The Ramsar Site Network and Biodiversity Conservation

Biodiversity has globally come under increasing pressure from a range of factors such as habitat fragmentation, development imperatives and global warming. Populations of several wetland-dependent species are declining. The Ramsar Convention on Wetlands introduced the Ramsar List as a mechanism for creating an international network of wetlands, which when sustainably managed, lead to the conservation of global biodiversity and support human well-being.
As India prepares to add more wetlands to the Ramsar List, **Dr Ritesh Kumar** (Director, Wetlands International South Asia) and **Dr Sidharth Kaul** (President, Wetlands International South Asia) look into the various aspects of designating and conserving Ramsar Sites in the country towards the overall efforts for conserving national, regional and global biodiversity.

THE LIST OF WETLANDS OF INTERNATIONAL IMPORTANCE AS A NETWORK OF SIGNIFICANT BIODIVERSITY AREAS. The Ramsar Convention is the only multilateral environment agreement focused on wetlands. The Convention provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Entered into force in 1975, the Convention predates the three Rio Conventions - the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification, and thus is amongst the oldest multilateral environmental agreement.

Ramsar List is one of the three Convention pillars. The vision for creating this List is to 'develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits/services'. The Secretariat works with Contracting Parties, International Organization Partners (IOPs) and other stakeholders towards establishing a national network of Ramsar Sites which represent the diversity of wetlands and their key hydrological and ecological functions, and contribute to maintaining global biological diversity through the designation and management of appropriate wetland sites.

Wetlands can be designated to the Ramsar List under any (one or more) of the nine criteria. The List presently includes over 2,370 wetlands covering 253 million hectare and is touted as the world's largest protected area network for meeting biological diversity conservation outcomes.

Group A of the criteria is based on representativeness, rarity or uniqueness of the site. Group B comprises eight criteria based on species and ecological communities (site supports vulnerable, endangered, or critically endangered species or threatened ecological communities; supports plants or animal species important for maintaining the biological diversity of a particular region, or supports plants and animal species in a critical phase in their life cycle), waterbirds (regularly supports >20,000 waterbirds, or atleast 1% of individuals of know population of single species or subspecies), fish (presence of significant indigenous fish species, or providing habitat condition for maintenance of fish species populations) and other taxa (1% population of wetland-dependent non-avian taxa).

Dr S A Hejmadi signing the Ramsar Convention agreement on behalf of Government of India at Ramsar in 1971 (Photo courtesy: Ramsar Convention Secretariat)

