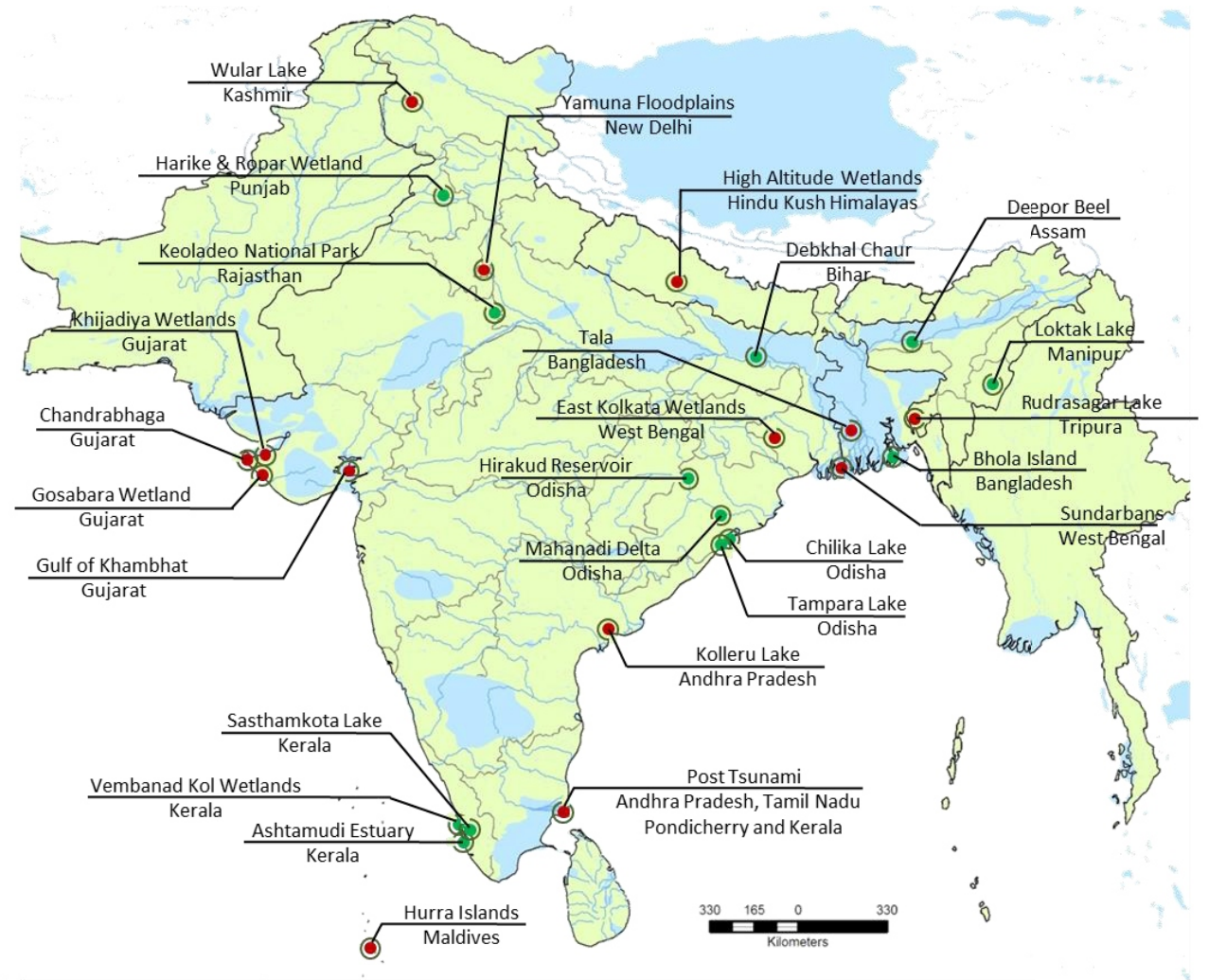
Wetlands International South Asia

# Annual Report 2017 - 18

Wetlands INTERNATIONAL

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# Wetlands International South Asia

# Annual Report

## 2017 – 18

Wetlands International South Asia

# Wetlands International South Asia

Wetlands International South Asia is a non-government organisation working for sustaining and restoring wetlands, their resources and biodiversity in the South Asia region. Its office in New Delhi (India) was established in 1996 as a part of the Wetlands International network. Wetlands International is a global, independent, non-profit organisation dedicated to conservation and restoration of wetlands, and presently works in over 100 countries through a network of 18 regional and national offices and expert networks headquartered in The Netherlands. Wetlands International is also one of the five International Organisation Partners of the Ramsar Convention. In 2005, Wetlands International South Asia was registered under the Societies Registration Act of Government of India (retaining remit of South Asia region), consequently gaining an Indian legal entity while subscribing to the goals and targets of the Wetlands International network.

Wetlands International South Asia works for wetland conservation in ways which relate to the nature of wetlands as ecosystems, and the wider biophysical and social contexts in which they are placed and function. The organisation, since its inception, has focused on promoting conservation and wise use of wetlands based on a diagnostic assessment of wetland features and their influencing factors. The organisation endeavours to use a mix of approaches including technical knowledge, policy dialogue and field demonstrations for addressing various issues related to wetland management.

To leverage change, the organisation works with national and state governments, knowledge centres, civil society as well as the private sector, often acting as catalysts to enable joined up actions. Specific knowledge, tools and pilot projects help us achieve change. Given that securing a positive change in the status of wetlands and linked livelihoods takes considerable time, the organisation works for long-term engagement, forging strategic and innovative partnerships.

A multidisciplinary team within the organisation and expert network enable providing evidence-based scientific and technical advice to central and state governments, wetland authorities, and civil society on various aspects of wetland management. The projects implemented have covered the following wide-ranging elements, designed and delivered in partnership with central government ministries, state government departments and agencies, wetland management authorities, civil society and research organisations:

- **management planning** for ecosystem restoration and wise use
- **design and establishment** of integrated inventory, assessment and monitoring system for supporting adaptive management
- **valuation of ecosystem services and biodiversity** to support mainstreaming in developmental programming
- **environmental flow assessment** for maintaining ecosystem functioning while allocating water for developmental purposes
- **conservation of critical habitats of wetland-dependent species**, particularly migratory waterbirds and fish
- **capacity building** for integrated wetland management
- **institutional development** for cross-sectoral governance
- **policy formulation support and advocacy** for conservation and wise use
- community-led ecosystem-based approaches for disaster risk reduction
- **communication, education and public awareness**

Presently, Dr Sidharth Kaul (former Advisor, Wetlands, Ministry of Environment, Forest and Climate Change) is the President of the Society. Dr Ajit Pattnaik (former Principal Chief Conservation of Forests, Forest and Environment Department, Government of Odisha) is the Vice President. Dr J. K. Garg (Professor of Aquatic Ecosystems at the Guru Gobind Singh Indraprastha University) is the Honorary Treasurer of the Society.

The Governing Body comprises the Office Bearers, three members elected by the General Body and Chief Executive Officer, Wetlands International Head Quarters. Dr C.K. Varshney (Professor Emeritus, Environmental Sciences, Jawaharlal Nehru University), Dr E. J. James (Professor Emeritus, Karunya University) and Dr Asad Rahmani (former Director, Bombay Natural History Society) serve as elected members of the General Body. Ms Jane Madgwick, CEO, Wetlands International represents Wetlands International Headquarters on the Governing Body.

# President's Message

The degradation of wetlands and their resources is a global concern. Urgent efforts are required to restore the balance between wetlands, water use and human well-being through appropriate management and sustainable use of resources. Wetlands International South Asia Society was established to sustain and restore wetlands, their resources and biodiversity. Our mission is to conserve wetlands not only within India but the entire South Asian region. It is a privilege for me to present the Annual Report of Wetlands International South Asia Society for the year 2017-18.

A new management team was put in place in July 2017 after Society elections. We have initiated a number of activities this year with the intent of giving new directions to our wetlands conservation ethos. A Project Advisory Committee was constituted to provide strength to technical issues and enhance the visibility of society. The professional team in the organisation has been expanded. We have also followed up on wetlands management plans formulated by Wetlands International South Asia for different states, implementation of which is yet to be initiated. We have tried to bridge the gaps by holding discussions with state authorities. The work has been taken up in one state during the year, which will be expanded after getting the desired results so that execution of these management plans is fruitful and result oriented.

For the first time, we celebrated World Wetlands Day independently along with other national events. A memorandum of understanding with Ramsar Regional Center East Asia is being developed to aid capacity development of wetlands managers within South Asian countries. We are also in touch with the International Lake Environment Committee (Japan) to establish a common platform for wetlands managers of South Asia to share experiences, best practices and support capacity development. A dialogue with the Government of Bhutan for working on conservation of high altitude wetlands and other wetlands conservation aspects has also been initiated. We have developed wetland management modules to train people in this field. We are also bringing a booklet on wetland conservation ethos to make common people aware of the values and benefits of wetlands and how an individual can contribute to conservation of these ecosystems.

We are providing technical support to the Ministry of Environment, Forest and Climate Change in meeting Ramsar Convention commitments, particularly updating of Ramsar Information Sheets using the new electronic platform. We have also launched an assessment of the status of trends of urban wetlands and shall be shortly coming out with a position paper on crucial wetlands and sectors that need to be addressed to conserve these precious ecosystems effectively. The Kerala floods which have inflicted widespread damage to human life and infrastructure in August 2018, are a grim reminder of the implications of degrading natural buffers of the landscape. Through management plans, policy-centric knowledgebase, and engagement with central and state governments, we shall continue to promote recognition of the full range of wetlands ecosystem services and biodiversity values in development planning and decision-making

I take this opportunity to thank the office bearers, members of the Governing Body and the General Body for their insights, wisdom and innovative thoughts in providing new energy and direction to the task ahead. I also thank our technical and administrative staff for their commitment and hard work.

September 16, 2018
New Delhi

Dr. Sidharth Kaul

# Contents



# Abbreviations

| | |
|---|---|
| AWC | Asian Waterbird Census |
| BNHS | Bombay Natural History Society |
| CAF | Central Asian Flyway |
| CCA | Climate Change Adaptation |
| CSO | Civil Society Organisation |
| CWRDM | Centre for Water Resources Development and Management |
| DDMP | District Disaster Management Plans |
| DEM | Digital Elevation Model |
| DORP | Development Organisation of the Rural Poor |
| DRR | Disaster Risk Reduction |
| EMR | Ecosystem Management and Restoration |
| ESSVA | Ecosystem Services Shared Value Assessment Tool |
| GEF | Global Environment Facility |
| GIDM | Gujarat Institute of Disaster Management |
| GIS | Geographic Information System |
| GPDP | Gram Panchayat Development Plans |
| INTACH | Indian National Trust for Art and Cultural Heritage |
| ILEC | International Lake Environment Committee |
| IRM | Integrated Risk Management |
| IUCN | International Union for Conservation of Nature |
| IWRM | Integrated Water Resource Management |
| METT | Management Effectiveness Tracking Tool |
| MNDWI | Modified Normalized Difference Water Index |
| MoEFCC | Ministry of Environment, Forest and Climate Change |
| MoU | Memorandum of Understanding |
| NDMA | National Disaster Management Authority |
| NDVI | Normalized Difference Vegetation Index |
| NDWI | Normalized Difference Water Index |
| NGO | Non-Government Organisation |
| PfR | Partners for Resilience |
| RIS | Ramsar Information Sheet |
| RRCEA | Ramsar Regional Center East Asia |
| SACEP | South Asia Co-operative Environment Programme |
| SFA | Sendai Framework of Action |
| WASH | Water Sanitation and Hygiene |

# Executive Summary

Wetlands International South Asia has a mission to sustain and restore wetlands, their resources and biodiversity. The technical programmes are guided by South Asia Regional Strategy 2015-2025, organised under four workstreams (healthy wetland nature, replenished water stores from mountains to the sea, vibrant coasts and deltas, and safeguarding peatland treasures). Implementation of technical programme contributed to one or more of the seven regional targets set under these workstreams.

