Tangua Haor: A unique wetland ecosystem

ANISUZZAMAN KHAN *and* ARIF M. FAISAL

FEBRUARY 2 was World Wetlands Day. It marks the date of signing of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. World Wetlands day was celebrated for the first time in 1997 and made an encouraging beginning. Each year, government agencies, non-governmental organizations, and groups of citizens at all levels of the community seize the opportunity to undertake actions aimed at raising public awareness of wetland values and benefits in general and the Ramsar Convention in particular. From 1997 to 2003, different organizations world wide have observed the occasion through lectures and seminars, rally, nature walks, children's art contests, boat and sampan races, and community clean-up to radio and television interviews to the launching of new wetland policies, new Ramsar sites, and new programmes at the national and regional and global level. In Bangladesh government organization, along with various international and national NGOs etc. celebrate this day through rally, seminar, awareness campaign etc. This year's theme of World Wetlands day is: "From the Mountains to the Sea Wetlands at Work for us". We are happy to have a wetland of international importance (Ramsar site) but concerned that it is threatened with extinction as a result of mismanagement.

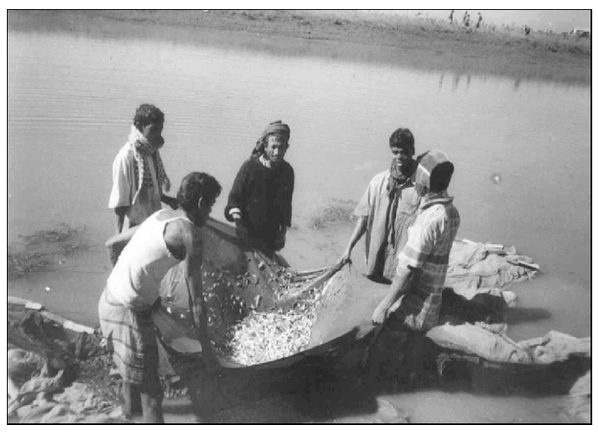
The total area of wetlands in Bangladesh has been variously estimated at 7 to 8 million hectares, i.e. about 50% of the total land surface. Tangua, Hakaloki, Sanuar-Dakur, Pagnar, etc. are the major haor basin in Bangladesh. Among these Tangua haor is possibly the largest of all haors in Bangladesh. The Tangua Haor wetland system is located in the north-eastern part of Bangladesh in the district of Sunamgonj in between Tahirpur and Dharmapasha Thanas under the Sylhet Division. The haor basin consists of nearly 50 beels and 46 villages that are sparsely located on the northern and eastern sides. This is a huge pristine water reservoir with enormous wetland biodiversity. The Tangua Haor basin is a unique ecosystem of national and international importance that supports nearly 200 species of wetland flora, 141 species of fishes (which is half of Bangladesh's total fish species and 55 of them are listed in threatened categories by IUCN), 11 amphibians, 34 reptiles (including 6 turtles, 7 lizards and 21 snake species), 208 species of birds (of these, 98 are migratory and 110 are resident species) and also many mammals. Their fisheries resource is well known in terms of species richness, diversity and production. Tangua is known as one of the important mother fisheries of the entire haor basin.

The Tangua Haor Basin, consisting an area of 10,000 hectares, also supports 50,000 to 60,000 human population with its resources. Major economic resources in the haor basin are: fisheries which is a primary source of income for local people, production of rice on its agricultural land (that is harvested before the rainwater comes into the basin in April), swamp forests that

supplies the fuel wood requirements for the local people, and the reed beds supply housing materials for the local people.

In 1999, Government of Bangladesh declared the Tangua Haor Basin as an "Ecologically Critical Area" to highlight its ecological importance and to monitor its environmental quality. On the 10th July 2000, the haor basin was declared as the country's second RAMSAR site -- wetland of international importance. On the 12th February 2001, the management of the Tangua Haor was handed over from the Ministry of Land to the Ministry of Environment and Forests so that the resources of the haor are preserved.

From the old records it is envisaged that this haor system was dominated by massive swamp forest. But now only a few remnants indicating the past glory of such forest that harboured Swamp deer, Water buffalo, Rhinoceros, Hog



deer, Tiger, Saurs crane, Pink-headed duck, Python. But all of them are locally extinct during the last century.

This is the last stronghold of globally threatened Eagle, the Pallas's Sea Eagle and the Wild roses of Bengal. The bivalve mollusk of Tangua is famous for its quality pink pearl.

Tangua haor is a storehouse of biological resources to the people living around them. From the historical perspective human habitation in this region clustered around the wetlands. People harvest food, fire fuel, fiber, fodder, fencing material from the wetlands. They grow flood tolerant paddy, catch fish, collect mollusk shells, fruits and vegetables from wetland plants, harvest fodder for their cattle, cultivate winter crop, raise ducks, hunt turtles, collect dried weeds for fire fuel, trap water birds.