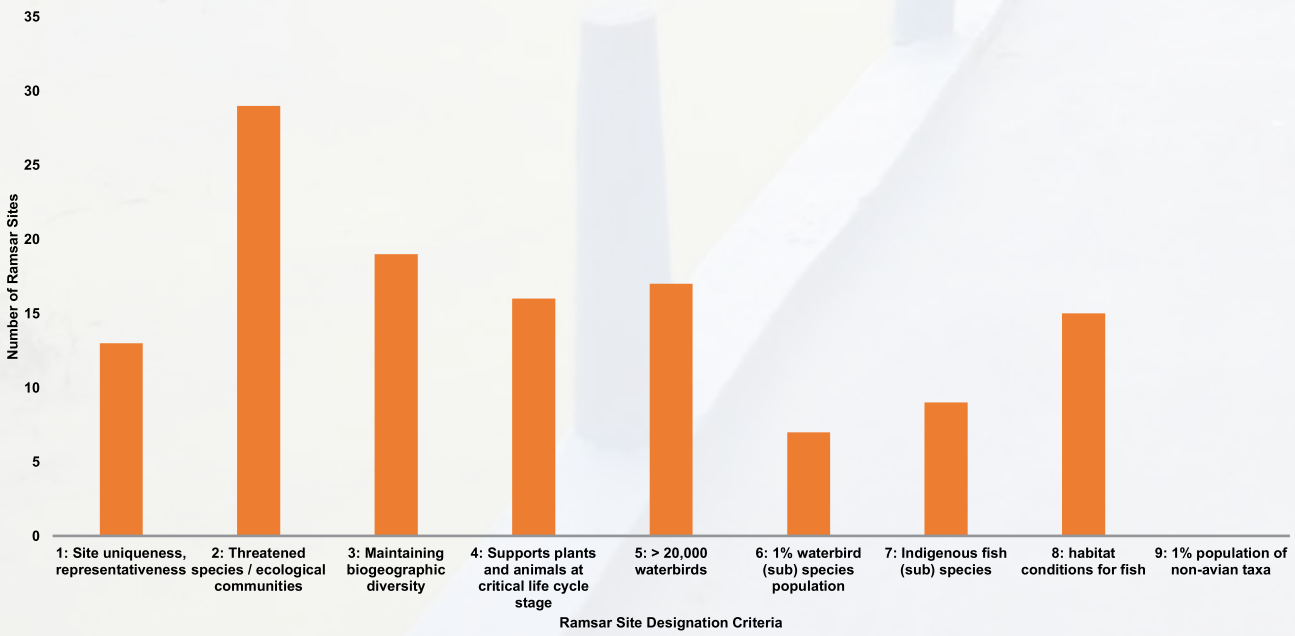
THE INDIAN NETWORK OF RAMSAR SITES AND THEIR BIODIVERSITY VALUES. India has so far designated 27 wetlands to the Ramsar List, ranging from Himalayan high altitude wetlands (Tso-moriri and Chandertal), lakes and marshes (Wular, Renuka, Keoladeo, Loktak, Deepor, Rudrasagar, Nalsarovar and Sasthamkotta), river stretches (Upper Ganga River stretch and Kanjili), salinas (Sambhar), mangrove swamps (Sunderbans, Bhitarkanika and Point Calimere) and lagoons and estuaries (Chilika, Ashtamudi and Vembanad-Kol). Water storage areas (Pong, Bhoj Wetlands and Surinsar-Mansar) and assemblages of sewage fed fish farms (East Calcutta Wetlands) have also been designated to the List by the Government of India.

A majority of the sites (19 of 27) are designated under criteria 2 (presence of threatened species and ecological communities). This is followed by designations under criteria 1 (uniqueness or representativeness of the site) and criteria 8 (wetlands providing suitable habitat conditions for fish). Incidentally, the waterbird number related criteria 5 has been used only for eight sites. There has been no designation fulfilling criteria 9, which pertains to non-avian wetland-dependent taxa, although sites such as Loktak fulfil this criterion.

The Ramsar sites also form an integral part of the national protected area network. Thirteen of the Ramsar Sites have been designated as protected areas or are located within reserved forests. Another five Ramsar Sites have their parts designated as protected areas.

Each of the Ramsar Site is a habitat of species of high conservation interest. Chilika maintains a healthy population and, is one of the only two lagoons in the world inhabited by Irrawaddy Dolphin, *Orcaella brevirostris.* Keibul Lamjao, a floating national park on the south of Loktak is the only known natural habitat of globally endangered swamp deer, *Rucervus eldii.* The globally vulnerable Black-necked Crane *Grus nigrocollis* breeds in the region around Tso-moriri. Kolleru was famed for large herenories of Asian Openbill Stork *Anastomus oscitans*. The Sunderbans are famed as the world's largest single chunk of contiguous mangroves, and an abode of globally endangered Bengal Tiger *Panthera tigris*. Two globally threatened mangrove species: *Sonneratia griffithii* and *Heritiera* are also found in Sunderbans. With over 35 true mangrove and 70 associate species, Bhitarkanika stands out as a hotspot of mangrove species diversity in the world, and one of the world's largest rookeries of vulnerable turtle Olive Ridley *Lepidochelys olivacea.* Spectacular flocks of flamingos can be seen at Sambhar and Point Calimere, whereas Pong is regularly visited by flocks of Bar-Headed Goose *Anser indicus*. The diversity of waterbirds visiting Keoladeo and Harike during the migration season often crosses in excess of 100 species.

A systematic inventory of the biota of Indian Ramsar Sites is yet to be carried out. Unpublished records of faunal diversity of Ramsar Sites collated by Zoological Survey of India for 27 Ramsar Sites indicate the presence of over 5,000 species from protozoans to mammals, with insects being the most predominant group.