### Healthy wetland nature

- Management effectiveness tracking was done for seven Ramsar sites which have received considerable funding support over the last decades. Barring Chilika, the remaining six wetlands scored very low to moderate effectiveness scores primarily on account of limitations in design and implementation of management plans and inadequate monitoring of ecosystem health.
- In January 2018, volunteers of Asian Waterbird Census conducted counts at 200 wetlands. During the preceding three years, 125 wetlands were reported to have 20,000 waterbirds or over 1% of the recorded biogeographical population of single waterbird species.
- Ramsar site managers of 14 states were imparted training on updating Ramsar Information Sheets using the new electronic platform of the Ramsar Convention. 10 of the 26 Ramsar Sites have since updated their maps and Ramsar Information Sheets.
- At the behest of MoEFCC, an evaluation of the management of Keoladeo National Park was initiated to assess the degree to which the threats leading to the site's inclusion in Montreux Record were addressed.
- Conducted a training workshop for managers of five wetlands (identified as national priority by MoEFCC including three Ramsar Sites) of Himachal Pradesh.
- Revised existing training modules for integrated wetland management to support capacity development of wetland managers.
- Contributed to the drafting of National Action Plan for conserving waterbirds and their habitats within the Central Asian Flyway.

### Replenished water stores from mountains to the sea

- Finalised management actions plans for two Ramsar Sites within River Kallada Basin, Sasthamkotta and Ashtamudi. The plans were endorsed by State Wetlands Authority Kerala and MoEFCC for implementation.
- Conducted an assessment of the status of WASH services within Debkhal Chaur, North Bihar. Shrinking inundation regimes and rapid increase in groundwater abstraction in the last two decades have limited the effectiveness of WASH services in the wetland basin.
- On World Wetlands Day, February 2, 2018, organised a seminar on Wetlands for Sustainable Urban Future. Justice Swatanter Kumar, former Chairperson, National Green Tribunal delivered the keynote address and released two posters prepared on the World Wetlands Day theme.
- Initiated an assessment of status and trends in urban wetlands of India. Data from 22 cities indicated that for every one square kilometer increase in built-up area, 25 hectares of wetlands were lost. Concept proposal on organizing a round table meeting on wetlands of National Capital Region was drafted.
- Under the Partners for Resilience programme, supported formulation of village level disaster risk reduction plans in 23 Gram Panchayats in pilot landscapes within Gujarat, Uttarakhand and Bihar.

### Vibrant coasts and deltas

- Initiated an assessment of the status of wetlands in Mahanadi Delta. Using 2017 Sentinel images, 0.18 Mha wetlands were mapped.
- Demonstrated ecosystem services shared values assessment in Tampara, a freshwater wetland in Rishikulya Basin. 19 provisioning, regulating and cultural ecosystem services were evaluated by upstream and downstream communities.
- Mapped extent of wetlands in Bhola Island, Bangladesh. Through a sectoral policy analysis, identified opportunities for promoting wetlands conservation within

water and WASH sector policies and programmes.

### Organisational development and governance

- Elections for the positions of Office Bearers (President, Vice President and Treasurer) and three positions of Governing Body were held. Elected Office Bearers - Dr Sidharth Kaul (President), Dr Ajit Pattnaik (Vice President) and Dr J. K. Garg (Treasurer); and Governing Body members - Dr C. K. Varshney, Dr E. J. James and Dr Asad Rahmani took charge of office on July 16, 2017.
- The Tenth Annual General Body meeting was held on July 14, 2017, wherein the Annual Report and Audited Financial Statements for 2016 - 17 were approved.
- A Project Advisory Committee has been constituted to provide peer-review support to ongoing projects, as well as projects under conceptualisation. In the two meetings of the Committee held during the year, management plans for Ramsar Sites of Kerala were reviewed.
- An outreach publication 'Wetlands Conservation: Ethos' covering various dimensions of conservation and management of wetlands (including misuse of term wetlands) drafted for publishing in 2018.
- The reorganised website of Wetlands International South Asia was launched in November 2017. A calendar on Ramsar Sites of India was published.
- For enhancing regional presence, dialogue with International Lake Environment Committee (Japan) and Ramsar Regional Center East Asia (South Korea) was initiated. A side event on wetlands of South Asia will be held at Ramsar COP 13, Dubai.
- Two new staff (Technical Officer – Ecology and Technical Officer – Socioeconomics) were recruited.

### Finances

- During April 2017 – March 2018, a total income of Rs. 31.50 million was received in the form of project grants (Rs. 28.58 million) and interest on reserves. Against this, an expenditure of Rs. 19.19 million was incurred towards projects activities, staff salaries and organisational overheads. On a net, a surplus of Rs.12.31 million was accrued.
- The total reserves at the end of the financial year stood at Rs. 42.33 million, which is an increase of Rs. 12.27 million over the last year.

# Programme Overview 2017-18

Wetlands International South Asia has a mission to sustain and restore wetlands, their resources and biodiversity. The following goal statement of the organisation brings to fore the importance of wetlands in supporting societal well-being:

> Wetlands are wisely used and restored for the role they play in improving human well-being and local livelihoods, conserving biodiversity, sustaining the water cycle and reducing climate change and impacts.

In July 2016, the Governing Body of Wetlands International South Asia approved the South Asia Regional Strategy 2015 - 2025 as a guide to the development of technical programmes. Four workstreams (healthy wetland nature, vibrant coasts and deltas, replenished water stores from mountains to the sea, and safeguarding peatland treasures) and eight regional targets have been set as pathways to achieving the organisation's mission and goal. The technical programmes are designed around one or several of the intervention strategies, namely, mobilising best available expertise and knowledge, raising awareness on crucial issues, enabling society to take action, and influencing policy and practice.

This section of the annual report presents an overview of activities and achievements of Wetlands International South Asia during the period April 2017 – March 2018 under the three workstreams taken up for implementation.

| Workstream | Regional targets for 2015-2025 | Geographical Focus of work during the year |
|---|---|---|
| Healthy Wetland Nature | 1: Improved status of wetland biodiversity in 8 sites in South Asia (including two sites located in urban landscapes) | 10 Ramsar Sites of India |
| | 2: Asian Waterbird Census (AWC) strengthened as an information base on the status of migratory waterbirds within Central Asian Flyway | South Asia |
| | 3: Implementation of national targets and international commitments related to wetland restoration tracked for two countries in South Asia to promote improved national policy-making and governance | India and Bangladesh |
| | 4: One national scale capacity building programme for wetland managers established | Himachal Pradesh |
| Replenished Water Stores from Mountains to the Sea | 5: In 3 basins, implementation of water resources plans and projects safeguard and restore wetland functioning to reduce water risks | River Kallada Basin (Kerala) |
| | 6: In 2 landscapes, WASH planning and governance takes into account the role of wetlands resulting in enhanced access to environmentally sustainable water and sanitation solutions | North Bihar floodplains and Mahanadi Basin |
| Vibrant Coasts and Deltas | 7: In 3 deltas and coastal landscapes of South Asia, wetland restoration is linked in coastal zone planning leading to improved livelihood resilience of dependent communities | Mahanadi Delta (Odisha) |

## Workstream I: Healthy wetland nature

The aim of work under this workstream is to halt and reverse the loss of wetland habitats, sites and species. The four regional targets under the workstream relate to the improved status of wetland biodiversity in selected sites, the establishment of national scale capacity building programme, strengthening information base on the status of migratory waterbirds and tracking implementation of national targets and international commitments related to wetland restoration to promote improved national policy-making and governance.

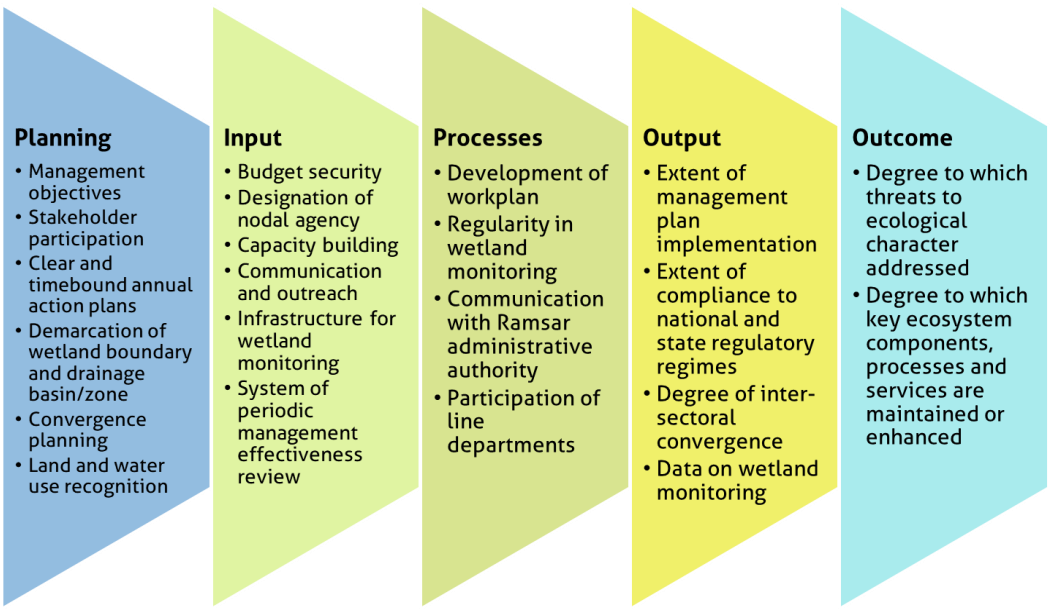
### Management effectiveness tracking

Having a system to describe, monitor and detect changes in ecological character is critical to support decision making for the wise use of wetlands. Equally important is to be able to assess the effectiveness of management in terms of ability to develop and implement integrated planning, management and evaluation system to secure wise use of the wetland. The absence of such a tool often leads to continued sub-critical investment in wetlands management which does not lead to tangible improvement in ecosystem state, reduction in pressures, or maintenance or improvement of wetlands ecosystem services. A pilot project on tracking management effectiveness of Ramsar Sites is, therefore, being implemented as a decision-support tool for wetlands managers and policymakers.

Management effectiveness tracking tool was adapted from the IUCN World Commission on Protected Areas Framework and Ramsar Site Management Effectiveness Tracking Tool (R-METT) developed by Ramsar Convention. Thirty-four key variable corresponding to five stages of management (refer Figure) linked with a 4-point Likert scale were used for assessment.

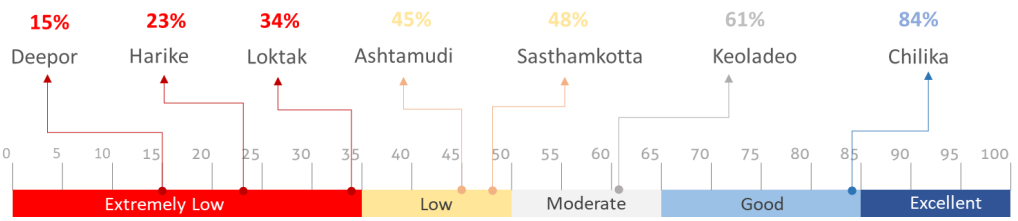
The tool was applied to seven Indian Ramsar Sites – Ashtamudi, Loktak, Chilika, Deepor, Harike, Keoladeo National Park and Sasthamkotta to evaluate how effective their management has been since the time of their designation. To characterize the wetlands, ecological character baseline and status and trends were developed, data on activities implemented compiled, along with information on outcomes.

The results indicate Deepor, Harike and Loktak faring extremely low in management effectiveness, Ashtamudi and Sasthamkotta doing better than the three and Chilika and Keoladeo having the most effective management amongst those assessed.




Management Effectiveness Tracking Parameters

| | Ashtamudi | Sasthamkotta | Deepor | Harike | Chilika | Keoladeo | Loktak |
|---|---|---|---|---|---|---|---|
| Planning | 67% | 67% | 21% | 33% | 83% | 50% | 54% |
| Input | 58% | 58% | 13% | 17% | 79% | 67% | 46% |
| Process | 40% | 40% | 27% | 20% | 93% | 60% | 27% |
| Output | 42% | 50% | 17% | 33% | 83% | 58% | 25% |
| Outcome | 20% | 27% | 0% | 13% | 80% | 67% | 20% |




A synoptic view of Management Effectiveness Scores of Ramsar Sites

Deepor does not continue to meet the criteria for Ramsar Site designation, no threats to its ecological character have been addressed till date and neither of its ecosystem components, processes and services have been maintained or enhanced as an outcome of management (valid for Ashtamudi, Sasthamkotta, Harike and Loktak as well). In the case of Harike, Ramsar site designation criteria continue to meet but with low degree of confidence. For Ashtamudi, Sasthamkotta and Loktak, the designation criteria are met with medium degree of confidence. While for Chilika and Keoladeo Nationa Park the designation criteria continue to meet at high degree of confidence.

