

Full Length Research Paper

Conserving precious urban freshwater bodies: A case study of Telangana, India

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The Convention on Biological Diversity (CBD) recognizes sovereign rights of States over their bioresources and also determines terms of accessing them, which is subject to their national legislation. India is among the 196 Contracting Parties to CBD and enacted the Biological Diversity Act, 2002 to claim sovereign rights over its bioresources and associated traditional knowledge (TK), and to meet its national obligations on conservation of biodiversity, sustainable use of its components and fair and equitable sharing of benefits arising from their utilization. This legislation, and the Biological Diversity Rules, 2004 framed under it, provide a three-tier legal framework for regulating access to biological resources (and associated TK) while ensuring fair and equitable sharing of resulting benefits. This paper presents the declaration of Biodiversity Heritage Site under national legislation, steps taken towards declaration and conservation of biodiversity heritage site in Telangana State, India under the Telangana State Biological Diversity Rules, 2015 framed under section 63 (1) of the Biological Diversity Act, 2002. This paper will also help in understanding the process involved in declaration of Ameenpur Lake as Biodiversity Heritage Site (BHS) in Telangana State, India under section 37 of the Biological Diversity Act, 2002 and Rule 21 of the Telangana State Biological Diversity Rules, 2015.

Key words: Biodiversity heritage site, biodiversity profile, process involved in declaration.

INTRODUCTION

India is one of the 12 mega biodiversity countries of the world and one among the 196 signatories to the Convention on Biological Diversity (CBD) at Earth Summit in Rio de Janeiro in 1992. Recognizing the sovereign rights of States to use their own biological resources, the Convention expects the parties to facilitate access to genetic resources by other parties subject to national legislation and on mutually agreed upon terms (Article 3 and 15 of CBD). Article 8(j) of the Convention on

Biological Diversity recognizes contributions of local and indigenous communities to the conservation and sustainable utilization of biological resources through traditional knowledge, practices and innovations and provides for equitable sharing of benefits with such people arising from the utilization of their knowledge, practices and innovations (Biological Diversity Act, 2002).

India has only 2.4% of the world's land area, harbours 7 to 8% of all recorded species, including over 45,000

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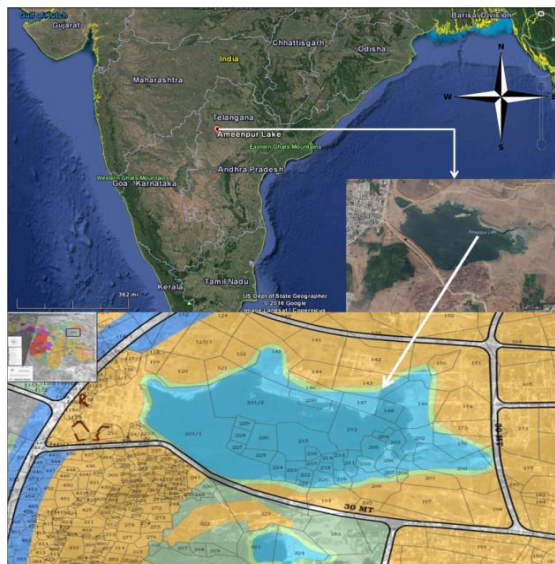


Figure 1. Map showing the Study area of Ameenpur Lake, Telangana.

species of plants and 91,000 species of animals. It is also amongst the few countries that have developed a biogeographic classification for conservation planning, and has mapped biodiversity-rich areas in the country. Of the 34 global biodiversity hotspots, four are present in India, represented by the Himalaya, the Western Ghats, the North-east and the Nicobar Islands. Considering the outstanding universal values and exceptionally high levels of endemism in the Western Ghats, 39 sites in the States of Kerala, Karnataka, Tamil Nadu and Maharashtra have been inscribed on the United Nations Education Scientific and Cultural Organization (UNESCO) World Heritage List in 2012 (India's Fifth National Report to the Convention on Biological Diversity, 2014).

Telangana State is one of the 29 states of India. It was separated from the erstwhile Andhra Pradesh on 2nd June 2014. Telangana State is situated in the central stretch of the eastern seaboard of the Indian Peninsula. Telangana state has an area of 114,840 sq km (44,300 sq mi). The area is divided into two main regions, the Eastern Ghats and the plains (Pullaiah, 2015).

