

# Information Sheet on Flyway Network Sites

## Notes for compilers:

The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network.

The Site Information Sheet has been divided into two sections. Part 1 (Section 1-14) seeks basic information on the site and it is essential that it be completed. Part 2 seeks additional information and is optional.

The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified. In this case the National Government Partner need only send a copy of the existing sheets with additional details on Question 1 and 10 of the Flyway Site Information Sheet.

Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Flyway Partnership Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital copies of all maps.

---

## Part 1: Essential Information

### 1. Name and contact details of the compiler of this form:

The full name, institution/agency, and address of the person(s) who compiled the SIS, together with any telephone and fax numbers and e-mail address.

**i. Dr. Tapan Kumar Dey**

**EAAFP focal points, Bangladesh &**

**Conservator of Forest**

**Wildlife & Nature Conservation Circle**

**Ban Bhaban, Agargaon, Dhaka, Bangladesh**

**Phone : 088-02-8181142 (office.)**

**Email: [deytkcfwild@gmail.com](mailto:deytkcfwild@gmail.com)**

**ii. Mohammad Shamsul Azam**

**Deputy Conservation of Forest.**

**Office of the Conservator of Forests**

**Wildlife & Nature Conservation Circle**

**Ban Bhaban, Agargaon, Dhaka, Bangladesh.**

**Phone: + 88-02-8181153 (off.)**

Email: [shamsforest@gmail.com](mailto:shamsforest@gmail.com)

iii. Hoq Mahbub Morshed

Assistant Conservator of Forests

Office of the Chief Conservator of Forests

Ban Bhaban, Agargaon, Dhaka, Bangladesh

Email: [hmmorshed@gmail.com](mailto:hmmorshed@gmail.com)

**2. Date this sheet was completed:**

The date on which the SIS was completed (or updated).

15 May 2011.

**3. Country:**

The official (short) version of the country name.

Bangladesh

(The Peoples Republic of Bangladesh)

