Visionary Perspective Plan

For Conservation of Avian Diversity, their Ecosystems, Habitats & Landscapes in the Country

VPP
2020-2030





Published by

Ministry of Environment, Forest and Climate Change, Government of India

Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110 003

Website: www.moef.nic.in

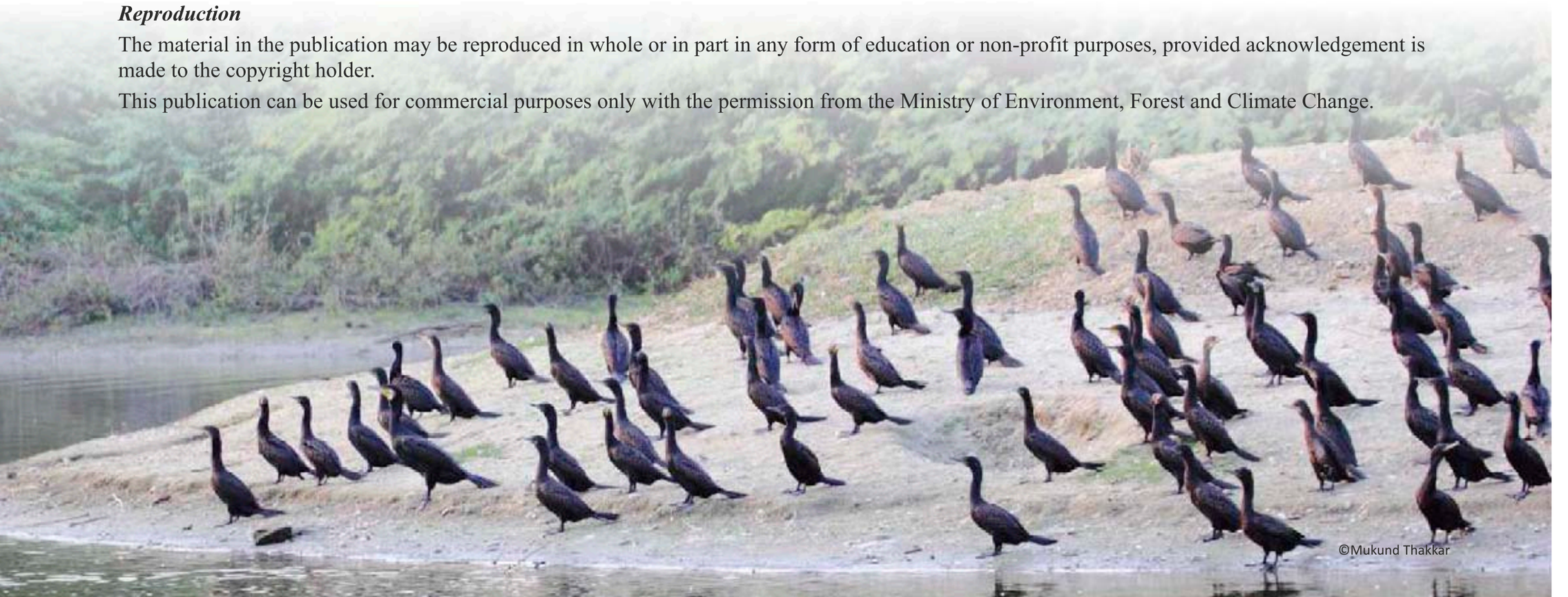
&

Sálim Ali Centre for Ornithology and Natural History

(A Centre of Excellence under the Ministry of Environment, Forest and Climate Change, Govt. of India)

Anaikatty (Post), Coimbatore- 641 108, Tamil Nadu

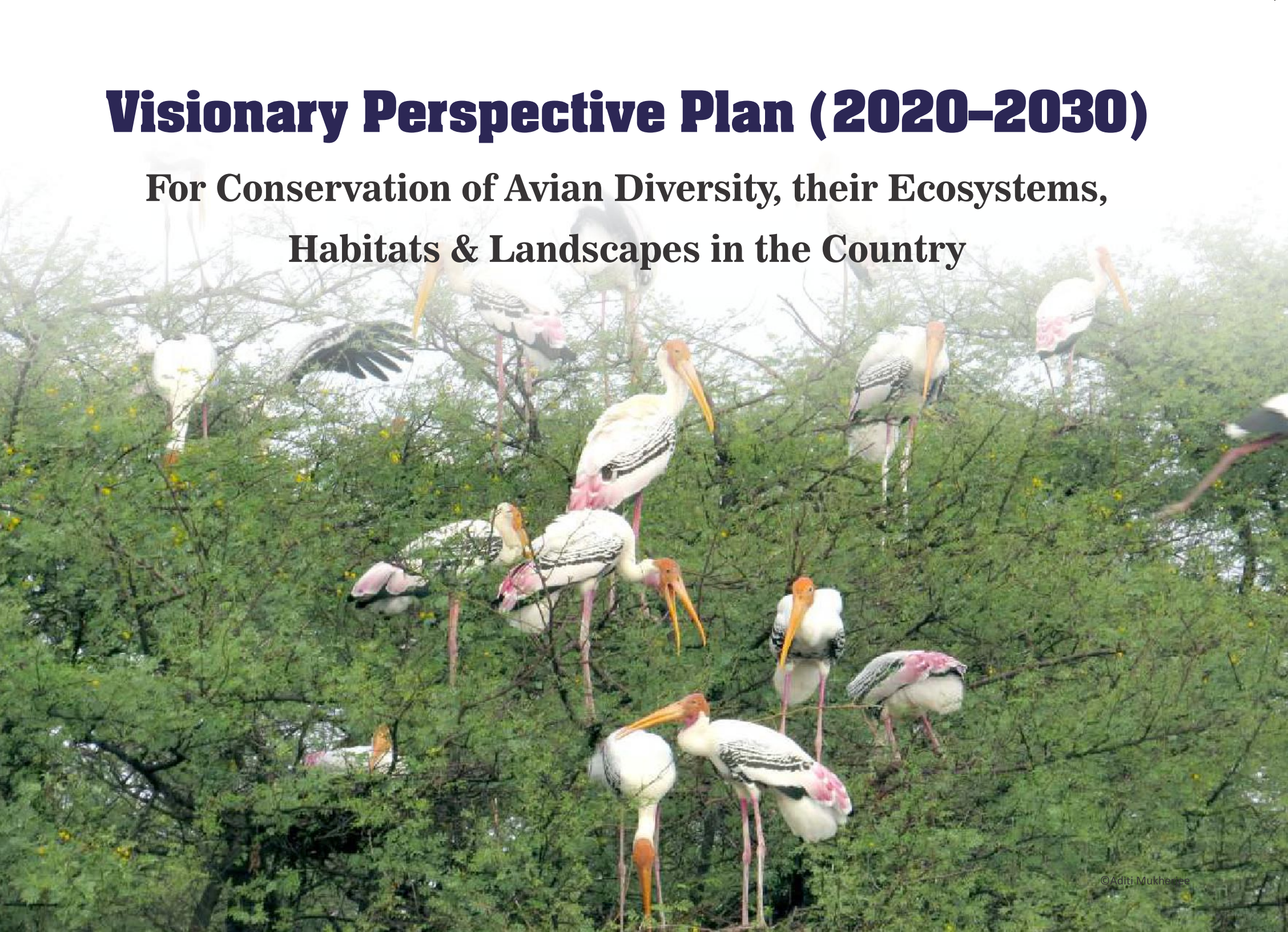
Website: www.sacon.in



©Mukund Thakkar

Visionary Perspective Plan (2020–2030)

For Conservation of Avian Diversity, their Ecosystems, Habitats & Landscapes in the Country




©Shiva Kumar

मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन,
सूचना एवं प्रसारण और
भारी उद्योग एवं लोक उद्यम
भारत सरकार

प्रकाश जावडेकर
Prakash Javadekar

MINISTER
ENVIRONMENT, FOREST & CLIMATE CHANGE,
INFORMATION & BROADCASTING AND
HEAVY INDUSTRIES & PUBLIC ENTERPRISES
GOVERNMENT OF INDIA

MESSAGE

India is endowed with a spectacular variety of wildlife habitats and landscapes - from the 7,500 km long coastline to the mighty Himalayas-that are home to a large number of biodiversity including avian diversity with no less than 1,300 species recorded from the country. With an impressive Protected Area Network that boasts of 104 National Parks, 551 Wildlife Sanctuaries, 88 Conservation Reserves, and 127 Community Reserves, India is one of the leading countries of the world in biodiversity conservation and protection of threatened diversity including avifauna.

Given the extraordinary role played by birds in the well-being of ecosystems and our lives, and the urgent need to have a long-term strategy and focussed approach to protect the avian diversity of the country, the Ministry of Environment, Forest & Climate Change, has decided that a Perspective Plan be prepared specifically for the conservation of India's avian diversity. I am happy to note that a Visionary Perspective Plan (VPP) has been prepared by the Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore, a Centre of Excellence, with the Ministry of Environment, Forest & Climate Change, GOI. The VPP, through widespread consultations with various stakeholders, has identified 15 major Programmes, which are outlined in a ten-year road map (2020-2030). I am particularly happy to note that the VPP has recognized thrust areas under each of the Major Programmes that have remained largely neglected; these include conservation of avifauna outside Protected Areas like grassland, coastal wetlands, urban avian habitats, impacts of developmental projects on bird populations, mainstreaming of bird conservation into government sector and national capacity building plans for conservation of India's avifaunal diversity.

I congratulate the Sálim Ali Centre for Ornithology & Natural History, Coimbatore, and all those involved in the MoEFCC in the preparation of the VPP and all who provided their inputs, comments and suggestions. I sincerely hope the VPP is used as a framework document by all stakeholders for the conservation of avian diversity in the country.

Date: 29.05.2020

(Prakash Javadekar)

|| प्लास्टिक नहीं, कपड़ा सही ||

इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली – 110 003 फ़ोन : 011-24695136, 24695132, फैक्स : 011 – 24695329
Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110 003, Tel.: 011-24695136, 24695132, Fax : 011 – 24695329
इ-मेल/ E-mail : minister-efcc@gov.in


©Malyasri Bhattacharya
©Malyasri Bhattacharya

सी. के. मिश्रा
C.K. Mishra

सचिव
भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

MESSAGE

Our country, despite hosting 17.7% of the global human population, is amongst the most biodiverse nations of the world, with a firm commitment to protect and preserve its biodiversity. India is positioned amongst the top ten countries in avian diversity and harbours around 13% of bird species found globally. The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency in the Government of India for the implementation of laws and policies pertaining to environmental protection and conservation of biodiversity. The MoEFCC is implementing several Plans, Schemes and Programmes for conservation of biodiversity and their habitats. These include the National Wildlife Action Plan (NWAP) (2017-2031) which is a 15-year future road map for wildlife conservation, National Action Plan for the Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023), Protected Area Network and Biosphere Reserves in the country, National Plan for Conservation of Aquatic Eco-systems (NPCA), and National Biodiversity Action Plan 2019.

Recognising a need for a focussed approach for conservation of avian diversity in the country, the Ministry of Environment, Forest and Climate Change entrusted the Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore, a Centre of Excellence under the MoEFCC, for preparation of a Visionary Perspective Plan (VPP), which is a 10-year road map (2020-2030) for the conservation of avian diversity, their ecosystems, habitats and landscapes in the country.

The Visionary Perspective Plan, 2020-2030 for the Conservation of Avian Biodiversity comprises of 15 major Programmes on diverse aspects of avian diversity conservation including conservation of avian habitats such as wetlands, coastal and marine ecosystems, prevention and control of avian diseases, impacts of climate change and other anthropogenic impacts, curbing illegal hunting and trade, etc. The Plan will be dovetailed with existing Plans, on-going Schemes and Programmes for the conservation of biodiversity at the Central and State level. The Plan is to be implemented through specific projects identified from the 15 major programmes of the VPP. Components such as Capacity Building, Awareness and Outreach programmes and Community Participation would be integral to various projects identified under the Plan. The VPP would serve as a Framework Document for conservation of avian diversity in the country for implementation by various stakeholders at the Central and State levels in collaboration with various partner institutions and organisations. The Sálim Ali Centre for Ornithology and Natural History, Coimbatore would be the Focal Institution of the MoEFCC for the implementation of the Plan.

The Ministry is thankful for the inputs, suggestions and comments received on the Draft Plan from various stakeholders such as Central Ministries and Departments, State Forest and Wildlife Departments, organisations and institutions, including NGOs which have helped in finalisation of the Plan.

I congratulate the Sálim Ali Centre for Ornithology and Natural History, Coimbatore and all those in the Ministry in the preparation of the Plan and look forward to its successful implementation.

New Delhi, the 28th May, 2020

[C.K. Mishra]

इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली – 110 003 फ़ोन : (011) 24695262, 24695265, फैक्स : (011) 24695270
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD, NEW DELHI-110 003, Ph. : (011) 24695262, 24695265, Fax : (011) 24695270


©Jeevith S.

OBJECTIVE OF THE VISIONARY PERSPECTIVE PLAN (2020–2030)

- The Indian Constitution in its Article 51-A (g) states that "It shall be the duty of every citizen of India to protect and improve its natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures". Article 48-A of the Constitution states that "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country".
- India is also a signatory to several International Conventions and Treaties that mandate conservation of natural resources and biodiversity for protection of Planet Earth.
- The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency in the Central Government for "Overseeing the implementation of India's environment and forest policies and programmes relating to conservation of the country's natural resources including lakes and rivers, biodiversity, forests and wildlife, ensuring the welfare of animals and prevention and abatement of pollution".
- India is one among the mega-biodiversity countries of the world with many endemic species, including several birds. India also includes regions such as the Eastern Himalayas and the Western Ghats—categorised as "Global Biodiversity Hotspots" that are under severe threat and require urgent conservation measures.
- Birds perform various ecosystem services and functions such as control of insect pests in agriculture and forestry, rodent control, pollination of plants, seed dispersal and forest regeneration, scavenging services, indicators of environmental health and have socio-cultural and religious values. Decline in their populations is due to destruction of their natural habitats, environmental degradation, changes in landuse such as urbanization, environmental pollution and other factors. This leads to ecological imbalances like increase in insect and rodent populations, vector-borne diseases, etc. For example, the catastrophic population decline of vultures, which are carrion feeders, led to an alarming increase in the population of stray dogs especially in urban areas across the country. A study found that this abrupt increase in stray dog population resulted in high rates of rabies incidences, costing the country about Rs. 3,400/- crores during the period 1993–2006.
- There are total of **870 Protected Areas (PAs)** (National Parks, Wildlife Sanctuaries, Community Reserves and Conservation Reserves) in the country, many with high avian diversity. A **total of 554 sites** in our country have also been designated as **"Important Bird & Biodiversity Areas (IBAs)"** of which **219 IBAs are outside the PA** network and are under severe anthropogenic pressure. There are **presently 2,01,503 wetlands (above 2.25 ha)** in the country, most of which are under stress due to impacts of urbanization, agricultural run offs which require specific management plans for conservation.

- Wildlife trafficking also contributes to the decline of already fragile populations of endangered bird species across the world including in India. A comprehensive plan is required to check trafficking of endangered birds especially through major airports, ports and border regions of India, vulnerable to such trafficking. This includes strengthening of capacity of personnel and infrastructure.
- In October 2017, the MoEFCC prepared **'India's National Wildlife Action Plan (2017–2031)'** outlining various priority areas of action for conserving India's wildlife and biodiversity including avian diversity, their habitats, ecosystems, landscapes, and other issues governing wildlife conservation in the country.
- MoEFCC has also drawn up a Plan for conservation of migratory birds under 'India's National Action Plan for Conservation of Migratory Birds and their Habitats along the Central Asian Flyway (2018–2023)' with specific programmes and projects. In addition, there are a number of on-going Plans, Programmes and Schemes for conservation of biodiversity in the country.