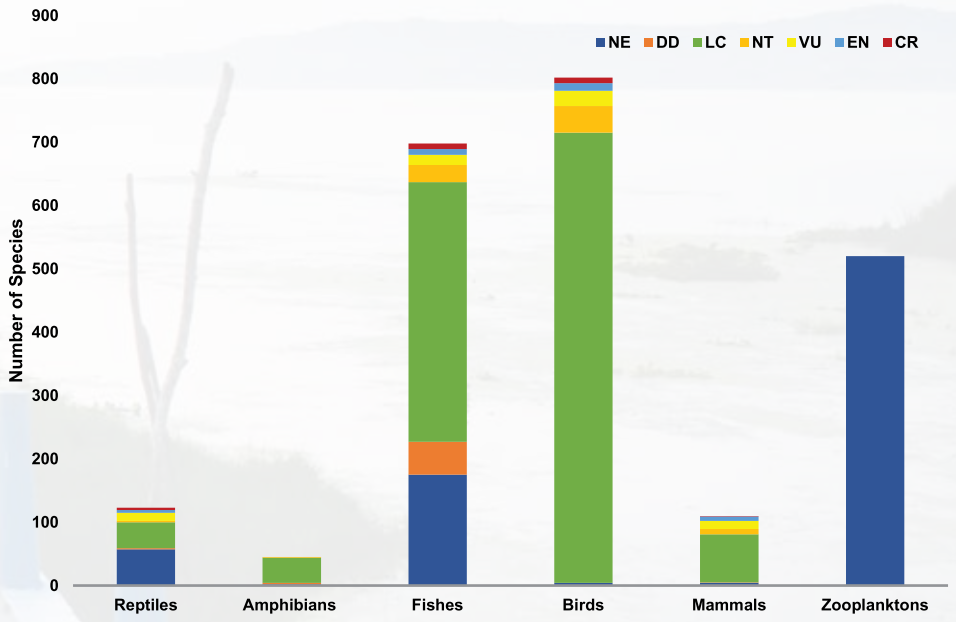
Ramsar sites designation by India under the nine Convention criteria (for 37 sites)

THE SPECIES RICHNESS OF INDIAN RAMSAR SITES

Dhruv Verma and Dr Asghar Nawab

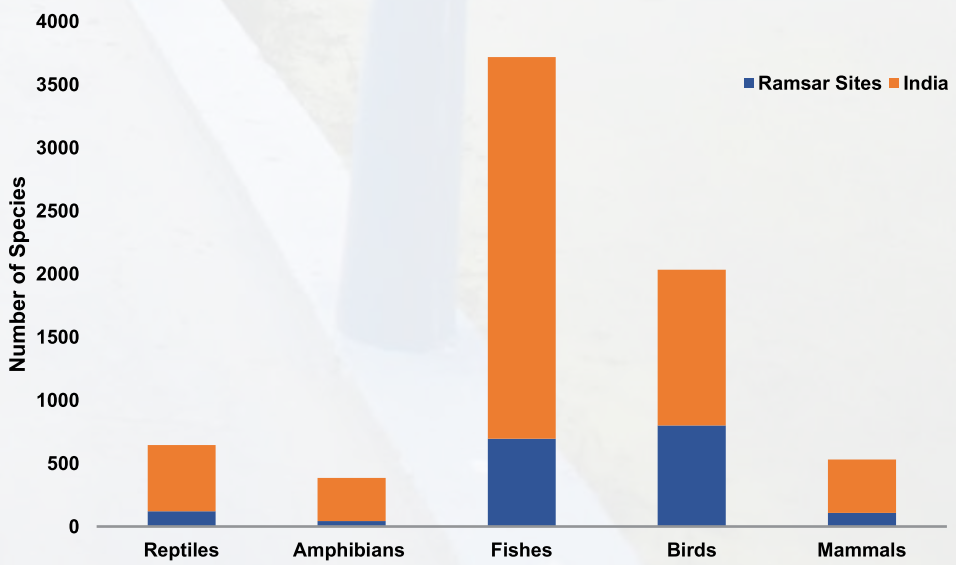
Wetlands International South Asia collated an inventory of species for select groups (mammals, birds, reptiles, amphibians, fishes and zooplankton) for which published and peer-reviewed work was available for the Indian Ramsar Sites. The List includes over 2,300 species from 27 Ramsar Sites.