The people of the Haor Basin and haors are mostly farmers, followed by traditional fishermen and other resource users. There are also other traditional groups such as traders, carpenters, blacksmiths, potters, barbers, boatmen etc. Population of Hindu community is higher in the wetlands. The fisher folk are mainly from the Hindu community. Muslims are mainly cultivators. However, nowadays, there are Muslim fisherfolk as well and they are called 'moimol'.

Shell animals and shells are collected from wetlands for various purposes. Currently, snails are collected mainly for feeding ducks, fishes (catfishes) in the closed fisheries and for preparation of poultry and fishmeal. Unio is collected for pearls and Unio shell for preparation of lime. People living in and around freshwater wetlands pick fruits of different aquatic plants for eating as well for daily subsistence income.

At present, the fisheries are leased to private individuals. The local fishermen communities, do not get any benefit and they cannot contribute in the development activities. On the contrary, they, including the villagers, cannot catch fishes even in their own lands attached to the fisheries. This system often leads to conflicts between local communities and the leaseholders.

State of biodiversity

Haor Basin and the haors of the Sylhet-Mymensingh (Northeast Region) extend over 10,000 km². The wetlands cover about 40 percent of the total area of the region.

According to surveys conducted under the NCSIP-1, 135 species of fishes, 208 species of birds, 35 species of reptile including six turtles and tortoises and 11 amphibians have been found to occur in the Tangua haor. The faunal diversity of the haor Basin and of the haors of the northeast region has not yet been thoroughly surveyed. About 125 species of waterfowls are known to occur in the region. Of these species, ten are listed in the IUCN Red List of Threatened Animals. One of the globally threatened species associated with the wetlands of the region includes Pallas's Fish Eagle. The main mammalian species include Ganges River Dolphin, otter, Fishing cat etc. The major turtle and tortoise species include Kori kaita (Kachuga spp.), Shundhi kasim (Lissemys punctata), Halde kaita (Morenia petersi), Jal kasim (Aspideretes hurum), Box turtle (Cuora amboinensis) etc. There are about 259 freshwater fish species in the country and most of them are found in the northeast region.

Under the NCSIP-1 (National Conservation Strategy Implementation Project), 150 wetland plant species have been recorded in the Tangua haor area.

A total of 123 species of aquatic angiosperms under 48 families have been reported from the freshwater wetlands of the country. They include two introduced species namely Nymphaea amazonica and N. capensis. The Haor basin and the haors of the northeast region are represented by 93 species. These species are found in diverse physiognomic types, and the major types are as under:

Open-water aquatic vegetation: This type consists of rooted and free-floating species. Some of the popular species are Kachuripana (Eichhornia crassipes), Khudipana (Lemna and Spirodela spp.), Makhna (Euryale ferox), Phutki (Hygroryza aristata), Padma (Nelumbo nucifera), Shapla (Nymphaea spp.), Shingra (Trapa maximowiczii) etc. All of the above species are herbs, and most are perennial. Locations of the species change with the fluctuation of the seasonal water levels.

Emergent vegetation: This type includes amphibious plants or geophytes of emergent plants consisting of the families Cyperaceae and Polygonaceae. The species of this vegetation generally occupies the water margin during dry season. With the rise in water level in the monsoon or wet season, the species remain submerged under water.

Reed swamps: Tall grasses or reeds occupy the elevated areas with gentle slope including kanda. This type of vegetation is locally known as Pajuban and consists of Nal (Phragmitis karka and Arundo donax), Kash (Saccharum spontneum), Bena (Vertiveria sp.) and Khuri (Sclerostachya fusca). In the past this type of vegetation occupied extensive areas throughout the region. Bonnya golap (Rosa involucrata), which finds natural habitat in the pristine reed-lands, is now threatened in Bangladesh. Over-exploitation of the reeds for various purposes mainly for lime burning and conversion of land for agriculture, are known to be the threats to the vegetation.

Freshwater swamp forests: This type of vegetation consists of evergreen trees forming a closed canopy. The trees of the swamp forests include Hizal (Barringtonia acutangula) and Karach (Pongamia pinnata) and occur in varying proportions. Barun (Craetava nurvela) and Bhuidumur (Ficus heterophylla) also frequently form this vegetation type. Bhui amla (Phyllanthus niruri) and Asclepiad climber are also found in this vegetation. These forests occur in the elevated ridges between the beels or levees of the streams. The swamp forest can also be seen on the raised flat plains sheltering the village homesteads

sloping towards haor proper. The luxuriance of the vegetation varies greatly with conditions and extent of human interference from a very open crop of low trees with undergrowth grasses to a dense closed canopy with poor undergrowth. Extent and distribution of the swamp forest in the region is not properly known.

