

# INDIA

## Sundarbans National Park



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### II.1 Introduction

**Year of Inscription** 1987

#### Organisation Responsible for the Report

- Sundarban Tiger Reserve  
P O Canning,  
District 24 Parganas (South)  
743 329, State of West Bengal  
India

### II.2 Statement of Significance

**Inscription Criteria** N ii, iv

#### Statement of Significance

- Proposed as follows:  
“The ‘Sunderbans’ represents the only Mangrove Tiger land in the world... Sunderban tigers are capable of leading an almost amphibious life... [and] have perhaps lost their territoriality owing to the obliteration of urination marks by tidal waves. Apart from the long stretch swimming it has adapted to changed food habits which include fish, crabs and water monitor lizards.”
- A total of 84 species of mangrove have been recorded, along with the gangetic dolphin, ‘fishing cat’, and numerous species of endangered turtles.
- The physical presence of mangroves also serves as a ‘windshield’ to protect Calcutta from powerful cyclones originating in the Bay of Bengal.

#### Status of Site Boundaries

- Borders and buffer zone of the property are considered adequate.

### II.3 Statement of Authenticity/Integrity

#### Status of Authenticity/Integrity

- The WH value is considered to have been maintained.
- The area is the largest single mangrove in the world (9,630 km<sup>2</sup>), and contains the single largest remaining population of Bengal tigers.
- The eastward shift of fresh water from Sundarbans can be traced to tectonic shifts in the 16<sup>th</sup> Century.

### II.4 Management

#### Administrative and Management Arrangements

- The core national park (also the WH Site comprising an area of 1,330 km<sup>2</sup>) is surrounded by 3 wildlife sanctuaries which act as the buffer zones from human pressure. The entire Sundarbans administrative set up was restructured as a UNESCO Biosphere Reserve in November 2001.
- Legislation unique to the area includes the West Bengal Amendment of the Indian Forest Act (1988); the Fisheries Act of the West Bengal Government; and the Coastal and Regulatory Zone Rules.
- Follow-up to the IUCN recommendation to include Sundarban-Bangladesh on the WH List was achieved in 1997 with the financial support of UNDP.
- The original management plan of 1973 for the ‘Sundarban Tiger Reserve’ has been updated for the period 2001-2010. The property is divided between two ranges with an Officer who reports to the Field Director.
- No rights, concessions, unauthorised entry, or tourism is allowed within the WH Site. It remains under the ownership of the West Bengal Forest Dept.

#### Present State of Conservation

- “Today, there may not be a significant external pressure on the WHS but it is very high in the buffer zone, and with the rapid increase in population, poverty and unemployment, it is possible that the biotic pressure may ultimately affect the WHS also.”
- The original tiger population rose from 181 in 1976 to 264 at the time of the 1984 census.

#### Staffing and Training Needs

- Staffing level is considered inadequate. At least another 100 forest guards are required so that all field camps can be effectively maintained.
- Training needs are identified in computers and GIS, participatory management, ‘pump action guns’, and comparative exchanges with other WH Site managers.

#### Financial Situation

- The main source of funding is the Government of West Bengal and the Ministry of Environment & Forests. No figures supplied.

- Funding is considered inadequate, in particular for vigilance patrols, eco-development activities, and ecotourism.
- UNDP has assisted the authorities in proposing projects for bilateral co-operation.
- \* International Assistance from WHF as follows: (i) 2001, US\$20,000 Preparatory Assistance for promotion between India and Bangladesh.

## Access to IT

- 10 PCs with internet access.
- GIS software systems including Arc Info/Arc View/Arc Pad, and ERDAS/Easi Pace/TNT Maps, are used since 1999 to monitor habitat & species composition, and the restocking programmes of crocodiles and turtles.

