



सत्यमेव जयते

ANNUAL REPORT 2021-22



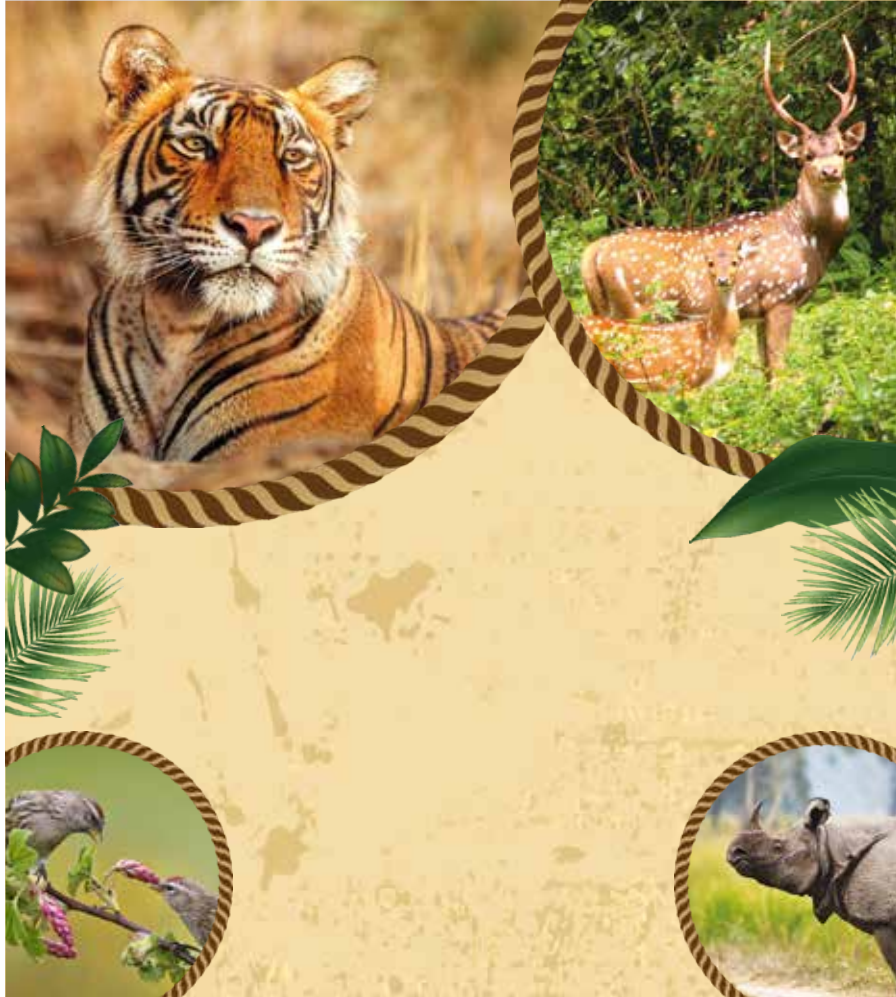
Government of India
Ministry of Environment,
Forest and Climate Change







ANNUAL REPORT 2021-22



Government of India
Ministry of Environment, Forest and Climate Change
New Delhi-110003





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Abbreviations

AICOPTAX	: All India Coordinated Project on Capacity Building in Taxonomy	RT	: Research & Training
A.W	: Animal Welfare	RTI	: Right to Information
BSI	: Botanical Survey of India	SACON	: Salim Ali Centre for Ornithology & Natural History
BUR	: Biennial Update Report	SBA	: Swachh Bharat Abhiyan
CAMPA	: Compensatory Afforestation Fund Management and Planning Authority	SD	: Sustainable Development
CBD	: Convention on Biological Diversity	SDG	: Sustainable Development Goals
CDM	: Clean Development Mechanism	SICOM	: Society for Integrated Coastal Management
CES	: Centre for Ecological Science	HSMD	: Hazardous Substance Management Division
CMW	: Conservation and Management of Wetlands	ICIMOD	: International Centre for Integrated Mountain Development
COP	: Conference of the Parties	IFS	: Indian Forest Service
CPA	: Control of Pollution Air	IGPP	: Indira Gandhi Paryavaran Puraskar
CPB	: Cartagena Protocol on Biosafety	INCCA	: Indian Network for Climate Change Assessment
CPCB	: Central Pollution Control Board	IPCC	: International Panel on Climate Change
CPW	: Control of Pollution Water	MBP	: Man and Biosphere Programme
CRZ	: Coastal Regulation Zone	MoEF&CC	: Ministry of Environment, Forest and Climate Change
CSD	: Commission on Sustainable Development	NATCOM	: National Communication
CT	: Clean Technology	NBA	: National Biodiversity Authority
DSS	: Decision Support System	NBAP	: National Biodiversity Action Plan
DTEPA	: DehanuTeluka Environment Protection Authority	NCZMA	: National Coastal Zone Management Authority
EIVR	: Entities of Incomparable Value Regulations	NEPTRI	: National Environmental Protection Training and Research Institute
ENVIS	: Environmental Information System	NESFP	: National Environmental Science Fellows Programme
EPTRI	: Environment Protection Training & Research Institute	NFA	: National Fellowship Awards
ESA	: Ecologically Sensitive Areas	NFAP	: National Forestry Action Programme
GBPNIHESD	: G.B. Pant National Institute of Himalayan Environment and Sustainable Development	NFC	: National Forest Commission
GEAC	: Genetic Engineering Approval Committee	NGO	: Non Governmental Organisation
GEF	: Global Environment Facility	NGRBA	: National Ganga River Basin Authority
GIM	: Green India Mission	NGT	: National Green Tribunal
GLOBE	: Global Learning & Observation to Benefit the Environment	NLCP	: National Lake Conservation Plan
GOI	: Government of India	NMCG	: National Mission on Clean Ganga
GSDP	: Green Skill Development Programme	NMNH	: National Museum for Natural History
PT	: Project Tiger	NNRMS	: National Natural Resources Management Systems
RE	: Research in Environment	NTCA	: National Tiger Conservation Authority
RFD	: Results Framework Document	NZP	: National Zoological Park
RO	: Regional Office	OC	: Ozone Cell
ROHQ	: Regional Office Head Quarter		