By the close of 2018, the full assessment shall be published and made available to wetlands managers and the Ministry for further action at their end. A dissemination workshop has also been planned in early 2019.

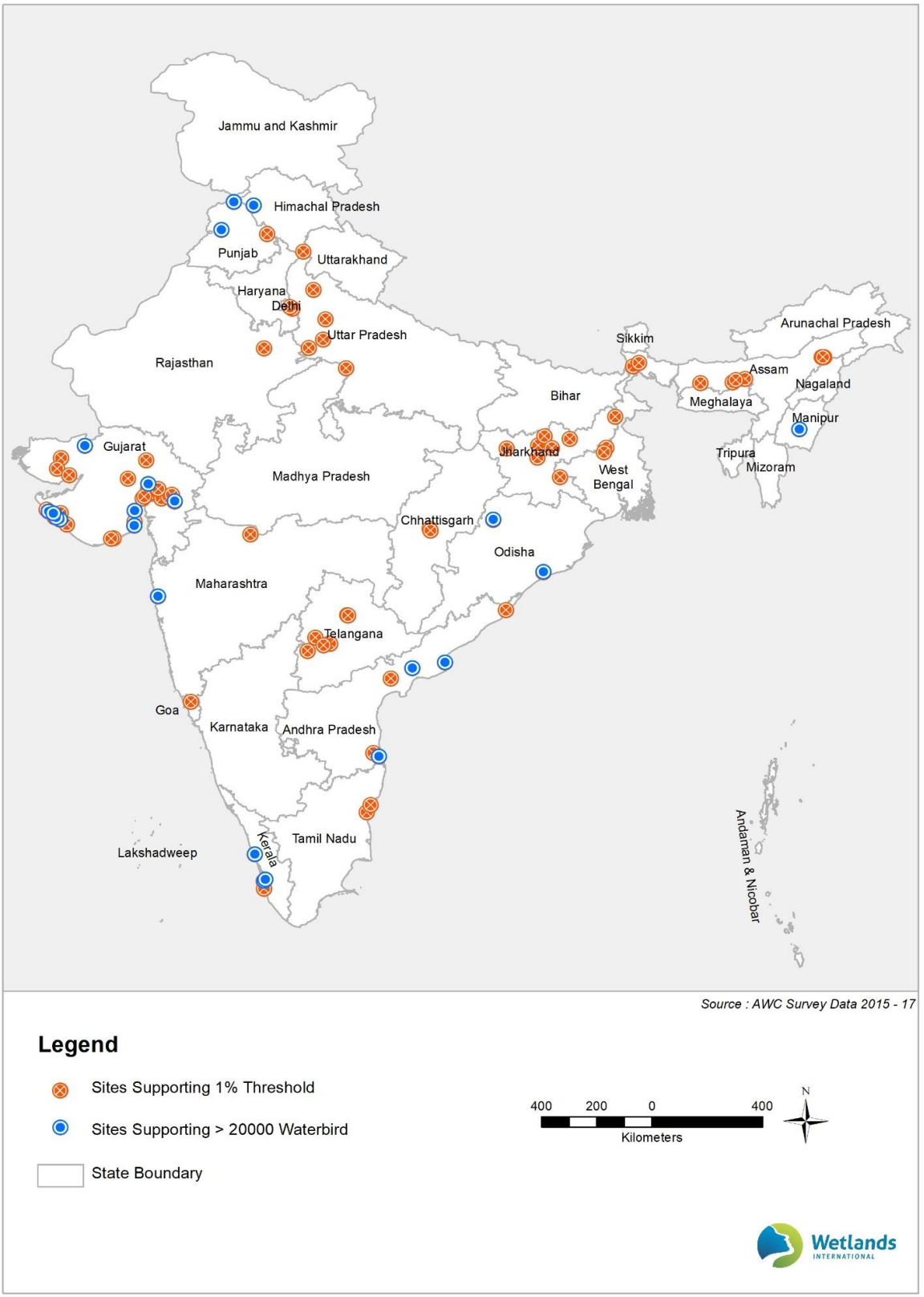
## Enhancing reach of Asian Waterbird Census

The Central Asian Flyway (CAF), one of the nine migratory waterbird flyways in the world, encompasses overlapping migration routes linking their northernmost breeding grounds in Russia (Siberia) to the southernmost non-breeding (wintering) grounds in West and South Asia, the Maldives and British Indian Ocean Territory. Over 90% of bird species using this migratory route stopover in India. The Asian Waterbird Census, a citizen science initiative, has been collating and disseminating information on mid-winter counts of waterbirds since 1987 in the South Asia region.

The network of AWC volunteers conducted mid-winter census in over 200 wetlands in January 2018. In the preceding three year period, 2015-17, counts were held in 820 wetlands. At least 5.1 million birds were sighted, of which 96% were waterbirds (of 173 species).

In 25 wetlands, more than 20,000 waterbirds were sighted in atleast one year. In 16 of these wetlands, more than 20,000 individuals of a single species were recorded. More than 1% biogeographical population of at least one waterbird species was recorded at 125 wetlands. In Chilika, the 1% population threshold was met for as many as 27 species. In Coringa Wildlife Sanctuary, Kolleru, Mokar Sagar Wetland Complex, Nadabet, Pong Dam, Kole, Hirakud and Harike, the 1% threshold was exceeded by atleast eight species.

The adjoining map indicates locations of wetlands wherein the counts exceeded the two thresholds (more than 20,000 waterbirds, or more than 1% biogeographical population of atleast one waterbird species) during 2015-17. The list includes nine Ramsar Sites.




Wetlands at which > 20,000 waterbirds or > 1% biogeographic population of a single species were recorded during mid-winter counts of 2015 - 17


Participants of Asian Waterbird Census conducting counts in wetlands along River Mahanadi in Odisha

Of the species recorded in the last three years counts, 16% are placed under the IUCN Red List of Threatened Species. More than 1% population of the Baer's Pochard *Aythya baeri* (critically endangered) were observed at least once from three sites of Assam (Deepor Beel, Jalal Beel and Rowmari ) and two of Chhattisgarh (Kurud and Sendha tanks). More than 1% population of Greater Adjutant *Leptoptilos dubius* (endangered) were recorded from five wetlands in Assam (Deepor Beel, Digholi Beel, Kokilamukh, Lachitpur Beel and Morasuti Beel).

Wetlands International South Asia shall continue strengthening the census programme in the coming periods, by increasing scope and coverage and drawing up status and trends in waterbirds in Indian wetlands for an effective policy response.

## Supporting delivery of Ramsar Convention

### Training on Updation of Ramsar Sheets

Towards the fulfilment of commitments to the Ramsar Convention, Ramsar Site Managers are expected to update the Ramsar Information Sheet every six years. The updated sheets are used to assess whether the ecological character of the Ramsar Site is changing adversely, particularly due to human-induced reasons. For the 26 Indian sites, the updates have been pending for as many as 25 sites, some for over three decades. In 2015, an electronic system of Ramsar Information Sheet updation was introduced, enhancing the technical rigour required to assess the change in the status of Ramsar Sites.

At the behest of MoEFCC, Wetlands International South Asia provided training to Ramsar Site managers of 14 states in a workshop held on January 24, 2018 at the Ministry. Participants were introduced to the Ramsar Site commitments, the process of online updation of the Ramsar Information Sheets and the preparation of digital maps. Since the meeting, handholding and technical support has been provided to the wetlands managers, and 10 sites now have updated RIS on the electronic platform.

### Montreux Record

The Ramsar Convention maintains the Montreux Record as a part of List of Wetlands Importance, to enlist sites which have undergone an adverse change in ecological character, and therefore need priority attention of the Contracting Party. India has placed three wetlands on the list thus far, namely Chilika (Odisha), Loktak (Manipur) and Keoladeo (Rajasthan). While Chilika was delisted from the Record in 2002 following a successful ecological restoration, the other two sites continue to languish.

Ramsar Site Managers alongwith Ramsar National Focal Point, Mr. A. K. Jain, Additional Secretary, MoEFCC at training workshop on RIS updation

Wetlands International South Asia raised the issue of taking priority action on these two sites under the Record, and conveying responses to the Ramsar Convention Secretariat. The Keoladeo National Park management organised a consultation workshop on management of the Ramsar Site on March 22, 2018. Wetlands International South Asia conducted a session on the Montreux Record processes and outlined a process for collation data to validate change in ecological character of the site. Support was provided to the park management to update the over 35 years old Ramsar Information Sheet and upload digital maps of the site boundary. Further, Wetlands International South Asia is developing an ecological character change assessment, as the first step towards preparing a status report for the Ramsar Convention. The report shall be finalised by the end of October 2018, following which the organisation shall liaise with the Government of Rajasthan and MoEFCC for submission of the information to Ramsar Secretariat for commissioning a Ramsar Advisory Mission.

### Participation in the Ramsar Asia Pre-Conference of Parties Meeting

As a precursor to the 2018 Conference of Parties meeting of the Ramsar Convention, the Asia Region Pre-Conference of Parties meeting was held in Chilaw, Sri Lanka during 26 February – 2 March 2018. Vice President and Conservation Programme Manager represented Wetlands International South Asia at the regional meeting. Deliberations included discussions on 26 Draft Resolutions submitted by the Contracting Parties for endorsement. Besides contributing extensively to revisions in draft resolutions, presentations on 'multiple values of wetlands' and 'management effectiveness tracking' were made by Wetlands International South Asia. Bilateral meetings were also held with national focal points of the South Asia region countries, and regional and International organisations as RRCEA (Ramsar Regional Center for East Asia, South Korea), SACEP (South Asia Co-operative Environment Programme) and IWMI (International Water Management Institute). Contacts and decisions made during the meeting are being followed up in the form of MoUs and joint project development.

Keoladeo National Park faces shortages of water which has affected waterbird habitats

## National Action Plan for Central Asian Flyway

In 2005, Wetlands International had supported organisation of a meeting of range countries to endorse the proposed Central Asian Flyway Action Plan to conserve migratory waterbirds and their habitats. One of the committed actions was the development of national action plans by the range countries to operationalise specific activities to meet the objectives of setting up the flyway scale agreement. In 2018, the Ministry revisited its engagement in the Convention on Migratory Species and offered to host the 13th Conference of Parties meeting in India. As a part of various measures, it was also decided to draft a National Action Plan for the Central Asian Flyway.

Wetlands International South Asia was included in a three-member committee set up by the MoEFCC to draft the National Action Plan. Drafting was concluded in May 2018.

The long-term goal of the National Action Plan is to arrest population decline and secure habitats of migratory bird species. In 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. Six objectives of the action plan are: a) Halt and reverse decline of migratory birds; b) Reduce pressure on critical habitats by management based on landscape approaches; c) Develop capacity at multiple levels to anticipate and avoid threats to habitats and species undergoing long-term decline; d) Improve database and decision-support systems to underpin science-based conservation of species and management of habitats; e) Sensitize stakeholders to take collaborative actions on securing habitats and species; and, e) Support trans-boundary co-operation to secure migratory bird species and habitats in range countries.

The action plan is likely to be launched towards the close of 2018. Wetlands International South Asia shall continue to support the implementation of the action plan, particularly in the areas of wetlands management planning using landscape approaches, and capacity development of wetlands and wildlife managers.

## Capacity development of wetlands managers

The Governing Body has advised placing specific focus on capacity development of wetlands managers to promote the application of integrated and cross-sectoral management approaches and systems. Wetlands International South Asia has been in contact with wetlands authorities of various states to organise such training programme for wetlands managers. The existing pack of training modules was reviewed during the year, and updated.

A two-day training workshop was organised by the Wetlands International South Asia for wetlands managers of Himachal Pradesh on September 14-15, 2017 in collaboration with the Himachal Pradesh State Wetlands Authority.

