if not impossible.

The involvement of NGOs and local bodies (CBOs) will be a crucial factor to success. Establishment and maintenance of wetland ecosystem like the Tanguar haor depend on the co-

operation and alliances created with local communities and private organisations. NGO's and various community-based organisations will have an increasingly important role to play in organising and mobilising rural people to become active partners and a basis for sustainable wetland use and conservation.

The above institutional structure is proposed as an interim arrangement. In the near future the project implementation and management structure will be liquidated and will be taken over as an activity of the proposed Bureau of Conservation and Management of Natural Resources. In the draft Concept Paper on the Bureau, while elaborating the rationale of this proposed body it is stated that Bangladesh as a signatory of all major global conventions and treaties on environment and conservation is aware of fast deteriorating environment and degradation of natural resources. The formulation of National Conservation Strategy was initiated to address some of these problems. The concept note however, acknowledged that "the efforts so far have not yielded significant results because of lack of a co-ordinated approach, and absence of an enabling policy, legal and institutional framework.

In order to address these issues and creating synergy it is important to have an institution that can look at broader strategic policy issues addressing cross-cutting issues across sectors, provide mechanism for (inter) sectional integration, and provide an interface with civil society". A Concept Paper – "Need for a Bureau of Conservation and Natural Resources in Bangladesh" was presented to the Appraisal Team, but the issue was regarded to be outside the scope of the present mission.

The above plan of re-organisation has a number of merits, but the feasibility of an enhanced structure is to be assessed carefully. Given the fluidity of the concept it is too early to pass any judgement on the efficacy and viability of the proposed structure, not to speak of its financial implications.

The initiative of implementing community based management of the Tanguar haor is a centrally taken decision. There is no formal approach in ensuring participation from different villages in the decision making process. At the same time it is not clear how the former leaseholders or their local clients would react to this idea of community based management, though there is a general consensus among the people in favour of it.

In the meantime the project has organised 15 CBOs starting from January 2001. They are just in their infancy. Presently, the CBOs have very little idea what will come out of it, and what would be their management tasks as well.

In general the findings made by the Appraisal Team indicate that the people are of the opinion that employment opportunities will become better if there is proper management of the *haor* and *beels*. Important issues are planning, control and conflict resolution. Differences of interest are emerging as the adverse impacts and benefits of the establishment of the present system become more pronounced and show an (undefined) unequal distribution between different categories of users (e.g., farmers and fishermen) and between different areas in the *beel*. Notwit-

hstanding the above, this among many other examples, demonstrates the development of effective, legitimate and participatory institutions, building on induced as well as spontaneous local initiatives which are initiating the long process of participatory management of natural resources through dialogue with various government agencies.

The principle stakeholders of the THMP are:

- Local Community
- Fisheries Leaseholders
- Ministry of Environment and Forest (responsible for overall implementation, taking initiatives to ensure implementation by involving other ministries, and selecting suitable NGOs for assisting implementation)
- DC's Office/Ministry of Land; responsible for the issuing of the *Jalmohal* (waterbody) lease
- Department of Fisheries; responsible for fisheries management
- Forestry Department; responsible for forest and wildlife management
- National Environment NGO; involved for developing resource use guidelines, monitoring of wildlife, training of FD field staff, and awareness campaigns
- National Development NGO; responsible for monitoring of socio-economic activities, developing resource use guidelines, and the poverty-alleviation programme (Development Programme).
- International Environmental NGO; to perform external monitoring and evaluation
- Tanguar Haor Monitoring Team (THMT), a new body which is to be chaired by the Deputy Commissioner of Sunamganj, and include representatives from DoF, FD, MoL, and the two national NGOs

There seems to be a lack of inter-ministerial co-ordination regarding the management of environmentally sensitive areas in general. For example, the MoL is responsible for land matters including the public water bodies while in many locations management of fish resources is the responsibility of the DF. These institutions frequently have different, and sometimes contradictory and conflicting objectives. Clearly there is a need for finalising a national wetland policy and a framing of wetland conservation rules to define different wetland types and their corresponding management needs.

