

TECHNICAL REVIEW  
BANGLADESH  
BIODIVERSITY CONSERVATION IN THE SUNDARBANS RESERVED FOREST

Date: 16 January 1998

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**i) Global priority in the area of biodiversity.**

Extending over almost 1 million ha, the Sundarbans form the world's largest contiguous area of mangrove forest, with 2/3's occurring in Bangladesh and 1/3 in India. These mangroves represent one of the most biodiverse examples of this habitat type in the world. In the America's and Africa, only 7-9 obligatory mangrove plant species are found, while in the (Northern) Indo-(West) Pacific region this is typically 20-40 species. In Bangladesh, at least 20 species have been recorded to date. While the number of obligatory mangrove plants is relatively small, the number of associated species of plants and animals is orders of magnitude higher, and especially large, contiguous areas such as the Sundarbans can be expected to harbor many species, with sizable and viable populations. Because of easy dispersal of propagules, endemic species rarely occur in mangroves; nevertheless, the Sundarbans harbor an endemic turtle and an endemic orchid (*Cyropetalum roxburghi*). The Sundarbans are, however, of significant importance for many species that currently have populations elsewhere, but are likely to disappear in these other sites within the next few decades. Recent assessments of tiger populations, for example, have highlighted that the Sundarbans form the tiger's last major stronghold, and is *the* site - world-wide - where tigers have the greatest chance of surviving in the wild. In summary:

- largest contiguous area of mangrove forest in the world;
- high diversity in terms of obligatory mangrove species;
- highly diverse in mangrove-associated plants and animals;
- world-wide, the most viable remaining population of the tiger (ssp. Bengal Tiger); and
- most viable remaining population in South Asia of many other associated mangrove plants and animals.

The global significance of the Sundarbans is also evident from the areas' listing as a Ramsar site (Bangladesh Sundarbans, since 1992), and as a World Heritage Site (both India and Bangladesh Sundarbans, since 1997).

**ii) Cost-effectiveness in achieving focal area objective(s).**

Conservation of mangrove biodiversity in the Sundarbans is cost-effective, as these mangroves are:

- the best-conserved mangroves remaining in the South Asian region;
- highly diverse, harboring many mangrove (-associated) species;
- large, not easily disturbed, and have large populations of many of the (associated) mangrove species;
- contiguous and grouped (rather than spread along a long coastline, where they would be more vulnerable);
- have been managed by forestry officials for more than 120 years;

- partially protected for wildlife conservation purposes; and
- it is *the* area where tigers - and probably other species of wildlife - are most likely to survive in the wild.

Investing in other areas would mean investing in areas where biological diversity and viability of populations of flora and fauna is significantly lower, which is not cost-effective.

**iii) Adequacy of project design.**

In general, project design is adequate, but there are a few areas that show some deficiency:

a) One third of the Sundarbans occurs in India, where this mangrove forest has been declared a tiger reserve since 1973<sup>6</sup>. However, the Proposal neglects the Indian Sundarbans entirely, although it claims to adopt an 'holistic and ecosystemic' approach. The proposal also states that 'the entire Sundarbans has been recognized as a Ramsar site'. While this is true for Bangladesh, the Indian Sundarbans are not one of the 6 sites nominated by India and currently recognized by the Ramsar Bureau (6 January 1998; <http://www.iucn.org/themes/ramsar>). The Proposal should outline how management in the Bangladesh Sundarbans is complemented or affected by that in the Indian Sundarbans, and attempt to establish a linkage.

b) The Proposal focuses on ecotourism as being one of the major components of the Project that will benefit the local population, along with improved natural resource management. The development of ecotourism remains uncertain, however, and it is correctly listed in the Proposal under "Issues Requiring Special Attention", specifically regarding the "extent to which an ecotourism industry can be developed". Also, the ADB investments in ecotourism outlined in the Proposal (infra-structural development, personnel training, increasing community awareness of ecotourism opportunities, regulatory framework) will primarily benefit the private sector, but are unlikely to improve the lot of the majority of locals, other than in a marginal way.