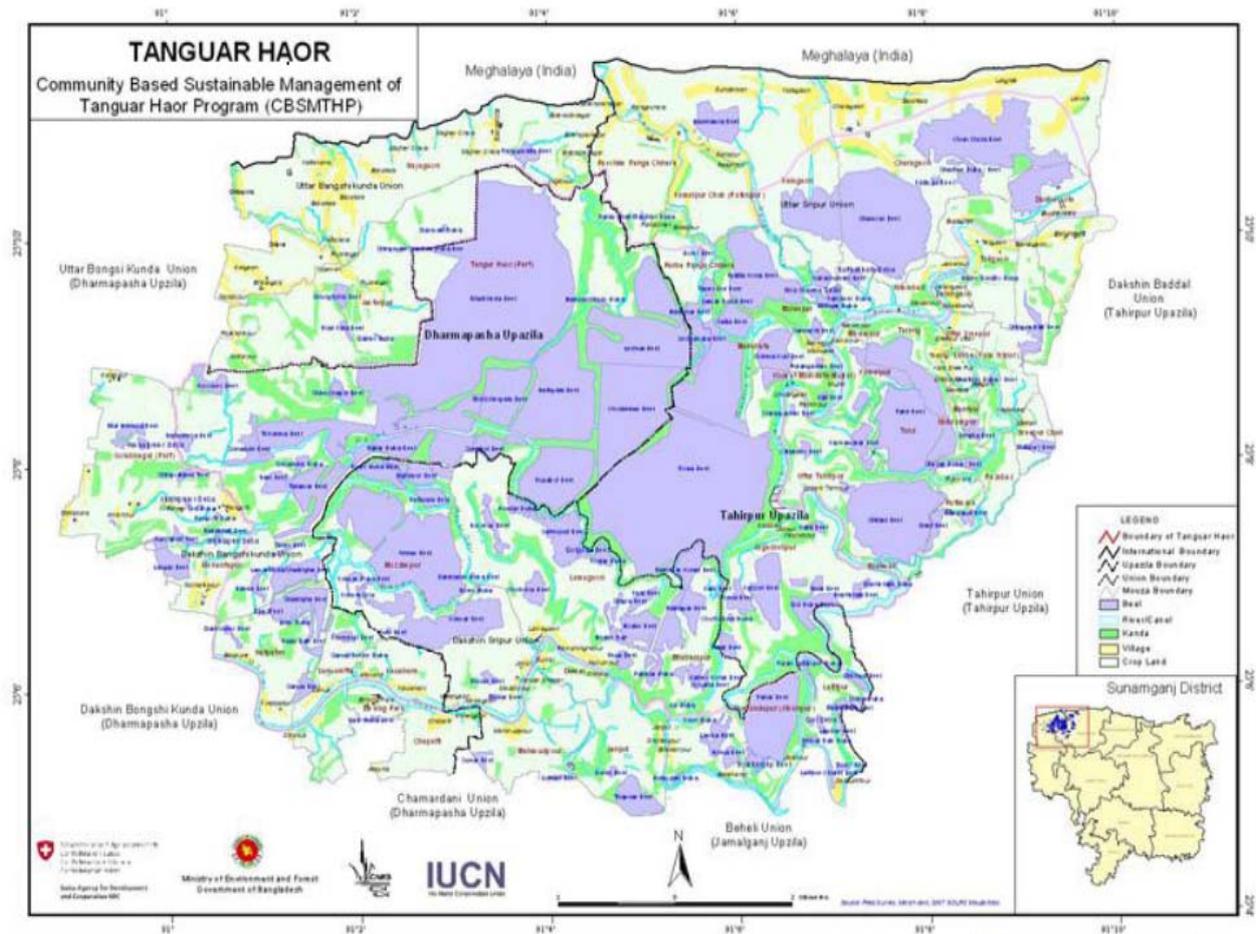
**4. Name of the Flyway Network site:**

The precise name of the designated site in the national language and English. This name will be used precisely as given on the Site certificate. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Tanguar Haor

**5. Map of site:**

The most up-to-date available and suitable map of the wetland should be appended to the SIS (in hardcopy and, if possible, also in digital format). The map must clearly show the boundary of the site.



Source: IUCN Bangladesh Country Office

**6. Geographical coordinates (latitude/longitude, in decimal degrees):**

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Geographical position of is at 25°05'-25°12' North/91°01'-91°07'East.

**7. Elevation:** (in metres: average and/or maximum & minimum)

2.5-5.5m asl. Average elevation is 4-5 meter from mean sea level. All water bodies are flat plain in the low-lying plain land.

**8. Area:**

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

Tanguar Haor (TH) is located in 46 villages of Dharmapasha and Tahirpur upazilas of Sunamgonj district covering an area of 9,727 hectares during rainy season of which 2802.36 ha is permanent wetland.

### 9. General overview of the site:

A brief summary of the site (limited to not more than two sentences), mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

Tanguar Haor lies in the floodplain of the Surma River, one of the main tributaries of the Brahmaputra in Bangladesh, at the base of the Meghalaya Hills (in adjacent India). It is one of the last remaining (semi-) natural floodplain wetlands of Bangladesh, as only a few minor dikes and canals have been constructed. Locally, these floodplain depression wetlands are called *haors*, and the deeper sections that retain water in the dry months are called *beels*. This is a large haor lies within Sunamganj district extending over 10 mauzas of Dharmapasha and Tahirpur upazilas of the district. The mauzas covering the Tanguar haor are (1) Jagadishpur, (2) Bhabanipur, (3) Lamagaon, (4) Ramsinapur, (5) Mahajampur, (6) Maindag, (7) Mayajuri, (8) Bhangachara Purba, (9) Noagaon, and (10) Tanguar Haor.

### 10. Justification of Flyway Site Network criteria:

Please provide waterbird count information that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

The haor is a 'Ramsar Site' under Ramsar Convention. Tanguar Haor is of special value for certain threatened species (e.g. Pallas's Fish-eagle); a large number of globally vulnerable Pallas's Fish Eagle actively nests in this haor basin. Every winter about 200 species of migratory birds come to this haor. Tanguar Haor supports a significant number of rare and vulnerable species, including plants, birds and fish; in all 10 IUCN Red Data Book listed species and 22 CITES listed species.

## A2

The haor is an ideal place for the migratory birds, including the endangered Baer's Pochard (*Aythya baeri*), vulnerable Baikal Teal (*Anas formosa*) and near threatened Falcated Duck (*Anas falcata*).

## A5

Tangur Haor annually supports 30,000-40,000 waterfowl, and occasionally as many as 60,000+ have been recorded in the area (Table 1).