Twenty-two of these species are classed as Critically Endangered, 32 as endangered and 66 as vulnerable in the IUCN Red List. Critically endangered species in Indian Ramsar sites include one mammal (*Manis pentadactyla*), four reptile (*Eretmochelys imbricate, Batagur kachuga, Batagur baska, Rhina ancylostoma*), ten fish (*Glaucostegus typus, Pristis pristis, Rhynchobatus laevis, Pristis pectinate, Glyphis gangeticus, Carcharhinus hemiodon, Sphyrna lewini, Glyptothorax kashmirensis, Sarcogyps calvus*) and eight bird species (*Gyps tenuirostris, Gyps indicus, Gyps bengalensis, Grus leucogeranus, Eurynorhynchus pygmeus, Calidris pygmaea, Aythya baeri, and Artisornis moreaui*)



Global conservation status of species found in 27 Indian Ramsar Sites (as per IUCN Red List)

The species richness at the Ramsar sites represents atleast 23% of reptile, 13% of amphibian, 23% of fish, 65% of birds, and 26% of mammal species known to occur in India. We believe that this share is a gross underestimate, and can be validated by a more comprehensive and systematic analysis.



Species richness for select groups found in 27 Indian Ramsar Sites as compared with national records.

At the time of writing this article, proposals for inclusion of 10 additional wetlands to the List had been sent by the Ministry of Environment, Forest and Climate Change to the Ramsar Secretariat (6 from Uttar Pradesh, three from Punjab, and one from Maharashtra). These sites will increase the representativeness of the biodiversity of the northern plains and the Deccan region. With 37 designated wetlands, India will have the highest number of Ramsar sites in the South Asia and next only to Japan and China in Asia.

Yet, the current List is not representative of the diversity of wetlands in the country as is the objective of establishing the Ramsar List. Western Ghats and Islands are not represented and so are the coral reefs. Two of the three Central Asian Flyway bottleneck sites, Marine National Park (Gujarat) and Doyang (Nagaland) are still not part of the Ramsar network. The BNHS has identified over 200 wetlands that fulfilled waterbird related criteria of the Ramsar Convention. The List provides an excellent basis for further expansion of the Ramsar Site network.

MANAGING RAMSAR SITES – BALANCING THE GOALS OF BIODIVERSITY CONSERVATION WITH DEVELOPMENT. Article 3.1 commits the Contracting Parties to put in place management arrangements to ensure wise use of all wetlands within their jurisdiction. The goals of creating a List of internationally important sites for conservation of biological diversity and wise use are mutually reinforcing. The act of designating a wetland as internationally important under the Convention is considered as an appropriate first step along a conservation and sustainable use pathway, the endpoint of which is achieving the long-term wise (sustainable) use of the site.

The text of Ramsar Convention defines wise use as “the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development”. This recognizes the human interdependency with wetland functioning and accommodates sustainable utilization of ecosystems for the benefit of humankind in a way compatible with the maintenance of natural properties of the ecosystem. Emerging from an era of predominantly ‘protection’ and ‘wilderness preservation’ approaches to nature conservation, and much before the famed 1992 Rio Conference on Environment and Development wherein the term ‘sustainable development’ was coined, Ramsar’s wise use concept was indeed visionary in recognizing and articulating societal interdependencies in the quest for conserving nature.

The term wise use is often interpreted to indicate that human use of all wetlands is promoted by the Ramsar Convention; however, this needs very careful consideration. The most recent updation of the wise use definition was in 2005, wherein along with the definition cited in the previous paragraph, two footnotes were also placed. The first clarifies that ‘ecosystem approaches’ include the elements elaborated by the Convention on Biological Diversity – integrated management, stakeholders’ participation in decision-making, transparency about tradeoffs, and equitability of the outcomes. Mechanisms such as integrated river basin management, integrated coastal zone management respond to this aspect.