**iv) Feasibility of implementation, and operation and maintenance.**

a) The proposal aims to guide the transition of management from a unisectoral, single agency framework to a multisectoral institution that is to oversee the integrated approach to management. The method chosen is one whereby the capacity of MOEF is strengthened, and Forest Department are to be trained, for example, in the management of fisheries and other aquatic resources important in the SRF. However, such an approach reeks of duplication, as Bangladesh already has a fully operational Department of Fisheries (DoF), with sections involved in management of marine and estuarine resources. The unisectoral approach of the past has led to the current situation whereby Forestry Department is highly reluctant to involve DoF (or other line agencies), and manages the Sundarbans on its own, in spite of a lack of capacity (e.g. in area of fisheries management) and staff. The Proposal should establish what the role of DoF (and other line agencies) is to be, and justify the duplication of capacity if DoF (and other agencies) are to remain excluded from SRF management.

b) While the purpose of the SAC is clear, mechanisms for incorporating stakeholder views into management remain vague. The Proposal currently includes an annual presentation of views to the SSC,

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<sup>6</sup> Scott, D.A. (1989) - A Directory of Asian Wetlands. IUCN - World Conservation Union, Gland, Switzerland, 1182 pp.

but does not mention the link with the SMA - surely there is to be a more direct mechanism for stakeholder involvement in management ?

c) The sustainability of the project depends to a large degree on the ability to generate enough revenue (via ecotourism and sustainable resource exploitation), and the ability to channel enough of this revenue into SRF management. Both are feasible, but the risks are significant. The Proposal should identify alternatives in case of failure - the latter will be evident by the time of the second phase review.

**I. Key Issues:**

*i) Scientific and technical soundness of the Project*

Generally, the Proposal is technically and scientifically sound; areas of deficiency are:

- 1/3 of the Sundarbans lies in India, but this is not mentioned, and no link is made with management of the Indian Sundarbans;
- no involvement of Department of Fisheries in management of SRF fisheries resource;
- no clear mechanism for incorporating views of stakeholders (via SAC) into SRF management, other than via annual meetings with SSC, and via LCO's;
- perhaps over-optimistic with regard to ecotourism potential, and the potential for this sector to contribute to the welfare of locals; and
- the link of the proposed BCSRFP with other donor-assisted forestry sector projects in Bangladesh, such as FRMP, CFP, UANDP and CGP, is not clear, other than that all are forestry-related, and incorporate capacity-building.

*ii) Identification of the global environmental benefits and/or drawbacks of the Project*

The potential global environmental benefits of the Project are significant. The Sundarbans are of international importance for the conservation of mangrove biodiversity in general, and the protection of certain key species such as the Bengal Tiger. The area's global importance is already evident from its designation as a Ramsar site (i.e. Wetland of International Importance; since 1993), and as a World Heritage Site (since 1997). There are no foreseeable drawbacks for the global environment.

*iii) How the Project fits within the context of the goals of the GEF, as well as its operational strategies, programme priorities, Council guidance and the provisions of the relevant Conventions;*

The Project addresses GEF Operational Programs 2 (Coastal, Marine & Freshwater Ecosystems) and 3 (Forests) of the Convention on Biological Diversity (CBD). In line with GEF Strategic Considerations<sup>7</sup>, the Project aims to integrate the conservation and sustainable use of biodiversity within the national sustainable development plans and policies<sup>8</sup>, and is feasible, targeted and cost-effective in its approach.

*iv) Regional Context*

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<sup>7</sup> GEF (1995) - Revised Draft GEF Operational Strategy. GEF Council Meeting, September 29, 1995, 84 pp.

<sup>8</sup> MOEF & IUCN (1997) - The Bangladesh National Conservation Strategy, Final Draft, 221 + 60 pp.