Ministry of Environment, Forest and Climate Change



OL	: Official Language	UNDP	: United Nations Development Programme
PE	: Project Elephant	UNEP	: United Nations Environment Programme
PG	: Public Grievances	WCCB	: Wildlife Crime Control Bureau
SOER	: State of Environment Report	WGEEP	: Western Ghat Ecology Expert Panel
STP	: Sewage Treatment Plants	WHC	: World Heritage Conservation
TOF	: Trees Outside Forest	WII	: Wildlife Institute of India
UNCCD	: United Nations Convention to Combat Desertification	ZSI	: Zoological Survey of India





Role and Mandate of the Ministry





Role and Mandate of the Ministry

The Ministry of Environment & Forest and Climate Change (MoEF&CC) 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, its biodiversity, forests and wildlife, ensuring the welfare of animals and prevention and abatement of pollution. While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development. The Ministry is also the nodal agency for the United Nations Environment Programme (UNEP), South Asia Co-operative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD) and the United Nations Conference on Environment and Development (UNCED). The Ministry also coordinates with multilateral bodies such as the Commission on Sustainable Development (CSD), Global Environment Facility (GEF) and regional bodies such as Economic and Social Council for Asia and Pacific (ESCAP) and South Asian Association for Regional Cooperation (SAARC) on matters pertaining to environment. National Compensatory Afforestation Fund Management and Planning Authority (CAMPA) was constituted vide order dated 13.8.2009 primarily to lay down guidelines for State CAMPA, monitor/assist/and provide recommendations to State CAMPA and resolve issues.

The broad objectives of the Ministry are:

- Conservation and survey of flora, fauna, forests and wildlife

- Prevention and control of pollution
- Afforestation and regeneration of degraded areas
- Protection of environment and wildlife,
- Facilitate activities related to India's commitments and obligations with three Rio Conventions i.e. UNFCCC, UNCCD and CBD and related reporting process.
- Facilitate activities related to Basel, Rotterdam, Stockholm Conventions and enable India to meet its commitments as per Montreal Protocol under the Vienna Convention.

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, a National Conservation Strategy and Policy Statement on Environment and Development, 1992, National Forest Policy, 1988, a Policy Statement on Abatement of Pollution, 1992 and a National Environment Policy, 2006 also guide the Ministry's work.

Subject under the Ministry of Environment, Forest and Climate Change (pariyavarana, van aur jal vaayu parivartan mantralaya)¹.

The following items of work have been allocated to the Ministry of Environment, Forest and Climate Change:

1. Environment and Ecology, including environment in coastal waters, in mangroves and coral reefs but excluding marine environment on the high seas.
2. Environment Research and Development, education, training, information and awareness.





3. Environmental Health.
4. Environmental Impact Assessment.
5. Forest Development Agency and Joint Forest Management Programme for conservation, management and afforestation.
6. Survey and Exploration of Natural Resources particularly of Forest, Flora, Fauna, Ecosystems etc.
7. Bio-diversity Conservation including that of lakes and Wetlands.
8. Omitted.²
- 8A. Omitted.³
9. Wildlife conservation, preservation, protection planning, research, education, training and awareness including Project Tiger and Project Elephant.
10. International co-operation on Issues concerning Environment, Forestry and Wildlife.
11. Botanical Survey of India and Botanical Gardens.
12. Zoological Survey of India.
13. National Museum of Natural History.
14. Biosphere Reserve Programme.
15. National Forest Policy and Forestry Development in the country, including Social Forestry.
16. All matters relating to Forest and Forest Administration in the Union territories.⁴
17. Indian Forest Service.
18. Wild Life Preservation and protection of wild birds and animals.
19. Fundamental and applied research and training including higher education in forestry.
20. Padmaja Naidu Himalayan Zoological Park.
21. National Assistance to Forestry Development Schemes.
22. Indian Plywood Industries Research and Training Institute, Bangalore.
23. Afforestation and Eco-Development which shall include National Afforestation and Eco Development Board.
- 23A. Bio-fuel plantations in forest, wastelands and environmental issues concerning bio-fuels.⁵
24. Desert and Desertification.
25. Forest Survey of India.
26. Indian Institute of Bio-diversity, Itanagar.
27. Central Pollution Control Board.
28. G.B. Pant Institute of Himalayan Environment & Development.
29. Wildlife Institute of India and Indian Board for Wildlife.
30. Indian Institute of Forest Management.
31. Central Zoo Authority including National Zoo Park.
32. Indian Council of Forestry Research & Education.
33. Andaman and Nicobar Islands Forest and Plantation Development Corporation Limited.
34. Omitted.⁶
35. Omitted.⁷