©Aditi Mukherjee

- Considering the ecological services that bird perform and their role in the stability of ecosystem functioning, it is imperative that a long-term plan for conservation of avian bio-diversity, their ecosystems and habitats is prepared. The present exercise is to prepare a Visionary Perspective Plan for conservation of avian diversity in the country. The main objective of the Visionary Perspective Plan (VPP) is to prepare a long-term perspective plan on priority areas for conservation of avian diversity, habitats, ecosystems and landscapes in the country. In this context, 15 major Programmes are envisaged and various thrust areas/activities are proposed thereunder for implementation over the next 10 years (2020–2030). These are to be implemented over short-term 2020–2024 (4 years), medium-term 2024–2027 (4–7 years) and long-term 2027–2030 (7–10 years) periods and extended beyond Year 2030 based on review and evaluation. The Visionary Perspective Plan, 2020–2030 for the Conservation of avian diversity will be dovetailed with existing Plans, on-going Schemes and Programmes for the conservation of biodiversity at the Central and State level, including the National Wildlife Action Plan (NWAP), 2017–2031; the National Biodiversity Action Plan (NBAP), 2008; National Mission for Himalayan Studies

(NMHS); National Water Mission (NWM); National Mission for Sustaining the Himalayan Environment (NMSHE); Wetland Rules, 2017; National Plan for Conservation of Aquatic Ecosystems (NPCA) Guidelines, 2019, National Sustainable Coastal Zone Management (NSCZM) and other relevant schemes and programmes.

- The Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore, a Centre of Excellence under the Ministry of Environment, Forest and Climate Change (MoEFCC) is a Centre with the broad mandate of conservation of avian diversity, ecosystems and habitats in the country. The VPP is to be implemented by various stakeholders including various Ministries and Departments at the Central and State levels in collaboration with various partner institutions and organisations with the Ministry of Environment, Forest & Climate Change (MoEFCC) as the focal Ministry in the GOI and the Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore as the focal Institution thereunder.

CONTENTS

©Jainy Kuriakose


©Shiva Kumar


©Deepak D.

Conservation of Rare, Endangered & Threatened (RET) Bird Species of India and Implementation of Species Recovery Plans (SRPs)

PROGRAMME 1

INTRODUCTION

- Of the 1317 bird species recorded in India, 72 are endemic to the country. According to an assessment of the International Union for Conservation of Nature (IUCN) 2018, a total of 100 species of Indian birds are classified as threatened. Of these, 17 are categorised as 'Critically Endangered', 20 as 'Endangered', and 63 as 'Vulnerable'. Besides these threatened species, several other species are marked by sparse population size and restricted range, and are generally considered rare by conservationists. It is documented that 270 species (21%) of Indian avifauna fall under the 'Rare' category. These include the raptors, pheasants, bustards, hornbills, cranes, storks and others. Together they are categorised as Rare, Endangered and Threatened (RET) bird species.
- RET bird species require immediate conservation action as they are prone to extinction, the main factors being poaching, habitat loss, fragmentation of ecosystems and habitats, epidemics, and other environmental changes. Urgent and innovative conservation measures are needed for RET species through identification of threats and protection of their critical habitats with implementation of conservation measures and Species Recovery Plans (SRPs) to restore their dwindling populations.
- There are a number of bird species which are endemic to the country and require being conserved and protected.

OBJECTIVE

To undertake detailed ecological investigations of RET bird species of India and their habitats and to develop and implement conservation measures and Species Recovery Plans

©Dhritiman Mukherjee

ACTION REQUIRED

1. Conduct population, habitat and threat assessments and identify and prioritise RET species of Indian avifauna that need conservation intervention.
2. Identify conservation measures required for restoration of dwindling populations of RET bird species in their natural habitats and preparation of 'Species Recovery Plans' for specific RET species.
3. Implementation of SRP including Re-introduction of RET bird species in native habitats where necessary.
4. Monitoring and Evaluation of Implementation of Species Recovery Plans.
5. Replication of successful SRPs for RET bird species in different regions of the country.
6. Enhance capacity of stakeholders in *in-situ* and *ex-situ* conservation of RET bird species and raise awareness for successful re-introduction and restoration of populations of RET species in their natural habitats in the country.
7. Conservation and Management Plans for endemic species including Point Endemics and Island Endemics.

THRUST AREAS

1.1 Review and update the list of RET bird species in India through periodic assessments including brain storming workshops and consultations. **[Duration: Short-term, Medium-term and Long-term].**

1.2 Study the ecology of RET bird species and identify threats and Prioritise RET species for selection of SRPs. **[Duration: Short-term, Medium-term and Long-term).**

2.1 Identify specific conservation measures for select RET bird species. **[Duration: Short-term and Medium-term].**

2.2 Prepare and execute Species Recovery Plans for select RET bird species in India. **[Duration: Short-term, Medium-term and Long-term].**

2.3 Develop guidelines for *ex-situ* breeding and re-introduction of select RET bird species. **[Duration: Short-term].**

2.4 Study genetic introgression in select RET bird species and initiate measures for safeguarding genetically pure wild populations. Genetic studies should also focus on other aspects like gene flow, inbreeding depression, population genetics and phylogenetics. **[Duration: Medium-term].**

2.5 Identify suitable alternative sites after detailed study of such habitats for re-introduction of select RET bird species with low population size and depleted range size. **[Duration: Long-term].**

2.6 Develop methods for procreating and conserving select RET bird species using surrogate species. **[Duration: Short-term, Medium-term and Long-term].**

©Aditi Mukherjee


©Hari Somashekar

2.7 Develop state-of-the-art Genome Resource Banking facility at SACON for cryobanking viable biomaterials from RET bird species. **[Duration: Long-term].**

2.8 Generate whole-genome sequences of select RET bird species. **[Duration: Long-term].**

3.1 Assess reintroduction of RET species in their habitats. **[Duration: Medium-term].**

3.2 Assess Implementation of Species Recovery Plans for select RET bird species. **[Duration: Medium-term and Long-term].**

4.1 Establish a Protocol of Monitoring and Evaluation of the Implementation of SRPs. **[Duration: Short-term].**

4.2 Identify issues in implementation of SRPs for effective course corrections, if necessary. **[Duration: Medium-term and Long-term].**

5.1 Replicate successful SRPs of select RET bird species in other parts of their range within the country. **[Duration: Medium-term and Long-term].**

6.1 Capacity building of forest staff and zoo personnel in *in-situ* and *ex-situ* conservation of RET bird species. **[Duration: Short-term, Medium-term and Long-term].**

6.2 Capacity building of local communities and other stakeholders in various regions of the country for conservation of RET bird species. **[Duration: Short-term, Medium-term and Long-term].**

7.1 Conservation and Management Plans for endemic species—Point Endemics including from the four Biodiversity Hotspots and Island Endemics. **[Duration: Short-term, Medium-term and Long-term].**

CONSERVATION OF IMPORTANT BIRD & BIODIVERSITY AREAS (IBAs) OF THE COUNTRY OUTSIDE PROTECTED AREA (PA) NETWORK

PROGRAMME 2

INTRODUCTION

- Important Bird & Biodiversity Areas (IBAs) are a network of sites, which are exceptionally rich in avian diversity and other taxa including rare, endangered, and threatened (RET) species. Since such habitats fall outside the Protected Areas (PAs), they are vulnerable to pressures from anthropogenic activities and habitat destruction leading to a decline in avian diversity. Therefore, conservation of such habitats which support high number of bird species assumes greater significance as strongholds for biodiversity conservation.

- In India, there are 554 IBAs out of which 506 sites have globally threatened species. Of these IBAs, 335 are in PAs and 219 are outside PAs (c.39%). Though a small proportion of such non-PA IBAs do enjoy community protection, most do not have any conservation action plan or management prescription for their sustenance.

- With increasing focus on conservation of wildlife populations outside PAs worldwide, it is imperative that comprehensive and participatory management plans for IBAs outside PA network are given priority.

OBJECTIVE

- To strengthen the management of IBAs outside the PA network in the country
- To mobilise State Governments in conservation of their habitats and in implementation of conservation plans and through partnership with local communities in implementing Conservation Plans, through access and benefit sharing

©Siddhesh D. Bhave

ACTION REQUIRED

1. Assess avian diversity of IBAs outside PA network, especially those supporting RET species.
2. Establish an IBA Network with high avian diversity.
3. Conduct economic evaluation of ecosystem goods, services, and functions rendered by IBAs outside PA network.
4. Prioritize IBAs on the assessment on IBAs requiring urgent conservation and prepare Conservation-cum-Management Plans for implementation by State Governments with the participation of local communities for conservation of avian diversity. To develop participatory management plans involving local communities and institutions.
5. Develop an evaluation and monitoring protocol to assess management effectiveness of prioritized IBAs outside PA network.
6. Undertake capacity-building of local communities and other stakeholders in ecotourism and IBA management.
7. Identify new sites of significant avian diversity for inclusion in the IBA network.


©Madhumita Rajkumar

THRUST AREAS

1.1 Conduct bird surveys in IBAs outside PA network in all the biogeographic zones of the country. Use of citizen science project data like ebird, iNaturalist etc. could also be useful for bird diversity assessment in IBA's. **[Duration: Short-term].**

2.1 Quantify the economic value of ecosystem goods, services, and functions mediated through establishment of IBAs. **[Duration: Short-term].**

3.1 Prioritize IBAs outside PA network in terms of their biodiversity and ecosystem values. **[Duration: Medium-term].**

3.2 Develop inclusive and participatory management plans for select IBAs outside PA network and policy framework for implementing the action plans. **[Duration: Short-term].**

3.3 Develop comprehensive strategies for restoration of bird habitats in select IBAs outside PA network and monitor avifaunal responses. **[Duration: Medium-term].**

4.1 Assess and monitor the effectiveness of management interventions in select IBAs outside PA network. **[Duration: Long-term].**

5.1 Prepare Guidance Manual for management and conservation of avian diversity and habitats in IBAs outside PA Network. **[Duration: Short-term].**


©Rajah Jayapal

5.2 Establish networking of IBAs in the country for dissemination of information, strategy and success stories. **[Duration: Short-term].**

6.1 Capacity building of local communities in skill portfolio of IBA governance that includes use of other ecosystem and economic services such as ecotourism, natural history knowledge, for conservation and adaptive management of IBA sites. **[Duration: Medium-term].**

6.2 Conduct awareness and capacity building workshops for State Governments and other stakeholders on Strategy and Management Plans for conservation of IBAs outside PA network. **[Duration: Medium-term and Long-term].**

7.1 Conduct bird surveys in select landscapes to identify new IBAs for conservation of birds and other biodiversity. For generation of maximum baseline information, large scale surveys involving volunteer birders and nature enthusiasts can be conducted in the forms of bird festivals, nature fairs, annual bird count etc. **[Duration: Short-term and Medium-term].**

7.2 Prepare conservation plans for new IBAs in consultation with State Governments and other stakeholders. **[Duration: Short-term, Medium-term and Long-term].**

7.3 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for conservation management of IBAs. **[Duration: Short-term].**

PROGRAMME
3

CONSERVATION OF PROTECTED AREAS (PAs) WITH HIGH AVIAN DIVERSITY

INTRODUCTION

- Protected Areas (PAs) which include National Parks, Wildlife Sanctuaries, Nature Conservation Reserves and Community Reserves, are legally designated geographical areas in the country that are dedicated for conservation of wild flora and fauna under the Wildlife (Protection) Act, 1972. The conservation and expansion of existing PA network across different biogeographic zones of the country are key components in the conservation strategy and plan for protecting biodiversity, especially wildlife, including RET species and their habitats.
- Currently, there are 870 PAs including 104 National Parks, 551 Wildlife Sanctuaries, 88 Conservation Reserves and 127 Community Reserves that occupy 1,65,088.36 km², which is 5.02% of India's total geographical area [Source: WII National Wildlife Database Cell]. Among these, c. 10% of the PAs have birds as focal taxa.
- The PAs are managed through periodically updated Management Plans. The National Wildlife Action Plan (NWAP, 2017–31) emphasizes streamlining of the review process of Management Plans. Regular monitoring of PAs with high biodiversity value, including RET bird species, and management practices aimed at conservation of birds is the need of the hour.


©Shiva Kumar

OBJECTIVE

- To develop conservation strategies and a Road Map for effective management of PAs with high avian diversity

©Aditi Mukherjee

ACTION REQUIRED

1. Assess the existing PA network in different biogeographic zones and prioritize PAs with high avian diversity for developing conservation strategies.
2. Generate baseline information on bird populations, habitats and impacts of anthropogenic activities on avifauna in PAs with high avian diversity.
3. Prepare conservation action plans for select PAs with high avian diversity.
4. Enhance capacity of PA managers in developing conservation strategies for PAs with high avian diversity.

©Madhumita Rajkumar

THRUST AREAS

1.1 Assess the adequacy of existing PA network with respect to bird diversity and representation of biogeographic zones. **[Duration: Short-term].**

1.2 Identify and prioritize PAs with high avian diversity for developing conservation strategies. **[Duration: Short-term].**

1.3 Survey key habitats for avian diversity in select landscapes to identify potential areas for inclusion in PA network. **[Duration: Short-term].**

2.1 For generation of maximum baseline information, large scale surveys involving volunteer birders and nature enthusiasts can be conducted in the forms of bird festivals, nature fairs, annual bird count etc. Local youth to be trained as bird-guides and registered as professionals in the field of Birding. This can become a good source of livelihood. **[Duration: Short-term, Medium-term and Long-term].**

2.2 Create online database of populations of avian diversity and their habitats in select PAs. **[Duration: Short-term].**

2.3 Identify and assess threats to bird populations in PAs. **[Duration: Short-term, Medium-term and Long-term].**

2.4 Assess and monitor avian populations and their habitat requirements in select PAs. **[Duration: Short-term].**

2.5 Document the effects of management practices and resource extraction activities on bird communities in select PAs. **[Duration: Short-term].**

3.1 Develop species-specific action plans and conservation strategies for key avifaunal groups in select PAs. **[Duration: Short-term and Long-term].**

4.1 Train forest staff and other stakeholders in monitoring of bird species and their habitats through capacity building programmes. **[Duration: Short-term and Long-term].**

Conservation of Avian Diversity at the Landscape Level

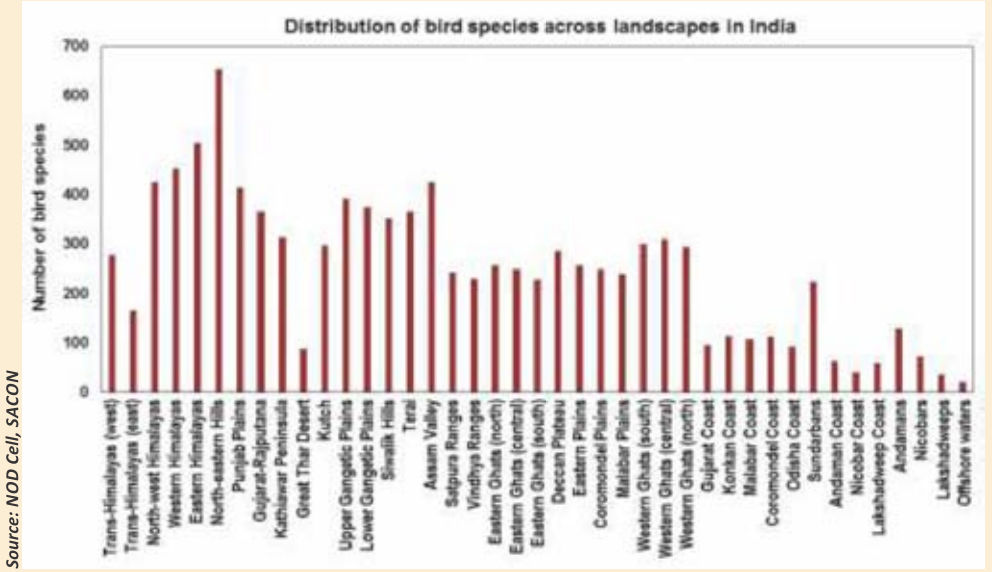
PROGRAMME 4

INTRODUCTION

- India hosts the world's second largest human population constituting 18% of the global population on just 2.4% of the global terrestrial area. Addressing the needs of this burgeoning human population of the country in terms of food, and quality of life including housing remains a challenge. Although agriculture will continue as the mainstay for livelihoods, industrialization is bound to increase in a growing economy.
- India ranks among the top 10 countries in global bird diversity with 1,317 species of birds against around 10,000 species found worldwide.
- Major landscapes of the country include the Himalayas, the Western Ghats and the Eastern Ghats and other mountain ranges, the Thar Desert, etc. A summary of bird diversity in various landscapes in India is depicted in the graph.