The institutional co-operation abilities of different bodies will be a conclusive factor for success and have to be clarified, as an overall institutional strengthening. As at present, it is not obvious that the co-ordinating abilities of the MoEF with other agencies are satisfactory, and the knowledge-base for the proposed activities to take place on the wetland conservation sector must be further developed. The complexity of the task, with research needed within different specific topics, necessitates an extensive co-operation and collaboration. Some activities assume basic research within a range of complicated ecological issues, and there will be a need to draw heavily on national as well as international expertise.

The upcoming efforts should involve the religious leaders in the conservation planning process. This will also bring about more confidence in the local society and an ownership to the objectives and results as well as the overall goal among the people living there.

*A Leasing System for the Tanguar haor.* The Tanguar haor used to be leased out by the MoL through open auction for a period of three years. On behalf of the MoL the Deputy Commissioner of Sunamganj administer the lease auction. However, with the declaration of the Tanguar haor as a RAMSAR site, and in view of the decision of the NCS, the MoEF took the initiative to protect the natural environment and biodiversity of the Tanguar haor through community based management. To implement this management plan, the MoEF requested the MoL to transfer the management right of the Tanguar haor to them. Accordingly, on 12<sup>th</sup> February 2001 a MoU was signed between the two concerned Ministries of the GoB.

*Content of the MoU.* A number of clauses have been stated in the noted MoU which are crucial for the project specially in terms of making decision as to the management modalities of the Tanguar haor. These are:

- Management right of the Tanguar haor is transferred to MoEF from MoL, for a period of 10 years from the date of signing the MoU
- The management of the Tanguar haor has to be implemented through the organisation of the fishing community and other occupational groups belonging to poorer section of the community, who are living in, and around the Tanguar haor.
- The local administration shall have to be included in the management structure of Tanguar haor.
- For implementation of the management plan investor(s) could be invited to participate. The investor(s) could be the local fishermen group and/or groups/individuals associated with fishing profession.

The selection of investor(s) must be based on a competitive technical and financial proposal. This will be done through a committee consisting of the following members:

Deputy Commissioner	Chairperson
Upazila Chairman (in his absence a person nominated by the government)	Member
Additional Deputy Commissioner (Revenue)	Member
Representative of BWDB	Member
District Fishery Office	Member
Thana Nirbahi (Executive) Officer of Taherpur	Member
Thana Nirbahi (Executive) Officer of Dharmapasha	Member
Tangura haor RAMSAR Site Project Representative (Secretary)	Member

Lease value of the Tanguar haor under no circumstances should be less than the immediate past amount. Further, in the first year the amount should be 25% higher and in the subsequent

years it should increase 10% per annum. The MoL though agreed to transfer the management right of Tanguar haor to MoEF for 10 years, the arrangement should be reviewed after each 3 years (first to come: February 2004) and the continuation of the arrangement, will depend on the outcome of these reviews.

*Proposed Management system.* As already mentioned 15 CBO-groups have been organised and will be set up with specific tasks. While this process develops, the project has opened dialogue with potential investor (the local MP belonging to BNP, the party in power), and has yet to reach an agreement on this. The Secretariat (NCS) expects the new leaseholder to be in place and operating in the haor, before the upcoming monsoon 2002. The same Secretariat claims that the criteria for choosing leaseholder, will be based on a holistic approach, rather than in terms of maximising profits. The proposal, which is on the table for negotiation, is as follows:

The investor is asked to pay 50% of the lease money in advance and bear half of the production cost. In exchange he will get 50% of the profit. For day to day management and guarding of the fishery the investor shall have the right to employ a certain percent of the employee, while the rest should be employed by the CBO's/communities and/or project.

*The issues for further considerations.* Since no agreement has yet been reached with any outside investor, and the local groups are also not capable of taking over, the fish resources of the Tanguar haor is being exploited by all sections of the community who have the means to do so. Right now there are no enforcement and control over harvest, and if the present practice continues, over-harvest is apprehended. Further, if this practice of uncontrolled harvest under the "slogan of community management", is not stopped by appropriate authority, in the future opponents of the new leasing system (whose interest has been adversely affected by the decision) may use the sentiment "open access" to sabotage the real efforts of community based management of the Tanguar haor.