The second footnote expands the phrase ‘in the context of sustainable development’ to recognize that development, though inevitable in most cases, is not an objective for every wetland. Wherever development is to take place, it has to be facilitated in sustainable ways by approaches elaborated in the Convention. Thus, when the concept of wise use is examined from the lens of sustainability, the elements of wetlands ‘conservation’ and ‘use’ are reconciled to ensure that the ecosystem retains capability for use now and in the future, rather than ‘using’ or developing the wetlands at present. The onus of elaborating a pathway for achieving wise use outcome is on the management planning process.

Management of wetlands in India in general, including those designated to the Ramsar List, broadly falls within two clusters. Wetlands designated as protected areas, or located within the protected area network, is guided by the wildlife management planning framework. The framework in vogue is based on the 2004 Sawarkar guidelines for ‘planning wildlife management in protected areas and managed landscapes. The plans are structured in two sections, the first being an analysis of the existing situation in terms of ecological settings, history of management and present practices, and the situation in the zone of influence. Part two of the plan describes the proposed management in terms of vision, objectives and problems, management strategies, and interventions for monitoring, conservation education and ecotourism, ecodevelopment in peripheral areas and administration

of regulation. While the guidelines call for specific attention to wetland characteristics when being applied to wetlands, in reality, the management plans rarely refer to hydrological regimes and catchment influences. The institutional arrangements are primarily driven by wildlife management concerns, with the forest and wildlife department in the central role.

For various reasons, Keoladeo has become a role model for the management of most wetland protected areas. Creating stagnant pools of water, earthen mounds to enable birds to perch, plantation, installing bird watching facilities (such as bird hides, watchtowers, nature trails and walkways) are almost standard interventions in wetland protected areas across the country. Such management interventions may not always yield the desired results. An example can be seen in Nawabganj (near Lucknow, Uttar Pradesh, which is in the process of being designated as Ramsar Site), wherein alteration of the landscape by creating mounds and tree plantation led to a decline in the number of waterbird sightings.

Elsewhere, lack of consideration of hydrological regime interactions has proven to be counterproductive. In Keibul Lamjao National Park (Loktak, Manipur), while the numbers of brow-antlered deer have gone up due to the control of poaching, the habitat has considerably shrunk on account of the regulation of fluctuating water regimes for hydropower production.

The second category of management plans are those formulated as per guidelines of national wetland programme (NPCA or the National Plan for Conservation of Aquatic Ecosystems) of the MoEFCC. The programme encourages site management to be based on integrated plans, developed based on the diagnostic evaluation of wetlands features and threats, and covering interventions within the entire river basin or coastal zone. Such management plans have been prepared for Loktak, Chilika, Ashtamudi, Sasthamkotta, Harike, Wular and some other wetlands. Implementation of these plans entail interventions across multiple sectors and leveraging funds from ongoing schemes of the central and state governments. While the initial design was to fund an annual action plan linked with the long term plan, in reality, this coordination has seldom been achieved. Monitoring is mostly limited to activities, and the impact of management interventions on wetland condition is seldom known or assessed.

A management effectiveness evaluation of seven Ramsar Sites conducted by Wetlands International South Asia sheds light on this issue. Most of the site management scored low on management inputs (in terms of allocating human and financial resources) and processes (workplan development, inter-sectoral coordination, communication), resulting in limited outputs (completion of specific activities) and very limited outcomes (realizing actual positive change in wetlands condition or reduction in adverse threat or wetlands).

Presently, several important Ramsar Sites, such as Sambhar, Kolleru, East Ctalcutta and Deepor do not have an approved management plan. Revision of management plans is in progress for Point Calimere, Bhitarkanika, Upper Ganga and the Sunderbans. The multiplicity of guidelines for management planning also complicates matters for wetlands managers. There is an urgent need to harmonize guidelines (particularly the PA framework and the NPCA framework) and use a single point of reference for management of all wetlands.

Consistent financing of management actions remains an area of concern. While most of the approved protected area management plan receive funding support under the MoEFCC's Integrated Development of Wildlife Habitat scheme, funding for other wetlands has been erratic. In several cases, the activities for which funding is provided does not address the root cause of wetland degradation and thus produces no or very limited positive improvement in wetland condition.

For effectively conserving biodiversity, site-based planning may not be enough. For long distant migrants, conservation approaches may need to operate at a larger scale, such as migratory flyways (for waterbirds migrating along a migratory route) or even swimways (for fish) and corridors for range migrant mammals.