OBJECTIVE

To mainstream bird conservation into landscape level planning and management in consultation with State Governments and other stakeholders



Source: NOD Cell, SACON

- India is one among the mega-biodiversity countries of the world with many endemic species, including several birds. Our country also includes landscapes and regions on a macro scale such as the Eastern Himalayas, and Western Ghats which are categorised as "Global Biodiversity Hotspots" i.e. regions with high population of biodiversity including avifauna (bird species) including a large variety of RET species, and with high level of endemism (species found only in our country) that are under severe pressure and requiring urgent conservation.
- Since the past few decades, there has been a notable shift in the way biodiversity conservation is practiced. It has scaled up from a Protected Area-centric perspective to a landscape one, where several land regimes are incorporated into biodiversity conservation programs. This also ensures that populations of species are not protected in small isolated pockets but occur throughout the landscape, maintaining physical and genetic connectivity. This necessitates the co-operation of several administrative departments that control landuse policies and local communities to ensure bird conservation.
- Several species of birds occur outside the PA network in human modified and densely populated landscapes, and some of these landscapes form prime habitats for many species. These include, among several other species, Critically Endangered species like the Great Indian Bustard and iconic species like the Sarus Crane and Indian Peafowl that feature prominently in human cultures. However, land policies often clash with the objectives of biodiversity conservation and hence, the latter must be mainstreamed into land policies. For example, uncultivable areas like scrub, sandy areas, rocky areas, and ravines, which are natural habitats for many bird species, are categorised as wastelands and utilized for developmental activities.

ACTION REQUIRED

1. Identify landscapes potentially rich in bird species, but are also dominated by human use or likely to undergo change in regime, e.g. production landscapes, wastelands and mosaics of land regimes.
2. Assess avian diversity in these landscapes and identify policies and activities that are potentially discordant with bird conservation.
3. Identify and assess areas of conflict between birds and local livelihoods.
4. Prepare specific conservation plans for avian diversity to be implemented by the State Governments at the regional and landscape levels.
5. Find solutions through community participation to mainstream avian diversity conservation into developmental plans at the landscape level.
6. Prepare Standard Operating Procedures (SOPs) and Best Practice Guides for monitoring the status of birds in human use landscapes and for developmental projects and activities that require change of landuse, in order to minimise negative impacts on bird populations.

©Dharmendra Khandel

©Nayan Khanolkar

THRUST AREAS

1.1 Identify and prioritize high avian diversity landscapes in the country. **[Duration: Short-term].**

1.2 Identify, restore and monitor corridors connecting habitat patches within landscapes of high avian diversity. **[Duration: Short-term, Medium-Term and Long-term].**

2.1 Assess avian diversity in wastelands of select landscapes and review development plans in these landscapes for their potential impact on avian diversity. State of India's Birds 2020, report can be used to extract data and evaluate the diversity rich regions of the country. **[Duration: Short-term, Medium-Term and Long-term].**

2.2 Assess avian diversity in select production landscapes and review the impact of usage of pesticides/rodenticides in these landscapes and policies governing these. **[Duration: Short-term and Long-term].**

2.3 Monitor select landscapes for habitat/environment quality using indicator species and evaluate policy issues related to landuse. **[Duration: Long-term].**

3.1 Identify and evaluate bird human conflicts at the landscape level with respect to livelihoods and socio-economic issues to evaluate particular threats to target species of birds. **[Duration: Short-term].**

4.1 Prepare landscape level conservation plans for select landscapes. **[Duration: Short-term].**

4.2 Suggest measures and mechanism for better coordination between MoEFCC with and between State Forest Departments and Line Departments of States with such landscapes to mainstream conservation of avian and other biodiversity into their development plans. **[Duration: Short term, Medium-term and Long-term].**

5.1 Build capacity in local communities in alternate livelihood options including ecotourism activities to support local economy in select landscapes. **[Duration: Medium-term].**

6.1 Prepare SOPs and Best Practices guides to mainstream conservation of avian diversity in policies, planning and implementation of the relevant Departments of such States with such landscapes. **[Duration: Short-term].**

6.2 Assess, evaluate and monitor the effectiveness of such SOPs, Best Practices Guides, Awareness and Capacity Building Programmes in enhancing avian diversity in States with such landscapes. [**Duration: Short-term, Medium-term and Long-term**].

6.3 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for conservation management across landscapes and regions. [**Duration: Short-term**].

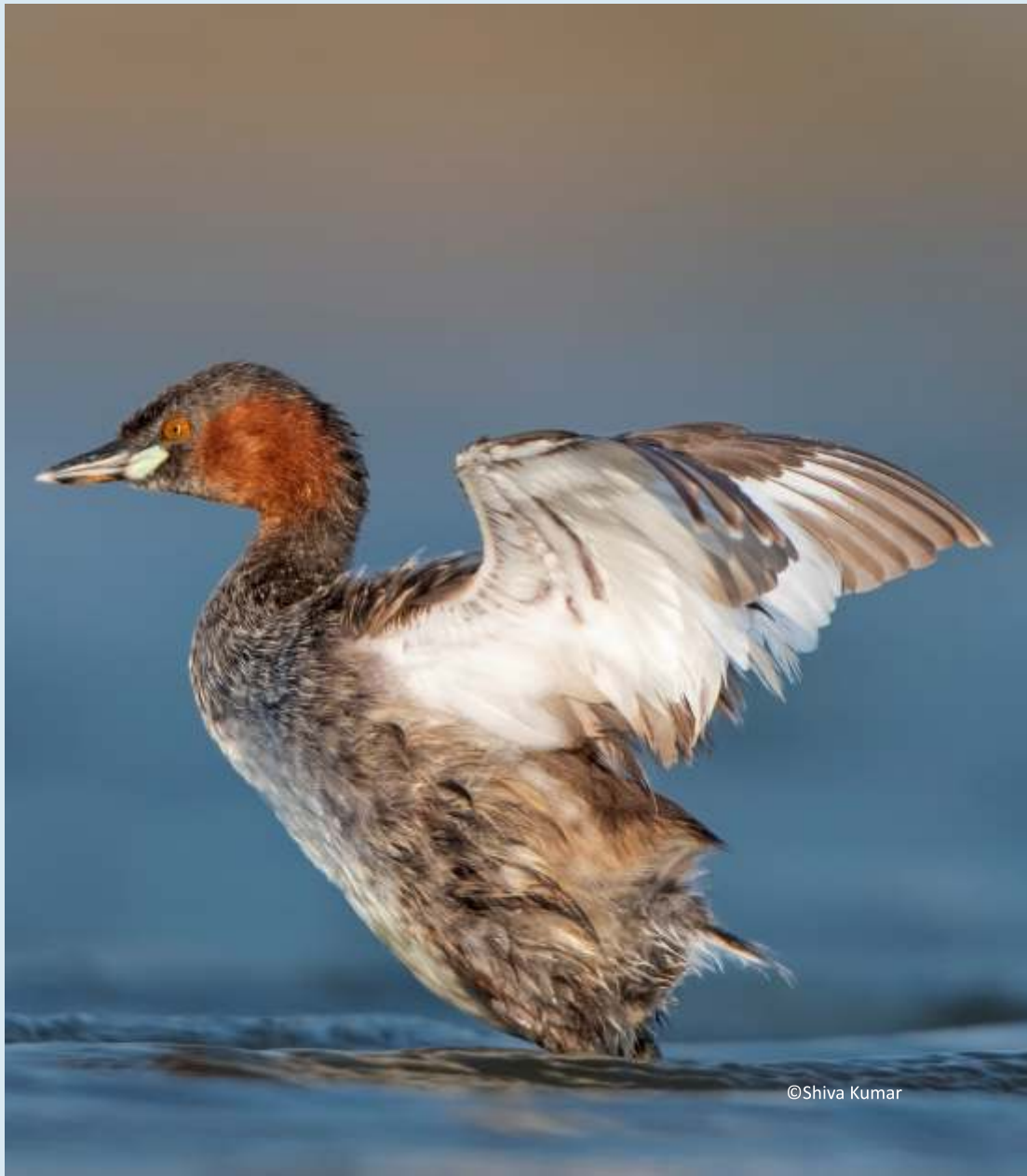
CONSERVATION OF INLAND AQUATIC ECOSYSTEMS WITH HIGH AVIAN DIVERSITY

PROGRAMME 5

INTRODUCTION

- Wetlands are the lifeline of society as they provide vital support to human well-being through their wide-ranging ecosystem services and biodiversity values. According to the National Wetland Atlas (2011), India has 15.26 million ha area under wetlands i.e. nearly 4.6% of its land area. Degradation of wetlands owing to pressures from anthropogenic activities and non-anthropogenic drivers affect biodiversity and human well-being.
- The wetland conservation and sustainable management is one of the important programmes of MoEFCC.

  The conservation and wise use of wetlands figure significantly in various policy commitments of the country. India is among the prominent signatories of the Ramsar Convention that identifies wetlands of international importance. While taking its commitment further, India has established the National Wetlands Conservation Program, the National Lake Conservation Plan and Wetland (Conservation and Management) Rules 2017.
- Under the Ramsar Convention (1971), 37 wetlands have been designated as Ramsar Sites in India for taking concerted action for conservation of those wetlands.


©Shiva Kumar

OBJECTIVE

To conserve inland aquatic ecosystems with high avian diversity through integrated management plans and strategies, involving State Governments, local communities and other stakeholders

ACTION REQUIRED

1. Identify inland aquatic ecosystems that are important bird habitats and contribute to repositories like National Wetland Atlas and Biodiversity Register.
2. Develop integrated management plans for promoting sustainable practices along the inland water bodies and catchment areas, and maintaining environmental flows to the bird habitat including heronries, in consultation with State Governments.
3. Standardise modern environmental tools and techniques to assess inland water bodies with focus on conserving avian diversity.
4. Study the impacts of anthropogenic stresses on bird communities in inland aquatic ecosystems.
5. Assess the influence of invasive species and pathogens on quality of inland aquatic ecosystems with focus on bird populations.
6. Monitor and select inland aquatic ecosystems to facilitate the 'National Wetland Mission of India' and contribute to the country's commitments at international conventions such as Ramsar, CBD and others.
7. Evaluate ecosystem services of important inland water bodies and evolve strategies for maintaining such services for the benefit of local communities.
8. Assess the health of the 41 existing Ramsar Sites (as on November 2020) and other wetlands selected as new Ramsar Sites for status of these wetlands in terms of biodiversity value, conservation and management and recommend specific action plans and road map for State Governments for better conservation.
9. Strengthen the capacity of managers of wetlands and stakeholders in accordance with the Ramsar Guidelines and Wetland Rules 2017.

©Shiva Kumar

THRUST AREAS

1.1. Document and catalogue inland water bodies using Remote Sensing and GIS techniques and prioritize wetland bird habitats. **[Duration: Long-term].**

1.2. Review and update the *Inland Wetlands of India: Conservation Atlas* (SACON, 2004). **[Duration: Short-term].**

1.3. Identify and prioritise natural and man-made wetlands/tanks with high avian diversity. **[Duration: Short-term].**

1.4. Conservation of select inland wetlands including heronries and evaluate their linkages with farming practices. **[Duration: Short-term, Medium-term and Long-term].**

2.1. Assess and prepare conservation plans for select high-altitude wetlands. **[Duration: Short-term, Medium-term and Long-term].**

2.2. Prepare SOPs for inland wetland conservation and management. **[Duration: Long-term].**

2.3. Develop participatory management strategies for conservation of select inland wetlands including heronries and evaluate their linkages with farming practices. **[Duration: Medium-term].**

3.1. Assess the biodiversity of important inland wetlands using molecular tools such as eDNA. **[Duration: Short-term].**

3.2. Evaluate the trophic structure of bird habitats in select inland wetlands using biogeochemical tools such as stable isotopes. **[Duration: Long-term].**

4.1. Assess micro-plastics in select inland wetlands and their accumulation in the food web. **[Duration: Short-term].**

4.2. Assess contamination profile of inland wetlands using fish as indicator taxa. **[Duration: Long-term].**

5.1. Assess and monitor the role of birds in transmitting faecal coliform bacteria across inland wetland ecosystem. **[Duration: Short-term].**

5.2. Evaluate the impact of Invasive Alien Species for conservation and management of inland wetlands of national importance. **[Duration: Short-term, Medium-term and Long-term].**

6.1. Long term monitoring of Ramsar sites (inland wetlands) and wetlands of national importance using the NRCD wetland health card involving local communities. **[Duration: Short-term, Medium-term and Long-term].**

7.1. Assess the ecosystem services provided by the inland aquatic ecosystems. **[Duration: Short-term, Medium-term and Long-term].**

7.2. Impact of bird droppings on the inland wetland nutrient cycling and its effect on primary productivity. **[Duration: Short-term].**

8.1. Assess and evaluate the present status of 37 Ramsar Sites in the country. **[Duration: Short-term, Medium-term and Long-term].**

8.2. Assess the present Conservation Strategies and Management Plans under implementation for effectiveness, gaps and shortcomings if any and make recommendations for better management of the Ramsar wetlands. **[Duration: Short-term, Medium-term and Long-term].**

9.1. Capacity Building of the relevant stakeholders of State Departments, other institutions and the local communities for the conservation of ecology of the wetlands and the avian diversity of the wetlands. **[Duration: Short-term, Medium-term and Long-term].**

9.2. Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for better conservation management of aquatic habitats. **[Duration: Short-term].**

©Manoj V. Nair

Conservation of Coastal and Marine Ecosystems with High Avian Diversity

PROGRAMME 6

INTRODUCTION

- Coastal and marine areas are among the most productive ecosystems that have come under immense pressure due to various human activities. India has a coastline of 7516.6 km covering nine coastal states and offshore islands including Andaman & Nicobar and Lakshadweep Islands. Over 250 million people inhabit coastal districts, and over 20 million people among them depend on different coastal ecosystems for their livelihoods.
- The coastal and marine ecosystems comprise coral reefs, sea grass meadows, salt marshes, intertidal (muddy, sandy and rocky) flats, mangroves and sand dunes associated with coastal wetlands comprising of deltas, lagoons, estuaries, creeks, bays and others. These ecosystems are threatened by habitat conversion, due to anthropogenic activities such as infrastructure development and urbanization resulting in environmental degradation and severe stress on the natural resources of the coastal ecosystems. The impairments resulting from landuse change, pollution, invasion, contamination and marine litter drastically impact the coastal biodiversity including the pelagic and coastal bird habitats.
- India has formulated regulations such as the Coastal Regulation Zone (CRZ) for the management of coastal zone that has to be implemented by the State Governments concerned for maintaining the health of the coastal habitats and for human welfare.
- India is a signatory to several International coastal and marine Conventions such as MARPOL, Ramsar, etc. India is also a signatory to the Convention of Biodiversity (CBD) 1992, whereby it requires meeting the Aichi Biodiversity Targets by conserving 10% of its coastal and marine area as PA network. However, considering the vast diversity of habitats and anthropogenic pressures this is a challenging task.