The number of *beels* located in the Tanguar haor, and the tradition of defining them as one single unit is a matter of concern. According to knowledgeable sources the whole haor comprises around 42 large and small *beels*. But so far the MoL has treated this as one large water-body and administered the auction. The project is also considering the haor as one management unit. While most of villages have remained unorganised and their degree of interest in the management of the fishery is yet to be ascertained, as an interim arrangement, and the Tanguar haor as one single unit is fine. But subsequently, for future management, the *beels* have to be clearly divided based on hydrology and other ecological conditions such as fish movement and habitat. Without this separation the local groups will not be able to exercise their control over the fishery.

The management of one large unit with the participation of 82 villages, will remain a huge task and may take years before some degree of cohesion and understanding is reached among the different groups spread over such a large area. Further, success and failure on the above factors in turn will determine the

groups' degree of dependence on outside investors. Given the time requirement of the organisation building process and the way fishing is organised in the area (the Tanguar haor is of no exception) without breaking up of the larger unit into several smaller units the local people will never be in command of the production and management of the fisheries. If this proposition is accepted then the project must take the initiative to create legal provisions so that management responsibility of the Tanguar haor could be divided up into several small units and they could be transferred to a larger number of groups across the area. This will create scope for wider participation and will resolve many of the potential conflicts between the villages and groups, and groups of local people vis-à-vis the outside investors.

## 4.5 Particular concerns to be kept in mind

In general the numbers of HIV/AIDS-victims are low in Bangladesh. Besides, in the Tanguar haor area the migration is limited, due to the lack of infrastructure and its remote location. Some of the tribes along the Indian border are regularly crossing the line, but still within very limited distances.

## 4.6 Monitoring

To avoid misunderstandings regarding the term "monitoring" this section is divided into two subsections. In ecological terminology monitoring basically relates to population development trends due to e.g. air pollution, climate change and other non-biotic processes or ecological processes, or it could relate to geomorphological changes due to a biotic or a non-biotic change.

An other aspect of monitoring relates to the project proposal itself, i.e. monitoring of project progress and success through a system of indicators and benchmarks. The THMP touch upon both types, although it is a obvious lack of clear-cut indicators regarding project progress and success and milestone events to be used for redirecting the course, e.g. after 3, 7 and 10 years.

### 4.6.1 Monitoring of biotic/non-biotic processes

The present biodiversity is at risk, locally as well as globally. A global change takes place due to factors such as average temperature increase and changes in the natural cycles, and cumulative local changes, such as deforestation and unsustainable resource exploitation. There is a need to develop local and national monitoring networks, which in turn can become a part of global monitoring networks.

A monitoring system in the Tanguar haor should be designed to detect undesired trends, beyond normal fluctuations, in populations, species and non-biotic landscape elements, and should have the capacity to convey this information to interested parties, e.g. the government, CBOs, NGOs and scientists.

The main focus in a Tanguar haor monitoring should be towards

- Bird populations (migratory and stationary) and other wild-life
- Fish populations (outtake and recruitment)
- Swamp forest and *beel* edge habitat development
- Geomorphological processes

The establishment of gauging stations for selected areas, and the haor as a whole, will enable monitoring of soil erosion through turbidity, salutation and geomorphological changes, i.e. topography of the haor and *beel* basins, water levels in rivers, basins and *beels* and sediment concentration.

It should also monitor water quality, and attention should be paid to environmental pollutants like herbicides and insecticides that are extensively used, and which could accumulate into the food chains in the ecosystems, as well as affect local people. Monitoring of water quality to reduce health problems due to lack of organised sanitary system is an important issue which should be prioritised.

Although the THMP recommends some specific areas of monitoring, it has to be developed in more depth, with a careful description and basis for choice of methodology etc, i.e. sampling procedures and frequency should be object to a detailed analysis before a monitoring programme is launched.

The development of swamp forest, reed beds and other major vegetation components are important monitoring components, and here satellite imagery could become a practical tool. A specific aspect of importance is the development of water hyacinths. This weed is widely spread in Bangladesh as elsewhere in the tropical and subtropical areas around the world. Astonishingly it was not observed as a prominent problem in the Tanguar haor during the field visit by the team. It should, however, be a matter of concern and followed closely.