## Visitor Management

- Visitor statistics are supplied for 1990-2002 which show a moderate increase in the number of visitors/ tourists in the buffer zone from 22,049 to 34,011.
- There exists a 'Mangrove Interpretation Centre', 5 watch towers, one tourist lodge, and a number of private boat launches.
- A need is identified to involve local people in eco-tourism activities, and construct a WH "monument".
- The management plan spells out "do's and don'ts" for tourists, and guidelines for tour operators.

*"GIS software systems including ArcInfo / Arc View / ArcPad, and ERDAS / Easi Pace / TNT Maps, are used since 1999 to monitor habitat and species composition, and the restocking programmes of crocodiles and turtles."*

## II.5 Factors Affecting the Property

### Threats and Risks

- Unauthorised fishing, felling & poaching of wildlife (including by intruders from Bangladesh),
- Sea pirates & smuggling by armed miscreants,
- Increasing population and poverty,
- Tiger straying,
- Large scale tiger prawn seed collection (promoted by international companies in the buffer zone),
- Increasing levels of mangrove salinity.

### Counteractive Plans

- Floating camps on board of "accommodation boats" and special patrolling by mobile squads.
- A network of watch towers and undercover informers.
- A participatory approach to help 23 Forest Protection Committees "extract a sustainable surplus" from the Biosphere Reserve through pisciculture and crab culture, and organise medical camps.
- Rapid reaction measures to immobilise and re-release strayed tigers with speedboats and tranquilliser guns.

## II.6 Monitoring

### Monitoring Arrangements

- Partners include the Zoological Survey of India, the Botanical Survey of India, and various universities.
- A proposal has been submitted to the Government to initiate tiger studies with GPS-based radio collars.
- In 1996-97, the negative impact of heavily intensified prawn culture on the aquatic ecosystem was studied.

### Monitoring Indicators

- At the apex of the food chain, tiger biannual statistics are used as an indicator of ecosystem health.
- Crime data records are used to track human threats.
- Remote sensing satellite imagery and GIS is used to monitor siltation/erosion levels.

## II.7 Conclusions and Recommended Actions

### Conclusions and Proposed Actions

- Urgently "draw up a joint programme with Bangladesh for conservation of the WHS of the two countries, treating it as a single ecosystem."
- Co-ordinate with Bangladeshi law enforcement agencies for the UNDP collaborative management proposal.
- Support of WHF may be required for publicity, and projects on 'Alternate Livelihood development' and ecotourism for the millions of people living in the fringes of the Sundarbans.

### \*State of Conservation Reports

1997 Bureau CONF.204/2B The Bureau was informed that the Director of the Sundarbans Biosphere Reserve had presented a report to the meeting of the South Asian World Natural Heritage Site Managers held in January 1997. The site manager pointed out that the Sundarbans National Park and WH Area, comprising 1,330 sq.km., was the core area of the larger Sundarbans Project Tiger Reserve (2,585 sq.km) and the even larger Biosphere Reserve which extends over more than 9,000 sq.km of the inter-tidal area of the Sundarbans delta. Although India had not yet formally nominated the Biosphere Reserve for inclusion in UNESCO's international network of biosphere reserves, the case illustrated a joint application of the World Heritage and the Biosphere Reserve concepts within the same ecosystem. Eco-development activities undertaken in the larger Biosphere Reserve such as fishing, honey collection and timber harvest, had helped establish a working relationship with the local people for the protection of the WH core area.

The Bureau noted with interest the harmonious application of UNESCO's World Heritage and Biosphere Reserve concepts in Sundarbans, and urged the Centre and IUCN to identify similar cases to bring to the attention of States Parties to the Convention.