Most of the Ramsar sites face intense development pressures. These range from solid waste dumping (Deepor and East Calcutta Wetlands), flow regime alteration (Ashtamudi, Sasthakotta, Vembanad, Nalsarovar, Sambhar, Bhitarkanika, Point Calimere), aquaculture (Kolleru, Loktak), pollution (Harike, Kanjli, Renuka), land-use change (Rudrasagar, Loktak), unsustainable tourism (Chilika) and spread of invasives (Harike, Kanjli).

Replication of Bharatpur's habitat has not always led to increased waterbird numbers. This has been the case for Nawabganj, Uttar Pradesh

East Calcatta Wetlands were recognized as a wise use case even before its designation as a Ramsar Site

Wetlands International South Asia is working with several state governments on formulating integrated management plans. Yet, it is the systematic implementation of plans which needs urgent attention.

MONTREUX RECORD. Several Ramsar Sites are undergoing or have already undergone an adverse change in their ecological character. To bring priority attention to such sites, the Ramsar Convention maintains a list, in the form of Montreux Record (MR). Ramsar Sites are added to the MR at the request of the Contracting Parties, and the Secretariat may support the Contracting Party in addressing the threat by organizing a Ramsar Advisory Mission. The Mission, comprising wetlands experts, renders formal advice to the Contracting Parties on specific interventions required to rehabilitate wetlands.

India has thus far placed three wetlands on the Record, namely Keoladeo National Park (in 1990), and Chilika and Loktak in 1993. Two Ramsar Advisory Missions have been held for these sites (for Keoladeo in 1990; and Chilika in 2001).

Chilika was removed from MR in 2001 after the Advisory Mission recommended so, having taken into cognizance the efforts made by Chilika Development Authority in addressing wetlands degradation by reconnecting the lagoon to the sea, and putting in place a basin-wide integrated management and monitoring programme. Keoladeo and Loktak have continued to persist on the List for over three decades now. In the case of Keoladeo, the threat of invasion by Prosopis has been handled well through a comprehensive eradication programme taken up during 2000-2005. Issues related to the management of the grazing regime have also been handled reasonably. In 2017, the Park Authority organized a consultation meeting to revise the management plan for the Ramsar Site, and the issue of initiating a process for removal of Ramsar Site from Montreux Record. Wetlands International South Asia is working with the Forest Department to prepare the necessary documentation. However, no such process or discussion is underway for Loktak.

The core idea behind the creation of MR was to trigger priority action (in the form of management intervention) for addressing the degradation of a Ramsar Site. In reality, the use of MR as a mechanism has been on a decline. At the time of writing this article, 49 wetlands were listed by Contracting Parties on the Record, from a total of 82 wetlands included since the mechanism was introduced in 1990. The number of additions seems to have peaked during the 1990-1995 period. Of the 65 wetlands added then, 34 still continue to be on the MR at present. Since 1995, only 11 wetlands have been added to the Record, and since 2010, only one addition has taken place and two deletions. Asia and Oceania region, where many wetlands are in decline, have placed fewer wetlands on the Record.

In general, it appears that MR may have been interpreted as a 'naming and shaming' mechanism, rather than once incentivizing proactive action for addressing wetlands degradation. The case of Chilika stands out in this context, as the then Government of Odisha, used the MR listing as a rallying point for taking up wetland restoration measures. The value of MR as a governance tool needs reinvigoration and realignment with amore targeted implementation of the Convention.

MONITORING WETLANDS BIODIVERSITY AND ECOSYSTEM HEALTH. An important commitment linked with the designation of Ramsar Sites is to keep a tab on their ecological character by updating Ramsar Information sheet once every six years. This has been a challenge globally. Fortunately, the long-pending task of updating Ramsar Information Sheet for 25 of the 27 Ramsar Sites has been taken up by the Ministry in the last three years.