The Sundarbans are the most important mangrove area in the South Asian region, and probably the most important location for tiger conservation world-wide. In this context, targeting the Sundarbans for GEF support is a sound investment. However, as was indicated in I.i), the Sundarbans occur both in Bangladesh and India, and the Proposal should at least highlight how management in both parts of the Sundarbans complement each other. Even better would be if the Project could establish a management link between the two parts of this contiguous mangrove area, but such a trans-frontier approach might be too ambitious.

v) *Replicability of the project*

In Bangladesh there is little scope for replicability. Firstly, outside the Sundarbans, natural forests (with a relatively high biodiversity value) are virtually absent, apart from the heavily degraded Teknaf Game Reserve near Chittagong. Secondly, other habitats important for biodiversity and natural resource exploitation in Bangladesh, such as the large inland waters, are not managed by implementing agencies such as the Department of Fisheries or the Forestry Department, but are controlled by the Ministry of Land, which leases these waters to private persons or companies every 1-5 years. In a regional context there is more scope for replicability, especially in the adjacent Indian Sundarbans (see I.iv), but this will probably require additional GEF investment.

vi) *Sustainability of the project*

The sustainability of the project depends to a large degree on the ability to generate enough revenue (via ecotourism and sustainable resource exploitation), and the ability to channel enough of this into SRF management. Both are feasible, but the risks are significant, and alternatives should be formulated at an early stage (and incorporated into the Project) in case of impending failure. The latter should be evident by the time of the second phase review.

## II. Secondary Issues:

i) *Linkages to other focal areas*

Of the three other focal areas (climate change, international waters, ozone depletion), the Project has a link with the "climate change" focal area, by way of combating deforestation (carbon sequestration in growing forests).

ii) *Linkages to other programs and action plans at regional or sub-regional level*

The Project is in line with World Bank, ADB and other donor-assisted forestry sector projects in Bangladesh, including the FRMP, CFP, UANDP and CGP. However, a direct and/or clear link is not proposed by the Project, and this should be developed, at least for relevant related programs. UNDP activities in Bangladesh are to be made complementary to this Project, and are to focus on other wetlands and coastal areas. No link is proposed with regional or sub-regional programs and action plans; as stated in I.iv, a link should be established with the Sundarbans tiger reserve in India.

iii) *Other beneficial or damaging environmental effects*

Other areas managed by the Forest Department may also benefit from this project (see I.v, replicability); however, of these other FD-managed areas, only Teknaf Game Reserve is of significance for the conservation of biodiversity. Damaging environmental effects as a result of the Project are unlikely, as SRF management aims to promote benign forms of resource utilization, and those forms that have the

potential to have a (mildly) negative impact, such as ecotourism, are not expected to expand in an exponential way in the near future.

iv) *Degree of involvement of stakeholders in the project*

Primary stakeholder participation in management and decision making is arranged via LCOs. In addition, all stakeholders are to be represented in the Stakeholder Advisory Council (SAC), and local people will be involved as decision-influencers, revenue sharers and employees. The mechanisms for directly influencing SRF management are unclear, however. The SAC is to present its views to SSC on annual basis, but there is apparently no direct line of communication with the SMA and day-to-day SRF management.

v) *Capacity building aspects*

The proposal acknowledges that many of the issues undermining the sustainability of the SRF ecosystem are either institutional in nature or have an institutional element in them. Therefore, improvement of management capacity within the Forest Department is one of the main components of the Project. This includes increasing the capability of this agency to deal with multisectoral issues, such as the management of fisheries and other aquatic resources. The capacity of local communities to sustainably manage their natural resources will also be enhanced by the Project.

vi) *Innovativeness of the project*

No major innovations are envisaged. The proposal combines elements of ICDP, with the establishment of a core agency (the SMA) within the Forest Department for overseeing SRF management. The latter essentially maintains the basic status quo, which is essential for obtaining MOEF support for the Project. The main innovations are in the periodic external monitoring, by the CIU and an International NGO, and in the formalization of stakeholder input to management (via SAC, and its periodic input to the SSC).