36. Omitted.⁸
- 36A. Climate change and all other matters related thereto.⁹
37. Omitted.¹⁰
38. Omitted.¹¹
39. Omitted.¹²
40. The Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).
41. The Water (Prevention and Control of Pollution) Cess Act, 1977 (36 of 1977).
42. The Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).
43. The Indian Forest Act, 1927 (16 of 1927).
44. The Wild Life (Protection) Act, 1972 (53 of 1972)
45. The Forest (Conservation) Act, 1980 (69 of 1980).
46. The Environment (Protection) Act, 1986 (29 of 1986).
47. The Public Liability Insurance Act, 1991 (6 of 1991).
48. The National Green Tribunal Act, 2010 (19 of 2010).¹³

NOTE:- The Ministry of Environment, Forest and Climate Change will be responsible

for overall policy in relation to forests, except all matters, including legislation, relating to the rights of forest dwelling of Schedule Tribes on forest lands.¹⁴

1. Modified vide Amendment series no. 306 dated 31.07.2014
2. Omitted vide Amendment series no. 350 dated 14.06.2019 (Earlier substituted vide Amendment series no.306 dated 31.07.2014).
3. Omitted vide Amendment series no. 350 dated 14.06.2019 (Earlier inserted vide Amendment series no.306 dated 31.07.2014).
4. Modified vide Amendment series no. 300 dated 26.02.2012
5. Inserted vide Amendment series no. 287 dated 12.07.2006
6. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
7. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
8. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
9. Inserted vide Amendment series no. 306 dated 31.07.2014.
10. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
11. Omitted vide Amendment Series no. 334 dated 06.07.2017. 12.Omitted vide Amendment Series no. 334 dated 06.07.2017. 13.Inserted vide Amendment series no. 334 dated 06.07.2017.
- 14.Inserted vide Amendment series no. 285 dated 17.03.2006.





CHAPTER

01

Natural Resources - Survey and Exploration





1.1 ZOOLOGICAL SURVEY OF INDIA

a. Brief introduction, objectives and functions of the Division

The Zoological Survey of India (ZSI) is a 105-year-old organization functioning under the Union Ministry of Environment, Forest and Climate Change and dedicated for surveys, exploration and taxonomical studies of faunal communities since its inception in the year 1916. ZSI Headquarters is located in Kolkata and has 16 Regional Centers spread across the country. The primary and secondary objectives are as follows:

Primary Objectives

- Exploration, Survey, Inventorisation and Monitoring of faunal diversity in various states, some selected ecosystems and protected areas of India.
- Taxonomic studies of all faunal components.
- Status survey of Threatened and Endemic species.
- Preparation of Red Data Book, Fauna of India and Fauna of States.
- Bio-ecological studies on some important communities/species.
- Preparation of database for the recorded species of the country.
- Maintenance and Development of National Zoological Collections.
- Training, Capacity Building and Human Resource Development.
- Faunal Identification, Advisory services and Library Services.

- Publication of study-results, including documentation of Fauna of India and Fauna of States.

Secondary objectives

- GIS and Remote Sensing studies for recorded animal diversity as well as for selected threatened species.
- Chromosomal Mapping and DNA finger printing.
- Environmental Impact Studies.
- Maintenance of Museums at Headquarters and Regional Centres
- Development of ENVIS and CITES Centres.
- Research Fellowship, Associate ship and Emeritus Scientist Programme.
- Collaborative research programmes on Biodiversity with other Organizations.
- All India Coordinated Project on Taxonomy (AICOPTAX).

Functions/ Strength of ZSI:

- Maintaining National Repository: One of the largest with 5.7 million faunal specimens.
- Scientific Expertise: Robust taxonomic expertise from Protozoa to Mammalia.
- Database: Holding up to date database on faunal Diversity of India.
- New Discoveries: Data on new species from different ecosystems of the country.
- Museums at HQ & RCs: ZSI is maintaining faunal museums of different ecosystems of the country.





- Taxonomy trainings: Only organization in the country providing training on taxonomy of all groups of fauna.
- Maintain DNA, Forensic studies & GIS laboratories.
- Library: Holding Asia's largest library dealing books on Zoology.
- Digital Archives of Publication.
- Digitization of Types.
- Outreach activities.
- Inter-ministerial services.
- International & National Collaborations.
- Contribution of ZSI in the activities pertaining to Conservation of Biodiversity including CBD, ABS, IWPA, DGQI etc.

b. Important Activities undertaken during the reference period (i.e.1/1/2021-31/12/2021) including celebrations for Azadi ka Amrit Mahotsava

- **Faunal Surveys, Collections and Identifications:** 83 surveys have been completed during the period, of which 25 surveys were undertaken to different Protected Areas; 11 surveys of States and Union Territories; 30 to different ecosystems; 10 surveys for Taxonomic studies; 4 to Deccan peninsula; 2 to Golden Quadrilateral Highway and one for behavioral studies. A total of 135,236 specimens have been collected from these surveys. Altogether 6579 species have been identified under different faunal groups from Protozoa to Mammalia.



Loris tardigradus É. Geoffroy, 1796



Terpsiphone paradise (Linnaeus, 1758)

- **New Discoveries:** A total of 233 new discoveries have been published of which 126 are new species whereas 107 are new record to Indian fauna. The new species described belong to 1 species of Mammal, 5 species of Reptilia, 1 of Amphibia, 9 species of Pisces, 12 of Crustacea, 2 of Arachnida, 1 of Platyhelminthes, 1 species of Psocoptera, 2 species of Neuroptera, 9 of Ephemeroptera, 2 species of Thysanoptera, 3 of Trichoptera, 9 of Lepidoptera, 12 species of Hemiptera, 15 of Coleoptera





and 42 species of Hymenoptera. The new record to Indian fauna comprises: 2 species of Mammals, 2 of Reptilia, 8 of Pisces, 5 species of Arcellinida, 8 of Mollusca, 17 of Thysanoptera, 9 of Tricoptera, 11 species of Lepidoptera, 8 of Hymenoptera, 1 of Psocoptera, 5 species of Odonata, 7 species of Ephemeroptera, 12 species of Bryozoa, 2 of Coleoptera, 3 of Arachnida, 1 species of Cnidaria, 1 of Echinodermata, 5 species of Protozoa.