Managers of three Ramsar Sites of the state (Pong, Renuka and Chandertal) and two other wetlands identified as being of national priority (Khajiar and Rewalsar) took part in the traning. Sessions on wetlands management, conserving wetlands biodiversity, wetlands monitoring and institutions and governance were conducted. During the workshop, the current management plans were reviewed for their completeness and adequacy. In an interactive session, the managers were guided through a process of prioritisation of wetlands features and drivers of change and setting management objectives.

The State Wetlands Authority has requested a follow-up workshop on updating the management plans for the three Ramsar Sites. This is proposed to be held in November 2018.

## Workstream 2: Replenished water stores for mountains to the sea

The workstream aims at aligning policies across multiple sectors to transform the ways in which water risks are managed in the landscape, including the improved management and restoration of wetlands as natural infrastructure. The two regional targets under the workstream strive to: a) safeguard and restore wetlands functioning for water risks as part of basin-scale planning, and b) promote the role of wetlands in the provision of sustainable water and sanitation solutions within the basin.

The geographical focus of implementation of activities within the workstream has been on wetlands within the basin of River Kallada (Kerala) and Budhi Gandak (Bihar).

### Securing wetland functioning in River Kallada Basin

Kallada, a perennial river arising from the Western Ghats is one of the two rivers draining Kollam District of Kerala State. Before its confluence with the Ashtamudi Estuary at Koivila, the Kallada flows for a length of 121 km, wherein 47 tributaries join its 1,598 $km^2$ basin. Two Ramsar Sites, Sasthamkotta and Ashtamudi Estuary form conspicous parts of the basin.

Located in Kunnathur Taluk of Kollam District, Sasthamkotta is the largest freshwater wetland of Kerala. Spanning 373 ha, the wetland is the principal source of water for nearly 0.7 million residents of Kollam City and its suburbs. Sastha temple, from which the wetland is believed to have derived its name is an important religious and cultural centre for the region. The striking beauty of Sasthamkotta's placid water surrounded by lush green hills has earned it the distinction of 'Queen of Lakes'. Sasthamkotta was designated as Wetland of International Importance under Ramsar Convention by the MoEFCC in 2002.

In line with wise use commitments, the Center for Water Resources Development and Management (CWRDM) formulated a management plan for Sasthamkotta in 2001, which was approved for implementation by MoEFCC with funding being made available to undertake catchment conservation and training and awareness programmes. However, a prolonged phase of drying in 2009-10, prompted the State Government to call for a revision of management plan, explicitly taking into account hydrological aspects. The revised plan, however, was not approved by the Ministry and further clarifications sought on the proposed action plan. In 2012, the Department of Environment and Climate Change initiated a reformulation of the management plan, building on the existing work, but ensuring conformity to MoEFCC requirements as well as that of Ramsar Site management planning recommendations of the Convention.

Asthamudi Kayal, located within the Kollam District of Kerala and spanning an area of 5700 ha, is one of the extensive estuaries of the Indian west coast. A diverse and dynamic assemblage of fish, invertebrate and crustacean species provide the basis of rich estuarine fisheries, with an annual harvest of over 25,000 MT biomass and supporting livelihoods of nearly 5,000 fisher households. Ashtamudi is famous as the gateway of Cochin backwaters and is one of the prominent touristic destinations of the state. With a unique palm-like eight-cone shape, the estuary is deeply linked with the local culture and belief systems, with many sites of historical and cultural significance, such as Quilon Port located along its shorelines. At least 70 plant and 370 animal species have been recorded here, several of which have high conservation significance locally, nationally and globally. Ashtamudi was designated as a Ramsar Site in 2002.

The estuary has been subject to a range of anthropogenic pressures adversely impacting ecosystem components and processes. Nearly one-fifth of the estuary area has been reclaimed for settlements, industries and tourism infrastructure in the last five decades. Ashtamudi's creeks have eventually turned into a cesspool of waste brought in from over two thousand point and non-point sources. The entire ecosystem is gradually shifting to a marine dominated stage on account of the reduction of freshwater inflows

Ashtamudi Estuary is gradually tending towards hyper salinity owing to freshwater flow reduction

from Kallada River, weakening south-west monsoon rainfall and increasing sea level. Limited efforts have been made to date to comprehensively assess the status of the wetland and take remedial measures.

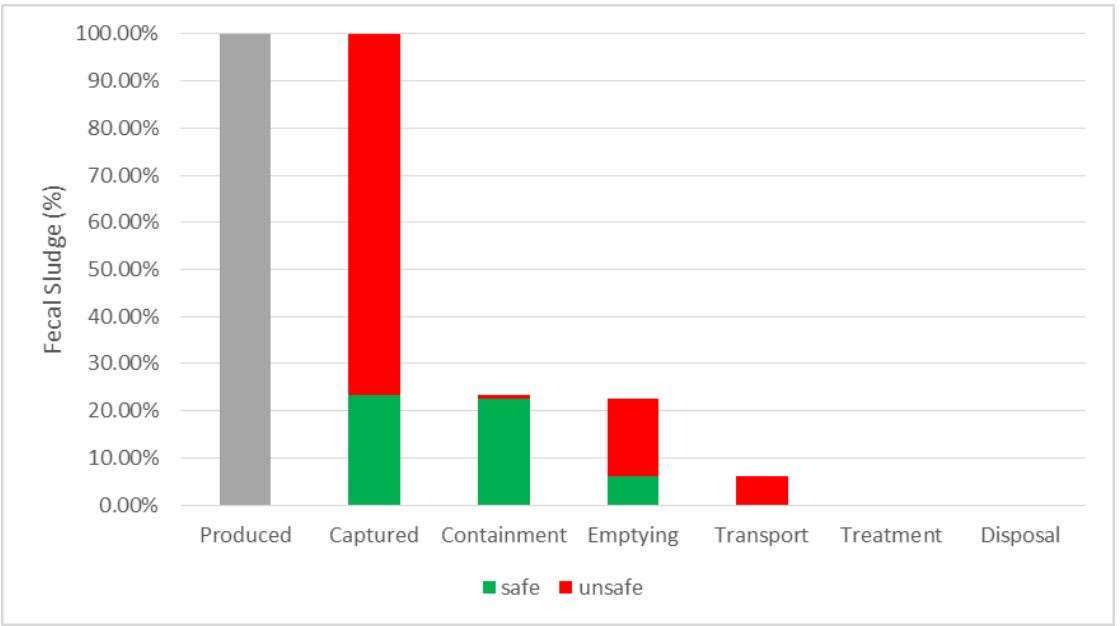
Recognising adverse trends and the need for putting in place holistic management, the Department of Environment and Climate Change, Government of Kerala, initiated the formulation of integrated management plans for the two Ramsar sites. Wetlands International South Asia and Centre for Water Resources Development and Management (CWRDM) were entrusted with the task of formulating the plan based on existing international and national guidelines and best practices, and in consultation with stakeholders.

The drafts of management plans were presented to the Chief Secretary, Government of Kerala at the Steering Committee meeting of the State Wetlands Authority held on August 22, 2017. The plans were also reviewed by the Project Advisory Committee of Wetlands International South Asia in their meeting held on January 2018. The revised plans have been endorsed by the State Wetlands Authority and forwarded to MoEFCC for financial support.

Wetlands International South Asia shall continue guiding implementation of the management plans, initiation of which is to begin in October 2018.

## Integrating wetlands in WASH

Planning for water, sanitation and hygiene services forms a crucial element of water security. There has been a significant push for achieving comprehensive coverage of WASH services in the recent years, through international frameworks such as Goal 6 of the Sustainable Development Goals, and national programmes such as Swacch Bharat Mission. The role of wetlands as providers of water, and as transformers of wastes is unfortunately missed out, leading to the adoption of patch centric solutions which have limited sustainability. This is very crucial for sustainability of WASH services, which emphasize focus beyond creation of infrastructure, to ensure that the services are actually available and used for the achieving health and well-being outcomes.




An assessment of sanitation service chain in Debkhal Chaur Basin, indicating proportion of total fecal sludge being handled at various phases

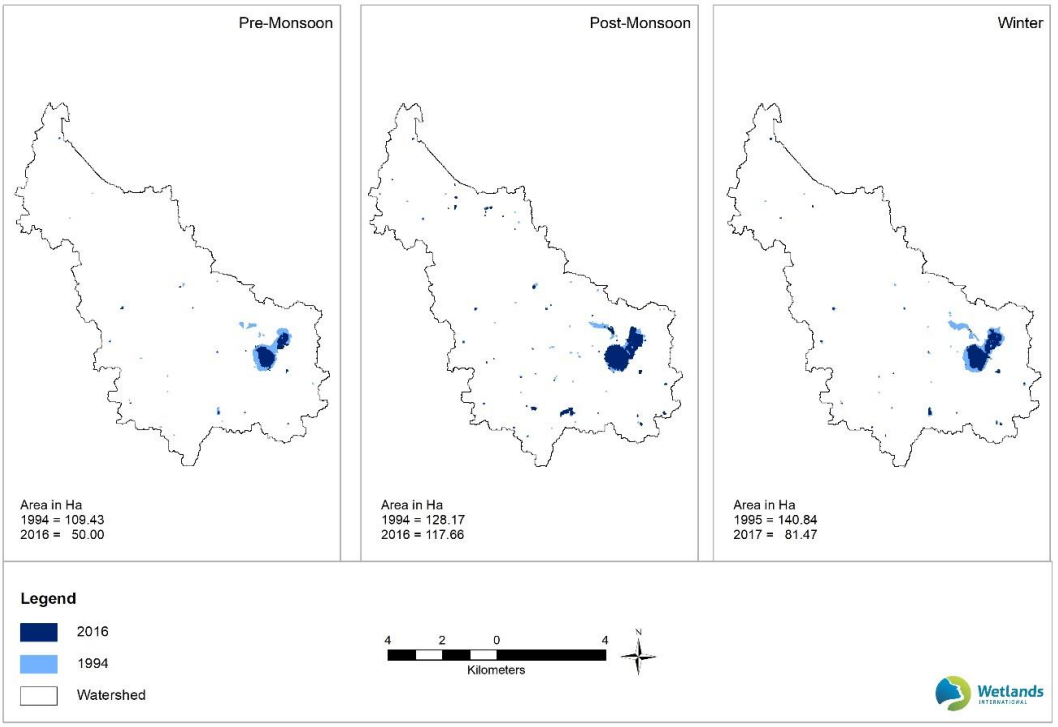
Through a collaboration with WASH sector think tank, IRC, Wetlands International South Asia is implementing 'Watershed' – an international programme funded by the Dutch Ministry of Foreign Affairs, the Netherlands. The programme has an aim of delivering improvements in governance and management of WASH services, particularly water sources on which these services depend. In India, two basins, namely Debkhal Chaur in North Bihar and Tampara Basin in coastal Odisha have been selected as pilot sites to demonstrate linkages of wetlands, sustainable WASH and water security.

Debkhal Chaur, a marsh spanning 217 ha in the Sarairanjan Block of Samastipur District of North Bihar is the primary source of water to around 1300 farming households. To assess the current status of WASH services within the wetland basin, 406 households and 1,036 waterpoints were assessed through questionnaire surveys and physical inspection.

The assessments indicated that despite efforts put in by Central and State Governments in improving sanitation coverage, only 23% of the households use toilets. Gender, housing structure, education and religion had a significant bearing on the decision whether a family owned and used a toilet. Of the drinking water points surveyed, one-fifth did not provide sufficient water; majority rendered dysfunctional during summer. As a result of limited sanitation coverage, only one-fifth faecal matter generated within the basin is safely contained. Nearly half of the waterpoints tested positive for the presence of coliform.

Debkhal Chaur has a vital role in groundwater recharge and maintenance of the shallow aquifers. However, the network of wetlands around Debkhal have been converted in the last three decades for agriculture, thereby leading to reduced hydrological connectivity and shrinkage. Since the eighties, there has been a rapid increase in the use of groundwater for agriculture, and at present nearly 85% of the agricultural land is irrigated by borewells.