OBJECTIVE

To identify coastal and marine areas of high conservation value for avifauna, and develop integrated and sustainable conservation and management plans involving relevant stakeholders

ACTION REQUIRED

1. Identify coastal and marine areas that serve as suitable habitats for pelagic and coastal bird species. Identify new areas that require protection.
2. Develop integrated conservation and management plans for coastal and marine areas promoting sustainable practices and livelihood options for local communities.
3. Standardise modern environmental tools and techniques to assess coastal marine ecosystems for their biodiversity with focus on birds.
4. Study the impacts of anthropogenic stresses on bird communities of coastal and marine ecosystems.
5. Study the impact of Guano droppings on the coastal wetland nutrient cycling and its effect on primary productivity.
6. Assess and monitor the impacts of anthropogenic activities such as discharge of wastes and untreated sewage, disposal of solid wastes including plastics, oil spills and discharge of ballast water, trawling, etc and impacts of invasive and alien species and pathogens on coastal biotic communities with emphasis on bird populations.
7. Monitor coastal areas to contribute to the 'Digital Management and Support System' and 'Coastal and Marine Ecosystem Cell' of the MoEFCC, and also contribute to the country's commitments at international conventions such as Ramsar, CBD, MARPOL, EEZ and others.
8. Strengthen the capacity of stakeholders to manage the coastal and marine ecosystems in accordance with the guidelines provided by Ramsar, MARPOL, CRZ 2011 and Wetland Rules 2017.

THRUST AREAS

1.1 Identify tidal flats (muddy, sandy and rocky) along the Indian coast with high avifaunal diversity and prioritize them for conservation. **[Duration: Short-term].**

1.2 Study the linkages between mangroves and associated avifauna. **[Duration: Short-term].**

2.1 Evaluate ecosystem services and goods of birds in coastal and marine areas. **[Duration: Short-term and Medium-term].**

2.2 Develop comprehensive management strategies for conservation of colonial water birds in coastal and marine ecosystems. **[Duration: Short-term, Medium-term and Long-term].**

3.1 Assess the biodiversity of Coastal & Marine Protected Areas (CMPAs) using molecular tools such as eDNA. **[Duration: Short-term].**

3.2 Evaluate the trophic structure of coastal and marine bird habitats using biogeochemical tools such as stable isotopes. **[Duration: Short-term, Medium-term and Long-term].**

3.3 Assess the carbon storage potential of tidal flats and mangroves, and its influence on habitat use in coastal birds. **[Duration: Long-term].**

4.1 Assess the micro-plastics in the coastal and marine ecosystems and its accumulation in the food web. **[Duration: Short-term]**

4.2 Assess the marine debris including macroplastics that affect coastal bird population by choking or accidental foraging. **[Duration: Short-term].**

4.3 Assess contamination profile of coastal wetlands using indicator taxa such as fish, molluscs and others. **[Duration: Long-term].**

4.4 Assess the influence of dynamics of coastal morphology and changes thereto due to anthropogenic activities on avian habitats along the coastline. **[Duration: Long-term].**

5.1 Impact of bird droppings on the coastal wetland nutrient cycling and its effect on primary productivity. **[Duration: Short-term].**

6.1 Study the role of birds in transmitting pathogenic bacteria across coastal and marine ecosystem. **[Duration: Short-term].**

6.2 Evaluate the impacts of Ballast water and Invasive Alien Species for conservation and management of Coastal & Marine Protected Areas (CMPAs). **[Duration: Long-term]**

7.1 Long-term monitoring of Coastal & Marine Protected Areas (CMPAs) and Ramsar sites following MARPOL guidelines involving the local communities. **[Duration: Long-term].**

8.1 Capacity building programmes for stakeholders in management of Coastal & Marine Protected Areas (CMPAs). **[Duration: Short-term].**

CONSERVATION OF MIGRATORY BIRDS

PROGRAMME 7

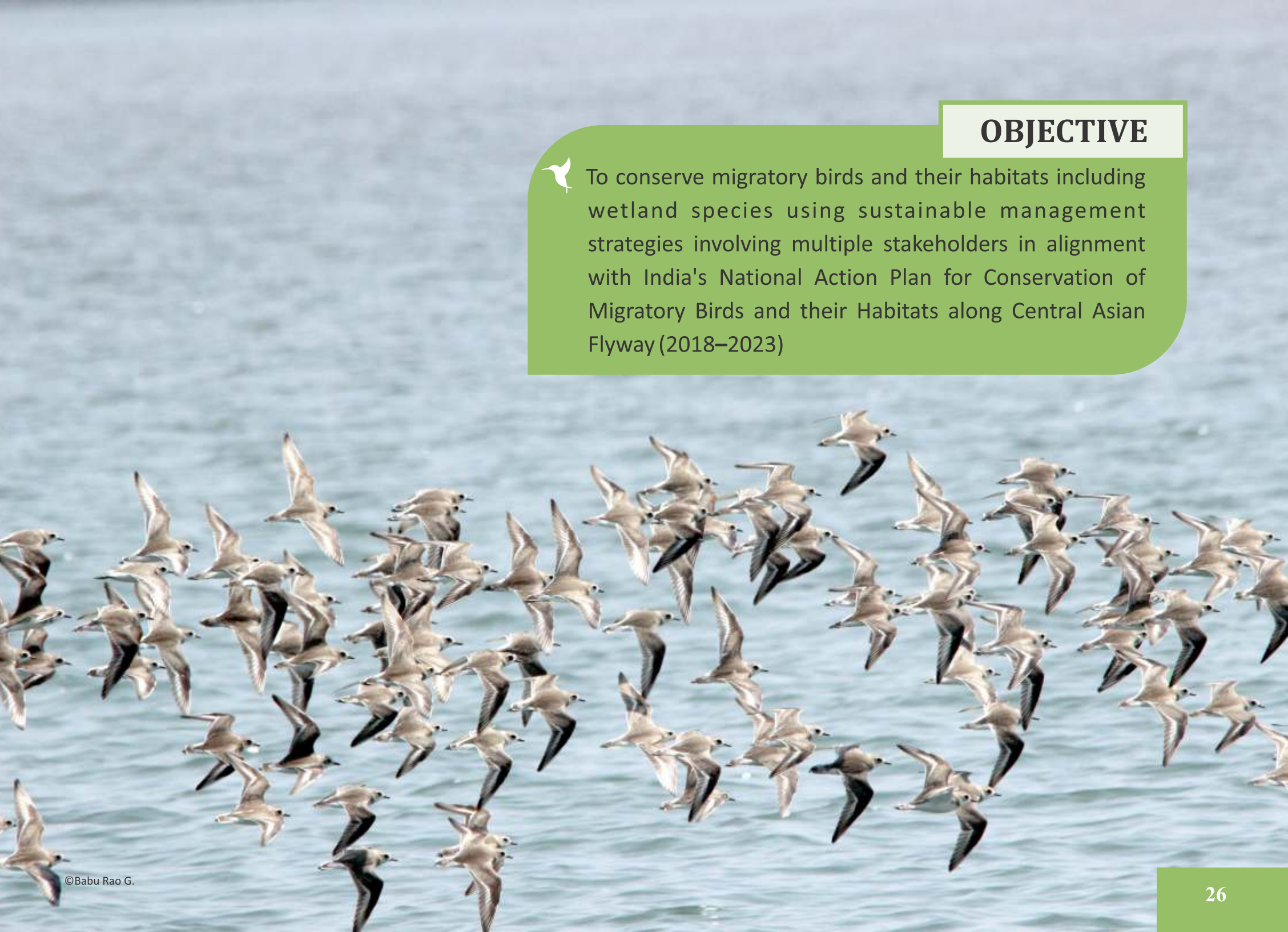
INTRODUCTION

- India is home to 1317 species of birds of which about 30% are migratory. Nearly 370 species of migratory birds visit India through three flyways *viz.,* Central Asian Flyway (CAF), East Asian-Australasian Flyway (EAAF) and Asian-East African Flyway (AEAF). Over 80% of migratory birds (307 species) visit India through CAF and among these, 87 species are of high conservation concern including two Critically Endangered, five Endangered and 13 Vulnerable species.
- Migratory waterbirds are under severe threat from the degradation and loss of critical wintering sites and stop-overs; for example, intertidal mudflats which are major wintering habitats for migratory shorebirds, are threatened from various human activities including aquaculture, farming, and land reclamation.
- Considering the conservation significance of CAF, the MoEFCC has prepared a National Action Plan for the Conservation of Migratory Birds and their Habitats along the Central Asian Flyway (2018–2023) to halt the population decline of migratory birds and degradation of their habitats in India. Similarly, the National Wildlife Action Plan (2017–2031) has also emphasized the necessity of conserving globally threatened migratory birds and their critical habitats along the flyways.

©T. Siva

OBJECTIVE

To conserve migratory birds and their habitats including wetland species using sustainable management strategies involving multiple stakeholders in alignment with India's National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018–2023)



©Babu Rao G.

ACTION REQUIRED

1. Assess and prioritize key stop-over sites and wintering habitats in both inland and coastal wetlands for the conservation of migratory birds and develop site-specific management plans.
2. Prepare species-specific action plans for conservation of select migratory birds.
3. Assess threats to migratory birds and their habitats, and develop mitigation measures.
4. Conduct capacity building programmes for various stakeholders on monitoring of migratory birds and their habitats.
5. Establish a national database on migratory birds and their habitats.
6. Strengthen international co-operation among organizations in various range countries for scientific management of migratory bird populations and their habitats along the flyways.

THRUST AREAS


©C. Subramanian

1.1 Map and assess critical wintering and stop-over sites for migratory birds in India. **[Duration: Short-term and Medium-term].**

1.2 Identify and prioritize critical sites of high conservation value for migratory birds. **[Duration: Short-term and Medium-term].**

1.3 Develop and implement restoration protocols for key wintering sites of migratory birds**. [Duration: Short-term, Medium-term and Long-term].**

2.1 Study migration patterns of select species and develop species-specific action plans. **[Duration: Short-term].**

2.2 Conservation and management plans for the protection of important wetlands and habitats for the migratory birds. **[Duration: Short-term, Medium-term and Long-term].**

3.1 Assess impacts of anthropogenic activities on migratory birds and their habitats including wetlands, and develop mitigation plans. **[Duration: Medium-term].**

3.2 Conduct surveillance of migratory bird populations for avian influenza and other zoonotic diseases. **[Duration: Short-term, Medium-term and Long-term].**

3.3 Assess the levels of environmental contaminants in migratory birds and their habitats. **[Duration: Short-term, Medium-term and Long-term].**

4.1 Conduct capacity building programmes for forest personnel, NGOs, bird-watching groups, local communities and other stakeholders in monitoring migratory birds and their habitats. **[Duration: Short-term, Medium-term and Long-term].**

4.2 Education awareness programs for the local students and community are very important to maintain harmony while migratory birds reach their stopover locations. Local communities at many places are usually very aggressive towards the migratory birds due to the notions of crop damaging and other impacts. **[Duration: Short-term, Medium-term and Long-term].**

4.3 Conduct training programmes on bird trapping and bird ringing for target groups in monitoring bird migration. **[Duration: Short-term].**

5.1 Develop a national database on migratory birds, critical wintering sites and flyways. **[Duration: Short-term, Medium-term and Long-term].**

6.1 Establish multi-institutional and trans-boundary co-operation to develop decision support system for securing migratory birds and flyways. **[Duration: Short-term, Medium-term and Long-term].**

Impacts of Developmental Projects and Other Anthropogenic Activities on Avian Diversity and Habitats

PROGRAMME 8

INTRODUCTION

- Anthropogenic activities, including developmental projects can cause quantitative and qualitative degradation of avifaunal habitats. Anthropogenic activities leading to increased levels of greenhouse gas emissions are also impacting environment on a global scale. Urgent scientific interventions are required to minimize and mitigate such impacts on avifauna.
- Impacts of developmental activities on avian diversity, their ecosystems and habitats are required to be studied, assessed, evaluated and monitored. Urgent measures, strategies and plans for conservation, mitigation and adaptation are required for avian diversity, their ecosystems and habitats.

©A. Julffia Begam

OBJECTIVE

To assess and monitor the impacts of developmental projects and other anthropogenic activities on bird populations and their habitats towards developing mitigatory strategies

ACTION REQUIRED

1. Identify and quantify potential impacts of major developmental projects in habitats and landscapes with high avian diversity, and develop conservation and management strategies.
2. Assess and monitor bird-human conflict zones including agro-ecosystems, wind farms and airfields to mitigate such conflicts.
3. Quantify and monitor various environmental contaminants in avian habitats.
4. To develop suitable strategies for conservation, mitigation and adaptation. Assess and monitor impacts of climate change and identify adaptation measures such as climate resilient habitats for vulnerable avian species, and develop relevant climate change adaptation strategies.

©Manoj Kumar Roy

THRUST AREAS

1.1 Assess the impacts of major developmental sectors such as power and transmission, linear projects including road, rail transport and highways, mining, industry, infrastructure, construction and real estate and others on avian diversity, and to develop effective management strategies. **[Duration: Short-term].**

1.2 Conduct cumulative impact assessment studies of developmental projects in ecosystems and landscapes of high avifaunal importance. **[Duration: Short-term].**

1.3 Evaluate the effectiveness of implementation of EIA recommendations and management plans in conserving bird diversity. **[Duration: Short-term].**

1.4 Evaluate compliances of environmental clearances granted to developmental projects in habitats and landscapes with high avian diversity. **[Duration: Short-term, Medium-term and Long-term].**

1.5 Study the impacts of electromagnetic radiation on reproduction of select avian taxa. **[Duration: Short-term].**

1.6 Assess the impacts of night lights, air and noise pollution (anthropophony) on avifauna. **[Duration: Long-term].**

2.1 Assess and develop mitigation strategies on the impacts of wind turbines on avifauna in different landscapes with high wind energy potential. **[Duration: Short-term].**

2.2 Develop SOPs and Guidelines for management of airfields to minimise bird hazards to aircrafts and strategies for bird-free airports in the country. Evaluate and Monitor the implementation of SOPs and Guidelines in minimising bird hazards in airfields and airline pathways near airfields. **[Duration: Short-term, Medium-term and Long-term].**

2.3 Develop a 'Bird Hazard Reporting and Information Management System' for operational airfields in the country. **[Duration: Short-term].**

2.4 Study the impact, pressures and sustainability of traditional landuse practices like shifting agriculture. **[Duration: Short-term, Medium-term and Long-term].**

3.1 Assess and monitor hazards to birds from pesticide use in agricultural and urban landscapes. **[Duration: Short-term].**

3.2 Study the impact of NSAIDs and other potential contaminants on *Gyps* vultures and monitor their breeding success. **[Duration: Short-term, Medium-term and Long-term].**

3.3 Rehabilitate and restore populations of Vultures and other such species in their existing and new habitats, and address relevant policy issues. **[Duration: Short-term, Medium-term and Long-term].**

3.4 Evaluate wetlands of importance with high avian diversity due to contamination from agricultural runoffs and residues and from industrial effluents and address policy and management issues. **[Duration: Short-term, Medium-term and Long-term].**

3.5 Monitor the residue levels of environmental contaminants, particularly heavy metals, PCBs, PAHs, and assess their impacts in urban, industrial areas and habitats and ecosystems with high avian diversity, and address relevant policy and management issues. **[Duration: Short-term, Medium-term and Long-term].**

3.6 Study the effects of neonicotinoids on genomic and behavioural aspects in birds exposed to pesticide-coated seeds and address relevant policy and management issues. **[Duration: Short-term].**

3.7 Study the impacts of anticoagulant rodenticides on predatory and scavenging birds in agricultural landscapes. **[Duration: Short-term].**

4.1 Establish a National Network of Bird Observatories across select landscapes to study bird migration and breeding vis-à-vis impacts of climate change. **[Duration: Long-term].**

4.2 Study the impacts of climate change on montane avifauna, their habitats and ranges. **[Duration: Short-term, Medium-term and Long-term].**

4.3 Develop a Cumulative Climate Change Vulnerability Index for Indian avifauna. **[Duration: Short-term, Medium-term and Long-term].**

4.4 Capacity building for managers of PAs in mainstreaming climate change adaptation strategies in management plans. **[Duration: Short-term, Medium-term and Long-term].**

4.5 Study the impacts of sea level rise on bird habitats along the Indian coast and offshore islands. **[Duration: Short-term, Medium-term and Long-term].**

CURBING ILLEGAL TRAFFICKING OF BIRDS IN INDIA

PROGRAMME 9

INTRODUCTION

- Until early 1900s, trapping of birds was legal in India. Subsequent to the promulgation of the WildLife (Protection) Act, 1972, hunting of birds in the wild was prohibited. In 1990–1991, export of live birds (indigenous and captive-bred exotics) from India was totally banned followed by a countrywide ban on local trade in birds. Yet, illegal harvesting of birds from forest and non-forest areas, and trade in wild birds are still prevalent in most parts of the country.
- In India, over 370 bird species are reportedly traded in more than 900 markets making the country the third highest in bird trade globally (Source: TRAFFIC India). This unlawful trade is one of the major threats to Indian birds, with 100 species classified as threatened by IUCN in 2018. On an average, only 1% of the cases of wildlife crime/trade are convicted by the Courts of Law in India. This low conviction rate is largely attributed to lack of legally admissible evidences with respect to authenticity of species identification by enforcement agencies.
- The United Nations General Assembly (UNGA) adopted a resolution on 'Tackling Illicit Trafficking in Wildlife' in its 69th session on 30 July 2015. The UNGA resolution calls for firm and strengthened national measures, and an enhanced regional and global response. Further, India is bound to curb illegal trade or transfer of wild birds and their products which are prohibited or regulated under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the WildLife (Protection) Act, 1972.