- **Digital Sequence Information (DSI) on Indian Fauna:** DSI is being generated on new and RET species and also to solve the taxonomic queries A total of 1272 DNA barcodes of 393 species have been submitted on BOLD and GenBank which includes 290 barcodes for Mammals, 5 for Birds, 48 for Reptiles, 15 for Amphibia, 230 for Fishes, 409 for Thysanoptera, 117 for Diptera, 41 for Lepidoptera, 31 for Blattodea, 23 for Hemiptera, 16 for Ephemeroptera, 8 for Crustacea, 5 for Coleoptera, 4 each for Echinodermata, Araneae, Odonata, Orthoptera, 2 each for Sponges and Diplopoda, one barcode each for Cnidaria, Isopoda and Mollusca.
- **Publications:** A total of 608 publications have been completed during the period and includes 20 Books, 126 papers published in SCI journals, 249 papers in peer-reviewed National and International journals, 184 Book chapters, 15 popular articles, 2 online checklists and 12 issues of E-Newsletter. Thirteen Books were also released by dignitaries.
- **Capacity Building:** Outreach activities mostly online (workshop trainings and webinars) were provided to more than 2500 students and researchers. This year about 26 webinars were conducted to disseminate knowledge on various topics of biodiversity and its conservation.
- **Identification and advisory services:** ZSI provides identification and advisory services on a regular basis and this year material received from 114 Institutes/ colleges and identified 2289 specimens belonging to 664 species.
- **Wildlife Forensics and Crime Control:** Apart from identification for scientific studies, ZSI scientists are also providing identification for wildlife forensics and crime control and this year, identification include 2328 specimens belonging to 53 species including many scheduled species received from 54 departments.
- **Some interesting and significant studies undertaken during the reference period are:**
 - DNA barcoding to solve identification queries
 - Landscape ecology in Northeast
 - Climate change studies through permanent monitoring plots in Himalayas, Western Ghats, Andaman and Nicobar Islands and Lakshadweep
 - Species distribution modelling
 - Conservation genetics for Red Panda and Ibex





- Vector biology
 - Patents
 - **Activities undertaken to celebrate Azadi ka Amrit Mahotsava**
 - 75 years of Azadi ka Amrit Mahotsav celebrated on 15th August with cultural programmes commemorating 75 years of Independence.
 - Webinar series on the different faunal component and Biodiversity under the banner of Azadi ka Amrit Mahotsav.
 - Lecture series on Biodiversity and Climate change under the banner of Azadi ka Amrit Mahotsav.
 - Five books published under the banner of Azadi ka Amrit Mahotsav.
 - Three Issues of E-Newsletter under the banner of Azadi ka Amrit Mahotsav.
 - Published Annual Report ZSI 2020-21 with the logo of Azadi ka Amrit Mahotsav.
 - Printing of official stationery with Azadi ka Amrit Mahotsav.
 - Posters and flex on Azadi ka Amrit Mahotsav displayed in Office campus.
 - Vigilance Day was observed under the banner of Azadi ka Amrit Mahotsav.
 - Rashtriya Ekta Diwas was celebrated under the banner of Azadi ka Amrit Mahotsav.
 - Samvidhan Diwas (Constitution Day) was celebrated by reading the Preamble on 26th November 2021 under the banner of Azadi ka Amrit Mahotsav.
 - Swachhta Campaign organized under the banner of Azadi ka Amrit Mahotsav.
 - “Say No to Single use Plastics” Campaign under the banner of Azadi ka Amrit Mahotsav.
- c. Progress/Achievements both cumulative and for the reference period**
- **Species Identifications:** So far, about 102718 species of animals have been documented. During the reference period a total of 6579 species have been identified by the scientists of ZSI Headquarters and Regional Centres.
 - **Publications.** During the reference period, 608 publications have been made. Altogether 1,550 documents (Books and monographs) and 10,500 scientific papers have been published by ZSI till 2016; of which, over 181 documents and 2665 scientific papers have been published during the last five years.
 - ZSI is playing major role in enriching the information on DNA barcodes and solving many taxonomic queries and generated 8007 barcodes including 1272 barcodes generated during the reference period.
 - **New Discoveries:** 5272 new species have been described by the scientists of ZSI since its inception, while 126 new species and 107 new record to Indian fauna have been published during the reference period.