As per the Biological Diversity Act, 2002, the areas of Biological importance that are unique ecologically fragile ecosystems-terrestrial, fresh water or marine having rich biodiversity comprising of any one or more of the components such as, species richness, high endemism, presence of rare, endemic and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/cultivated species or land races or their varieties, past pre-eminence of biological components represented by fossils beds and having cultural or aesthetic values can be declared as Biodiversity Heritage Sites. "Biodiversity Heritage Site" means natural areas, sites or features consisting of physical, biological or geographical or groups of such

formations constituting of the habitat of threatened species of plants and animals of outstanding universal value from the point of view of science or conservation (Biological Diversity Act, 2002).

Biodiversity is closely linked with ecological security and therefore, to human welfare. To strengthen the biodiversity conservation in traditionally managed areas and to stem the rapid loss of biodiversity in intensively managed areas, such areas need special attention. India has made significant strides in conserving its rich biodiversity, with 45 biodiversity heritage sites (BHS) covering 16 states of India being declared till 2023 under the provisions of the Biological Diversity Act of 2002 (NBA). Among these esteemed sites stands the Ameenpur Lake, a prominent urban freshwater body. This designation underscores the critical importance of Ameenpur Lake in preserving India's ecological diversity and highlights the collective efforts towards safeguarding our natural heritage. As an urban oasis, Ameenpur Lake symbolizes the harmonious coexistence of nature and human development, serving as a vital ecosystem that sustains diverse flora and fauna (Sailu et al., 2019). The Government of Telangana declared the Ameenpur lake (a wetland ecosystem) as Biodiversity Heritage Site Gazette No: vide.no.449/EFS&T Department (Forest-II) Dated: 21-11- 2016 after fulfilling the requirements of the guidelines for identification, notification and management of BHS issued by the National Biodiversity Authority, section 37 of the Biological Diversity Act, 2002 and Rule 21 of the TSBDB Rules, 2015.

MATERIALS AND METHODS

Study area

Ameenpur Lake is one of the few urban water bodies left in the state of Telangana. It is the most sought-after haunt for bird watchers as a variety of avian species including migratory and resident bird species visit the lake. This Lake supports fisheries as well.

Ameenpur Lake (17° 31.198'N, 78° 19.524'E) is situated at Patancheru Mandal, Medak District, Telangana State, India, covering an area of 93.15 Acres (0.38 Sq. km) (Sy.No-231-Shikam Land). It is 27 km from Hyderabad City (Figure 1). Intensive surveys were conducted during February 2015 to September 2016 on monthly basis to document various faunal components. During the study period, a total of 8 mammalian species, 166 avian species, 45 herpetofauna species (12 amphibian and 34 reptiles), 9 fish species and 143 invertebrates species (26 aquatic beetles, 41 butterflies, 18 odonates, 25 Arachnids and 33 other invertebrates) were documented. The baseline data generated during the period provides an idea about various species present in the area and calls for conservation of their natural habitat for future endeavors. Ameenpur Lake is a newly declared biodiversity heritage site in Telangana state under biological diversity act, 2002. It is the most sought-after place for a variety of flora and fauna (Sailu et al., 2017).

Constitution of biodiversity management committee

Telangana State Biodiversity Board (TSBDB) organized series of awareness programmes among the local community, local body

members of Ameenpur Grampanchayat, revenue officials and all the stakeholders like fishermen community during February to June, 2015 for promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity. Accordingly, the Biodiversity Management Committee was constituted by the local body at Ameenpur (Grampanchayat), Sangareddy (District), Telangana State on 30-07-2015 as per the section 41 (1) of the Biological Diversity Act, 2002 & Rule 22 (1) of the Telangana State Biological Diversity Rules 2015.

Resolution of the biodiversity management committee

The BMC had passed the resolution for declaration of Ameenpur lake as Biodiversity Heritage Site involving local community and fishermen community who depend on the lake for livelihoods. The resolution/consent was submitted to the Telangana State Biodiversity Board to declare the Ameenpur Lake as BHS.