#### 4.6.2 Programme monitoring

Verifiable indicators of achievement is important for any project. Although the current THMP operate with clear targets, the indicators are vague. It will be useful to delineate the components of monitoring as follows:

*Monitoring of Delivery.* This component looks at project inputs that have been planned and delivered and their costs, including costs of physical investments, institutional development, training etc., and the cost of monitoring itself (which may now become a major cost element in the project). In concrete terms among other, these would entail (i) disbursement of funds, (ii) delivery of material inputs, (iii) investment in infrastructure and (iv) maintenance activities.

*Monitoring of Use.* Here the emphasis is on how these inputs have been used, in particular the institutional and participatory arrangements planned and operated for their most effective use. Mobilisation, training and involvement of beneficiary groups in planning and design as well as during the execution of the activities and the overall development process itself. This would also elucidate activities devoted to train and equip the local groups

and institute, to organise and manage the co-management or collective system of resource management and maintain the facilities created by the project.

*Monitoring of Effects.* Within this component, effects of the use of inputs in relation to project objectives such as poverty reduction and increased agricultural production, both intended and unintended, are to be examined, including socio-economic and institutional effects as:

- agricultural practices
- occupation
- migration
- employment
- income (levels, distribution, poverty)
- quality of life (provision of/ access to safe water, health care, sanitary facilities, education)
- conflicts over distribution of benefits and losses
- formation and institutionalisation of CBOs
- composition of the CBOs in terms of gender and social categories
- communication and/or interaction between local groups, regional authorities and national agencies

## 4.7 Legal matters

Implemented, the THMP will have a long term significant positive impact on the quality of the haor environment, and could also be a model for replication in other haor systems. However, to enhance and maintain biodiversity necessitates the enforcement of regulations. Conservation management is, however, highly dependent on an appropriate framework of legislation and regulations. It will be of vital importance for the success of the management plan that the legislation framework is operative and enforced.



# Annex 1 Terms of Reference

## BGD 0049 National Conservation Strategy Project – 1: Implementation of management plans in environmentally critical areas

### 1 Background

In a letter to the Embassy from the Economic Relation Division (ERD) dated 6 June 2001, two project proposals from the Ministry of Environment and Forest (MoEF) were forwarded for consideration. These were:

- a) Tanguar Haor Wetland Biodiversity Conservation
- b) Protection of Marine Turtle along Cox's Bazar Coastline and Capacity Building in support of Biodiversity Conservation in Teknaf Game Reserve

The proposals were received in the form of a "Project Profile" and have, according to ERD, been approved in principle by ERD.

The requests must be seen as a direct follow-up to NORADs support for BGD0049 – *National Conservation Strategy Implementation Project-1* (NSCIP-1), which commenced in 1994 (ref. Signed Agreement 25 April 1994). According to the Agreement, the project should have ended in 1999, but due to various delays in implementation, the Embassy has subsequently agreed to a no-cost extension up to December 2001.

The Mid-Term Review for NCSIP-1 as well as reports from subsequent visits by FAG have pointed to the positive progress of this project. Similar sentiments have been expressed in a recent evaluation by IUCN. The Embassy has had a good working relationship with the project as well as with MoEF and is of the impression that the project has had considerable impact on environmental policy and practice. On the basis of this, the Embassy would recommend that Norway consider the possibility of building on this experience into a next phase, provided that the proposed appraisal is positive.

The Mandate for Dialogue was approved by NORAD in a meeting of the Director's Advisory Forum, 13.11.01. The decision was made to undertake an appraisal of the proposal for Tanguar haor, while the proposal for support to protection of marine turtles was rejected as recommended by the Embassy.

### 2 Purpose

The main purpose of the review is to appraise the proposal for community based sustainable management of the Tanguar haor area, forwarded by the MoEF and come up with a recommendation regarding Norwegian funding for the project.

### 3 Scope of work (Types of assessments to be carried out):

#### 3.1 Assessment of effectiveness

- ◆ Assess the level of expectations and realism between the proposed budget, the project objectives and what can be achieved.