Black Headed Ibis,
Threskiornis melanocephalus Latham, 1790



Ratufa indica (Erxleben, 1777)

- **Monitoring of Biodiversity Plots:** Supporting State Forest & Wildlife Department for conservation and management of PAs– Permanent Monitoring of Biodiversity Plots in Andaman & Nicobar Islands, Lakshadweep, Himalayas, Western Ghats and Gulf of Kutch for the last five years.
- **Training and Extension:** Outreach activities continued despite the Covid pandemic and 26 webinars were conducted to disseminate the knowledge on various topics such as:
 - *Soil Fauna of India*
 - *Invasive Alien Species on Biodiversity Conservation*
 - *Ornamental Fishes of India: Diversity & Prospects*
 - *Herpetology*
 - *Coastal and Marine Biodiversity of Island ecosystem*
 - *Deep Sea Bio-resources in Indian Ocean*
 - *Biodiversity and Challenges for Conservation*
- *Population estimation of Olive Ridley Turtle*
- *World Sparrow Day*
- *Rescue and rehabilitation of birds, reptiles and dolphin in nature*
- *Role of women scientists in combating COVID-19*
- *Ecosystem Restoration*
- *Horseshoe Crab*
- *Unravelling the Moth Mysteries*
- *Methodology for Collection, Preservation and Curation of Zoological Specimens.*
- *Vectors and Vector Borne Diseases Identification to Management*
- *Island Biodiversity, Conservation and Challenges*
- *Citizen Science and Wildlife Biology: Synergies and Challenges*
- **Digital ZSI:** Achievements include Digital Archive of Publication of ZSI; ZSI Library Repository and ZSI Type Specimens Repository.





- **Identification and Advisory Services:** Identification and advisory services are provided to students, researchers and faculties from time to time. This year services were provided to 114 Institutes/ colleges and identified 2289 specimens belonging to 664 species.

- **Identification of Confiscated Wildlife Material:** Queries related to confiscated wildlife materials of different animals or parts of the body for the benefit of Court of Law to culminate wildlife crime are attended as and when received. This year 2328 animals /animal parts of confiscated Wildlife were received for providing identification from 54 departments and were attended.

- d. **Promulgation of new Acts/Rules, if any:** Prepared the revised list of faunal species under Schedule I and II of Wildlife (Protection) Act, 1972 amendment bill.

- e. **Continuing committees/commissions- their work during the year and present position:**

- Research Advisory and Monitoring Committee (RAMC) is the functioning committee to evaluate the progress of ZSI twice a year.
- Scientific Consultative Committee Meeting on monthly basis.
- Half Yearly Scientific Progress Committee.
- Annual Scientific Progress Committee.

- f. **Important Conferences organized in India or international conferences-nature**

of participation, subjects discussed, implementation –action taken.

- Conference on Deep Sea Bio-resources in Indian Ocean.
- Workshop on Methodology for Collection, Preservation and Curation of Zoological Specimens.
- Workshop on Population estimation of Olive Ridley Turtle.
- Training on Rescue and rehabilitation of birds, reptiles and dolphin in nature.
- Seminar on Biodiversity and Challenges for Conservation.

g. MEAs, agreement with countries, international organizations, compliance:

The Union Cabinet has approved a Memorandum of Understanding between ZSI and Canada's not-for-profit organization International Barcode of Life (iBOL) for strengthening of Biodiversity Digital Sequence Information as per CBD during the last year, while another International MoU has been signed between Zoological Survey of India and Natural History Museum, London, United Kingdom on 24th September 2021 to have a bilateral cooperation for taxonomic studies which will enhance the importance of taxonomy at a global scale.

Besides, ZSI has also signed MoU with four Universities/Institutes, namely,

- Khallikote University, Berhampur, Odisha.
- North Odisha University, Odisha.
- Bhagalpur University, Bihar.





MoU between ZSI and Natural History Museum , London

**h. List of major publications brought out-
brief purpose of each, wherever necessary**

- Faunal Diversity of Biogeographic Zones: Coasts of India.
- Faunal Diversity of Biogeographic Zones of India: Western Ghats.
- Faunal Diversity of Agroecosystem in India.
- Faunal Diversity of Biogeographic Zones of India: Semi-Arid.
- Faunal diversity of Biogeographic Zones of India: Deserts.
- Faunal Diversity of Biogeographic Zone of India: North-East.
- Birds of the Sundarban Biosphere Reserve.
- True Bugs of Central India, (Chhattisgarh and Madhya Pradesh).
- Deep Sea Faunal Diversity in India.
- Current Status of Faunal Diversity in Telangana.
- Status of Avifaunal Diversity in Bird Sanctuary of India.
- Animal Discoveries 2020.
- Mammalian Osteology (National Zoological Collections).
- Field guide for Rehabilitation of Indian Pangolin.
- Bats of Meghalaya.

In addition, a total of 593 publications have been made during the period and 5 Books, 126 papers published in SCI journals, 249 papers in peer-reviewed National and International journals, 184 Book chapters, 15 popular articles, 2 online checklists and 12 issues of E Newsletter have been published.

1.2. BOTANICAL SURVEY OF INDIA (BSI)

The Botanical Survey of India (BSI) is the apex research organization under the Ministry of Environment, Forest and Climate Change, Govt. of India. It carries out the taxonomic/floristic studies on wild plant resources of the country with an objective to explore the plant resources of the country. Established on 13th February 1890 during the British India, Botanical Survey of India is serving the nation





through its incessant survey and exploration of the plant wealth of the nation from the last 130 years. Presently, BSI has 11 regional centres and 5 units, with its headquarters at Kolkata and is actively engaged in inventorying the floral resources of wide array of ecosystems from coastal sea to high mountain ranges of Himalayas covering all the states and union territories.

Objectives and functions

Primary objectives

- Survey and exploration, inventorisation and documentation of phytodiversity; publication of National, State and District Floras.
- Identification of Red list Species and species rich areas needing conservation; ex situ conservation of critically threatened taxa in botanical gardens.
- Survey and documentation of traditional knowledge (ethnobotany) associated with plants.
- Develop a National Database of Indian plants including herbarium and live specimens, illustrations, botanical paintings, etc.

Secondary objectives

- Revisionary / Monographic studies on selected plant groups.
- Qualitative studies of nutritive value of ethno-food plants and other economically useful plants.
- Capacity building in plant taxonomy through refresher courses and post M.Sc. certificate course.