BHS in the expert committee on BHS

The TSBDB was discussed about the declaration of Ameenpur Lake as BHS in the meeting of Expert Committee on BHS as per the consent received from the BMC Ameenpur. The Committee recommended the TSBDB to study the biodiversity of the areas and to take the opinions and recommendations of the District Collector & Magistrate, Chairperson, Zilla Praja Parishad, Divisional Forest Officer of Sangareddy District, Telangana State Police Protection Force (TSSPF) who had adopted the Ameenpur lake under the flagship programme called Mission Kakatiya for restoration of all minor irrigation tanks in the state to their original capacity and rehabilitation of wetlands/lakes of Telangana and local self-governmental organizations like Friends of Flora & Fauna and Hyderabad Birding Pals on regular basis monitoring and removing the debris of the lake.

The positive opinions were received from the District officials and stakeholders who are regularly cleaning the lake and removing the unwanted waste from the lake as per the format developed by the TSBDB.

Also, the Biodiversity Profile of the Ameenpur Lake was documented. During the study period, a total of 8 mammalian species, 166 avian species, 45 herpetofauna species (12 amphibian and 34 reptiles), 9 fish species and 143 invertebrates species (26 aquatic beetles, 41 butterflies, 18 odonates, 25 Arachnids and 33 other invertebrates) were documented (Sailu et al., 2017). There are 180 species of flowering plants belongs to 62 families were recorded in and around Ameenpur lake BHS (Sailu et al 2019).

Ratification of the Ameenpur Lake by the Board

After receiving opinions and recommendation, the proposal was discussed in the Board meeting and the Board ratified the proposal for declaration of Ameenpur lake as Biodiversity Heritage Site. It was decided that the declaration of BHS will not put any restriction on the prevailing practices & usages of the local communities, other than those voluntarily decided by them. The purpose is to enhance the quality of life of the local communities through this conservation measure.

Submission of the proposal to the Government of Telangana

TSBDB had submitted the proposal to the Department of Environment, Forests, Science & Technology (EFS&T), Government

of Telangana for declaration of Ameenpur lake as BHS by issuing a preliminary notification for seeking the opinions from interested and affected groups for declaring Ameenpur lake as BHS. Accordingly, A preliminary notification was issued by Government of Telangana for declaring the Ameenpur Lake as Biodiversity Heritage Site vide. G.MS. No.46/EFS&T (Forest-II) Department dated: 18.06.2016 and calling for objections with 30 days. If any objections are received, the public hearing will be held at Ameenpur Grampanchayat office. The detailed report and formats for filling the opinions are kept available in the website: www.tsbiodiversity.org.

In response to the above notification, the TSBDB received 28 petitions from various stakeholders offering suggestions/comments for protection and conservation of the lake and not to disturb their rights over the properties owned by them.

Accordingly the TSBDB & BMC, Ameenpur organized a public hearing meeting on 25-07-2016 involving the local people and other stakeholders like petitioners, TSSPF, Hyderabad Birding Pals, Friends of Flora and Fauna, Human Rights & Consumer Protection Cell, and other officials including the Chief Executive Officer, Zilla Parishad, Medak Dist, Revenue Divisional Officer, Sangareddy, Mandal Revenue Officer, Patancheru, Mandal Parishad Development Officer, Patancheru, Asst. Director, Fisheries Dept, Medak District, Joint Environmental Engineer & Executive Engineer, TS. Pollution Control Board, Deputy inspector of Survey, Medak District, Forest Department, AEE, Irrigation Department, etc.

The panel members are briefed on the importance of the lake and the need to conserve the lake together with its rich biodiversity by declaring it as a Biodiversity Heritage site under the Biodiversity Act, 2002. The participants were also briefed about the area proposed for inclusion in the BHS and proposed plan of action for conserving the lake.

During the public hearing meeting, some suggestions were received for conservation of the lake. Among the 28 petitions that had sent their representations to the Board, 26 were related to patta lands which are located around the Ameenpur Lake and 2 suggestions were concerned with conservation of the lake. The other stakeholders suggested their views for conservation of the lake and preparation of management plan.

After conducting the statutory public hearing, the Biodiversity Heritage Site Panel is of the opinion that there is no objection from the stakeholders with regard to the declaration of Ameenpur Lake as Biodiversity Heritage Site by the Government of Telangana and they are in full support of the proposal.

Declaration of BHS

TSBDB fulfilled all the requirements of the Act & Rules and Guidelines of the BHS. Then, the proposal was submitted to EFS&T Department for issuing the final Gazette notification for declaring the particular site as BHS. Accordingly, the EFS&T department, Government of Telangana issued the final Gazette notification vide.no.449/EFS&T Department (Forest-II) Dated: 21-11-2016.