Receding groundwater levels has led to deepening of bores to 50 meters, which was only upto 20 meters till late nineties. Coupled with decreased rainfall in the region, particularly in the last two decades, there has been a conspicuous decline in peak inundations, and large parts of wetlands remain dry for prolonged periods. Basin wide analysis using NDWI (Normalized Difference Water Index) estimated for pre and post monsoon seasons for 1994-95 and 2016-17 period indicated that the inundation during peak and lean seasons had declined by 16% and 26% respectively.




Shrinkage in inundation regimes of Debkhal Chaur during 1994 - 2016

Water demands for various consumptive and non-consumptive usages, including WASH, can only be ensured when wetlands remain in healthy state, their ability to recharge water is maintained and enhanced, and water use made less intensive. Water security planning adopted by WASH sector focuses mostly on drinking water supply and sanitation, and misses out on the role of wetlands as sources of water. The project aims at developing a model water security plan for the basin, recognizing the role of wetlands in water security, and wetlands conservation as an important intervention element. A grid-wise monitoring of wells within the basin is being done to assess the temporal changes in groundwater levels. Coupled with the modelling of surface water flows, a monthly water balance is being assessed to indicate overall water availability.

In 2019, the model water security planning for the basin will be completed. The project will engage with district and state level authorities for leveraging resources for implementing the plan. The steps used in assessment will be compiled in 2019 into a capacity development module for policy planners and managers of WASH sector.

## Wetlands as urban infrastructure

Conservation of urban wetlands and their integration within urban planning processes have been recommended to be a priority theme under the South Asia Regional Strategy. Notably, the 2018 theme of the World Wetlands Day, 'Wetlands for a sustainable urban future' marks the role healthy wetlands make in making cities and towns livable, through their role in groundwater recharge, buffering floods, filtering wastewater, enhancing landscape aesthetics, providing income generation opportunities and ultimately supporting well-being. During the year, a seminar on urban wetlands was organised on World Wetlands Day. An assessment of status and trends in urban wetlands was also initiated.

### Seminar on Urban Wetlands on World Wetlands Day

To mark World Wetlands Day on February 2, 2018, Wetlands International South Asia held a seminar on "Wetlands for a sustainable urban future" at

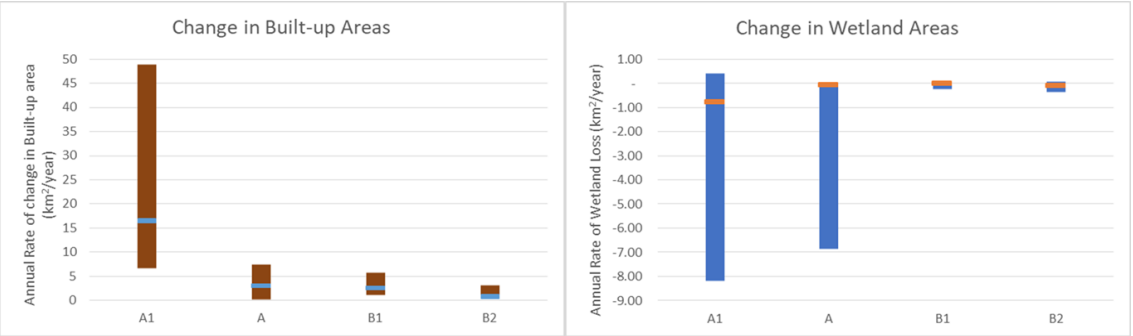

Justice Swatanter Kumar delivering keynote address on World Wetlands Day

India International Centre, New Delhi. Pathways and policy directions for securing a healthy future for Indian urban wetlands were discussed. Justice Swantanter Kumar, Former Chairperson, National Green Tribunal chaired the inaugural session and delivered the Presidential Address. Fifty-five participants from Central Government Ministries, the Netherlands Embassy, research and academic institutes, international conservation organisations, civil society and media attended the event.

Two World Wetlands Day themed posters depicting the role wetlands play in urban spaces were also released on the occasion.

Introducing the seminar, Dr Sidharth Kaul (President) briefed the participants on the objectives and various initiatives of Wetlands International South Asia. Specific efforts made for wetland inventory, integration of wetlands in river basin management, capacity development, policy support and outreach were discussed. Dr C.K. Varshney (Member, Governing Body) introduced the 2018 World Wetlands Day theme. Through cases of urban wetlands of Bengaluru, Delhi and Chennai, Professor Varshney highlighted the disconnect between urbanisation patterns and wetlands ecosystems which underpinned sustainability through their wide-ranging ecosystem services and biodiversity values.

Hon'ble Justice Swatanter Kumar in his presidential address referred to the existing codified legal framework for wetlands being mostly oblivious to actual development threats acting on wetlands. Citing several clauses in the current Wetland Rules, Justice Kumar mentioned that while the overall intent was right, on ground implementation remained fraught with challenges. He pressed on the need for complimenting jurisprudence with effective on-ground actions by the government and all stakeholders concerned. He also underlined the need to have credible data to support the implementation of legal frameworks and day-to-day management. Through several cases such as foaming of Bellandur Lake and pollution in River Ganga, Justice Kumar reflected on the challenges imposed on the judiciary for ensuring effective ecosystem conservation measures in the absence of complementing data and support from concerned central and state governments.




Trends in area under wetlands and built-up area in 22 Indian cities

Dr Ritesh Kumar (Conservation Programme Manager) presented an overview of status and trends of urban wetlands in India. Presenting the perspective of urban planners, Mr Manu Bhatnagar (Principal Director, INTACH) highlighted the disconnect between urbanisation processes and natural hydrological regimes which sustain wetlands. Citing an example of Hauz Khas Lake, Mr Bhatnagar stressed upon consideration of topography, the role of macrophytes and water pathways as a precondition for the restoration of urban lakes. Prof. J.K. Garg (Hony Treasurer), gave an overview of the role remote sensing and GIS technologies could play in assessing the status and extent of wetlands.

Summarizing the seminar, Dr Varshney highlighted three emergent needs to secure urban wetlands: a) developing credible database on status and extent of urban wetlands, b) engaging with and enhancing capacities of urban planners to take into account wetland functions in spatial planning, and c) promote a system of wetland prioritisation based on full range of ecosystem services and biodiversity values rather than size alone.

### Assessment of the status of urban wetlands

During the year, an assessment on status and trends in urban wetlands was initiated. The analysis of wetlands data generated from the National Wetlands Atlas indicated that 8.3% wetlands are located within urban areas. Over half of such wetlands are concentrated in 6 states (namely Uttar Pradesh, Tamil Nadu, West Bengal, Andhra Pradesh, Telangana and Odisha). Analysis of published land use and land cover records from 22 cities indicated that during 1970-2014, every one square kilometre increase in built-up area, wetlands area had declined by 25 hectares. The most rapid decline had taken place in Tier 1 cities (having a population of 0.1 million and above).

Given the number of litigations on wetlands being filed within the National Green Tribunal, an analysis of such cases were also taken up. As per the review, 33 cases on wetlands were filed with the tribunal, of which a majority (75%) were related to urban wetlands. Illegal commercial construction (56% of cases), waste dumping (44% of cases), and residential construction (32% of cases) were the primary reasons for conflict. In 54% of the cases, the court had ruled in favour of wetlands restoration and ordered halting of illegal activity, whereas in 15% cases further information was sought. In 31% of the cases, the court had ruled in favour of the developmental activity as the plaintiff had failed to produce tangible evidence on adverse impacts on wetlands.

The analysis will be compiled in the form of a policy brief which shall be published by close of 2018. The organisation is also in contact with select state governments on formulation and implementation of management plans for significant urban wetlands of the country such as East Kolkata Wetlands (West Bengal) and Pallikarnai marsh (Tamil Nadu)

## Ecosystem-based approaches for reducing water mediated disaster risks

Water mediated disasters (such as floods, droughts, and storm surges) account for a majority of disasters in India. Poor water management, including destruction of natural

Village level risk reduction planning in progress in Nuagaon watershed of Uttarakhand

buffers as wetlands, encroachment of floodplains, and fragmentation of natural regimes have made populations highly vulnerable. The frequency and intensity of extreme weather events (particularly floods and tropical cyclones) has also been on a rise in the last 50 years.

In collaboration with specialist organisations leading disaster risk reduction (Indian Red Cross) and climate change (Red Cross Climate Center), Wetlands International South Asia is implementing Partners for Resilience (PfR). The programme aims at 'supporting the implementation of Sendai Framework of Action (SFA) to ensure that the vulnerable people are more resilient in the face of climate change, and environmental degradation, enabling sustainable and inclusive economic growth'.

Funded under a partnership with the Dutch Ministry of Foreign Affairs, the PfR Strategic Partnership promotes a multi-sectoral approach for managing disaster risks in development. The Integrated Risk Management (IRM) approach promoted by the partnership, blends Disaster Risk Reduction (DRR), Ecosystem Management and Restoration (EMR) and Climate Change Adaptation (CCA) to address the multi-faceted dimensions of vulnerability reduction and building community resilience.

PfR implementation in India is organised along three engagement trajectories related to practice, investment and policy outcomes. Work within the practice trajectory entails practical demonstration of IRM approaches for building community resilience in select landscapes. The investment trajectory is aimed at enhancing public and private sector resources for IRM.

PfR implementation was initiated in July 2016. The focus of first year was on developing a detailed workplan and baseline capacity assessment of the CSO partners. In 2017 the partners undertook capacity development of panchayats and engagement with district authorities for integration of IRM approaches within Gram Panchayat Development Plans (GPDP) and District Disaster Management Plans (DDMP). At state level the partnership worked with select government departments to enable consideration of IRM approaches within their sectoral programmes. At national level, engagement focussed on strengthening the regulatory architecture of wetlands and improved uptake of climate information in disaster management. Key

activities implemented during April 2017 – March 2018 period are:

- Development of village level risk reduction plans in 23 Gram Panchayat in Gujarat, Uttarakhand and Bihar
- Leveraging resources from on-going developmental schemes of government to implement risk reduction plans in 16 Gram Panchayat
- Support provided to GIDM Gujarat, for integration IRM components within their training curriculum.
- Engagement with NDMA for revision of National Disaster Management Plan to include eco-DRR and give due consideration to role of wetlands is reducing the risk of floods and droughts.

During the coming year, it is envisaged that work on individual trajectories would be deepened to achieve tangible policy practise and investment domain outcomes which would support creation of an enabling environment for IRM.

At landscape scale the partnership will engage with GPs and districts to incorporate IRM based interventions within their Development Plans and District Disaster Management Plans. Implementation of IRM measures for community scale risk reduction will be enabled with funds sourced from ongoing development plans of the state and central government. At the state level the partnership will target prioritising wetlands using DRR approaches. The partnership will also engage with the State Disaster Management Authority for integration of IRM principles and approaches within its State Disaster Management Plans. At the national level, the partnership will engage with the NDMA to develop guidelines on integrating Ecosystem Based Climate Smart Approaches in DRR.

## Wetlands and climate change

As a part of India's Third National Communication to the United National Framework Convention on Climate Change, Wetlands International South Asia has been entrusted by the MoEFCC with development of a climate change adaptation framework for Indian wetlands. Specific objectives of the assignment, initiated in October 2017 include:

- Proposing an integrated impact – vulnerability – capacity framework for wetlands and demonstrate application through a case study of Chilika
- Evaluating state action plans on climate change and the relevant developmental policies, programmes and practices for adaptation of wetlands
- Developing criteria and guidelines for identifying incremental and transformational adaptation strategies for selected hotspot wetlands
- Proposing a national adaptation framework for wetlands in the context of future climate change

Till March 2018, an evaluation of State Action Plans for Climate Change for nine states was completed. Key parameters for evaluation were: a) inclusion of up-to-date information on wetlands within description of climate context, b) impact of climate change on wetlands identified, c) inclusion of wetlands conservation and wise use within climate change mitigation strategies, and d) inclusion of wetlands conservation and wise use within climate change adaptation strategies, and e) consideration of implications of sectoral climate change response actions on wetlands. A review of coastal wetlands and climate change was also completed.

The analysis shall be concluded in December 2018, along with results of climate change vulnerability assessment in Chilika, Odisha.