Monitoring systems for assessing wetlands biodiversity and ecosystem health remain the Achilles Heel of the national wetland programme. In fact, monitoring of wetlands, barring a couple of sites as Chilika and Bharatpur, is mostly done on an ad-hoc basis. Wherever biodiversity monitoring is done, it is largely confined to reporting presence or absence of taxa in the form of checklists. In several coastal Ramsar Sites wherein Wetlands International South Asia has worked in the last two decades, there has been a considerable reduction in recording of freshwater species as the ecosystem is progressing towards high salinity conditions. In the absence of a well-defined monitoring system, such changes go unnoticed for a long time.

Chilika has been a forerunner in introducing new management tools in the country, including bringing on board an ecosystem health report card system. Using a set of ecological and hydrological indicators, the CDA biennially conducts ecosystem health assessment in simple categories ranging from A+ (very good health) to F (very poor health). The tool is increasingly being improvised. The ecosystem health report card for Bhitarkanika, for example, also considers socioeconomic and governance variables. The MoEFCC recently piloted a light version of ecosystem health card in 130 wetlands and was able to zero down on sites requiring urgent management intervention by mapping ecosystem health scores with threat scores. Four Ramsar Sites (Sambhar, Harike, Kolleru and Rudrasagar) have ended up being on the list of wetlands needing urgent attention.

What is also needed is to make the current information on wetlands taxa more systematic and updated. The Zoological Survey of India and the Botanical Survey of India are a repository of information on plant and animal species, which needs to be compiled and made available in an easily accessible manner to researchers and managers. Citizen Science Initiatives such as Asian Waterbird Census Programme (now running for 30 years) have been recording January waterbird counts for various wetlands and has been an important tool not only for monitoring counts but also for promoting awareness on wetlands values. More recently, platforms like e-Bird have emerged as tools for converting count data into species distribution models and beyond. Such citizen science programmes can add much value to the site monitoring programmes.

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Chilika was delisted from Montreux Record after successful hydrological and ecological restoration

In the recent times, much emphasis has been laid on using Essential Biodiversity Variables (EBVs) as a putative set of parameters intended to be the minimum set of broadly agreed upon necessary and sufficient biodiversity variables for monitoring, researching and forecasting biodiversity. Alongside structural elements, these variables also capture species traits, community composition, ecosystem structure and function. Policy and decision making for wetlands biodiversity may be enriched by developing a monitoring framework along the lines of EBVs for Ramsar Sites.

The Government of India has just sanctioned a high-level national mission on biodiversity. This mission will involve a comprehensive documentation of India's biodiversity with the potential for cataloguing and mapping all life forms in India including associated cultural and traditional practices; assessment of the distribution and conservation status of India's biodiversity; development of a cadre of professionals adept at handling large sets of environmental data for management and monitoring of biodiversity; and expansion of knowledge in ecosystem functioning that will inform restoration efforts. The mission can be an important opportunity to systematize information on wetlands biodiversity, including that of Ramsar Sites.

POLICY FRAMEWORKS FOR CONSERVING WETLANDS AND THEIR BIODIVERSITY. India's ratification of Ramsar Convention in 1982, and the establishment of MoEF&CC (the then MoEF) in 1985 formed the backdrop of institutionalization of a national programming framework for wetlands, as well as the articulation of key policy elements within the national environment policy.

It is but natural that wetlands conservation policy and programming as we see today in India drew its roots from the recognition of their roles as waterbird habitats, drawing in parts from waterbird centric-wetlands conservation movements in Europe and North America. A national wetlands programme to support state governments in implementing integrated management plans was established in 1986, the programme currently known as NPCA.

The National Environment Policy of 2006 identifies wetlands as components of 'freshwater resources', and the recommended policy actions for wetlands conservation include integration in developmental planning, management based on prudent use strategies, promotion of ecotourism, and implementation of a regulatory framework.The National Biodiversity Action Plan (2014 Addendum to 2008 Plan) recommends the integration of wetlands in river basin management within 'in-situ' biodiversity conservation strategies. The policy also envisages the development of a regulatory regime. This articulation is similar to the emphasis on regulatory regimes for wetlands placed in National Environment Policy (2006). India's third wildlife action plan for 2017-2031 encourages landscape approach for wildlife conservation. It includes a specific chapter on 'conservation of inland aquatic ecosystems'. Key actions include 'identification of ecologically significant biodiversity safe zones and strengthening inland wetlands protected area network' and 'establishing a national wetlands mission'. Development of a national wetland biodiversity register is also envisaged. Similarly, the conservation of coastal and marine ecosystems includes actions for the conservation of mangroves, salt marsh and coral reef habitats.