#### 3.2 Assessment of project design

With regard to the management plan for Tanguar haor, and the early phase of the pilot activities being initiated, a thorough appraisal of the proposed activities should be carried out to assess:

- a) their relevance vis-à-vis the project objectives and the overall objectives of the MoU.
- b) the quality of the management plan and the various studies that have been used as inputs in the preparation of the plan, considering environmental, socio-economic and gender aspects in particular;
- c) the need for further studies, including a baseline survey;
- d) the experience with the pilot implementation of the management plan so far and the competence of the MoEF project staff;
- e) the feasibility and implications of the proposed delivery structure, and in particular the availability and efficiency of local government, and local and regional NGOs that are proposed to work as delivery agents for various project components.
- f) the ownership aspect of the local population, their intended participatory roles
- g) other stakeholders of relevance for the implementation of the project, including non-resident investors and fisherfolk that have previously have had access to the wetland area through the 'one-man lease' system.



### 3.3 Assessment of relevance

- ◆ Relevance according to priorities in national and provincial plans and development budgets;
- ◆ Relevance with regard to the objectives of the National Conservation Strategy and the ongoing activities within UNDP/SEMP.

### 3.4 Assessment of sustainability

#### 3.4.1 Financial aspects

- ◆ (covered by 3.4.3)
- ◆ The likelihood of *self-sustaining management according to the plan in the medium to long term*

#### 3.4.2 Environmental aspects

- ◆ What is the present condition/status of the different ecosystems (existing monitoring?) – vulnerability, ecological resilience and sustainability
- ◆ An overall environmental assessment of the management plans and the proposed project
- ◆ Obligations of the authorities regarding Tanguar Haor as a RAMSAR site

#### 3.4.3 Institutional aspects

- ◆ Assess the institutional strengths/weaknesses and capacity on local/regional level and their interaction with the central level (MoEF), considering in particular the proposed collaboration with NGOs and the financing of the implementation of the plan as well as the proposed mechanism for funding after the completion of the project. Could alternative mechanisms be considered/developed?
- ◆ The relationship and level of co-operation with other actors, and particular *vis-à-vis* the UNDP supported Sustainable Environment Management Programme (SEMP) has to be further explored with the view to maximise the efficiency of the various activities in the sector, as well as the policy impact. The role of Norway as a donor and NCSP-1 as an agent given the existence of SEMP must be critically assessed before making a decision regarding funding for the implementation of the Tanguar haor mgt. plan.
- ◆ Both SEMP and NSCP-1 are being executed by the MoEF and the link between the two has to be clarified.

### 3.5 Particular concerns to be kept in mind

- ◆ *The HIVIAids- agenda/situation has to be "checked out" in the management plan and the proposed activities for the Tanguar haor wetland area.*
- ◆ *The prospects and implications of the proposed emphasis on ecotourism to Tanguar haor should be considered.*

## 4 Implementation

### 4.1 Sources of information and methodology to be employed

- ◆ Interviews/meetings with officials in MoEF, UNDP/SEMP, WB, DFID, IFAD, Sunamganj (local municipalities (thana)/regional level), I-UCN, other NGOs,
- ◆ Field trip – Tanguar haor
- ◆ Documents: Proposal from MoEF; report from FAG, February 2000; Mid-term review report 1997 and (Mandate for dialogue – internal document?)

### 4.2 Division of responsibilities between the Team (ref. 4.4), NORAD and the Partner

Leader of the Team will be Dr. Kjetil Bevinger.

### 4.3 Timetable and time allocated for preparation, field work and finalisation

The Team will in the period of November 16<sup>th</sup> to November 29<sup>th</sup> 2001 carry out a field survey in Bangladesh. The survey will serve as a basis for the appraisal evaluating the proposed projects.

Mr. Bevinger will leave Bangladesh on Monday November 26<sup>th</sup> .

#### 4.4 Team composition

- ◆ An Appraisal Team (referred to as the "Team") is appointed by NORAD, with the following members:
- ◆ Dr. Kjetil Bevinger, Norwegian Institute for Nature Research, (NINA) (Team Leader)
- ◆ Mr. Andre-Thomas Eid, adviser, NORAD
- ◆ Dr. Anjan K. Datta
- ◆ Mrs. Momtaz Shirin

#### 5 Reporting

The final report (appraisal), based on comments from NORAD/FAG, the Embassy and others, with a summary is to be finalised as soon as possible and no later than Friday December 21<sup>st</sup> 2001.