- Environmental Impact Assessment of areas assigned to BSI for study.
- Develop and maintain Botanical gardens.
- Preparation of Seed, Pollen and Spore Atlas of Indian Plants.

Mandate

Survey, collection, documentation (including the traditional knowledge associated with plants) and ex situ conservation of wild plant diversity.

a. Important activities undertaken during the reference period

- **Survey and Exploration:** As per the prime mandate, BSI scientists are involved in 64 Annual Research Projects under various thematic areas of plant resources of the country. Under these projects, scientists of BSI conducted 48 field tours, including local tours and voucher around 1846 plants and identified 1287 plants. BSI discovered 19 plant species new to science, 38 plant species as new additions to Indian/state flora and rediscovered 1 plant species after a century.



Strobilanthes pushpagiriensis-
a new species to science from Western Ghats





Corynandra telanganensis-
a new species to science from Telangana



Strobilanthes lakshminirasimhanii-
a new species to science from Western Ghats



Panorama view of vegetation at Seppa, East Kameng, Arunachal Pradesh

- Documentation of Phytodiversity:** Based on the floral survey and exploration, BSI is regularly updating and documenting the phytodiversity of the country. BSI documented 54,733 taxa of plants, belonging to 21,849 taxa of angiosperms; 82 taxa of Gymnosperms; 1,310 taxa of Pteridophytes; 15,504 taxa of Fungi; 8,979 taxa of Algae; 2,791 taxa of Bryophytes and 2,961 taxa of Lichens towards the complete inventory of floral resources of the country.
- BSI has published the '*Flora of India: An annotated checklist*' in three volumes, with a current updated list of 21,558 taxa of angiosperms that occur in India under 268 families and 2744 genera. The first two volumes deal with the Dicotyledons and the third volume deals with Monocotyledons. The checklist is first of its kind showcasing the entire floral diversity of India.
- Besides, some other important checklists published by BSI are: 1. *Plants of Indian Himalayan Region: a pictorial guide*" in two volumes has been published which enumerates 11,157 taxa, belonging to 2,359 genera and 241 angiosperm families





occur in Indian Himalayan Region; 2. *Flora of Mizoram*” which enumerates 4230 taxa; 3. *Flora of Sikkim*: which enumerates 5256 taxa occur; 4. *Orchids of Manipur*; 5. *Flora of Meghalaya*; 6. *Flora of Nagaland*. All these books are supplemented with good quality colour photographs of plant for easy understanding of floral diversity of this region.

- **Research Publication:** BSI published 150 research papers and 7 books including periodicals (Plant Discoveries, Nelumbo, Vansapati Vaani, Annual Reports and Annual Research Programmes).
- The official journal of BSI i.e., *Nelumbo* (The Bulletin of Botanical Survey of India), has been included in the UGC Care-list of journal and also in NAAS scoring list journal.
- **Digitization:** Towards Digitization of Botanical Collections, BSI completed metadata of 1,07,956 herbarium specimens and prepared an online database for research fraternity on e-flora of India web portal (<https://archive.bsi.gov.in>). The database contains approximately 5912 Botanical paintings, 1707 textile designs, 4100 natural dyes, 20017 economic plants and 28,811 type specimens.
- The e-flora database of BSI provide information on 21,558 taxa (including 1907 infra-specific taxa comprising of 1518 varieties, 337 subspecies, 52 forma and 1404 cultivated taxa) of angiosperms under 275 families and 2744 genera. This also includes 2.5 lakhs synonyms, which is one of the mega databases of plants.
- Besides the 15 volumes of Thomas Wardle’s specimens of “Fabrics dyed with Indian Dyes” contains information on 3000 samples of dye patterns, extracted from 64 plants; 18 volumes of textile designs contain about 1700 samples, starting with turbans and ‘garment pieces’ for men and women, are also now in the web portal.
- The database also includes 9,066 taxa of algae, 3,005 taxa of Lichen, 926 taxa of Liverworts & Hornworts and 146 taxa of Gymnosperms are being opened for public.
- The online database of BSI is getting popularity among the scientific fraternity at national and international level and visited by around 75,000 researchers monthly.
- **Ethnobotanical studies:** BSI scientists documented the traditional knowledge of tribals of Odisha, parts of Gujarat and Bihar states and Tharu and Bhoksa tribe of Uttarakhand, which is about 2034 ethnobotanical information from local Vaidya and villagers.
- **Neutraceutical studies:** BSI scientists studied the neutraceutical properties of 45 wild edible plants of north east India.
- **Ex situ conservation:** As a part of conservation measures, BSI maintains 11 botanical gardens spreading in different phytogeographical regions of India and maintains approximately 10,290 live plants. Through these gardens, BSI is actively involved in the conservation





of endemic and threatened plants particularly species of Bamboos, Palms, Zingibers in Andaman & Nicobar Islands at Dhanikhari Exp. Garden cum Arboretum; medicinally important species of Central India at experimental Garden of Central Regional Centre, Allahabad; economically important species of the Arid region in the experimental Garden of Arid Zone Regional Centre, Jodhpur; Orchidarium of economic and ornamental valued orchids at BSI, SRC, Yercaud, and BSI, ERC, Shillong.