## Workstream 3: Vibrant coasts and deltas

The workstream on vibrant coasts and deltas aims at restoring wetlands ecosystems along the coast as an integral part of resilient and productive coastal landscapes. The regional target aims at linking wetlands restoration with coastal zone planning in three deltas and coastal zones. Work during the year was carried at Mahanadi Delta (Odisha) and the Bhola Island, the largest island within Gangetic Delta in Bangladesh.

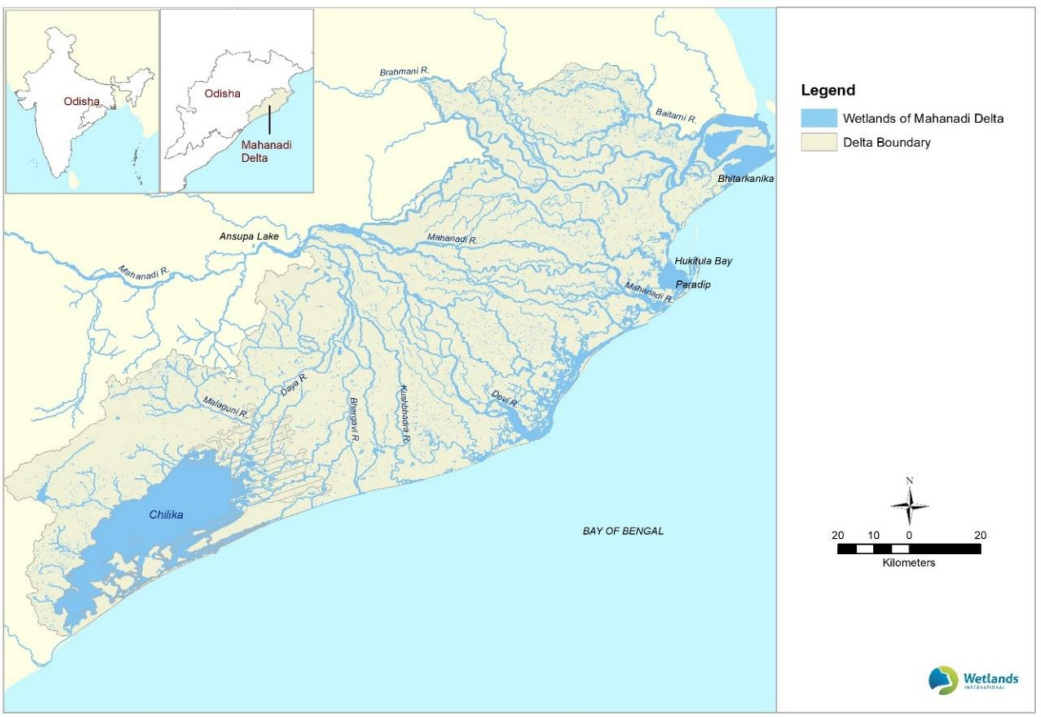
### Assessing wetlands loss in Mahanadi Delta

River Mahanadi forms a large delta spanning 1.38 Mha around the river confluence with the Bay of Bengal. Highly fertile soils and abundance of water have made the Mahanadi Delta a hub of economic activities. In 2011, over two-fifth of the state's population lived in the Delta, which formed only one-tenth of state's total geographical area.

The delta region is endowed with a diverse wetlands regime. In the upper delta, oxbows and intermittent marshes are prevalent along the flanks of River Mahanadi and Brahmani. The central delta has rich and diverse floodplains. The coastal plain region of the delta is dominated by lagoons, mangrove swamps, tidal marshes and estuaries. Chilika and Bhitarkanika, the two Ramsar Sites of Odisha are at the corners of the delta.

Extensive hydrological fragmentation and land-use changes have gradually converted a 'flood-dependent' landscape into being 'flood vulnerable'. The deltaic build-up processes have been impeded with as much as 67% reduction observed in the river sediments reaching downstream leading to delta's shrinkage. Wetlands have been mainly converted for expansion of agriculture and settlements.

The State of Odisha has been a frontrunner in integrated coastal zone management. Through a World Bank assisted project, a shoreline management plan has been developed, and interventions for streamlining developmental planning being made. Measures for conserving critical habitats, such as Chilika, Hukitola and Bhitarkanika have also been implemented.




A map of wetlands of Mahanadi Delta developed using Sentinel 2B image

To inform coastal zone management, and bring due consideration of the entire regime of wetlands in the delta region, a baseline assessment of the extent of wetlands and their transformation in last three decades was initiated during the year. The analysis uses remote sensing and GIS-based tools relying on open-source satellite images, i.e. historical Landsat (30m spatial resolution) and current Sentinel 2B imagery (resampled to 10m) for the years 1994 and 2017 respectively.

In the first phase of the project, wetlands extent has been derived for the year 2017 using a hierarchical approach. In addition to satellite imagery, a digital elevation model (DEM) was also incorporated for extraction of wetland layer semi-automatically using rule-set approach from individual bands and imagery-derived indices including Normalized Difference Water Index (NDWI), Modified Normalized Difference Water Index (MNDWI), Normalized Difference Vegetation Index (NDVI) and slope.

The current extent of wetlands in the deltaic landscape was assessed to be 0.18 Mha, forming 13.04% of the delta area. Subsequently, wetlands would be classified based on the classification scheme developed for the region followed by an analysis of the historical data on similar lines for the year 1994. Once the wetland layers are generated for both the years, extent of wetland loss and areas of high priority for wetlands conservation will be delineated.

## Evaluating wetlands ecosystem services

The Ramsar Convention's wise use approach is premised on ensuring compatibility of human use of wetlands with the goal of maintenance of ecological character. The ecosystem services have been included in the definition of ecological character as a means of bridging wetland ecosystem functioning and their human use for well-being. The perceptions, attitudes and preferences humans hold for ecosystem services are important elements for engendering changes in the ways stakeholders engage with management of ecosystems. However, there is a paucity of research on understanding the behavioural dimensions of ecosystem services, thus limiting their effective integration in management planning and decision making.

During the year, an Ecosystem Services Shared Values Assessment Tool (ESSVA) developed by International Lake Environment Committee (ILEC) to assess stakeholder perceptions, attitudes and preferences for wetland ecosystem services was piloted under Partners for Resilience programme. The tool enables engagement with communities living around the wetland, and its upstream and downstream reaches, linking ecosystem services

Communities eliciting their values for ecosystem services of Tampara during a focal group discussion

with various drivers of change and implications for well-being. The tool uses a questionnaire to engage the stakeholder in discussions regarding management of ecosystem services, from the respondent's frame of reference.

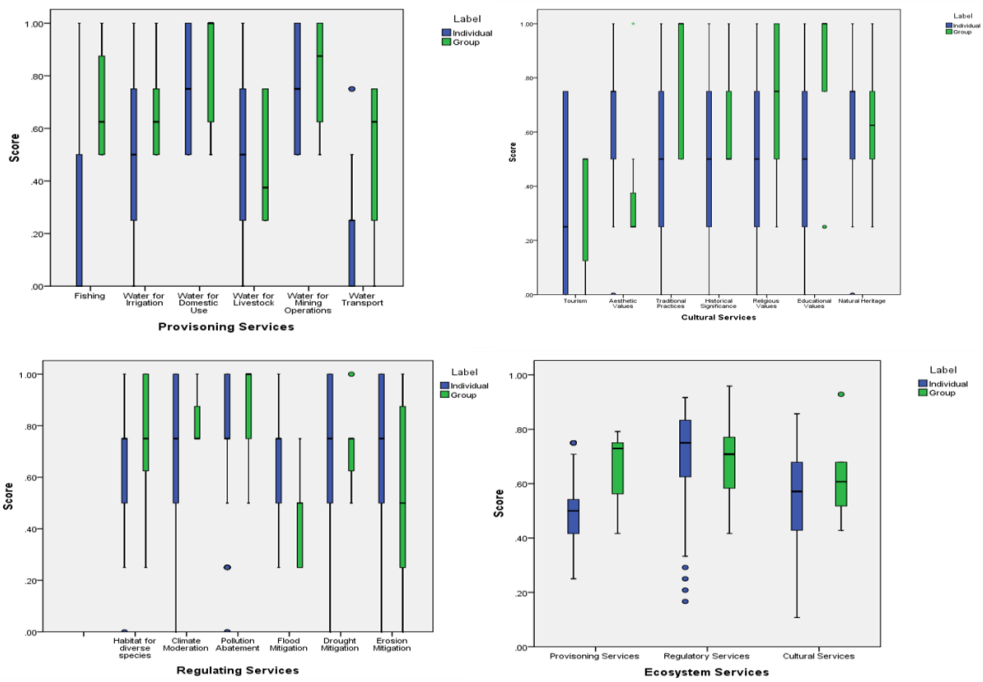
Tampara, a freshwater wetland on the east coast of Odisha State was selected as a demonstration site, wherein Wetlands International South Asia is formulating an integrated management plan for wetland wise use. The wetland, spanning 409 ha within a basin of 2,200 ha, is the primary source of water for over 25,000 households living in Chattarpur Municipality, and irrigation in and around. The wetland is also an important source of fish, and aquatic aromatic Pandanus, sustaining livelihoods of over 700 households.

A training workshop on the use of ESSVA tool was jointly conducted by ILEC and Wetlands International South Asia in December 2017. Overall, 1% of the basin population living within eight of the 15 basin villages were selected for ESSVA questionnaire survey.

The communities identified 19 ecosystem services (six provisioning six regulating and seven cultural services) as being derived from the wetland. When eliciting as a group, the respondents ascribed statistically significant higher values for five of the six provisioning services. Similarly, differences in mean scores for disaster risk reduction functions and select cultural services (religious values, aesthetic values, and education values) were statistically significant.

The rankings ascribed to provisioning services mapped with the occupation categories (a fisher ranked fishing as the highest and a farmer to the provision of water for irrigation). However, communities which had a lesser direct dependence on the wetlands for livelihoods (such as business owners, wage labourers and private sector employees) ranked the regulating and cultural services as the highest preference. Men scored provisioning services more elevated than the women (95% significance), whereas women scored cultural services higher than the men. Similarly, the male respondents as compared to the females, felt that the impact of wetland ecosystem degradation on economy and health would be higher (95% significance).

Spatial location was observed to have a distinct influence on ecosystem service preferences. In general, the scores for provisioning and regulating services were higher for the communities located in the downstream




Priorities for different ecosystem services categories for Tampara, Odisha

(statistically significant with 99% and 90% significance), whereas the scores for cultural services were comparable. Communities who have a high direct stake in terms of immediate impact, are also more likely to contribute individually towards wetlands management, as against expecting public action to take place at a later stage.

Project implementation is also developing a factual profile of ecosystem services using physical indicators, which would serve to provide a context to the perceptional profile. The information will be included within the management plan being formulated for the wetland.

## Wetlands and water security in Bhola Island, Bangladesh

Coastal Bangladesh faces unique water security challenges. Being thickly populated, freshwater needs are mostly met from groundwater. Wetlands, which play an important role in securing shorelines, groundwater recharge and preventing salinity ingress have over a period been rapidly converted and polluted. The significant strides made in improving in improving access to WASH services has been at the cost of wetlands being made the ultimate waste sinks. Within the Dutch Ministry of Foreign Affairs funded Watershed- Bangladesh project, Wetlands International South Asia is working with DORP (Development Organisation of the Rural Poor), a CSO, to promote restoration of wetlands as means of enhancing water security. The Watershed Bangladesh Programme has identified Bhola, the largest island as an implementation area.

Situated at the mouth of Meghna River, Bhola is the largest island of Bangladesh spanning 3,403 $km^2$, and is inhabited by 1.7 million people. The island is situated within the the estuarine floodplains of Meghna River. The distributaries of Meghna, Tentulia and Shahbazpur, separate Bhola from the mainland. The island is relatively young, believed to have emerged on the sediments of Ganga and Brahmaputra about 800 years ago. There is a high degree of shoreline erosion. During 2003-13, about 45 $km^2$ of the island area has been lost, whereas only 13 $km^2$ gained due to accretion. The island is routinely frequented by tropical storms, which are known to cause high death and damage to crops and assets.