Table 1. The result of the Asia Waterbird Census from 1992 to 1996

Year	1992	1993	1994	1995	1996	1997	1998
No. of waterbirds	26,133	41,682	34,925	37,597	60,800	n/a	n/a
Year	2001	2002	2003	2004	2005	2006	2007
No. of waterbirds	25,931	228,980	201,106	270,761	178,217	68,169	22,600

Source: Li et al. (2009) Status of Waterbirds in Asia - Results of the Asian Waterbird Census: 1987-2007. Wetlands International.

## A6

It regularly supports 1% of the individuals in 17 populations of species or sub-species (Table 2).

Table 2. The peak count of major waterbirds in Tangur Haor based on the AWC results

Species	EAAF population	1% of EAAF population	Peak count	Year
Great Crested Grebe ( <i>Podiceps cristatus</i> )	25,000-50,000	250	700	1996
Eastern Great Egret ( <i>Ardea modesta</i> )	10,000-100,000	100	2,000	1996
Intermediate Egret ( <i>Ardea intermedia</i> )	25,000-100,000	250	7,800	2003
Little Egret ( <i>Egretta garzetta</i> )	100,000-1,000,000	1,000	1,700	1996
Fulvous Whistling Duck ( <i>Dendrocygna bicolor</i> )	50,000	500	31,300	2003
Gadwall ( <i>Anas strepera</i> )	500,000-1,000,000	5,000	64,560	2004
Common Teal ( <i>Anas crecca</i> )	600,000-1,000,000	6,000	7,906	2006
Spot-billed Duck ( <i>Anas poecilorhyncha</i> )	10,000-100,000	100	1,600	2001
Northern Pintail ( <i>Anas acuta</i> )	200,000-300,000	2,000	50,700	2002
Garganey ( <i>Anas querquedula</i> )	100,000-200,000	1,000	6,227	1992

Common Pochard ( <i>Aythya nyroca</i> )	300,000	3,000	8,000	2001
Baer's Pochard ( <i>Aythya baeri</i> )	10,000-20,000	100	2,500	2001
Ferruginous Duck ( <i>Aythya nyroca</i> )	100,000	1,000	90,900	2002
Common Coot ( <i>Fulica atra</i> )	>100,000	1,000	37,150	2003
Pheasant-tailed Jacana ( <i>Hydrophasianus chirurgus</i> )	100,000-150,000	1,000	1,400	1996
Black-winged Stilt ( <i>Himantopus himantopus</i> )	25,000-100,000	250	2,100	2002
Grey-headed Lapwing ( <i>Vanellus cinereus</i> )	25,000-100,000	250	2,000	1996

(Source: Li et al. 2009)

### 11. Wetland Types:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

O, P, Xf

### 12. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Ministry of Agriculture/Dept. of Environment, etc.

Tanguar Haor (TH) is located in Dharmapasha and Tahirpur upazilas of Sunamgonj district. All wetlands are government property controlled by Ministry of land. On behalf of the ministry of land Upazilla & District land administration look after of these water bodies.

### 13. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Tanguar Haor is declared as Ramsar Site. All wetlands are government property controlled by Ministry of land. On behalf of the ministry of land Upazilla & District land administration look after of these water bodies. Department of Environment are also included for the managing the water bodies as maximum haors are included under ECAs (Ecologically Critical Areas). It is managed by the Deputy Commissioner, Sunamganj, Department of Environment as it is an ECA. Forest Department is responsible for Wildlife Conservation. The Bangladesh Haor Development Board under Ministry of Water Resources is responsible for water management and water control infrastructure. Department of

Fisheries under the Ministry of Fisheries and Livestock is responsible for fishery resources management as well as, to some extent, management of wetlands.

#### 14. Bibliographical references:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list any functional/active Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