In early eighties Nature Conservation Management (NACOM) through its Asian Waterfowl Census rediscovered the richness of Tangua Haor. A group of scientists visited the haor wetlands during 1990-1993 to study the wetland biological diversity. They recognised the significance of haor wetlands' biological diversity and the dependence of local community on the wetland resources. They carried out extensive research on the wetland biodiversity of the haor basin. They discovered the immense importance of the biodiversity of the wetlands. Freshwater swamp is almost destroyed from all over the country excepting remnants in Northeast haor basin. These are fragmented patch spread throughout the region. And the supporting wetlands are Tangua, Pasua, Sanir, Bara, Matian, Charchar, Dekhar, Aila, Kawdighi, Muria, Bawlai, Hakaluki and Hail Haor.

The team identified the ecological importance of freshwater swamp and assessed the economical role of the wetland plants. It was recommended by the study that investment should be made to restore the swamp in haor wetlands. They with support from CIDA and Ministry of Water Resources carried out first ever-biophysical survey of this haor basin and identified Tangua Haor as the Wetlands of International Importance. The National Conservation Strategy Implementation Project (NCSIP-I), Ministry of Environment and Forest in collaboration with IUCN-The World Conservation Union conducted detail biological studies and facilitated the process of nominating Tangua haor as Ramsar site. The Ramsar Bureau under the Wetlands Convention then designated the site as country's second Ramsar site in 2000.

National Conservation Strategy, MoEF and IUCN-Bangladesh have already prepared a management plan for Tangua haor. The ultimate goal of this management activity is the sustainable utilization of the resources. This means that it will be necessary to balance the current needs of stakeholders against the needs of future generations. The assumption that underpins the co-management approach is that more efficient and effective sustainable management will be achieved through this approach.

Ensuring the participation of all stakeholders is one of the aims in the process of management.

Where local communities are traditional users of wetland resources they will usually have developed a management regime with its own "rules and regulations" and a body of detailed ecological knowledge. All too often these existing systems and knowledge are overlooked in the application of "scientific" management solutions. Yet, throughout the world, local communities and indigenous groups have for centuries used, improved and maintained wetlands securing livelihoods and sustaining their cultural identity.

But 'involvement" is a week and imprecise term. In the past it has been too often used by governments to mean a process of token participation in which community leaders have been coerced into agreeing to developments.

Any level of community involvement in wetland biodiversity management requires an appropriate degree of community organisation and capability. Typically there needs to be at least one group within the community, which has resource management or conservation as its primary focus. These groups usually address the issue related to awareness rising, development of rules and regulations or management plans, implementing alternative income activities. It also deals with skills and knowledge enhancement needed to deal with the different aspects of biodiversity conservation. Skills such as accountancy, PRA, problem/priority identification, meeting facilitation, dispute resolution, etc.

Another important aspect in the co-management practices for the biodiversity are getting to the roots causes of problems. Biodiversity conservation activities must be planned on the basis of more than superficial knowledge of situation. Gaining an understanding of the causes behind resource management problems is generally a time consuming activity. Typically, communities closely involved with resource issues have not fully analysed the situation and in most cases the immediate views of the communities involved will not be likely to yield a full or accurate picture of the root causes of problems.

Conclusion

Tangua haor is a unique ecosystem rich in natural resources but under severe threat of gradual depletion. Since the government has already declared Tangua Haor as a Ramsar site, it is committed to implement the 'wise-use' strategy of resource utilisation in this area. With the declaration of Tangua Haor as a Ramsar site, government and other national and international organisations had committed to preserve its resources, and to protect its birds and other wildlife from illegal hunters.

The experience of community-based organisations in the local villages also suggests that without adequate financial support and skills, it would be very difficult for local people to coordinate any large-scale fishing activities in the haor. It has also been clear from the experience of fisheries management that local people cannot also prevent pirates to enter in the haor basin and plunder its resources. However, experience also suggests that local people can be organised to protect other resources of the haor under protection of government agencies. Under this scenario, it is understood that while local people need support from the government and other agencies to develop capacity to manage resources, there also exists some conflict of interests in protecting various resources. As a result, before ensuring a co-management or a participatory management of resources in the Tangua Haor area, local people need to be organised, motivated and trained to handle the natural resources of such a huge area of wetland. The local resource users should be engaged in monitoring the wildlife. This monitoring activity by local people will ensure the sustainable use of the natural resources.

Anisuzzaman Khan, head of Biodiversity Unit, and Arif M. Faisal are of IUCN.

Major concern

+ Rapid degradation of natural resources and biodiversity loss
+ Rapid rate of the disappearance of Swamp forests
+ Shrinking of fish stock due to over-exploitation of fisheries resources
+ Failure of the regeneration of reed bed
+ Illegal hunting of birds and other wildlife
+ Lack of income and employment opportunities for people in the Haor basin
+ Lack of appropriate mechanism to ensure customary rights of the local people on the Haor resources

Initiatives and measure to be taken

+ Swamp forest restoration and conservation
+ Sustainable management of fisheries resources
+ Protection of wildlife
+ Resource substitution for conservation of wetland ecology
+ Income and employment generation activities
+ Welfare uplifting activities
+ Enhancement of conservation awareness
+ Biodiversity and poverty monitoring
+ Training and research
+ Development of community-based organisations