©Abrar Ahmed

OBJECTIVE

To develop a comprehensive approach in curbing illegal trafficking of species of wild birds including RET and endemic species in the country

ACTION REQUIRED

1. Assess extent of illegal trade in Indian avifauna to identify and map hotspots of source, transit and markets involving relevant stakeholders, institutions and organisations.
2. To develop a comprehensive plan to curb illegal trafficking, particularly of RET and endemic bird species from Protected Areas of the country.
3. Develop facility to collect reference samples of birds in trade and generate avian forensic protocols and database.
4. Assist law and enforcement agencies by providing avian forensic services.
5. Develop a Plan of Action for alternate livelihood for the communities involved in trafficking and trading of wild birds and monitor the efficacy in implementation of the plan and assess gaps/shortcomings to strengthen the plan.
6. Strengthen cooperation with neighbouring countries to curb illegal avian trade.
7. Develop an integrated capacity building and awareness system for multiple stakeholders including local communities to curb illegal trade in birds.


©Abrar Ahmed


©Aditi Mukherjee

THRUST AREAS

1.1 Identify and map hotspots of illegal bird trade in India and initiate long-term monitoring to assess trade dynamics. **[Duration: Short-term, Medium-term and Long-term].**

1.2 Documentation of CITES listed exotic species of birds traded by local pet shoppers in India and *modus operandi* of their acquisition, breeding techniques/protocols followed by them. **[Duration: Short-term, Medium-term and Long-term].**

1.3 To identify illegal bird markets in the country. **[Duration: Short-term, Medium-term and Long-term].**

1.4 *Modus operandi* and trade routes of bird smuggling/illegal trade. **[Duration: Short-term, Medium-term and Long-term].**

1.5 Profiling of illegal traders/traffickers/suppliers of birds and sharing with the enforcement agencies. **[Duration: Short-term, Medium-term and Long-term].**

2.1 Identify major PAs in the country from which illegal trading, trafficking of bird species particularly RET species occurs. **[Duration: Short-term, Medium-term and Long-term].**

2.2 Develop a Plan for curbing illegal trading and trafficking from major PAs in the country involving the State Departments, Field Managers of PAs. **[Duration: Short-term, Medium-term and Long-term].**

3.1 Create a National Repository of Avian Reference Samples and to generate databases on DNA and feather structure for forensic purposes in tackling wildlife trade/crime. **[Duration: Short-term, Medium-term and Long-term].**

4.1 Provide forensic services to law enforcement agencies including Wildlife Crime Control Bureau and State Forest Departments. **[Duration: Short-term, Medium-term and Long-term].**

5.1 Identify alternate livelihood options for sustainable livelihood and economy of local communities in and around PAs and along trade routes. **[Duration: Short-term, Medium-term and Long-term].**

5.2 Develop plans of alternate livelihoods in consultation with State Departments and Managers of PAs and local communities and other stakeholders. **[Duration: Short-term, Medium-term and Long-term].**

5.3 Evaluate implementation of plans including alternate livelihood plans leading to decrease/curbing of trading and trafficking. **[Duration: Short-term, Medium-term and Long-term].**

5.4 Assess the success of alternate livelihood options and identify gaps to strengthen its outcome. **[Duration: Short-term, Medium-term and Long-term].**

6.1 Develop and implement a plan of action based on existing data for Central and State Governments, organisations and institutions including enforcement agencies. **[Duration: Long-term].**

6.2 Establish linkages with countries of illegal trade and with national and international enforcement agencies for knowledge exchange and capacity building to combat cross-border avian trafficking. **[Duration: Long-term].**

7.1 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the information for better surveillance and for curbing illegal hunting and trade of avian species. **[Duration: Short-term].**

7.2 Develop educational curriculum on awareness about the importance of wild animals and implement modules for capacity building and awareness system for multiple stakeholders including local communities to curb illegal trade in birds. **[Duration: Short-term, Medium-term and Long-term].**

7.3 Conduct capacity building and awareness programmes involving various stakeholders for prevention and control of bird trafficking. **[Duration: Short-term, Medium-term and Long-term].**

7.4 Distribution of publicity materials and awareness posters/hoarding in strategic places. **[Duration: Short-term, Medium-term and Long-term].**

©Abrar Ahmed

Conservation of Avian Diversity in Urban Areas

PROGRAMME 10

INTRODUCTION

- It is increasingly observed throughout the world that birds, which shared the urban space with humans till the past few decades, have either dwindled in their numbers or altogether disappeared from the urban landscape.
- According to the India Census 2011, nearly 31% of its human population resides in urban areas, and it is projected that the urban population would increase to 40% by 2030. The increasing urbanization in a short span of time exerts heavy pressure on the natural resource capital of urban areas due to changes in landuse, depletion of habitats suitable for biodiversity including avian diversity and other natural resources such as water bodies and green spaces.
- For example, several species of synanthropic birds such as the House Sparrow, Red-vented Bulbul, Crow, Spotted Owlet, etc. have shown a drastic decline in their populations due to increasing urbanization in India.
- In recognition of the importance of conserving natural habitats within urban areas such as cities and townships for conserving wildlife including birds, policies and Master Plans for urban development in the country integrating habitats for nature (biodiversity) conservation are essential. But paucity of information and data on urban avifauna and their ecology remains a challenge in addressing these issues.

©Sadam Hussain A.


©Siddhesh Bhor


©A. Pavendhan

OBJECTIVE

To develop conservation strategies and guidelines ['Best Practices Guide'] to sustain and restore bird populations in urban habitats and to mainstream bird conservation strategies with urban policy and planning


©P.R. Arun


©C. Subramanian

ACTION REQUIRED


©R. Mohammed Shahidh

1. Generate and consolidate baseline information on birds and their population status in major cities and towns in the country, building on existing databases such as Asian Waterbird Census and eBird.
2. Study the impacts of urbanization on avian diversity, their habitats and behaviour (including their foraging and nesting ecology).
3. Develop Best Practice Guidelines for integrating environmental issues including habitats for nature conservation into Master Plans and Development Plans in existing cities and towns including creation of urban forestry and environment to conserve and restore biodiversity including avian diversity in urban environs.
4. Establish coordination between State Government Departments and urban development agencies, relevant institutions and organizations of Central and State Government and other relevant stakeholders to incorporate the Best Practice Guidelines as an integral component of urban policy and planning.
5. Evaluate the implementation of the guidelines by various State Governments and suggest measures for effective implementation.
6. Monitor bird-human interface in urban environs for emerging issues with respect to health and other conflicts.
7. Planning and management of urban green spaces like gardens, parks, green corridors etc. will also help in conservation of urban birds.

THRUST AREAS

1.1 Conduct bird census in major urban agglomerates and assess the population status of urban avifauna. **[Duration: Short-term, Medium-term and Long-term].**

1.2 Develop 'Bird Atlas' for select cities through Citizen Science initiatives and establish bird monitoring protocols for adoption by local birding organizations. **[Duration: Medium-term].**

1.3 Study the status and distribution of synanthropic birds, particularly for bird species such as the House Sparrow and House Crow showing population decline in select cities and towns. **[Duration: Short-term, Medium-term and Long-term].**

1.4 Citizen science initiatives will also help in conserving the urban bird diversity since the density of the bird watchers is very high in the cities. [Duration: Short-term, Medium-term and Long-term].

1.5 Replication of success stories and innovative solutions for restoring avian diversity in urban environment. **[Duration: Short-term, Medium-term and Long-term].**

1.6 Study the structure and organization of urban bird communities in space and time. **[Duration: Short-term].**

2.1 Assess and quantify the response of bird populations to urbanization gradient. **[Duration: Short-term].**

2.2 Model the impacts of urbanization on bird communities and develop vulnerability map for key urban bird taxa. **[Duration: Short-term and Medium-term].**

2.3 Study the effects of urban stress factors, particularly air, noise and light pollution on fitness of birds during different life-stages. **[Duration: Short-term and Medium-term].**

2.4 Study the impacts of urban building architecture on bird populations and develop guidelines to mitigate the impacts. **[Duration: Short-term and Medium-term].**

2.5 Examine the role of urban landuse and land cover dynamics in structuring bird communities. **[Duration: Short term and Medium-term].**

3.1 Evolve site-specific conservation strategies to sustain/restore urban bird populations. **[Duration: Short-term, Medium-term and Long-term].**

4.1 Integrate bird conservation, habitat conservation and restoration strategies with urban development and engage with urban agencies including Housing Societies, Offices, city Markets, etc for effective implementation. **[Duration: Short-term, Medium-term and Long-term].**

5.1 Publish India-specific 'Best Practices Guide' for urban planners and developers on landscaping and biodiversity set-asides to retain and restore urban avifauna. **[Duration: Medium-term].**

5.2 Evaluate the implementation of Best Practice Guidelines for conservation of avian diversity in select urban areas of the country. **[Duration: Short-term, Medium-term and Long-term].**

6.1 Monitor populations of feral Blue Rock Pigeons in urban areas and study their impacts on other bird species and human health. **[Duration: Short-term, Medium-term and Long-term].**

6.2 Study ecology of scavenging birds of urban agglomerates and their role in urban ecosystem functioning and health. **[Duration: Short-term].**

7.1 Integrate green spaces such as urban forests, gardens, parks, green corridors etc. with Urban Planning and Management of cities and towns for conservation of urban bird populations. **[Duration: Short term, Medium-term and Long-term].**

7.2 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for conservation management. **[Duration: Short-term].**

Surveillance and Monitoring of Avian Diseases

PROGRAMME
11

INTRODUCTION

- Incidences of diseases in wild animals have increased globally in the recent past. These include new, previously undefined diseases as well as existing diseases with new features. These new features may include the introduction of a disease to a new location or a new population. Developing countries such as India suffer disproportionately from the burden of infectious diseases, given the confluence of existing environmental, socio-economic, and demographic factors.
- Recently, India has witnessed a catastrophic incidence of bird deaths at Sambhar lake in Rajasthan. Over 17,000 birds were reported to have succumbed to avian botulism caused by *Clostridium botulinum*.
- Newly emerging diseases and new zoonotic forms of known diseases of human and wild animals have led to the formulation of the 'One Health' programme focusing on "the collaborative efforts of multiple disciplines working locally, nationally and globally, to attain optimal health for people, animals and our environment".
- In 2016, WHO highlighted that 75% of Emerging Infectious Diseases were caused by pathogens originating from animals or from of products animal origin. Considering this, surveillance and management of zoonotic and non-zoonotic diseases in wild birds should be prioritised in India.

©Siddhesh Bhor

OBJECTIVE

To develop a national centre to study and monitor diseases in wild bird populations in the country


©Siddhesh Bhor


©Babu Rao G.


©Kirubhanandhini V.

ACTION REQUIRED

1. Conduct studies on disease ecology of birds.

THRUST AREAS

1.1 Integrate and synergise with institutions such as Indian Veterinary Research Institute (IVRI) and other relevant institutions on studies on avian diseases. **[Duration: Short-term, Medium-term and Long-term].**

1.2 Identify areas vulnerable to disease outbreaks in bird populations for future monitoring. **[Duration: Short-term].**

1.3 Surveillance and mapping including using GIS and digital platforms of zoonotic and non-zoonotic diseases in wild birds at select locations in the country. **[Duration: Long-term].**

1.4 Develop Standard Operating Procedures (SOPs) for mitigating disease outbreaks in birds. **[Duration: Short-term].**

1.5 Conduct awareness and capacity building programmes regarding avian diseases for wildlife veterinarians, front-line forest staff and local communities. **[Duration: Short-term, Medium-term and Long-term].**

1.6 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for better surveillance and management. **[Duration: Short-term].**

National Plan for Nature Education and Awareness for Conservation of Avian Diversity, their Ecosystems, Habitats & Landscapes

PROGRAMME 12

INTRODUCTION

- Nature education programmes are integral to biodiversity conservation strategies aimed at inculcating environmental knowledge, skill and ethics across all sections of the society. These aim to solicit support from various stakeholders across different age groups, economic strata, education status and regions. Such programmes enhance knowledge and skills required for conservation and protection of environment, integral to their lifestyles.
- Environmental awareness programmes by the Central and State Governments have been in existence in our country for over five decades. In 2003, the Hon. Supreme Court directed all the States and educational institutions to introduce 'Environment' as a compulsory subject in the curriculum. Since then, many NGOs and government organizations are engaged in providing support to educational institutions towards achieving this goal.
- Birds, due to their popular appeal and ubiquitous presence, are excellent tools for nature education. Given the high diversity of birds and natural landscapes along with a high population of young people in the country, nature education assumes a greater significance in India's planning for wildlife conservation.

OBJECTIVE

To educate various stakeholders, create awareness and advocate conservation of birds and their habitats

©Siddhesh Bhor

©SACON Photo Library

ACTION REQUIRED

1. Develop and implement projects promoting bird-centric nature awareness among all sections of societies through non-formal education.
2. Promote nature education focusing on birds within formal education schemes.
3. Develop nature education and training materials in support of formal and non-formal education sectors.
4. Develop a digital communication network and education materials for bird enthusiasts to disseminate information and share success stories on Indian Ornithology, avian conservation, their ecosystems, habitats and landscapes in the country.