1. **Ahmed, S.S.** (1997) - Socio-economic aspect analysis, towards sustainable development of *Tanguar Haor*. National Conservation Strategy Implementation Project -1. Ministry of Environment and Forest, Dhaka, First Draft October 1997.
2. **BNH** (1997) - Survey of Flora. Draft Final Report, Volume 1 (Tanguar Haor and Narikel Jinjira). Bangladesh National Herbarium Ministry of Environment and Forest, GOB, National Conservation Strategy Implementation Project 1. Dhaka, October 1997.
3. **DoZ** (1997) - Final Report (Draft) on Survey of Fauna. Volume 1 (Narikel Jinjira and Tanguar Haor). Department of Zoology, University of Dhaka Ministry of Environment and Forest, GOB, National Conservation Strategy Implementation Project 1. Dhaka, October 1997.
4. **Li, Z.W.D., Bloem, A., Delany S., Martakis G. and Quintero J. O.** 2009. **Status of Waterbirds in Asia - Results of the Asian Waterbird Census: 1987-2007. Wetlands International, Kuala Lumpur, Malaysia**
5. **Giesen, W. & S.M.A. Rashid** (1997) - Management Plan for *Tanguar Haor*, Bangladesh. Restoring local community participation in wetland resource management. National Conservation Strategy Implementation Project - 1. Ministry of Environment & Forest, Government of Bangladesh, in co-operation with IUCN, the World Conservation Union, Dhaka.
6. **Giesen, W., N. Khan, M.A. Shahid & A. Rahman** (2000) - Management Plan for Tanguar Haor Bangladesh. Achieving Community-based Sustainable Use of Wetland Resources. National Conservation Strategy Implementation Project - 1. Ministry of Environment & Forest, Government of Bangladesh, in co-operation with IUCN, the World Conservation Union, Dhaka.
7. **Khan, M. Anisuzzaman** (1997) - The Sustainable Management of the Avifauna of *Tanguar Haor*. Draft Final Report. Ministry of Environment and Forest, GOB, National Conservation Strategy Implementation Project 1. Dhaka, September 1997.
8. **NERP** (1993) - Wetland Resources Specialist Studies. Northeast Regional Water Management Project/FAP6. Canadian International Development Agency, Dhaka, Bangladesh.
9. **Nuruzzaman, A.K.M** (1997) - The sustainable management of fisheries resources at *Tanguar Haor*. Draft Final Report. Towards Sustainable Development: The National Conservation Strategy of Bangladesh. NCS Implementation Project - 1. Ministry of Environment and Forest.
10. [www.doe-bd.org/cwbmp](http://www.doe-bd.org/cwbmp)
11. [www.iucnbd.org](http://www.iucnbd.org).
12. <http://www.wetlands.org/reports/ris/2BD002en.pdf> (Information Sheet on Ramsar Wetlands)

## Part 2 – Optional

### 15. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

It's a large haor lies within Sunamganj district extending over 10 mauzas of Dharmapasha and Tahirpur upazilas of the district. The mauzas covering the Tanguar haor are (1) Jagadishpur, (2) Bhabanipur, (3) Lamagaon, (4) Ramsinhapur, (5) Mahajampur, (6) Maindag, (7) Mayajuri, (8) Bhangachara Purba, (9) Noagaon, and (10) Tanguar Haor. The haor consists of 120 beels of various sizes. Waters in Tanguar haor consist mainly of water backing up in the Baulai-Surma river system, although some water is received from streams flowing from the Meghalaya hills, in India, to the north. Although rich in nutrients, waters are generally clear, especially in the dry season. The Jadukata River, to the north-east, brings large amounts of silt to this part of the *haor*. The entire area is flooded during the northern summer monsoon (June-September) and waters may 6-10 metres deep in the beels; in the dry northern winter months, water depth in the beels ranges from 2-6 metres. Small submersible dikes have recently been constructed to the north-west and north of the haor, to protect rice crops. Villages are constructed on artificial hillocks called kandas, which rise 3-6 metres above the haor plain.

### 16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Rivers of Meghlaya of India and sylhet of Bangladesh.

### 17. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Tanguar Haor buffers floodwaters from the Baulai/Surma system, and from the Meghalaya Hills in India, mitigating peak floods and maintaining water levels in dry months. It also acts as a sediment retention area for vast amounts of silt from the Meghalaya Hills (esp. via the Jadukata River). Deep flooding has always been a season event with which the local community has had to cope. The small submersible dikes constructed to the north-west and north, only serve to prolong the growing period by several weeks, thereby giving a limited amount of crop protection. Navigation, Irrigation in the dry season for paddy cultivation.