1. After the declaration of Ameenpur BHS, the TSBDB constituted two following committees:
2. State level monitoring committee (at state level) involving various stakeholders to monitor the implementation of management plan periodically and submit a report to the TSBDB, indicating clearly the extent and recommendations for improvement.
3. Biodiversity Heritage Site Management Committee (at field level) involving the BMC members and other stakeholders for implementing the Management plan for conservation of the biodiversity of the area for future sustainability.

The management plan includes:

1. Preparation of the management plan for conservation of the lake.

2. Specifying the boundaries of the BHS, prior surveying with mapping (Distributed Generation Planning Application (DGPA) of the BHS with clear administrative boundaries), and specifying restrictions if any that may be required for management of the BHS.
3. The scope of livelihood generation (including livelihood from resource use (especially keeping the fisherman community in mind), community-based ecotourism etc) in the area.
4. Preparation of plans and schemes to eliminate biodiversity-damaging practices and also to fully enable and empower the communities in conserving the biodiversity.
5. Implementation of management plan and will submit the reports time to time to the Telangana State Biodiversity Board, indicating clearly the extent (in qualitative and where possible quantitative terms) of achievement under each component of the management plan and to make recommendations for improvement.
6. Taking up various activities in coordination with respective line departments eg: De-silting of feeder channels, establishment of Sewerage Treatment Plant, developing proper garbage system etc.,
7. Mobilizing funds for conducting meetings, surveying and mapping, establishing display boards, preparation of management plan, creating awareness about the importance of the BHS etc. from Irrigation department, Hyderabad Metropolitan Development Authority (HMDA) and Pollution Control Board, Tourism Department etc.
8. Preparation of guidelines on "do's & don'ts" for the general public, patta land owners located near the lake premises, tourists etc.

DISCUSSION

As per the section 37 of the Biological Diversity Act, 2002, the State Biodiversity Board have to identify the biodiversity rich areas and declare such areas as BHS in consultation with Biodiversity Management Committees for preservation. Due to urbanization in India, the unique biodiversity is under threat, so, there is a need for identification of these areas of significance for declaration and protection under the Act. These areas are also recognized as represent a positive interface between nature, culture, society, and technologies, such that both conservation and livelihood security are or can be achieved, and positive links between wild and domesticated biodiversity are enhanced. Under the Biological Diversity Act, there are provisions for conservation under *in situ* and *ex situ* conditions. As per the Act, *ex situ* conservation of components of biological diversity outside their natural habitats and *in situ* conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings where they have developed their distinctive properties. According to the Act, the TSBDB in consultation with BMC declared the Ameenpur Lake as BHS to protect the lake from the encroachment and pollutants which is entering the lake from various industries located in the Ameenpur jurisdiction. Recently, the State Pollution Control Board decided to establish the sewerage treatment plant to treat the polluted water coming from the industries and surrounding colonies. The TSBDB involved the line departments concerned with their contribution in conservation and preservation of Ameenpur Lake. Recent

studies have unveiled a concerning decline in the water quality of Ameenpur Lake attributed to industrial effluents, agricultural runoff, and domestic sewage. This degradation, marked by a decrease in dissolved oxygen (DO) levels, poses a severe threat to the survival of aquatic organisms, including fishes and invertebrates such as crabs and zooplankton. Such adverse conditions have the potential to disrupt the delicate balance of biodiversity within the lake ecosystem, underscoring the urgent need for comprehensive conservation measures to mitigate further deterioration (Srinidhi et al 2022).

Conclusion

India is a developing country and biodiversity conservation is a challengeable issue, but India is one of the mega biodiversity countries and also the signatory to the Convention on Biological Diversity. So, the State Biodiversity Boards constituted under the Act shall take the necessary steps towards management of country's biological resources under the provisions of the Biological Diversity Act, 2002. These kinds of BHS declarations will help in preservation of natural ecosystems. There is an urgent need to strengthen the biodiversity conservation in traditionally managed areas/sites and to stem the rapid loss of biodiversity in intensively managed areas/sites for identification and recognition as areas/sites of significance. It is also necessary to instill nature conservation ethics in all sections of the society. The creation of BHS will ensure bringing home these values in the society and thereby put an end to over-exploitation of natural resources and avoid environmental degradation.

CONFLICT OF INTERESTS

The authors declared no conflict of interest.

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