1999 Committee CONF.204/5 The Committee recalled that when it inscribed 'The Sundarbans of Bangladesh' on the WH List in 1997, it had encouraged the authorities of Bangladesh and India to discuss the possibility for creating a trans-frontier site. The Committee was informed that the Ministry of Environment and Forests of Bangladesh was undertaking a multi-million dollar project entitled the 'Sundarbans Biodiversity Conservation Project' to develop a management plan for the area with support from the Asian Development Bank and IUCN Bangladesh. A meeting held in Bangladesh in February 1999 informally discussed the possibility of having the Sundarbans WH site of Bangladesh and the Sundarbans National Park WH site of India combined into a single WH property. In a separate initiative, WWF-International launched a study financed by a SFR 50,000 grant to investigate trans-border ecological and conservation aspects of the tigers inhabiting the Sundarbans ecosystem. The project intended to promote co-operation between Bangladeshi and Indian staff and scientists and could contribute to the joint inscription of the two sites.

2001 Committee CONF.208/10 The Committee was informed that US\$ 20,000 had been approved as a contribution to the UNF-financed project (US\$ 105,000) to prepare a proposal for promoting trans-border co-operation for conservation within the Sundarbans ecosystem. IUCN informed the Committee that the 'Project Tiger Status Report' prepared by the Ministry of Environment and Forests (MOEF) for 2001 mentioned a system of National Waterways proposed for the Sundarbans Tiger Reserve. The report observed that the proposed project would adversely affect the ecosystem through "large-scale human activities, dredging of streams, and oil spills of numerous water crafts and vessels carrying cargo".

The Committee requested the State Party to submit a detailed report on the proposed project and its potential impacts on the Sundarbans WH site before 1 February 2002.

2002 Committee CONF.202/17 The Committee was informed that the Tiger Project had undertaken its bi-annual tiger census of the Sundarbans Tiger Reserve in December 2001 involving the registration of hind-leg pugmarks through plaster casts and tracings, followed by laboratory and computer analysis. An advisor to the Chair of the Cat Specialist Group of IUCN's Species Survival Commission (SSC) noted, however, that this methodology overestimated tiger numbers. In comparison, preliminary results from a 'mark/recapture' study by an Indian scientist using photo-traps had indicated that the tiger population might be fewer than 100. IUCN suggested that the techniques used for tiger

census required a thorough review, and rigorous surveys of tigers' core prey species were also needed.

A media release by the Wildlife Protection Society of India (WPSI) reported in January 2002 that the High Court of Calcutta had issued a notice to the Government of India instructing the authorities to reply to a Public Interest Petition (PIL) filed by WPSI on the damage caused to the mangrove ecosystem of the Sundarbans Tiger Reserve by illegal prawn fishing with dragnets and other encroachments. The PIL sought to: (a) demolish all prawn farms within a radius of 10 Km from the Reserve; (b) prosecute those found guilty of trespass; and (c) appoint a committee to report on the ecological effects of prawn seed collection. IUCN noted that intensive tiger prawn seed harvesting had started in the late 1980's, posed a serious threat to the ecosystem of the Sundarbans as a whole, and had implications for the sustainability of the fisheries in the region. The use of dragnets had not only depleted the tiger prawn population, but had also diminished the number of fingerlings and seeds of other prawn and fish species, caused erosion, and prevented the establishment of mangrove seedlings on the mudflats with a step-by-step impact on the food chain.

In addition, 18 persons had been killed by tigers in the Sundarbans (including fishermen, honey collectors and wood-cutters), and 4 persons injured during 2000 - 2001. To control tiger straying, the Reserve had therefore trained staff in tranquillization of tigers to enable capture and release with speedboats. Use of nylon fencing had been found to be very effective and was planned for all sensitive areas. Meetings with villagers and local government were also held regularly through 10 Forest Protection Committees and 14 Eco-Development Committees in the fringe areas of the Reserve. 40,000 tourists were estimated to visit the buffer area of the Sundarbans reserve every year.

The Committee invited the State Party to provide up-to-date information on the current status on the impacts of tiger prawn seed harvesting, and recommended a review of methodologies used to estimate tiger numbers and available prey. The Committee noted the offer of support to the State Party from IUCN and the IUCN/SSC Cat Specialist Group.