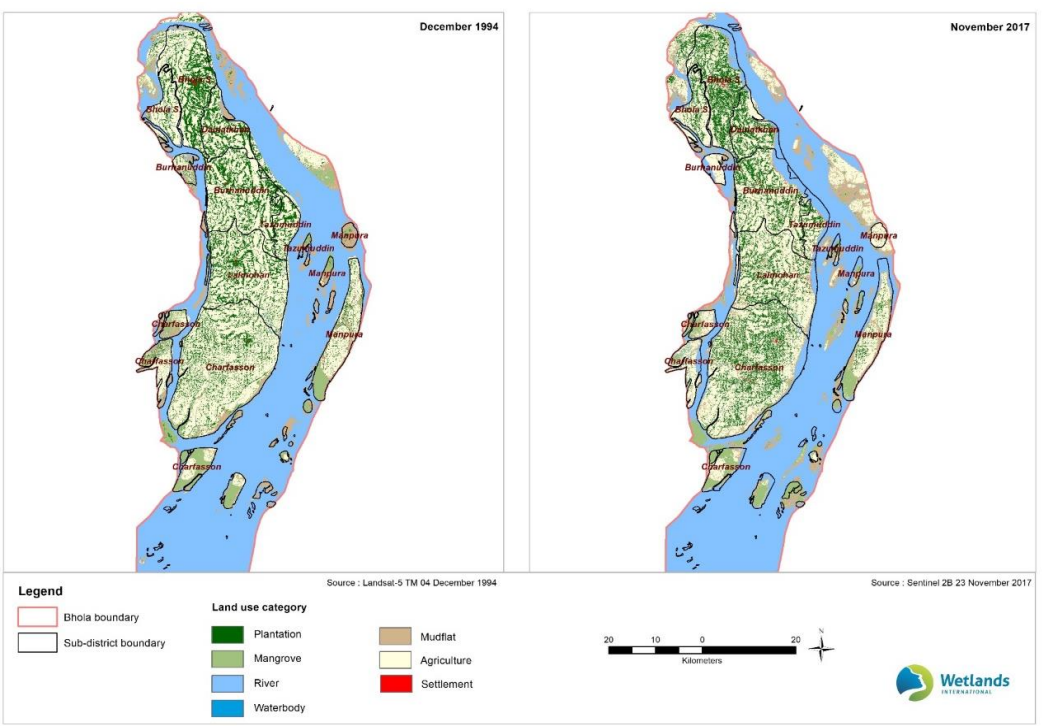
River shoreline protection works in Bhola Island, Bangladesh

The mainstay of livelihoods in the island, agriculture, was initially dependent on plentiful of freshwater available in the northern and central part of the island. The wetlands provided a natural means of storing freshwater for domestic use. Post-1970s, with the introduction of borewell technologies, the possibility of increasing agriculture intensity emerged, leading to a gradual reduction in dependence on surface water as a single source of freshwater. As the technology to tap deepwater aquifers became available with the government agencies, the significance of wetlands in water security reduced. Unplanned expansion of WASH infrastructure led to wetlands being highly polluted. The depth at which water for drinking and domestic use is tapped is presently in excess of 1,000 feet.

During the year, land use and land cover change assessment of the Island was conducted to develop a baseline on status and trends in wetlands. The evaluation indicated that wetlands formed 13.3% of the island area, with mudflats being the dominant type. While the area under wetlands has remained more or less unchanged during 1994-2017 period, the area under settlements has increased by 8%. Notably, the area under agriculture has marginally declined from 34% to 32% of the island area. Extensive river bank erosion was noted in the northern part of island.

A policy analysis was carried out to review existing policies and programmes related to WASH and IWRM to identify gaps for integrating IWRM elements in WASH planning. Most WASH policies do not acknowledge catchment and basin level management for water supply. But there are opportunities for integration as policies recognise inclusion of local indigenous knowledge and joint coordinated efforts from local government and NGOs.

Over the next year, Wetland International South Asia aims to generate evidence on status of wetlands in Bhola Sadar (one to two unions under the programme) by conducting focus group discussions and detailed survey of wetlands in the region and develop a model water security plan for one union as a demonstration of ways in which wetlands and water security consideration could be linked with WASH planning, by highlighting the role of wetlands in achieving water security.




Mapping landuse landcover change in Bhola Island, Bangladesh

# Organisational Development and Governance

## Governance

The governance of Wetlands International South Asia is based on a three-tier structure. At the apex is the General Body which provides strategic direction and guides policy making of the organisation. The overall management is vested in its Governing Body. The Office Bearers, comprising the President, Vice President and Treasurer meet periodically to maintain oversight of implementation of various decisions and programme operations.

Elections for the positions of Office Bearers and three elected members of the Governing Body were held in July 2017. The following were elected:

Dr Sidharth Kaul, President
Dr Ajit Pattnaik, Vice President
Prof J. K. Garg, Treasurer
Dr C. K. Varshney, Member, Governing Body
Prof. E. J. James, Member, Governing Body
Dr Asad Rahmani, Member, Governing Body

Dr Sidharth Kaul, who superannuated from the MoEFCC as Advisor (Wetlands) has played an instrumental in shaping up the national wetlands programme and India's engagement with Ramsar Convention. Dr Ajit Pattnaik, former Principal Chief Conservator of Forests, Government of Odisha led the successful ecological restoration of Chilika. Prof J. K. Garg is an eminent researcher in landscape ecology and pioneered the use of geospatial techniques for wetlands inventory in India.

The three elected Governing Members are wetlands experts of international repute and have made significant contributions to the advancement of wetlands science and management. Dr C. K. Varshney, an Emeritus Professor of Environmental Sciences at Jawaharlal Nehru University has served on several apex planning and policy-making bodies of Government of India and is credited with helping Government of India formalise her membership with Ramsar Convention. Dr E. J. James, renowned wetlands hydrologist has significantly shaped thinking on the water – environment linkages, and formulation of programmes for integrating wetlands within river basin management. Dr Asad Rahmani is India's leading ornithologist and headed Bombay Natural History Society for nearly two decades.

The elected members took charge on July 16, 2017, for a three year period.

The Governing Body met twice during the year. The 11th meeting of the Governing Body was held

10th Annual General Body Meeting in progress

on July 12, 2017, wherein the annual report for the 2016-17 period and audited financial statements were considered and approved. The results of the elections were formally conveyed during the meeting.

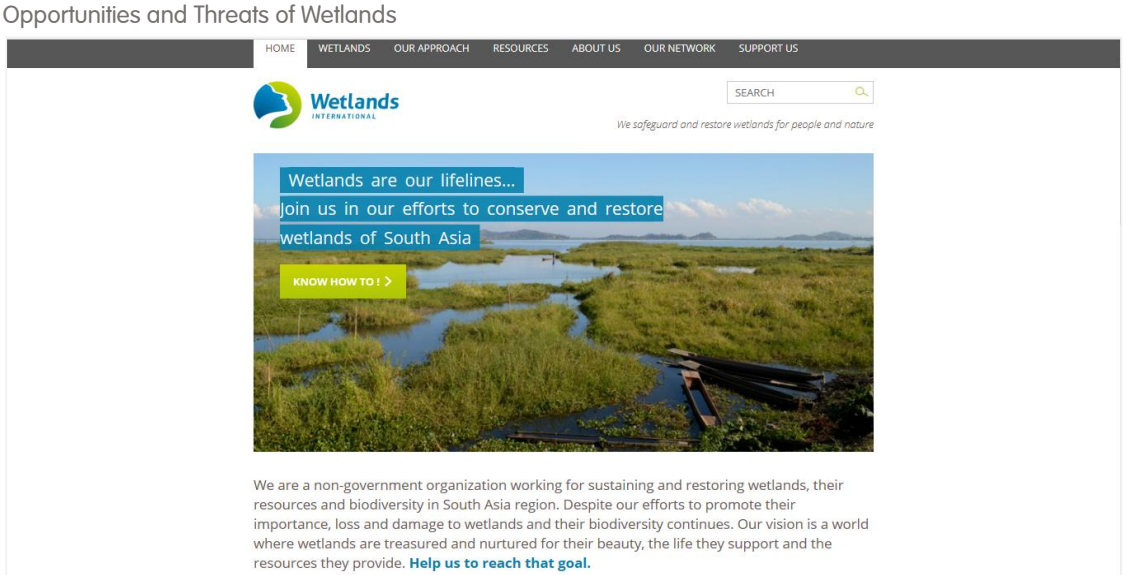
The 12th meeting of the Governing Body, and the first of the newly elected members, was held on September 5, 2017. It was decided to constitute a Project Advisory Committee to provide the required peer review support for ongoing projects as well as projects being conceptualised. The members also recommended working for the enhanced presence of the organisation at South Asia regional level, by building collaborations and partnerships with organisations having a regional mandate. Capacity development of wetlands managers, assessing the effectiveness of management plans, and providing validated information on wetlands loss were recommended to be integrated within the technical programmes. The Governing Body also advised according high priority to external communication through an updated website, brochure and newsletter.

The 10th Annual General Body meeting of the Society was held on July 14, 2017. Dr Ashok Kundra, the outgoing President, fondly recollected his decade-long association with the Society and welcomed the new team of Office Bearers and Governing Body members. Dr Sidharth Kaul, the incumbent Predient thanked the Chairman for his able leadership during the formative years of the organisation. Analysis of Strengths, Weaknesses, Opportunities and Threats of Wetlands International South Asia was presented. The members recommended action in critical areas such as increasing focus on water sector within technical programmes and strengthening internal processes for peer review, performance assessment and partnership development.

The Office Bearers met six times during the year to firm the agenda for the Governing Body and General Body meetings, and overview progress of implementation of various decisions.

## Wetlands International South Asia website

The reorganised website of Wetlands International South Asia was launched on November 28, 2017. In line with Wetlands International Strategic Intent 2015-2020, and South Asia regional strategy, the webpage is based on streams (Healthy Wetland Nature, Vibrant Coasts and Deltas and, Water Stores from Mountains to Sea) and underlying themes. Visitors to the website can search for posts like news, publications, videos and blogs by Stream and Theme on the Resources page. The website has been built using Wordpress which has been optimised for search engines and social sharing. The website also works across different devices (desktop computers, tablets and mobile). The website can be accessed at https://south-asia.wetlands.org/.



Home page of the Wetlands International South Asia website

## Collaborations

The Governing Body has recommended working towards enhancing the regional presence of the organisation in South Asian countries. The organisation is in dialogue with the International Lake Environment Committee (Japan) for setting up a South Asia platform of wetlands managers. A Memorandum of Understanding is being developed for collaborative action between Ramsar Regional Center East Asia (based in Suncheon, South Korea) and Wetlands International South Asia for supporting capacity development of wetlands managers in South Asia region and beyond.

## Calendar on Ramsar Sites

A 2018 desk calendar featuring 26 Indian Ramsar Sites was produced. Each page of the calendar contains a site photograph and succinct information on biodiversity and ecosystem service values of the wetland. The calendar was released at the meeting of Project Advisory Committee held on January 3, 2018.

## Human resources development

To strengthen human resources, two technical positions advertised and recruitments conducted.

Ms Ridhi Saluja has been appointed as Technical Officer (Wetlands Ecology). She brings on board experiences on wetlands condition assessment, and remote sensing and GIS. Ms Saluja has submitted her doctoral dissertation on wetlands condition assessment using remote sensing at the University School of Environmental Management at the Guru Gobind Singh Indraprastha University, New Delhi.

Ms Nehha Sharma has been appointed as Technical Officer (Livelihoods). An M. Sc. in Environment Management from Guru Gobind Singh Indraprastha University, New Delhi, Ms Sharma has experience of conducting socioeconomic studies for wetlands in Delhi. She also brings on board experience on disaster risk reduction in Himalayan landscape.

The 2018 calendar of Ramsar Sites being released by the Office Bearers (from left to right: Prof. J. K. Garg, Dr C. K. Varshney, Dr Sidharth Kaul, Dr Ajit Pattnaik and Dr Asad Rahmani

## Outlook 2018-19 and beyond

In line with the decisions of the Governing Body, the focus of work in 2018-19 would be enhancing the regional presence of Wetlands International South Asia beyond the national boundaries. The organisation will strive to develop a regional platform for wetlands managers of South Asia region, to enable sharing of best practices, lessons and challenges. Cooperation agreements with RRCEA and ILEC would be formalised as a basis of work towards this direction. In consultation with focal ministries, collaborative programmes on strengthening wetlands management in Bhutan, Myanmar and Bangladesh are also proposed to be developed.