- **Outreach activities:** Under the outreach activities, BSI is also actively involved in promoting research in Plant Taxonomy in the country. BSI regularly organises

webinars, virtual classes for faculties, college students and research scholars and conducts Capacity Building Training Programmes on topics related to Indian Floral diversity; Botanical Nomenclature Course, Herbarium Methodology, Application of SEM (Scanning Electron Microscope) techniques on plant taxonomy; Application of GIS in flora studies, databasing and digitization of floral collections; etc. During the reference period, 23 research scholars are being involved and trained in plant taxonomy under the Flora of India projects. Besides, BSI organised 13 webinars and 8 online lectures on different themes and for the scientific fraternity.



Outreach awareness rally organized under #Azadi ka Amritmahotsav to educate public about the harmful effects of Single Use Plastic





- BSI developed a GPS based navigation *Mobile App* for locating trees and shrubs of AJC Bose Indian Botanic garden, BSI, Howrah for visitors and general public.
- **Memorandum of Understanding (MoU):** As a part of collaborative research, during the reference period, BSI signed MoU with 3 institutions namely ICAR-National Bureau of Plant Genetic Resources, New Delhi on 03.03.2021; Indian Council of Forestry Research and Education (ICFRE), Dehradun, Uttarakhand on 15.02.2021 and

Sikkim University, Sikkim on 11.01.2021.

b. Continuing committees/commissions-their work during the year and present position

The following committees are functioning in BSI:

1. Research Advisory Monitoring Committee (RAMC): The 10th meeting of the Research Advisory & Monitoring Committee (RAMC) of BSI was held on 20th & 21st September, 2021 at the Botanic Garden of Indian Republic (BGIR), NOIDA.



Group Photo of RAMC of the 10th BSI held at BGIR, Noida

2. Scientific Reports Evaluation Committee
3. Grievance Redressal Committee
4. RTI Redressal Committee
5. Sexual Harassment Committee
6. SC/ST Reservation Committee
7. Media and Website Cell

c. Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation-action taken.

During the reporting period (2021-22), BSI has organised 13 webinars on various thematic areas of Phytodiversity and





conservation. Besides, BSI also organised virtual lectures to college students / research scholars and faculties on themes such as Plant Taxonomy, Herbarium Methodology, Plant identification and herbarium preparation and its maintenance.

d. List of major publications brought out-brief purpose of each, wherever necessary

During the reporting period, BSI published 150 research papers and 7 books.

Books published are:-

1. FLORA OF UTTAR PRADESH, Vol. II. Botanical Survey of India, Kolkata.
2. THE FLORA OF THE UDAIPUR WILDLIFE SANCTUARY, WEST CHAMPARAN, BIHAR, INDIA. Botanical Survey of India, Kolkata.
3. WILD BALSAMS OF DARJEELING & SIKKIM HIMALAYA. Botanical Survey of India, Kolkata
4. FLORA OF INDIA, Vol. 30 Fascicle: Apocynaceae, BSI Kolkata.
5. PLANT DISCOVERIES 2020. New Discoveries and new records. Botanical Survey of India, Kolkata.
6. NELUMBO: THE BULLETIN OF THE BOTANICAL SURVEY OF INDIA - 63rd volume, 2021. Botanical Survey of India, Kolkata.
7. VANASPATI VAANI, official Hindi journal 28th volume. Botanical Survey of India, Kolkata.

e. Challenges in work due to COVID-19 and the response of the Division.

Challenges: Due to the COVID-19 outbreak

and associated lockdowns, field survey and explorations related to Annual Research Projects were hampered and the entire flowering season has been lost without any fresh collections of plants for the collection of germ plasm. Besides, herbarium consultation tours to various herbaria also could not be conducted. Apart from that, Plant identification services to the public were also hampered due to corona pandemic.

Response: In order to prevent the spread of COVID-19 pandemic, the office was running following the SOP and guidelines issued by the Government. Besides, official meetings, webinars and events were organised only through virtual modes via video conferencing. No physical functions/ mass gatherings of staff were done. In addition, during the lockdown periods, staff of the organisation worked from home. The office premises were regularly sanitized and thermal scanning, hand sanitization were ensured at entry point. Maintaining social distancing and wearing mask by employees is regularly monitored.

1.3 SURVEY & UTILISATION DIVISION

a. The SU Division deals with matters relating to:-

- Forest Survey of India
- Sandalwood & Red Sanders related matters
- State Forest Development Corporations, International Organizations like International Tropical Timber Organization (ITTO), International Network for Bamboo & Rattan (INBAR)





- Formulation of guidelines of international/ domestic trade in forest produce and regulation of export & import of forest produce as per the Export and Import (EXIM) policy
- Minor Forest Produce
- All matters relating to Andaman and Nicobar Islands Forest Plantation Development Corporation Limited
- Wood Based Industries
- Bamboo Cell
- Forest Certification and Sustainable Forest Management
- Permission for establishment of Industrial Estates in North Eastern States and movement of surplus timber from North Eastern Region to other parts of the country

b. Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021)

- Preparation of India State of Forest Report-2021 by Forest Survey of India, Dehradun.
- Implementation of closure plan of Andaman and Nicobar Islands Forest and plantation Development Corporation Limited, Port Blair.
- Meeting of Empowered Committee for digitization of forest boundary.
- Meeting of North Eastern States for movement of Surplus timber from North East to other parts of the country.
- Meeting of Committee on NTFP, Carbon sequestration, e-Green watch

c. Continuing committees/commissions-their work during the year and present position