THRUST AREAS

1.1 Conduct National Nature Camps and develop Awareness Kits for children with focus on conservation of birds, their habitats, ecosystems and landscapes. **[Duration: Short-term, Medium-term and Long-term].**

1.2 Conduct Teachers' Training for Nature Education focusing on birds. **[Duration: Short-term, Medium-term and Long-term].**

1.3 Develop Modules and Awareness Kits and Conduct Nature Awareness Programmes for tribal, indigenous and local communities whose land forms an integral part of the ecosystems and habitats of important bird species in the country. **[Duration: Short-term, Medium-term and Long-term].**

1.4 Develop modules and conduct awareness programmes for corporate professionals, through CSR and Public-Private Partnership in conservation of avian diversity, ecosystems, habitats and landscapes. **[Duration: Short-term, Medium-term and Long-term].**

1.5 Plan and steer orientation programmes to sensitize media (print and electronic) on conservation of nature and avian diversity, ecosystems, habitats and landscapes. **[Duration: Medium-term].**

1.6 Conduct Bird Fairs/Festivals in different states across the country. **[Duration: Short-term, Medium-term and Long-term].**

2.1 Assess and review existing school curriculum on environment and suggest improvements to include bird conservation. **[Duration: Short-term].**

3.1 Develop teaching and learning materials for nature education focusing on birds and their role in ecosystems. **[Duration: Short-term].**

3.2 Develop tools and material for nature education for differently-abled people. **[Duration: Short-term].**

4.1 Develop a national network of birdwatchers for effective dissemination of information and success stories on bird conservation through citizen science initiatives and electronic media. **[Duration: Short-term, Medium-term and Long-term].**

4.2 Conduct workshops on effectiveness of outreach programmes and their success stories for replication in other regions of the country involving different stakeholders. **[Duration: Short-term, Medium-term and Long-term].**

4.3 Draw a calendar Plan of Action for Implementation of the various nature awareness programmes and outreach activities in the country. **[Duration: Short-term, Medium-term and Long-term].**

4.4 Identify and engage with various stakeholder institutions and organisations in the Central and State Governments who can partner in the implementation of various nature awareness and outreach activities. **[Duration: Short-term, Medium-term and Long-term].**

4.5 Celebrate 'Green Days' with various stakeholders and spread awareness across the country including - the World Environment Day (5 June), World Wetlands Day (2 February), World Wildlife Day (3 March), International Day of Action for Rivers (14 March), International Day of Forests (21 March), World Water Day (22 March), World Atmosphere Day (10 April), Earth Day (22 April), International Day for Biodiversity (22 May), World Oceans Day (8 June), *Van Mahotsava* Week (First week of July), World Plastic Bag Free Day (3 July), World Nature Conservation Day (28 July), Himalayas Diwas (9 September), International Day for the Preservation of the Ozone Layer (16 September), Wildlife Week (1 to 7 October), World Animal Day (4 October), World Habitat Day (7 October), World Ecology Day (1 November), Dr. Sálim Ali's Birth Anniversary (12 November), World Fisheries Day (21 November), International Animal Rights Day (10 December), International Mountain Day (11 December), etc. **[Duration: Short-term, Medium-term and Long-term].**

4.6 Develop online Applications and portal for raising awareness, information dissemination and scientific information for various stakeholders. **[Duration: Short-term].**

4.7 Develop online Applications and portal for submitting the scientific data from field surveys for uniform data collection and analysis of the scientific information for conservation management. **[Duration: Short-term].**

4.8 Mobilise various sectors including corporate and other citizen groups to participate and provide support (including fund support) to develop nature awareness material and conduct awareness programmes. **[Duration: Short-term, Medium-term and Long-term].**

4.9 Assess impacts of awareness activities and outreach programmes conducted on the conservation of bird species, their habitats, ecosystems and landscapes. **[Duration: Short-term, Medium-term and Long-term].**

National Capacity Building Programme for Protection and Monitoring of Avian Diversity, their Ecosystems, Habitats & Landscapes

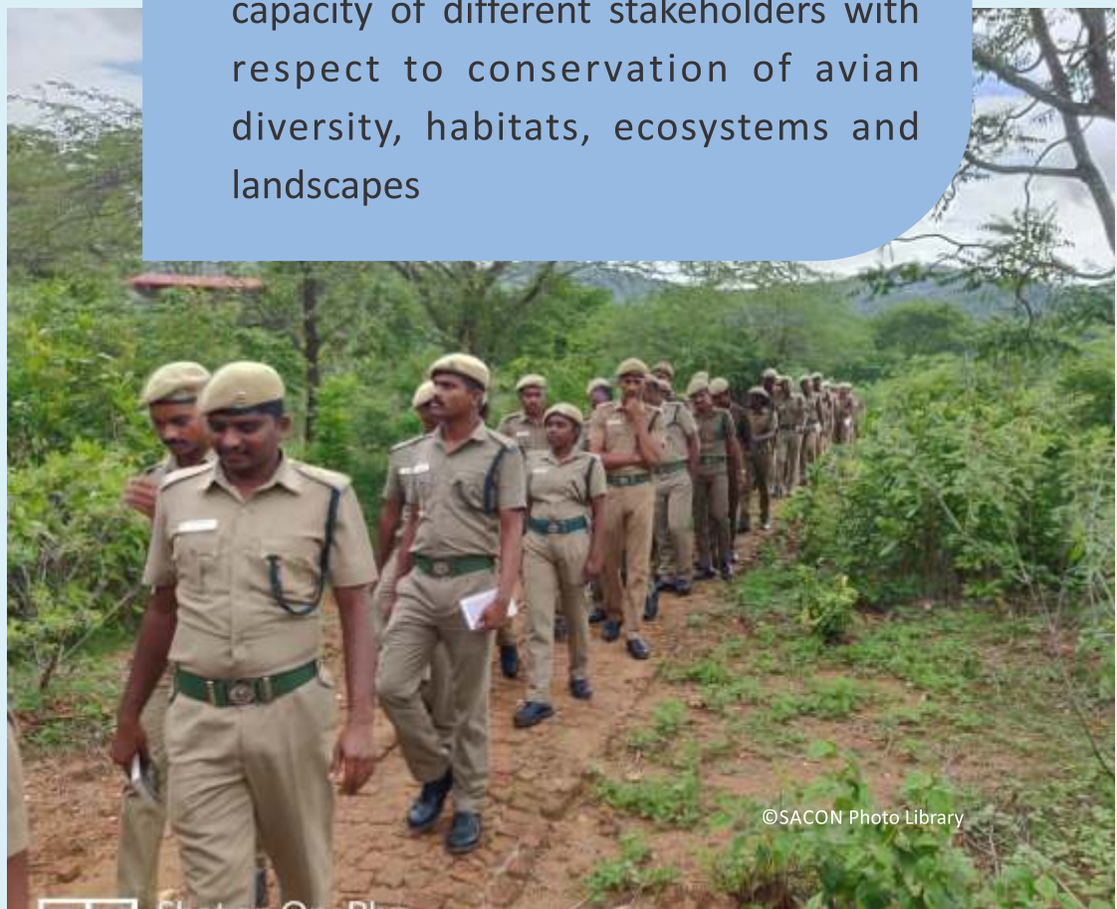
PROGRAMME
13

INTRODUCTION

- India is one of the mega-biodiverse countries which includes four 'global biodiversity hotspots' with rich avian diversity necessitating the requirement of dedicated and committed skilled wildlife professionals and skilled and unskilled personnel across various sectors for conservation of avian diversity, their ecosystems, habitats and landscapes. This programme has been conceived with a broader view of developing competencies in individuals, Central and State Government sectors, institutions and other organizations to undertake key activities directed towards the conservation of the avian diversity of our country.
- Capacity development at both individual and institutional levels across different socio-economic strata, regions and education will help in developing conservation leadership, advocacy, technical skills, and strengthen governance, which in turn will increase effectiveness in conservation of avian diversity in the country.
- Successful implementation of long-term capacity building of all relevant stakeholders at the national, regional, local and community levels, will ensure sustained and improved implementation of conservation measures.

OBJECTIVE

To identify capacity development needs, develop training materials and curriculum, and impart training to build capacity of different stakeholders with respect to conservation of avian diversity, habitats, ecosystems and landscapes



©SACON Photo Library

ACTION REQUIRED

1. Identify gaps in current capacity building programmes related to bird conservation in various government sectors.
2. Develop a calendar for capacity building programmes and course materials for the identified stakeholders.
3. Develop a cadre of trained/skilled personnel of forest department and other relevant Departments, regulatory organisations and professionals.
4. Develop capacity for different stakeholders other than regulatory departments at the Centre and in the States for conservation of biodiversity and avian diversity in particular.


©SACON Photo Library

THRUST AREAS

1.1 Review existing capacity development programmes related to avian diversity conservation and identify gaps. **[Duration: Short-term].**

2.1 Prepare a Master Plan for capacity building programmes for government agencies in avian diversity conservation. **[Duration: Short-term].**

2.2 Develop targeted training materials including tools, methods and approaches for specific stakeholders vis-à-vis bird identification techniques, population monitoring and habitat assessment. **[Duration: Short-term].**

3.1 Conduct capacity development programmes for forest department staff in avian diversity conservation and monitoring techniques. **[Duration: Short-term, Medium-term and Long-term].**

4.1 Conduct sensitisation programmes on avian diversity conservation for professionals such as judiciary, administrators, media professionals and others. **[Duration: Long-term].**

4.2 Monitor and evaluate the efficacy of capacity building and sensitisation programmes for different stakeholders in the country. **[Duration: Short-term, Medium-term and Long-term].**

Mainstreaming Conservation of Avian Diversity with other Government of India Schemes and Programmes

PROGRAMME
14

INTRODUCTION

- Mainstreaming conservation involves the integration of principles of 'Sustainable Development' into policies, plans, programmes and schemes of the Government of India. These are governed and administered by various Ministries and Departments such as Agriculture, *Jal Shakti*, Tourism, Coal, Mines, Industry, Panchayati Raj, Defence, Rural Development, Urban Development, New and Renewable Energy, Power, Civil Aviation, Transport and Highways, etc.
- Overlapping jurisdiction over use of natural resources with complementing and what appears to be 'conflicting' mandates can be a limiting factor for the conservation of biological diversity, habitats, ecosystems and landscapes in the country. Another issue is lack of cohesive linkage and integration in the implementation of Polices, Plans, Programmes and Schemes of Central and State Governments. The Visionary Perspective Plan (VPP) with sectoral plans and schemes of other departments/ministries and public sector enterprises would also require such integration and linkages with relevant Schemes and Programmes of the Centre and State Governments, and other Institutions and organisations working on the subject.
- The VPP proposes to integrate its programmes and projects with the sustainable development agenda and goals of NITI Aayog and Action Plans such as National Biodiversity Action Plan, National Wildlife Action Plan and sectoral schemes (E.g., AMRUT, *Swachh Bharat Abhiyan*, PM *Ujjwala* Yojana) and policies addressing conservation. Mainstreaming also enable the integration of biodiversity values while formulating national policies including economic strategies.

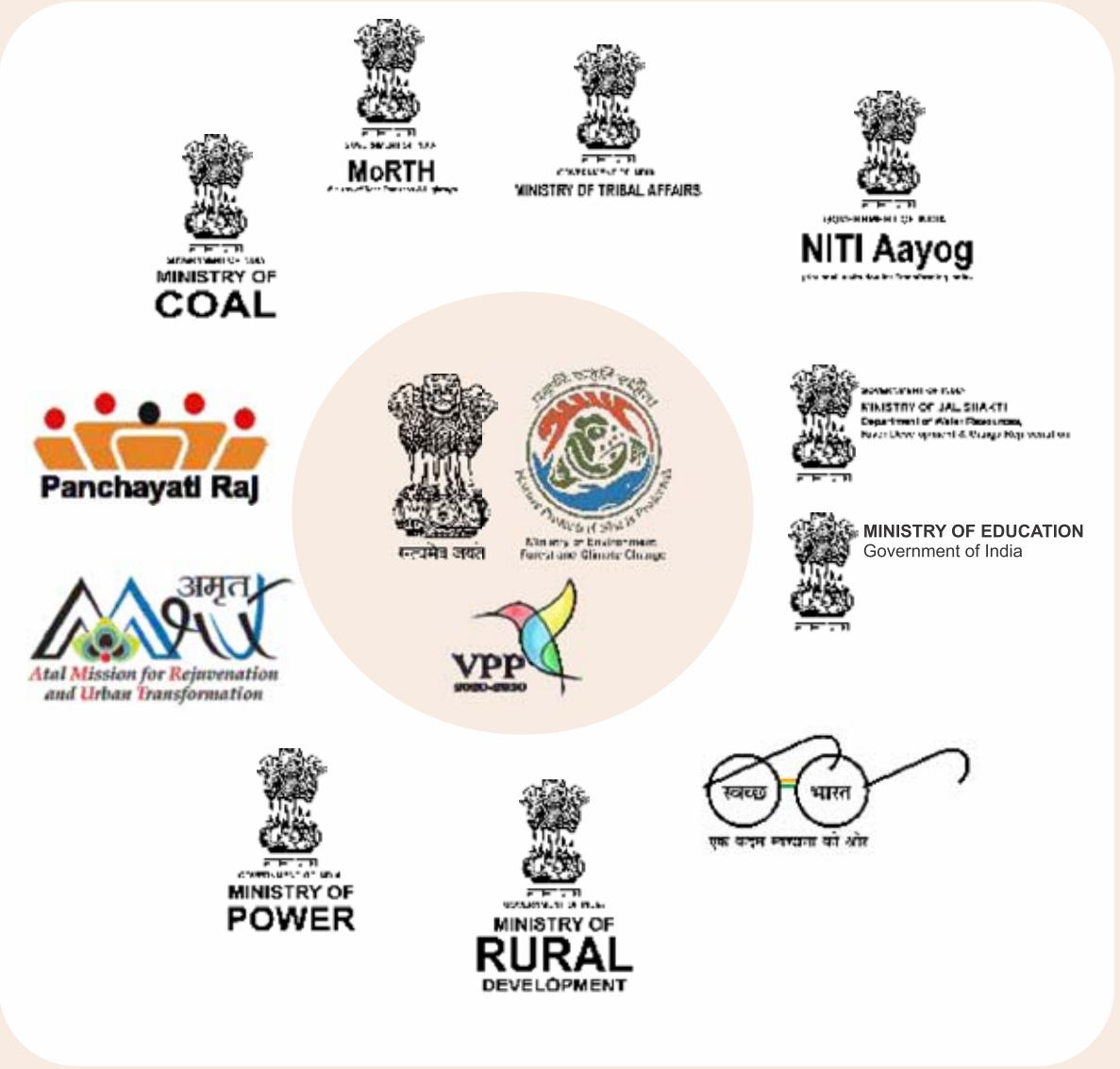

©Zainab Khan

OBJECTIVE

To integrate conservation of avian diversity with developmental policies, schemes and programmes of various Ministries and line Departments of the Centre and States across the country

ACTION REQUIRED

1. Identify existing programmes, schemes and projects of the Centre and States, which are similar or overlapping with the 'Visionary Perspective Plan for Conservation of avian diversity'.
2. Identify gaps, shortcomings and conflicts relevant to avian diversity conservation in the ongoing programmes and schemes in the Centre and States.
3. Initiate action for mainstreaming bird conservation concerns into sectoral plans, schemes, programmes dealing with avian habitat and ecosystems.



THRUST AREAS

1.1. Make an inventory of programmes, schemes and projects, relevant to conservation of avian diversity, in other line departments of the Centre and State. **[Duration: Short-term, Medium-term and Long-term].**

2.1. Identify gaps and shortcomings of programmes, schemes and projects, relevant to conservation of avian diversity, in other line departments of the Centre and State and align the VPP with them. **[Duration: Short-term, Medium-term and Long-term].**

2.2. Identify bottlenecks and/or areas of conflict in Policies, Plans, programmes and Schemes which appear to be in conflict with conservation of biodiversity with particular reference to avian diversity, habitats, ecosystems and landscapes. **[Duration: Short-term, Medium-term and Long-term].**

3.1. Set up an institutional mechanism to facilitate implementation of VPP across various government sectors complying with the overall national developmental agenda and sustainable development goals of NITI Aayog. **[Duration: Short-term, Medium-term and Long-term].**

3.2. Conduct periodic review of central and state sectoral policies/schemes/programmes under various Ministries and Departments for compliance with bird conservation, and initiate actions in the following sectors:

- MoEFCC: Schemes and Programmes for Forest and Wildlife conservation, conservation of biodiversity, conservation of corals and mangroves, National Mission on Himalayan Studies, Sustainable Management of Coastal Zone Management, Green India Mission, etc.
- Agriculture: Integrated Farming Systems, Integrated pest management, use of pesticides in agriculture and horticulture, drugs in animal husbandry, surveillance and control of animal disease and mitigate conflicts with farmers.
- Rural Development: Habitat and ecosystem management for conservation of biodiversity as part of rural livelihood and employment schemes.
- Jal Shakti (Water Resources): Conservation and Management of water bodies within and outside PAs and Conservatories and other regulated habitats.
- Surface Transport and Highways: Alignment of highways and other transport infrastructure with bird habitats.
- Finance: Financing Schemes and Programmes for conservation of biodiversity, habitats, ecosystems and landscapes. Integrating environmental issues in economic agenda for sustainable development.
- Education: Environmental education programmes in school curricula focusing on conservation of biodiversity including avian diversity, habitats, ecosystem services, landscapes, other environmental issues at national, regional and global level.