**18. General ecological features:**

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

The haor is characterised by some of the last remnants of swamp forest in Bangladesh, dominated by *Barringtonia acutangula* (*hijal*) and *Pongamia pinnata* (*koroch*). Reedlands dominated by *Phragmites karka* (*nal*), but accompanied by an abundance of other emergent species (*Aeschynomene indica*, *Alternanthera philoxeroides*, *Asparagus racemosus*, *Clerodendron indicum*, *Clinogynedichotoma*, *Coix quatica*, *Cuscuta australis*, *Echinochloa crus-galli*, *Ficus heterophyllus*, *Fimbristylis dichotoma*, *Leersia hexandra*, *Lippia javanica*, *Ludwigia species*, *Mimosa pudica*, *Monochoria hastata*, *Oryza rufipogon*, *Polygonum barbatum*, *Pseudoraphis spinescens*, *Saccharum spontaneum* and *Typha angustata*) are an important habitat for many waterfowl. The swamp forests and reedlands also include uncommon plant species such as *Clematis cadmia*, *Rosa clinophylla* and *Oxystelma secamone*. Open water areas are characterised by free-floating species such as *Pistia stratiotes* and *Salvinia natans*, anchored, submerged species such as *Vallisneria spiralis*, *Potamogeton crispus* and *Aponogeton echinatus*, suspended species such as *Ceratophyllum demersum* and *Utricularia aurea*, and rooted species with floating leaves, such as *Nymphaea nouchali* and *Trapa maximowiczii*. In all, more than 200 plant species have been recorded, including exotics such as Waterhyacinth, *Eichhornia crassipes*, which fortunately is not common in the area.

The haor is cyclone prone as it located at the foothills of the Khasi-Jaintia Hills and a number of hailstorms also occur. Therefore at times crops get damaged. Except the levee or the kanda areas of the haor the other lands of the haor are used as pastureland. In the past the levees were deeply covered with trees.

**19. Noteworthy flora:**

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not comes under sec no 14)

Plant species occurring at Tanguar Haor that are threatened, rapidly disappearing or rare in the *Haor* Basin and Bangladesh as a whole are:

- *Barringtonia acutangula* (*hijal*),
- *Clematis cadmia*
- *Crataeva nurvala* (*barun*),
- *Euryale ferox* (*makhna*; Fox Nut),
- *Nelumbo nucifera* (*padma*, Lotus),
- *Ottelia alismoides* (*panikola*)

- *Oxystelma secamone* var. *secamone* (*dudhi lata*)
- *Pongamia pinnata* (*koroch*),
- *Rosa clinophylla* (formerly *R. involucrata*) (*gunji kata*), and
- *Typha* spp. (*egra* or *hogla*, Cattail) and some other important threatened species of freshwater wetland trees are available in this haor.

## 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.

(Please add here the species which do not come under sec no 14)

The area provides a habitat for various globally threatened wildlife species, including 1 amphibian species, 3 turtles, 2 lizards, 4 snakes, 10 birds and 6 mammal species; the area also provides a habitat for many species threatened in Bangladesh, including 55 fish, 31 birds and many wetland plant species; lastly, it provides a breeding area for many fish and birds, including the globally threatened Pallas's Fish-eagle (*Haliaeetus leucorhypha; kura*), of which 10-12 breeding pairs occur at Tanguar Haor.

### Fish

A total of 135 fish species have been recorded, including 15 species listed as critically endangered in Bangladesh: *Bagarius bagarius*, *Clupisoma garua*, *Crossocheilus latius*, *Ctenops nobilis*, *Eutropiichthys vacha*, *Labeo boga*, *Mystus seenghala*, *Notopterus chitala*, *Pangasius pangasius*, *Rasbora elanga*, *Rasbora rasbora*, *Rita rita*, *Rohtee cotio*, *Silonia silondia* and *Tor tor*.

The haor is an important source of fisheries. Among them the notables are Air, Gang Magur, Baim, Tara Baim, Gutum, Gulsha, Tengra, Titna, Garia, Beti, Kakia etc. Common fish species include: *Chanda baculis*, *Chanda nama*, *Chanda ranga*, *Colisa fasciatus*, *Colisa lalius*, *Heteropneustes fossilis*, *Labeo gonius*, *Labeo rohita*, *Macrognathus aculeatus*, *Macrognathus armatus*.

### Reptile

Reptile species at Tanguar Haor include 6 turtles, 7 lizards and 21 snake species, some classified as Vulnerable (*Python molurus*) and two as Indeterminate (*Geochlemys hamiltoni*, *Varanus flavescens*). A further three species are listed under CITES App. I or II (*Asperderetes hurum*, *Kachuga tecta*, *Lissemys punctata*).