Place and date

Signature



## Annex 2 Mission Programme

GOVERNMENT OF THE PEOPLES REPUBLIC OF BANGLADESH  
 MINISTRY OF ENVIRONMENT AND FOREST  
 National Conservation Strategy (NCS) Implementation Project -1  
 House # 50/1, Road # 11A, Dhanmondi R/A, Dhaka-1209, Bangladesh

### Programme for Royal Norwegian Embassy/NORAD Mission

Date	Departure	Arrival	Activity
Day 1 17.11.2001		Dhaka arrival	Visit and discussion at NCS Office from 01:30 p.m
Day 2 18.11.2001		NCS Office at 0900 a.m.	Discussion on New project. Meeting with IUCN.
Day 3 19.11.2001	12:45 Dhaka Airport  02:30 p.m. Sylhet Airport	02:30 p.m Sylhet Airport  04:30 p.m Sunamgonj	Preparation for field visit at morning.  By GMG Airline to Sylhet.  Night halt at Sunamgonj Circuit House.
Day 4 20.11.2001	07:00 a.m. Sunamgonj	10:00 a.m. Tanguar Haor	Visit Tanguar Haor by speed boat.  Field visit, discussion with local people and night halt at Tanguar Haor.
Day 5 21.11.2001	02:00 p.m leave Tanguar Haor	09:00 a.m.  05:00 p.m. arrival at Sunamgonj	Field visit and discussion on new project.  Meeting at 08:00 p.m. with D.C, Sunamgonj, and Night halt at Sunamgonj Circuit House.
Day 6 22.11.2001	09:30 a.m. Sunamgonj  01:40 p.m. Sylhet	11:30 Sylhet  03:30 p.m. Dhaka	By Road  By GMG Airline.
Day 7 & 8 23.11.2001 & 24.11.2001			Report preparation.
Day 9 25.11.2001		10:00 a.m.	Meeting with the Secretary Ministry of Environment and Forest. NORAD Debriefing
Day 10 26.11.2001			Report finalization.
Day 11 27.11.2001			Leave Bangladesh.



## Annex 3 Acronyms, abbreviations, definitions and glossary

<i>Beel</i>	More or less permanent bodies of water that remain in haors or floodplains during the dry season
BRDB	Bangladesh Rural Development Board
BSAP	Biodiversity Strategies and Action Plan
CBD	Convention on Biological Diversity
CBO	Community-Based Organisation
CITES	Convention on International Trade in Endangered Species of Plants and Animals
DPHE	Department of Public Health
DoF	Department of Fishery
FGD	Focus Group Discussions
FRI	Fisheries Research Institute
GEF	The Global Environment Facility. Established to forge international co-operation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters, and ozone depletion. Related work to stem the pervasive problem of land degradation is also eligible for GEF funding
GoB	Government of Bangladesh
GoN	Government of Norway
<i>Haor</i>	Backswamps or bowl-shaped depressions between the natural levees of a river, that are flooded every year by monsoonal floods from April until October
Haor Basin	A low-lying region in north-eastern Bangladesh where most of the country's haors occur
HB	Haor Basin (north-east of Bangladesh)
IGA	Income Generating Activities
IUCN	The World Conservation Union
<i>Khas land</i>	State owned land
MoEF	Ministry of Environment and Forestry
MoL	Ministry of Land
MoU	Memorandum of Understanding
NCS	National Conservation Strategy
NCSIP-1	National Conservation Strategy Implementation Project No 1
NEMAP	National Environmental Management Action Plan
NINA	Norwegian Institute for Nature Research
NIKU	Norwegian Institute for Cultural Heritage Research
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Co-operation
PM	Parliament Member
PMU	Project Management Unit
RAMSAR Conv.	The Convention on Wetlands of International Importance, especially as Waterfowl Habitat
RNE	Royal Norwegian Embassy
SEMP	Sustainable Environment Management Programme
TBA	Traditional Birth Attendant
TH	Tanguar Haor
THMP	Tanguar Haor Management Plan
Thana	Smallest government administrative unit
ToR	Terms of Reference

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