- Coal and Mines: Implementation of Mine Reclamation Plans -Progressive and Final.
- Home Affairs: Combat/curb poaching and illegal trade along with MoEFCC through Wildlife Crime Control Bureau (WCCB); intelligence gathering and surveillance; protection of species in strategic critical habitats.
- Defence: Monitor and protect birds including pelagic species. Involving defence, Indian coast guards, state coastal police departments and para-military personnel especially in border areas in conservation measures and plans. Preparation of Strategic defence projects involving birds.
- Industry: Programmes related to landuse or change in landuse such as development of Industrial Areas, Special Economic Zone/Industrial Estates vis-à-vis avian diversity conservation, habitats, ecosystems and landscapes.
- Panchayati Raj: Local development planning and upkeeping of People's Biodiversity Registers involving wetlands and other water bodies, conservation of non-forest land and other critical bird habitats.
- Urban Development: Preparation and Implementation of Guidelines under the Smart City Programme for conservation of natural resources in cities and towns, and integration of Master Plans and Urban planning with urban ecological habitats conducive to conservation of biodiversity including avian diversity.
- Power and Energy: Development/Establishment of Power Grids, high-tension transmission lines, windmills, solar energy fields, dams, etc. in harmony with conservation plans and programmes.
- Tribal Affairs: Implementation of provisions of Forest Rights Act for conservation of critical bird habitats within forested areas through participation of tribal/local communities.
- Tourism: Ecotourism in birding hotspots in a sustainable manner. Guidelines for Sustainable Tourism in PA and other tourism areas which form ecosystems/habitats with high avian diversity.
- Law and Justice: Legal provisions in existing laws and regulations. Court cases on poaching and trafficking in birds and their body parts.

[Duration: Short-term, Medium-term and Long-term].

3.3. Conduct regular brainstorming workshops with line departments and other stakeholders to provide policy suggestions to strengthen mainstreaming of bird conservation in different sectors. **[Duration: Short-term].**

3.4. Conduct workshops, conferences and symposiums on the international treaties and their relevance and adoption in the local policies and government regulations will also help in better alignment of the conservation programs at local levels. **[Duration: Short-term].**

PROGRAMME
15

Implementation of International Protocols and Conventions in Bird Conservation

INTRODUCTION

- India is a signatory to many International protocols, Conventions and Treaties for implementation of conservation of biodiversity, and their habitats which transcend all categories of biodiversity in the world. These include the Ramsar Convention, Forest Principles (1992), CBD (1992), CITES, MARPOL, etc. Problems associated with human activities which directly impact wildlife and their habitats are addressed through various conventions such as Stockholm, UNFCCC, Basel, Rotterdam, CITES and others.
- As birds and their habitats transcend political boundaries, conservation of birds particularly migratory taxa, requires support and coordination of various range countries in implementing conservation plans.
- Transboundary conservation of birds is largely governed by international treaties and conventions such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS) (Bonn Convention). In addition, several other conventions such as the Convention on Biological Diversity, Ramsar Convention, and the United Nations Framework Convention on Climate Change (UNFCCC) also have significant implications for bird conservation in India.
- There is a strong need for capacity building of law enforcement agencies that deal with issues related to illegal trafficking of birds and bird products, and protection of critical habitats across international boundaries.

©Siddhesh Bhor

OBJECTIVE

To support the government in complying with India's commitments towards implementation of international treaties, protocols and conventions with regard to birds and their habitats

ACTION REQUIRED

1. Provide technical inputs to Government of India in implementing bird conservation programmes as mandated by various international treaties and conventions.
2. Provide technical inputs to Government of India in bilateral and multilateral agreements and action plans for addressing bird conservation across international boundaries.
3. Enhance capacity of law enforcement agencies in range countries on avian diversity conservation issues across international borders.

THRUST AREAS

1.1 Prepare a compendium on legal provisions and commitments under various international protocols and conventions with respect to bird conservation and habitats, and status of implementation at the Central and State level. **[Duration: Short-term].**

1.2 Assess the gaps/shortcomings in information, data and implementation of commitments for conservation of avian diversity, habitats, ecosystems and landscapes. **[Duration: Short-term].**

2.1 Prepare cross-boundary conservation plans for avian diversity, particularly RET species and those migrating from different regions, sub-regions of the world. **[Duration: Short-term, Medium-term and Long-term].**

2.2 Implement Conservation Plans for avian diversity in cooperation/ collaboration with different countries under bilateral/multilateral cooperation/programmes and assistance through MoEFCC and other GOI Ministries/Central and State Departments and agencies. **[Duration: Short-term, Medium-term and Long-term].**

2.3 Monitor and Evaluate the implementation of Conservation Plans undertaken under such programmes. **[Duration: Short-term, Medium-term and Long-term].**

©Paul Antony

2.4 Participate in workshops, conferences, brainstorming sessions and seminars to promote bilateral and multilateral cooperation for conservation of threatened birds and their habitats across range countries. **[Duration: Short-term, Medium-term and Long-term].**

3.1 Conduct capacity building programmes for law enforcement agencies including Wildlife Crime Control Bureau, Central Armed Police Forces, Customs, Coast Guards, Ports and Airports Authority personnel and others, on issues related to illegal trafficking of birds and bird products across international borders. **[Duration: Short-term, Medium-term and Long-term].**

3.2 Development of resource material like handbooks, compendium, flyers etc. is very necessary for education awareness regarding the importance of RET's, important bird areas, international treaties, national legal provisions, conservation steps and guidelines for birders and communities. **[Duration: Short-term, Medium-term and Long-term].**

PLAN FINANCING

PROGRAMME
16

INTRODUCTION

- The main objective of the Visionary Perspective Plan (VPP) is to prepare a long-term perspective plan on priority areas for conservation of avian diversity, habitats, ecosystems and landscapes in the country. The 15 Programmes in the preceding chapters have identified major areas and specific projects thereunder that require focussed attention and implementation.
- Funding is an essential part to the implementation of the VPP. Several of the projects and activities identified from the Thrust Areas of these Programmes would require being dovetailed to those under ongoing schemes and programmes and Central and State Governments.
- The MoEFCC would prepare a **Scheme** under the VPP, whereby funding of various Priority Projects identified under the 15 Programmes for various States in the country would be taken up by both the Centre and the States.
- Further, financing of the implementation of VPP through various other avenues and options including through bilateral/international cooperation/donor agencies would be explored.
- Despite this, considering the magnitude and scale of problems involved, there would be a huge gap in meeting the financial requirements of implementation of VPP.

©Siddhesh Bhor

OBJECTIVE

- To assess the extent of funding required for implementation of VPP.
- To assess the extent of funding available in ongoing (Plan) schemes and Programmes of the GOI and State Governments and to assess the gaps and shortfalls in funding of key programmes and projects of the VPP on a short-term, medium-term, long-term basis.
- Identify institutions and mechanisms that could be garnered for addressing the funding requirements for the implementation of VPP, including from funding mechanisms under International Conventions such as CBD (Bio-FIN), UNFCC (National Adaptation Fund), etc.
- A viable financial model for funding these envisaged projects, involving the Government, public-private partnership, and with non-governmental organizations, and international agencies may be explored and put in place as and when required.

©Deepak D.

ACTION REQUIRED

1. Finalisation of State-Level and Regional Action Plans under VPP (2020–2021).
   - 1.1 Conduct of State-Level Meetings for State specific Action Plans for implementation of VPP.
   - 1.2 Organise Regional Meetings and Workshops for finalising projects on a Landscape Level involving Several States.
   - 1.3 Organising National Level Meetings and Workshops for finalising VPP for implementation by States at Regional Level during 2020–2030.
   - 1.4 Final National Action Plan and State-Level Action Plans on VPP.
   - 1.5 Prepare specific priority projects from the Thrust Areas for the 15 Programmes identified under the VPP for posing for funding.
   - 1.6 Identify other means of funding for the Priority Projects under various Thrust Areas of the VPP.

©Aditya Roy

2. Formulation of a Scheme for funding for Projects Identified for Implementation by Various Stakeholders, particularly by State Governments.

   2.1 Priority projects, identified from the various Thrust Areas under the 15 Programmes in the VPP document, should be executed in a phased manner through a Scheme under MoEFCC over the Finance Cycles of 2020–2030, so that sustained funding is ensured for smooth and efficient implementation of the proposed activities. Each project should also have adequate funds to accommodate project personnel and project management team to achieve the stated objectives.

3. Establish a Reporting mechanism on the status of implementation of the VPP and the Scheme.

   3.1 Preparation of Annual and Comprehensive Reports (end of 5 years) on Status of Implementation of State Level and Regional Action Plans by State Governments.

©Deepak D.

Implementation, Monitoring & Evaluation

PROGRAMME
17

INTRODUCTION

- The MoEFCC has prepared **'India's National Wildlife Action Plan (2017–2031)'** outlining various priority areas of action for conserving India's wildlife and biodiversity. Considering the ecological services that birds perform and their role in the stability of ecosystem functioning, it is imperative that a long-term plan for conservation of avian diversity, their ecosystems and habitats is prepared. The main objective of the **Visionary Perspective Plan (VPP) 2020–2030** is to specifically focus on the conservation of avian diversity, their ecosystems, habitats and landscapes in the country and prepare specific priority projects under the 15 major Programmes of the VPP for implementation over the next 10 years (2020–2030). These are to be implemented over short-term 2020–2024 (4 years), medium-term 2024–2027 (4–7 years) and long-term 2027–2030 (7–10 years) period and to be extended beyond Year 2030 based on review and evaluation. The Visionary Perspective Plan, 2020–2030 for the Conservation of Avian diversity will be dovetailed with existing Plans, on-going Schemes and Programmes for the conservation of biodiversity at the Central and State level, including the National Wildlife Action Plan (NWAP), 2017–2031; the National Biodiversity Action Plan (NBAP), 2008; National Mission for Himalayan Studies (NMHS); National Water Mission; National Mission for Sustaining the Himalayan Environment (NMSHE); Wetland Rules, 2017; National Plan for Conservation of Aquatic Ecosystems (NPCA) Guidelines, 2019; National Sustainable Coastal Zone Management and other relevant schemes and programmes.
- The VPP is to be implemented by various stakeholders including various Ministries and Departments at the Central and State levels in collaboration with various partner institutions and organisations, with the Ministry of Environment, Forest & Climate Change (MoEFCC) as the “focal Ministry” in the GOI and the Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore as the “focal Institution” under MoEFCC.
- The implementation of the VPP requires a well established mechanism for monitoring and evaluation of the various projects and activities taken up thereunder. An overall Technical & Financial Appraisal, Monitoring & Evaluation Mechanism both at the Centre (MoEFCC) and Committees at the State level would be required to oversee the selection, implementation and monitoring of progress and evaluation of outputs and outcome of all projects and activities selected thereunder. Dedicated Web Portals required, are being created both at Centre, at SACON, Coimbatore and in the States for this purpose.

©Chewang Rinchen Bonpo

OBJECTIVE

Establishment of a suitable mechanism for the implementation, monitoring and evaluation at the Central and State level to ensure that the funds released for priority projects to be prepared thereunder are utilised efficiently and transparently for priority projects of all States in a time bound manner

ACTION REQUIRED

1. The successful implementation and completion of projects under the VPP may be evaluated by developing a set of verifiable parameters across all the Programmes of the VPP and the Priority projects taken up there under.
2. **Web Portal both at MoEFCC and at SACON for the implementation of the Scheme for SACON and linkages with States**

   Dedicated web portals both at MoEFCC and at SACON will be created to serve as a database and as a Management Information System (MIS) for implementation of all projects and activities taken up under the VPP and the status of its implementation. The Portal will also help in monitoring and evaluation of the VPP.
3. Constitution of a **Steering Committee** and **Technical-cum-Financial Appraisal Committees** at the Centre (MoEFCC) and suitable Committees in States for selection of projects under State Level Action Plans, and to review progress of implementation of Action Plans and monitor and evaluate specific Priority Projects taken up thereunder, of expected Outputs and Outcome from the objectives set out for the Projects under the various Programmes of the VPP.

©Malyasri Bhattacharya

LINKAGES OF PROGRAMMES TO NATIONAL AND INTERNATIONAL POLICIES, TREATIES AND CONVENTIONS

Programme Number	Programme Title	SACON's Mandate*	NWAP*	NBT*	SDG*	CBD Aichi*	Other key linkages
1	Conservation of Rare, Endangered, & Threatened (RET) Bird Species of India and Implementation of Species Recovery Plans (SRPs)	1, 4, 5, 6	3, 11	6	15	11, 12	1. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018) 2. Convention on the Conservation of Migratory Species of Wild Animals (CMS) – Strategic Plan for Migratory Species (2015-2023) s
2	Conservation of Important Bird & Biodiversity Areas (IBAs) of the Country Outside Protected Area (PA) Network	1, 4, 7	10, 11	6	15	11, 14	1. National Environment Policy (NEP) (2006) 2. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018)
3	Conservation of Protected Areas (PAs) with High Avian Diversity	1, 4, 5	1	6	15	11, 12	1. National Environment Policy (NEP) (2006) 2. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018)

*Details of SACON Mandate, NWAP, NBT, SDG, and CBD Aichi are listed in Pg. 67–69

Programme Number	Programme Title	SACON's Mandate*	NWAP*	NBT*	SDG*	CBD Aichi*	Other key linkages
4	Conservation of Avian Diversity at the Landscape Level	3, 5, 7, 9	2, 10, 11, 12, 17	2, 3, 6	15	2, 11, 15	1. Stockholm Convention on Persistent Organic Pollutants (2017) 2. National Environment Policy (NEP) (2006) 3. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018) 4. Convention on the Conservation of Migratory Species of Wild Animals (CMS) – Strategic Plan for Migratory Species (2015-2023) 5. United Nations Convention to Combat Desertification (UNCCD)- Action Programmes (India-specific) 6. National Tourism Policy (2002)
5	Conservation of Inland Aquatic Ecosystems with High Avian Diversity	1, 4, 5	4, 5, 6, 7, 10, 11, 12, 14	2, 3, 4, 6, 8	6, 13, 14	9, 11, 14	1. National Plan for Conservation of Aquatic Ecosystems (NPCA) Guidelines (2019) 2. National Environment Policy 2006 Wetland (Conservation and Management Rules (2017) 3. National Tourism Policy (2002) 4. Stockholm Convention on Persistent Organic Pollutants (2017)
6	Conservation of Coastal and Marine Ecosystems with High Avian Diversity	1, 4, 5	4, 5, 6, 8, 10, 11, 12, 14	2, 3, 4, 6, 8	6, 13, 14, 15	9, 14	1. National Plan for Conservation of Aquatic Ecosystems (NPCA) Guidelines 2019 2. Convention on the Conservation of Migratory Species of Wild Animals (CMS) – Strategic Plan for Migratory Species (2015-2023) 3. MARPOL - International Convention for the Prevention of Pollution from Ships 4. EEZ - United Nations Convention on the Law of the Sea