**Suggestions for Improvement of the Project Proposal**

- i. The Proposal should outline how management of the Bangladesh Sundarbans complements or is affected by that of the Indian Sundarbans, and - if feasible - attempt to establish a linkage.
- ii. Clearer and more direct mechanisms by which the local community can benefit from ecotourism should be developed. Targets should be set, and opportunities created for the rural poor to obtain low or no interest loans, along with the already proposed training program.
- iii. The Proposal should establish what the role of the Department of Fisheries (and other relevant line agencies) is to be, and justify the duplication of capacity in the Forest Department to manage fisheries and other aquatic resources, if DoF (and other agencies) are to remain excluded from SRF management.
- iv. The Proposal should identify alternatives (such as other potential sources of income) in case the ecotourism sector fails to develop, and in case insufficient funds are channeled into SRF management.
- v. The link of the proposed BCSRFP with other (ongoing and former) donor-assisted forestry sector projects in Bangladesh, such as FRMP, CFP, UANDP and CGP, should be clearly established.

- vi. Mechanisms for stakeholder participation in management and decision making should be more clearly stated; they should also be more direct and regular than the annual presentation of SAC's views to the SSC.

16 January 1998

### RESPONSE TO THE TECHNICAL REVIEW

January 22, 1998

**1. General:** The points raised by the STAP reviewer are very pertinent. An attempt has been made to incorporate answers throughout the text of the Project Concept Document. Most of these issues have been carefully taken into account during project preparation and in subsequent discussions with the GOB and co-financiers. Specific answers are summarized below:

**2. Transfrontier co-operation with India:** This is an important idea and one that the World Heritage Committee has already encouraged the GOB to take forward. UNESCO has also been in contact with the Asian Development Bank encouraging inclusion of specific Project activities in support of transfrontier management. The project will include (as part of baseline activities) exchanges of scientific and management information. Discussions for deeper trans-frontier cooperation will take place with the GOB during upcoming missions and prior to appraisal.

It is important to mention, however, that the long-term ecological sustainability of the Sundarbans in Bangladesh is not in jeopardy in the absence of trans-frontier cooperation. Threats to the Bangladesh Sundarbans (2/3 of the entire Sundarbans) do not originate within the Indian Sundarbans. The ecological integrity of this ecosystem will not be in jeopardy even if a very drastic alteration occurs in the India side, because of the ecological nature of these mangrove ecosystems.

**3. Potential over-emphasis on ecotourism:** We agree with the STAP reviewer that the potential for ecotourism could be limited, and should not be overestimated. While there are some benefits for the poor in supplying labour or niches such as guides etc., ecotourism in the Sundarbans will require substantial investment (e.g. tour boats) which will not necessarily benefit the poor substantially in the area. Baseline activities, however, more than adequately insure against a potential failure in ecotourism projections. Widespread community benefits will be gained from buffer zone investments in social infrastructure, improved education, greater role for NGOs, microcredit, etc. Ecotourism is not the main way for the community to gain from the Project, nor should it be.

**4. Role of the Department of Fisheries:** The Department of Fisheries has a less than adequate record in managing the Chakoria Sundarbans in eastern Bangladesh, and there is no perceptible fisheries management by Dept. of Fisheries in the buffer zone where extensive land conversion to shrimp ponds has caused hardship to many poor people and directly increased the pressure on the SRF's.

resources. The Dept. of Fisheries can advise on appropriate strategies for aquatic resources inside the SRF, but it does not have a resource management role. This has been extensively reviewed and discussed with the GOB from all angles. The conclusion has been that a direct role for the Fisheries Department inside the SRF will not work from the perspective of a bureaucratic line of command.

The project, instead, aims at the recruitment and training of Dept. of Forestry professionals in aquatic resources management. These staff will be backed up and trained on the job by specialists appointed by the Project. The Department of Fisheries can advise on and contribute to this training.