India is located at the heart of Central Asian Flyway. Nearly 71% of the migratory waterbirds of the CAF use India as a stopover site. Sustaining the health of Indian wetlands is thus crucial for maintaining the waterbird populations within the Flyway. In 2018, the MoEFCC adopted a National Action Plan for Conservation of Migratory Waterbirds and their Habitats along the Central Asian Flyway. Its long-term goal is to arrest population decline and secure habitats of migratory bird species. In the short-term, the action plan seeks to halt the downward trends in declining meta-populations and maintain stable or increasing trends for healthy populations by 2027.

While the environment sector policies envisage integration of wetlands conservation in river basin management as well as developmental planning, the articulation in sectoral policies is not that strong. The National Water Policy (2012) recommends adoption of a basin approach for water resources management and identifies conservation of river corridors, water bodies and associated ecosystems as an essential action area. However, the value of wetlands as an important source of water, and as a sink for sediments and nutrients is very understated. The rampant loss of wetlands that the country has witnessed in the last four decades is seldom seen as a water security threat. The National Agriculture Policy does not make a reference to wetlands at all.

Wetlands receive protection from several rules. Wetlands (Conservation and Management) Rules, 2017 was notified under Environment (Protection) Act as the national regulatory framework for wetlands. As per the provisions of these Rules, State Wetlands Authorities have been constituted as the primary policy and regulatory bodies within the Rule. All Ramsar Sites need to be notified following a due process which includes placing a map in public domain, and enlisting prohibited, regulated and permitted activities. Till date, no wetland has been notified under the Rules.

One of the major regulatory gaps that is often exploited for degrading and encroaching upon wetlands is the lack of recognition of wetlands as a distinct land use category. Wetlands are mostly clubbed within the wasteland category, thus opening avenues for their conversion. The state of Uttar Pradesh has made a novel attempt of identifying over 0.1 million wetlands and recording them within the land-use records. There is an urgent need to emulate this example, as several

wetlands located outside the protected area network have private rights. In Loktak Lake, for example, much of the shoreline area is under private rights, and thus conversion of natural marshes into fish farms is rampant.

Lately, it is the judiciary that has been calling for increased accountability of the governments towards ensuring conserving wetlands, including wetlands designated as Ramsar Sites. The Supreme Court has on several occasions expressed displeasure on the limited progress made in notifying wetlands, and has requested State High Courts to monitor progress made in conserving Ramsar Sites.

IN CONCLUSION. For India, conservation of its biodiversity is crucial not only because it provides several goods and services necessary for human survival but also because it is directly linked with sustainable development. The crisis of biodiversity loss has been reiterated by several recent assessments, with dependent wetland species being at most risk. Concerted global action is required to halt and reverse the loss of global biodiversity. The Ramsar List makes an important contribution towards this cause. By designating wetlands to the international List, India is making her valuable contribution as a megadiverse country to this global goal. Sustaining and expanding this List is a virtuous goal and needs a strong policy and programming support. Future expansion of the List may consider the representativeness of wetlands types, as well as biogeographic balance. Consideration may also be given to life-cycle needs of species. A new site added to the List should also be viable, both in terms of ecological condition (by meeting Ramsar criteria on a continuous basis) and management arrangements.

It is also true that the designation to the Ramsar List is only a stepping stone, and to realize actual change, the Ramsar Sites need to be managed to achieve their wise use, encapsulating the objectives of preservation, protection, conservation and sustainable use. One would expect the management of Ramsar sites to be role model for other wetlands. Sadly, this is not the case. The quality and effectiveness of management is far from desired. There is limited evidence of good governance arrangements being put in place for these wetlands, and financing remains a cause of concern. The fact that it has taken, recently, the outbreak of avian botulism and deaths of a massive number of waterbirds at Sambhar, to highlight the rapidly worsening situation of the Ramsar Site is a telling tale on the state of affairs. The case of Sambhar is definitely not an isolated one.

Wetlands such as Khijadiya (Gujarat) fulfil several criteria of Ramsar Site designation

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