Capacity development of wetlands managers shall continue to be the focus of work in the coming periods. The organisation shall seek the establishment of a formalised curriculum on wetlands management within key capacity development institutions. A stand-alone training curriculum addressing the needs of state governments in managing wetlands will also be developed during the year.

Wetlands International South Asia has developed management plans for a number of Ramsar Sites. Only a few of these have been implemented on the ground. Efforts will be made to understand the limitations impeding their implementation and resolve these with additional technical handholding support. For management plans under execution, the organisation shall undertake periodic monitoring and provide strategic oversight so that the desired results are achieved.

Regarding geographic priorities, Wetlands International South Asia shall increase focus on high altitude wetlands and wetlands of Ganga – Brahmaputra floodplains. Fructification of the GEF 5 Full-Scale Project on 'Integrated Management of Wetlands Biodiversity and Ecosystem Services' is expected to provide necessary financial and technical resources to enable state governments in meeting Ramsar Convention commitments, develop management oriented wetlands inventory and assessment systems, and implemented integrated management plans. As the main technical collaborator to the project, Wetlands International South Asia can leverage change at national scale on these issues. Wetlands International South Asia will also work on improving knowledgebase on wetlands status and trends. Wetlands loss analysis work initiated in Mahanadi Delta (Odisha) and National Capital Region will be concluded during the year. The analysis shall also be upscaled to atleast one biogeographic region of India. The over three decades' data on waterbirds counts shall be analysed to highlight conservation priorities regarding sites and waterbird species. Efforts will also be made to update waterbird population estimates for South Asia region to enable better application of Ramsar Convention criteria.

The work on wetlands and climate change will be further deepened during the year, under the aegis of International Climate Initiative project. Climate vulnerability assessment protocol suited to Indian context will be developed and tested in three Ramsar sites, and lessons collated for supporting further replication and upscaling.

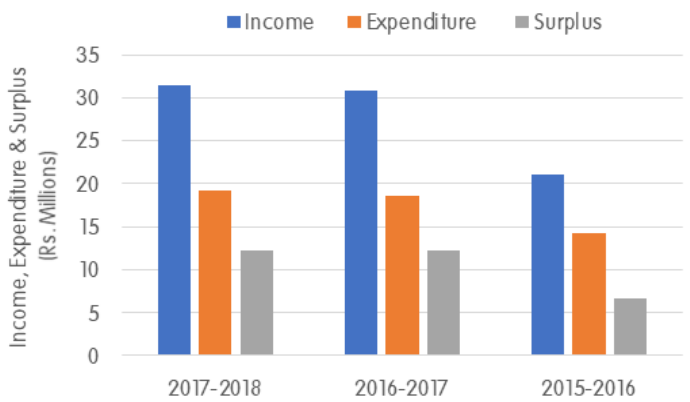
On similar lines, work on urban wetlands will be further intensified. Evidence on the adverse impacts of wetlands loss on urban spaces would be collated, along with practical solutions for integrating wetlands in urban planning and decision making. Integration of wetlands in planning processes of WASH and DRR sectors would be further pursued, and replicable models developed for enhanced intersectoral collaborations.

The staff strength will be further expanded to ensure better and efficient project delivery. A policy on human resources will be put in place to streamline recruitment, performance appraisal and career development processes of staff. Discussions on acquiring new office premises are underway and will be fructified in the coming year.

## Financial Overview: 2017 - 18

During the period April 2017 – March 2018, a total income of Rs. 31.50 million was received. Of this, Rs.28.58 million was on account of project funds received from four donor agencies, and the balance, Rs. 2.92 million as interest earned on the reserves. Funds received from Wetlands International – Head Quarters for implementation of Partners for Resilience project was the major source (45%) during the year.

The total expenditure incurred during the year towards various programmatic activities was Rs.19.19 million. Direct overheads stood at Rs. 1.68 million, forming 8.77 % of total expenditure. Project expenses were Rs.11.70 million, including Rs.5.81 million towards staff salary. On a net, a surplus of Rs.12.31 million was accrued. The total reserves at the end of the financial year stood at Rs. 42.33 million, which is an increase of Rs. 12.27 million over the last year. Overall, the expenses made under projects were fully covered by project incomes. Similarly, the overheads were also well covered by the incomes accrued under staff time



# B.P. Agrawal & Co.

## Chartered Accountants

E-931, LG Floor, Chittranjan Park, New Delhi-110019, Phone: 011-41602789,
Mobile: 09312605338, E-Mail: agarwalrakesh@hotmail.com


**[22][FORM NO. 10B :**

**Audit report under section 12A(b) of the Income-tax Act, 1961, in the case of charitable or religious trusts or institutions**

*[See rule 17B]*

*I/ We have examined the Balance sheet of Wetlands International-South Asia Society Regd. (Pan No: AAATW1125E, A-25, 2nd Floor, Defence colony, New Delhi) as at 31-3-2018 and the Income and Expenditure account for the year ended on that date which are in agreement with the books of account maintained by the said trust or institution.

*I/ We have obtained all the information and explanations which to the best of *my/ our knowledge and belief were necessary for the purposes of the audit. In *my/ our opinion, proper books of account have been kept by the head office and the branches of the above named *trust/ institution visited by *me/ us so far as appears from *my/ our examination of the books, and proper returns adequate for the purposes of audit have been received from branches not visited by *me/ us, subject to the comments given below:

In *my/ our opinion and to the best of *my/ our information, and according to information given to *me/ us, the said accounts give a true and fair view-
(i) in the case of the balance sheet, of the state of affairs of the above named *trust/ institution as at 31-3-2018 , and
(ii) in the case of the Income & Expenditure account, of the Surplus or Deficit of its accounting year ending on 31-3-2018

The prescribed particulars are annexed hereto.

**For BP Agrawal & Co**
**Chartered Accountants**
**FRN: 001210C**

Place : New Delhi
Date : 23-8-2018

**C.A. Rakesh Kumar Agarwal**
**Partner**
**MS No 095224**

**Notes:**
1. *Strike out whichever is not applicable.

2. †This report has to be given by-
(i) a chartered accountant within the meaning of the Chartered Accountants Act, 1949 (38 of 1949); or
(ii) any person who, in relation to any State, is, by virtue of the provisions of sub-section (2) of section 226 of the Companies Act, 1956 (1 of 1956), entitled to be appointed to act as an auditor of the company registered in that State.

3. Where any of the matters stated in this report is answered in the negative, or with a qualification, the report shall state the reasons for the same.

## Audited Balance Sheet

| Particulars | | 2017-2018 | 2016-2017 | 2015-2016 |
|---|---|---|---|---|
| **Sources of Funds** | | | | |
| Capital Account | | 14,10,796 | 14,10,796 | 14,10,796 |
| General Reserve | | | | |
| | Opening Balance | 3,00,56,142 | 2,33,27,079 | 1,69,30,564 |
| | Add Transfer during the year | 1,22,73,726 | 67,29,063 | 63,96,515 |
| | Closing Balance | 4,23,29,868 | 3,00,56,142 | 2,33,27,079 |
| Income & Expenditure Account | | | | |
| | Opening Balance | 1,65,04,351 | 1,09,59,688 | 1,06,27,140 |
| | Add Surplus during the year | 1,23,09,503 | 1,22,73,726 | 67,29,063 |
| | Less Transfer to General Reserve | (1,22,73,726) | (67,29,063) | (63,96,515) |
| | Closing Balance | 1,65,40,128 | 1,65,04,351 | 1,09,59,688 |
| Current Liabilities | | 18,17,531 | 23,52,908 | 8,30,013 |
| **Total** | | **6,20,98,323** | **5,03,24,197** | **3,65,27,576** |
| Application of Funds | | | | |
| Fixed Assets | | | | |
| | Opening Balance | 9,73,362 | 10,01,906 | 7,73,064 |
| | Additions during the year | 25,250 | 1,37,149 | 6,96,411 |
| | Less : Sale | - | - | (2,90,000) |
| | Less: Depreciation | (1,45,104) | (1,65,693) | (1,77,570) |
| | Closing Balance | 8,53,508 | 9,73,362 | 10,01,905 |
| Current Assets, Loans, Advances, Deposits& Cash balances | | 6,12,44,818 | 4,93,50,835 | 3,55,25,668 |
| Rounding off Difference | | (3) | 1 | 2 |
| **Total** | | **6,20,98,323** | **5,03,24,197** | **3,65,27,576** |

**Signed in original copy**

**For BP Agrawal & Co**

**Chartered Accountants**

**FRN: 001210C**

**Rakesh Agarwal**

**Partner**

**MS No 095224**

## Audited Income and Expenditure Statement

| Particulars | | 2017-2018 | 2016-2017 | 2015-2016 |
|---|---|---|---|---|
| Income | | | | |
| | Project Income | 2,85,80,939 | 2,85,60,542 | 1,91,24,964 |
| | Other Income | 29,19,405 | 22,59,430 | 19,29,207 |
| Total | | 3,15,00,344 | 3,08,19,972 | 2,10,54,171 |
| | | | | |
| Expenditure | | | | |
| Overhead Costs | | | | |
| | Salary | 58,10,401 | 53,88,657 | 51,01,300 |
| | Office running expenses | 14,79,225 | 11,64,248 | 11,47,062 |
| | Organisational Tax | 59,695 | 7,56,003 | 8,31,953 |
| | Depreciation | 1,45,104 | 1,65,693 | 1,77,570 |
| | | | | |
| Project Costs | | | | |
| | Sub-contractor/Project Grant | 68,66,764 | 65,62,711 | 36,45,147 |
| | Travel Costs | 5,11,465 | 8,59,274 | 8,11,479 |
| | Project Material | 5,18,457 | 93,695 | 3,13,485 |
| | Communication | 1,14,673 | 59,853 | 74,146 |
| | Financial Charges | 1,00,369 | 7,174 | 19,601 |
| | Publications | 4,43,001 | 3,91,558 | 3,75,394 |
| | Training/Workshops/Meetings | 31,41,686 | 30,97,381 | 18,27,971 |
| | | | | |
| Total | | 1,91,90,841 | 1,85,46,247 | 1,43,25,108 |
| | | | | |
| Surplus During the period | | 1,23,09,503 | 1,22,73,725 | 67,29,063 |
| | | | | |
| Total | | 3,15,00,344 | 3,08,19,972 | 2,10,54,171 |

**Signed in original copy**

**For BP Agrawal & Co**

**Chartered Accountants**

**FRN: 001210C**

**Rakesh Agarwal**

**Partner**

**MS No 095224**

# Publications

## Technical Reports

Sasthamkotta – An Integrated Plan for Conservation and Wise Use (for State Wetlands Authority, Kerala)

Ashtamudi - An Integrated Plan for Conservation and Wise Use (for State Wetlands Authority, Kerala)

Coastal Wetlands and Climate Change (for Ministry of Environment, Forest and Climate Change, Government of India)

## External Publications

Kumar, R., McInnes, R.J., Everard, M., Gardner, R.C., Kulindwa, K.A.A., Wittmer, H. and Infante Mata, D. (2017). Integrating multiple wetland values into decision-making. Ramsar Policy Brief No. 2. Gland, Switzerland: Ramsar Convention Secretariat, Gland, Switzerland.

Kumar, R., Tol, S., McInnes, R. J., Everard, M. and Kulindwa, A.A. (2017). Wetlands for disaster risk unities. Ramsar Policy Brief No. 1.Gland, Switzerland: Ramsar Convention Secretariat, Gland, Switzerland.

Kumar, Ritesh and Ambastha, K. (2017). Wetlands of Ganga Brahmaputra Basin. In Max Finlayson et al. The Wetland Book 2017: Distribution, Description and Conservation Volume II, Springer, Dordrecht, The Netherlands.

Pascual, U., Balvanera, P., Díaz, S., et al. (2017). Valuing nature's contributions to people: The IPBES approach. Current Opinion in Environmental Sustainability. Vol 26-27, 2017, 7-16

## Posters

Wetlands for Sustainable Urban Future – on World Wetlands Day, February 2018

Wetlands make cities liveable – on World Wetlands Day, February 2018


## *Stay in touch*

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