*Details of SACON Mandate, NWAP, NBT, SDG, and CBD Aichi are listed in Pg. 67–69

Programme Number	Programme Title	SACON's Mandate*	NWAP*	NBT*	SDG*	CBD Aichi*	Other key linkages
7	Conservation of Migratory Birds	1, 5, 7, 9, 10	3, 5, 7, 8, 15	3, 6	14, 15	11, 12	1. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018-23) 2. National Environment Policy (NEP) (2006) 3. Convention on the Conservation of Migratory Species of Wild Animals (CMS) – Strategic Plan for Migratory Species (2015-2023) 4. National Plan for Conservation of Aquatic Ecosystems (NPCA) Guidelines 2019 5. National Mission on Coastal Areas (NMCA) 6. Bay of Bengal Programme (BOBP)
8	Impacts of Developmental Projects and other Anthropogenic Activities on Avian Diversity and Habitats	1, 4, 10	3, 5, 6, 14	2, 3, 6	9, 11, 15	2, 3, 10, 12, 15	1. Stockholm Convention on Persistent Organic Pollutants (2001) 2. United Nations Framework Convention on Climate Change (UNFCCC) 3. National Action Plan for Climate Change (2008) 4. National Environment Policy (NEP) (2006)
9	Curbing Illegal Trafficking of Birds in India	1, 4, 9	4, 11, 12, 13, 14	6	15	2	1. International Consortium on Combating Wildlife Crime (ICCWC) 2. United Nations Office on Drugs and Crime (UNODC) Guidelines on Capacity Building
10	Conservation of Avian Diversity in Urban Areas	4, 5	2, 17	6, 8	11	2	1. National Environment Policy (NEP) (2006) 2. Ministry of Housing and Urban Affairs (MoHUA): Atal Mission for Rejuvenation and Urban transformation (AMRUT)

*Details of SACON Mandate, NWAP, NBT, SDG, and CBD Aichi are listed in Pg. 67–69

Programme Number	Programme Title	SACON's Mandate*	NWAP*	NBT*	SDG*	CBD Aichi*	Other key linkages
11	Surveillance and Monitoring of Avian Diseases	1, 9, 10	5, 12, 14, 17	6, 8	3, 17	1, 11, 12, 14	1. One Health Initiative
12	National Plan for Nature Education and Awareness for Conservation of Avian Diversity, their Ecosystems, Habitats & Landscapes	3, 9	11, 12	1	4	1, 19	1. National Environment Policy (NEP) (2006) 2. National Strategy for Environmental Education (UNESCO)
13	National Capacity Building Programme for Protection and Monitoring of Avian Diversity, their Ecosystems, Habitats & Landscapes	3, 9, 10	11, 12, 13	1	4, 12, 17	1, 19	1. National Environment Policy (NEP) (2006) 2. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018)
14	Mainstreaming Conservation of Avian Diversity with Other Government of India Schemes and Programmes	10	17	2	14, 15, 17	2, 4	1. National Environment Policy (NEP) (2006)
15	Implementation of International Protocols and Conventions in Bird Conservation	10	15	11	17	3	1. Convention International Trade in Endangered species (CITES) 2. Convention on the Conservation of Migratory Species of Wild Animals (CMS) – Strategic Plan for Migratory Species (2015-2023) 3. National Environment Policy (NEP) (2006) 4. National Action Plan for Conservation of Migratory Birds and their habitats along the Central Asian Flyway (2018)

*Details of SACON Mandate, NWAP, NBT, SDG, and CBD Aichi are listed in Pg. 67–69

SACON's Mandate

1. Assist, institute, conduct and promote scientific research in ornithology, natural history and in the ecology and conservation of species, habitats and ecosystems with and within which avifauna coexist
2. Develop into a Centre of higher learning in ornithology, ecology, nature conservation, and related socio-economic aspects
3. Educate, advocate, create awareness and popularise ornithology, natural history and biodiversity conservation, and to develop facilities that disseminate such awareness
4. Initiate and scientifically develop innovative solutions to species, habitats and landscape conservation problems that are sensitive to the socio-economic realities and aspirations of people
5. Develop and promote programmes to restore damaged and degraded areas to habitats conducive to birds and other biodiversity
6. Develop and establish ex-situ conservation programmes for birds and threatened wildlife
7. Enter into appropriate agreement with the custodians and owners of land with significant ornithological and other biodiversity values, so as to manage, or have managed, such lands for bird and nature conservation
8. Publish scientific literature in ornithology, natural history; and biodiversity conservation
9. Develop partnerships with other institutions, organizations or individuals, in such manner as to achieve common objectives.
10. Provide consultations and advice to governments, public and private sector organisations, both national and international, on biodiversity conservation environmental impacts and environmental contaminants, as and when required

NWAP— National Wildlife Action Plan (2017-31)

1. Strengthening and improving the Protected Area Network
2. Landscape level approach for wildlife conservation
3. Conservation of threatened species
4. Control of poaching and illegal trade in wildlife
5. Wildlife health management
6. Mitigation of human-wildlife conflict
7. Conservation of inland aquatic ecosystems
8. Conservation of coastal and marine ecosystems
9. Integrating climate change in wildlife planning
10. Management of tourism in wildlife areas
11. People's participation in wildlife conservation
12. Conservation awareness and outreach
13. Development of human resources
14. Strengthening research and monitoring
15. Improving compliances of domestic legislations and international conventions
16. Ensuring sustained funding for wildlife sector
17. Integrating National Wildlife Action Plan with other sectoral programmes

NBT— National Biodiversity Targets under National Biodiversity Action Plan (2008)

1. By 2020, a significant proportion of the country's population, especially the youth, is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
2. By 2020, values of biodiversity are integrated in national and state planning processes, development programmes and poverty alleviation strategies.
3. Strategies for reducing rate of degradation, fragmentation and loss of all natural habitats are finalized and actions put in place by 2020 for environmental amelioration and human well-being.
4. By 2020, invasive alien species and pathways are identified and strategies to manage them developed so that populations of prioritized invasive alien species are managed.
5. By 2020, measures are adopted for sustainable management of agriculture, forestry and fisheries.
6. Ecologically representative areas under terrestrial and inland water, and also coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are

conserved effectively and equitably, based on protected area designation and management and other area based conservation measures and are integrated into the wider landscapes and seascapes, covering over 20% of the geographic area of the country, by 2020.

7. By 2020, genetic diversity of cultivated plants, farm livestock, and their wild relatives, including other socioeconomically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
8. By 2020, ecosystem services, especially those relating to water, human health, livelihoods and well-being, are enumerated and measures to safeguard them are identified, taking into account the needs of women and local communities, particularly the poor and vulnerable sections.
9. By 2015, Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization as per the Nagoya Protocol are operational, consistent with national legislations.
10. By 2020, an effective, participatory and updated national biodiversity action plan is made operational at different levels of governance.
11. By 2020, national initiatives using communities' traditional knowledge relating to biodiversity are strengthened, with the view to protecting this knowledge in accordance with national legislations and international obligations.
12. By 2020, opportunities to increase the availability of financial, human and technical resources to facilitate effective implementation of the Strategic Plan for Biodiversity 2011-2020 and the national targets are identified and the Strategy for Resource Mobilization is adopted.

SDG— UNDP Sustainable Development Goals (2015) "2030 Agenda"

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- GOAL 17: Partnerships to achieve the Goal

CBD Aichi Targets (2010)

- Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
- Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
- Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
- Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.
- Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

- Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
- Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
- Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
- Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
- Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.
- Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
- Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
- Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
- Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
- Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
- Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.
- Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
- Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.
- Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
- Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

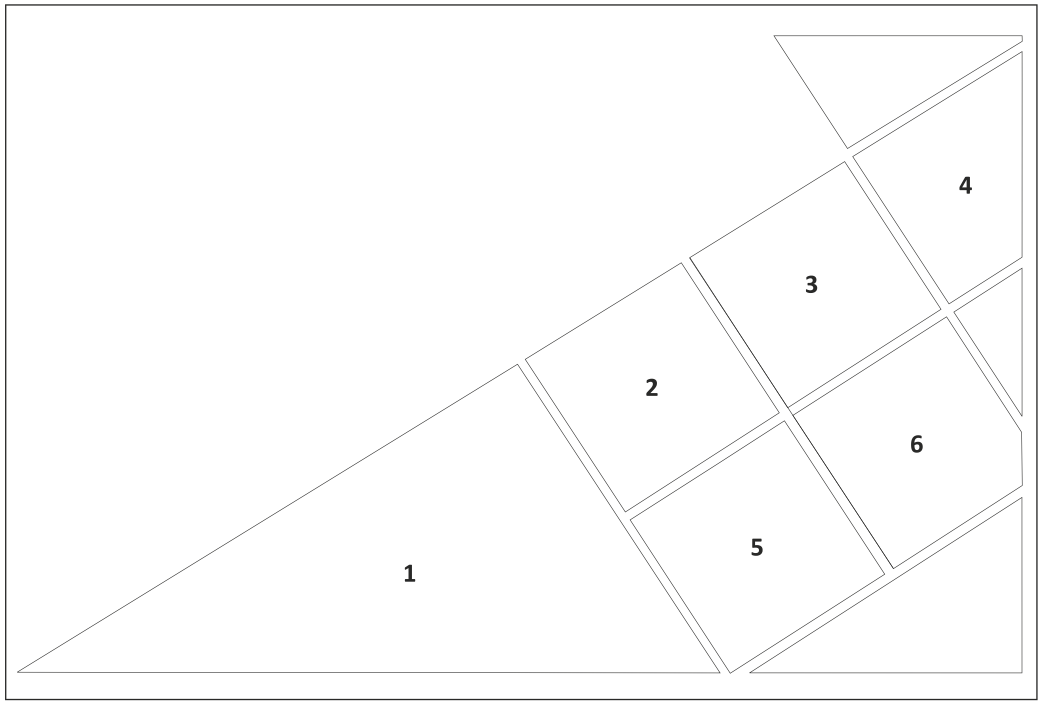
List of Abbreviations

AEAF	:	Asian-East African Flyway
AMRUT	:	Atal Mission for Rejuvenation and Urban Transformation
BOBP	:	Bay of Bengal Programme
CAF	:	Central Asian Flyway
CBD	:	Convention on Biological Diversity
CITES	:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMPA	:	Coastal & Marine Protected Area
CMS	:	Convention on the Conservation of Migratory Species of Wild Animals
CRZ	:	Coastal Regulation Zone
CSR	:	Corporate Social Responsibility
DNA	:	Deoxyribonucleic Acid
EAAF	:	East Asian-Australasian Flyway
eDNA	:	Environmental DNA
EEZ	:	Exclusive Economic Zone
EIA	:	Environmental Impact Assessment
FD	:	Forest Department
GIS	:	Geographic Information System
GOI	:	Government of India
IBA	:	Important Bird & Biodiversity Area
ICCWC	:	International Consortium on Combating Wildlife Crime
IUCN	:	International Union for Conservation of Nature
KM	:	Kilometre
MARPOL	:	International Convention for the Prevention of Pollution from Ships
MoEFCC	:	Ministry of Environment, Forest and Climate Change
MoHUA	:	Ministry of Housing and Urban Affairs
NADCP	:	National Animal Disease Control Programme
NBAP	:	National Biodiversity Action Plan
NBT	:	National Biodiversity Target
NEP	:	National Environment Policy

NGO	:	Non-Governmental Organization
NITI Aayog	:	National Institution for Transforming India
NMCA	:	National Mission on Coastal Areas
NMSHE	:	National Mission for Sustaining the Himalayan Environment
NOD	:	National Ornithological Databank
NPCA	:	National Plan for Conservation of Aquatic Ecosystems
NRCD	:	National River Conservation Directorate
NSAID	:	Non-steroidal Anti-inflammatory Drug
NSCZM	:	National Sustainable Coastal Zone Management
NWAP	:	National Wildlife Action Plan
NWM	:	National Water Mission
PA	:	Protected Area
PAH	:	Polycyclic Aromatic Hydrocarbon
PCB	:	Polychlorinated Biphenyl
POP	:	Persistent Organic Pollutant
PPCAD	:	Perspective Plan for Conservation of Avian Diversity
RET	:	Rare, Endangered, and Threatened
SACON	:	Sálim Ali Centre for Ornithology and Natural History
SDG	:	Sustainable Development Goal
SOP	:	Standard Operating Procedure
SRP	:	Species Recovery Plan
UNCCD	:	United Nations Convention to Combat Desertification
UNCED	:	United Nations Conference on Environment and Development
UNDP	:	United Nations Development Programme
UNFCCC	:	United Nations Framework Convention on Climate Change
UNGA	:	United Nations General Assembly
UNODC	:	United Nations Office on Drugs and Crime
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
VPP	:	Visionary Perspective Plan
WCCB	:	Wildlife Crime Control Bureau
WHO	:	World Health Organisation
WLPA	:	Wild Life (Protection) Act of India
WII	:	Wildlife Institute of India


©M. Bubesh Guptha

Photograph Credits

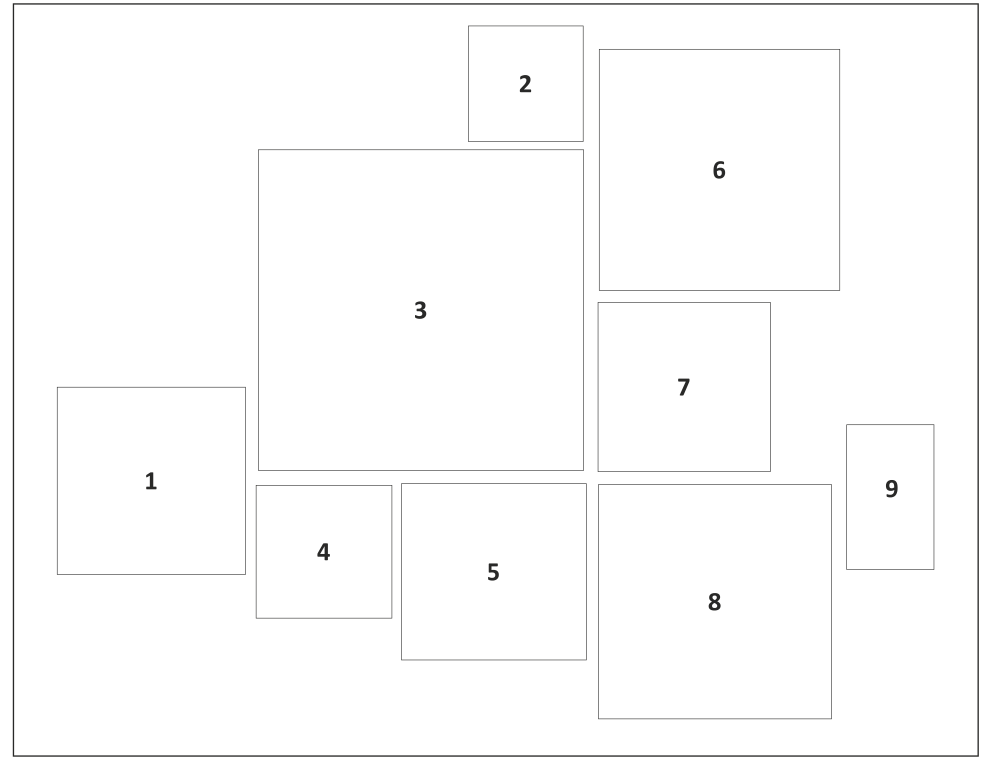


Front Cover

1. Great Hornbill ©Hari Somashekar
2. Black and Yellow Grosbeak ©Manoj V. Nair
3. Kentish Plover ©Shiva Kumar
4. Spot-billed Duck ©Deepak D.
5. Common Green Magpie ©Niveditha R.K.
6. Brahminy Kite ©P. R. Arun

Back Cover

1. Black-tailed Godwit ©Shiva Kumar
2. Little-ringed Plover ©Deepak D.
3. Rufous-necked Hornbill ©Niveditha R.K.
4. Spotted Owlet ©Sadam Hussain A.
5. Scaly-breasted Munia ©Zainab Khan
6. Crested Serpent Eagle ©Paul Antony
7. Indian Pond Heron ©Siddhesh Bhor
8. Red-wattled Lapwing ©Shiva Kumar
9. Rose-ringed Parakeet ©Deepak D.



Dr. Sálim Ali's Potrait Artwork (Back Cover): Niveditha R.K., Research Fellow SACON

VPP Document Design and Layout: Ms. A. Julffia Begam, SACON ENVIS Centre

Birds of the Indian Subcontinent (Grimmett R., Inskipp C., Inskipp T., 2011) was followed for the common names of birds

SACON

VPP
2020-2030

"I suppose I've done my bit, it's now up to you younger people."

- Dr. Sálim Ali