**5. Income Alternatives in addition to Ecotourism:** Already addressed in point 3 above.

**6. Links with other donor-assisted activities:** There are already a number of related development projects underway in the buffer zone, or on a national basis, which are helping address some of these threats. Most of these are pilot community-based wildlife and natural resource management operations primarily in the communities surrounding the SRF. Principal among these are the IRMP, the World Bank's Forest Resources Management Plan (FRMP), and the ADB's Forestry Sector Project (1998-2005) and Coastal Greenbelt Project (1995-2002). All seek remedies to the current problems of management and community participation (and in some cases over-exploitation or natural resources) which are pertinent to this proposed project. None of these projects, however, addresses the biodiversity of the Sundarbans from a holistic and ecosystemic management perspective.

The Asian Development Bank's assistance to the forestry sector in Bangladesh started in December 1981 with a loan for the Community Forestry Project (CFP). This project extended social forestry activities in 23 districts in the north and northwestern parts of the country. In March 1989, the ADB approved the Upazila (*Thana*) Afforestation and Nursery Development Project (UANDP). Following the awareness raised under CFP, the UANDP aimed at arresting depletion of the plantations and natural forests of the central and northern region of the country. Under the UANDP, a significant portion of available government land and homestead land was brought under tree cover using participatory and benefit-sharing approaches. The UANDP demonstrated the effectiveness of participatory approaches to protection and management of *sal* forests and establishment of block plantations (woodlots) in forests that were severely degraded and encroached upon. The UANDP also strengthened FD's institutional capacity and provided training in seedling production and tree planting and maintenance to a large number of field staff, NGOs, and participants.

The Coastal Greenbelt Project (CGP) aims to promote tree planting to increase vegetative cover in coastal areas through social forestry. Other components include nursery development, seedling distribution, public awareness, training, consultant services, facilities, and equipment. Attached to the CGP is a grant to finance advisory TA aimed at institutional strengthening of social forestry, including extension, communication, and integration of FD's management information and monitoring and evaluation systems.

Closely coordinated with these activities, UNDP and FAO have also provided technical assistance to the forestry sector for over a decade. Eight TA projects have been implemented. Of crucial importance for the proposed Project has been the TA (1992-1995) to the Forestry Department for the integrated resource management of the SRF and for the development of professional forestry education at the university of Chittagong. Further assistance has been provided by the World Food Program and various bilateral agencies including the Swiss Development Cooperation, NORAD and the Ford Foundation.

The recommendations and the lessons learned from the CFP, as indicated in the Project Completion

Report and the Project Performance Audit Report have been endorsed in the ADB's *Country Synthesis of Post-Evaluation Findings in Bangladesh* (October 1997) and the *Forestry Sector Synthesis of Post-Evaluation Findings* (SSPEF, August 1994). These documents pointed to the need for (i) technically sound project designs; (ii) unambiguous participation, land tenure, usufruct right, and benefit-sharing agreements; (iii) analysis of the potential for women's participation in community forestry; (iv) continued extension services; (v) efficient management and reinvestment of the revenues into continuing reforestation programs to ensure sustainability; (vi) training of the participants and community leaders; and (viii) establishment of a revolving fund. The SSPEF stressed the role of NGOs in enhancing responses from the communities at the grassroots level and helping to sustain forestry benefits, and pointed out that NGOs are in a good position to mobilize women to participate in community forestry activities. These lessons have been taken into account as core elements in the design of the Project.

UNDP activities vis-à-vis this GEF proposal are now synergistic. The UNDP Bangladesh Regional Coordinator has pledged to continue making UNDP activities in Bangladesh complementary to this project. Specifically, and regarding proposed activities under GEF/UNDP preparation, these will concentrate on other wetlands and coastal areas. It will be desirable for UNDP to support the Government of Bangladesh with the initiation of a Bangladesh Biodiversity Strategy and Action Plan.

**7. Stakeholder Participation:** This has been thoroughly discussed throughout the Project Concept. Several participatory processes are envisioned, including the participatory review of the management plans for the wildlife sanctuaries; and through the establishment of the Stakeholder Advisory Council.