### Birds

A total of 208 bird species have been recorded at *Tanguar Haor* (=30 % of all species recorded in Bangladesh); 92 are waterbirds, 33 are reed land/grassland/marsh-dwelling passerine birds, 15 are birds of prey and 68 species are birds of village groves and/or foothill forests. 23 Anatid species have been recorded. 98 species are migratory (of which 5 vagrant), and 110 are resident species; two are

listed as Rare (*Haliaeetus leucorhyphus*, *Prinia burnesii*), two are Indeterminate (*Pellorneum palustre*, *Chaetornis striatus*), and 4 are listed by CITES, App. I (*Haliaeetus leucorhyphus*, *Falco peregrinus*), App. II (*Platalea leucorodia*, *Sarkidiornis melanotos*).

The haor is an ideal place for the migratory birds. Annually, Tanguar Haor provides a refuge for 30-40,000 (occasionally 60,000) waterfowl, of more than 92 species (highest in the country), including many migratory species.

## 21. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

Tanguar Haor is one of Bangladesh's "mother fisheries" (i.e. most important inland fisheries), and has been leased for commercial exploitation at least since the 1930s. Until several decades ago, the local community was employed to exploit the fishery, and had usufruct rights to non-fish resources of the area. The new management plan for the area plans to restore access and use rights in the year 2000. Hunting of turtles, tortoises and waterfowl is widespread, and part of everyday life. The way of life – living in homesteads built on mounds, appearing like islands in an inland sea – is unique in this part of Bangladesh.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

Describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

Most of the inhabitants of the Tanguar haor are landless or marginal farmer. As the haor allows single crop throughout a year, seasonal unemployment problem is very acute here. Beel water is the main source of water in the dry season to cultivate paddy and other crops. Large areas of the beel in the dry months are grazed by the cattle from the neighboring areas even from distant areas of the country.

Duck rearing is an important activity in these areas during drier seasons as well. Other than the drier months, rest of the year, fishers fish in the beel to earn their livelihood.

## 22. Land tenure/ownership:

a) within the Flyway Network site:

Tanguar Haor is classified as khas land (= Government land), and is controlled by two local government agencies, the Department of Land Revenue (Ministry of Land), and the District Commissioner's Office (Ministry of Establishment). Control will be handed over to the Ministry of Environment and Forest (MoEF) in April 2000, as part of the enactment of the Environmental Conservation Act (1995) and Rules (1997) concerning Ecologically Critical Areas. Areas adjacent Tanguar Haor are privately owned.

b) in the surrounding area:

## 23. Current land (including water) use:

a) within the Flyway Network site:

Tanguar Haor supports one of Bangladesh's most important inland fisheries, and has been leased for commercial exploitation at least since the 1930s. Restocking, mainly with major carp species, is carried out on an annual basis by the Department of Fisheries. Fishing is currently carried out by means of fisherfolk recruited from well outside the district, and a temporary fishing camp is annually established for housing 2000+ fishermen and their families. Areas adjacent the haor are cultivated, mainly with rice, and with wheat to the north of the haor. Around homesteads, many vegetables (beans, gourds, yams), fruit (banana, papaya, mango, jujube) and crops such as mustard are grown. As waterlevels drop in the drier months, peripheral areas of the haor are cultivated with rice, and used for grazing of cattle and buffalo. Ricefields are irrigated with water pumped from the beels. Duck are kept in village ponds and in the beels. Reed, grass and swamp forest trees are all used as fuel, which is in short supply in the area. At a few locations, small deposits of young peat are found, and these are excavated for fuel. Waterbirds are hunted for food and for sale at local markets. Turtles and tortoises are hunted for food.

b) in the surroundings/catchment:

The neighboring inhabitants are dependent on it for their irrigation and cattle grazing.

**24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

a) within the Flyway Network site:

Swamp forests that were once common at the haor, have now become very rare due to clearing, cutting and burning, and the last vestiges remain at Rangchi, in the southwestern part of the haor. This consists of about 800 more than 100 year-old, pollarded *Barringtonia acutangula* (*hijal*) and *Pongamia pinnata* (*koroch*) trees.

Reed beds dominated by *Phragmites karka* have been severely reduced in area because of collecting for fuel and thatch, and the conversion of marginal wetlands for agriculture. Certain species of aquatic plant that used to be common in the area, have now disappeared or become very rare, probably due to a combination of over-utilisation (of useful species) and changes in water quality (leading to poorer light penetration).

Due to overfishing and habitat destruction, various indigenous fish species have become rare or have disappeared altogether. Species numbers have dropped from 135 two decades ago, to not more than 112 in 1997. Almost half (49%) of the species recorded in 1997 are not abundant.

Amphibians, reptiles and mammals have all reportedly decreased significantly in numbers, mainly due to habitat destruction, but also due to collecting and hunting for food (e.g. frogs and turtles), persecution as pests (e.g. wild boar, otters), and perhaps accidental poisoning (e.g. frogs, by use of pesticides).

Waterbird populations are mainly threatened by hunting, and an estimated 10,000-15,000 is trapped annually at Tanguar Haor, equivalent to 36-58 % of the total waterfowl population. Waterfowl in the haor region (of Sylhet Division) show a decline of almost 2/3's in total numbers over the past decades.

The current leasing system is seen as one of the major threats to sustainable management of the area, as it encourages maximum exploitation, and marginalises the local community.

Pesticides and exotic plants have only minor impacts at present levels.

b) in the surrounding area:

Not provided

**25. Conservation measures taken:**

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

d) Describe any other current management practices:

A special project is operating to conserve the natural resources through co-management under Ministry of Environment and Forest. IUCN provides the technical leadership of the project. This is also declared as Ramsar site and Ecologically Critical Area (ECA) due to its ecological value. District administration plays vital role in controlling fishing and any other illegal activity in the haor.

**26. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

On going project in the haor basin is communicating and educating people dependent on the natural resources of the haor as well as creating mass awareness to conserve the haor resources.

**27. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Not provided

**28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

On going project in the haor basin is communicating and educating people dependent on the natural resources of the haor as well as creating mass awareness to conserve the haor resources.

**29. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Due to its scenic beauty and nature, it attracts large number of tourists to visit Tanguar Haor every year particularly in the winter months. However, the area is very tough to access throughout the year except in the monsoon.

## **Annex 1: Criteria for the inclusion of sites in the Flyway Site Network** **(from the Partnership Text)**

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

- a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:
  - Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
  - Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.
  - Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
  
- b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:
  - i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.
  - ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.
  
- c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

## Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

### Marine/Coastal Wetlands

- A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.
- B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.
- C -- **Coral reefs**.
- D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.
- E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.
- F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.
- G -- **Intertidal mud, sand or salt flats**.
- H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.
- I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.
- J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.
- K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.
- Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

### Inland Wetlands

- L -- **Permanent inland deltas**.
- M -- **Permanent rivers/streams/creeks**; includes waterfalls.
- N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.
- O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.
- P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.
- Q -- **Permanent saline/brackish/alkaline lakes**.

- R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats.**
- Sp -- **Permanent saline/brackish/alkaline marshes/pools.**
- Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools.**
- Tp -- **Permanent freshwater marshes/pools;** ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.
- Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils;** includes sloughs, potholes, seasonally flooded meadows, sedge marshes.
- U -- **Non-forested peatlands;** includes shrub or open bogs, swamps, fens.
- Va -- **Alpine wetlands;** includes alpine meadows, temporary waters from snowmelt.
- Vt -- **Tundra wetlands;** includes tundra pools, temporary waters from snowmelt.
- W -- **Shrub-dominated wetlands;** shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.
- Xf -- **Freshwater, tree-dominated wetlands;** includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.
- Xp -- **Forested peatlands;** peat swamp forests.
- Y -- **Freshwater springs; oases.**
- Zg -- **Geothermal wetlands**
- Zk(b) – **Karst and other subterranean hydrological systems, inland**

Note: “**floodplain**” is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

### Human-made wetlands

- 1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**
- 2 -- **Ponds;** includes farm ponds, stock ponds, small tanks; (generally below 8 ha).
- 3 -- **Irrigated land;** includes irrigation channels and rice fields.
- 4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).
- 5 -- **Salt exploitation sites;** salt pans, salines, etc.
- 6 -- **Water storage areas;** reservoirs/barrages/dams/impoundments (generally over 8 ha).
- 7 -- **Excavations;** gravel/brick/clay pits; borrow pits, mining pools.
- 8 -- **Wastewater treatment areas;** sewage farms, settling ponds, oxidation basins, etc.
- 9 -- **Canals and drainage channels, ditches.**
- Zk(c) -- **Karst and other subterranean hydrological systems, human-made**