- (i) Regulatory Committee under the Chairmanship of Additional PCCF, Regional Office, MoEF&CC, Shillong for allotment of wagons for movement of surplus timber from North Eastern parts of the country to other parts of the country. The Committee is working for allotment of wagon for movement of timber from North Eastern Region to other parts of the country.
- (ii) Empowered Committee under the Chairmanship of DGF&SS to monitor progress of field identification and geo-referencing of forest land as per the Supreme Court directive and to resolve the discrepancy between notified forest area and geo-referenced forest area. The work of the Committee is of continuous nature.
- (iii) An Inter-ministerial committee under the Chairmanship of ADG(FC) to discuss issues related to Conservation, development and sustainable harvest of non-timber forest products from forest areas. One meeting of the Committee held.
- (iv) An Inter-Ministerial committee under the Chairmanship of ADG(FC) to to monitor the creation of carbon sink of 2.5 to 3.0 billion tonnes by 2030 through creation of additional forest and tree cover. One meeting of the Committee held.
- (v) A committee under the Chairmanship of Shri Sunil Pandey, PCCF & HoFF, Government of Uttar Pradesh for revision of National Working Plan Code 2014.





d. Highlights of work undertaken by the SU Division

SU Division deals with matters related to Forest Survey of India which is covered under Plan Scheme No. 3 i.e. Survey and Research. The objectives of FSI and activities therein are given in the following section.

1. Forest Survey of India

Introduction:

Forest Survey of India (FSI) is a subordinate office of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India. It is a premier national organisation, and is responsible for assessment and monitoring of the forest resources of the country on regular basis. FSI also provides training, research and extension services in the forestry sector. Established on 1st June 1981, FSI succeeded the Pre-investment Survey of Forest Resources (PISFR), a project initiated in 1965 by Government of India with the sponsorship of FAO and UNDP. The main objective of PISFR was to ascertain the availability of raw material for establishment of wood-based industries in selected areas of the country. In 1976, the National Commission on Agriculture (NCA) recommended for creation of a national forest survey organization for regular, periodic and comprehensive forest resources survey of the country which paved the way for creation of FSI. After a review of activities undertaken by FSI, Government of India redefined the mandate of FSI in 1986 in order to make it more relevant to the rapidly changing needs and aspirations of the country.

FSI is headquartered at Dehradun and its four zonal offices are located at Shimla (Northern), Kolkata (Eastern), Nagpur (Central) and Bangalore (Southern). A sub-centre of Eastern zone has been established and made operational in Guwahati. FSI is headed by a Director General, who is assisted by two Joint Directors at the headquarters, looking after the two main divisions; the Forest Geoinformatics Division and the Forest Inventory & Training Division. The Joint Directors are supported by Deputy Directors, Assistant Directors and other technical and ministerial staff. Each zonal office is headed by a Regional Director supported by Senior Deputy Director(s), technical, ministerial and other field staff. The headquarter as well as the zonal offices work in close coordination to carry out various activities of FSI.

The major activities at the headquarter are; remote sensing-based Forest Cover Mapping (FCM), designing methodology and generation of sample plots for National Forest Inventory (NFI) and inventory data processing & analysis, conducting training programmes for State Forest Department (SFD) officials, coordination and monitoring of the activities of zonal offices and various assignments given by Hon'ble Courts, Ministry & SFDs. The main activities of zonal offices is execution of field work for NFI and forest cover mapping work of some States/UTs assigned by the headquarters.

Objectives of FSI:

- a. To prepare the India State of Forest Report biennially, providing assessment of latest forest cover in the country and monitoring changes in these.





- b. To conduct inventory in forest and non-forest areas and develop a database on forest tree resources.
- c. To function as a nodal agency for collection, compilation, storage and dissemination of spatial database on forest resources.
- d. To conduct training of forestry personnel in application of technologies related to resources survey, remote sensing, GIS, etc.
- e. To strengthen research & development infrastructure in FSI and to conduct research on applied forest survey techniques.
- f. To support State/UT Forest Departments (SFD) in forest resources survey, mapping and inventory.
- g. To undertake forestry related special studies/consultancies and custom made training courses for SFDs and other organizations on project basis.

Major activities of FSI

a. Important activities undertaken during the reference period (i.e. 1/1/2021-31/10/2021)

The major activities for FSI include:

- a. Biennial assessment of Forest Cover using remote sensing technology
- b. Inventory of Forest areas
- c. Inventory of Trees Outside Forests (Rural & Urban)
- d. Inventory data processing
- e. Training and Extension
- f. Projects and Consultancies
- g. Assignments by Ministry and Hon'ble Courts

Celebrations for 'Azadi ka Amrit Mahotsava'

To celebrate the iconic campaign, Forest Survey of India organised the celebrations under the identified theme of eliminating the use of single use plastics. A speech competition was held in the organisation on 6th October 2021 on 'Avoid the usage of single use plastics'. An awareness campaign on 'single use plastics' was also displayed at various common points in the organisation.

Further, Forest Survey of India also organised capacity-building programmes of the forestry personnel in forest cover mapping, resource survey and inventory of forest resources during the 'Azadi ka Amrit Mahotsav'. The celebrations helped in re-affirming the commitment of the organisation to prohibit and eliminate single use plastics and to motivate uses of its alternatives.

b. Progress/Achievements both cumulative and for the reference period including innovations:

Forest & Tree Cover assessment:

FSI is involved in wall-to-wall forest cover assessment of the country on a biennial cycle by interpretation of satellite data on a two-year cycle and publishing the information in the 'India State of Forest Report'. So far, 17 cycles of forest cover assessment have been completed from 1987 to 2021. The results of the 17th cycle of the Forest Cover Mapping (FCM) were published in ISFR 2021, which was released





on 13th January, 2022. In addition to FCM, assessment of tree cover of the country is also being carried out using the Trees Outside Forests (TOF) inventory data. As per ISFR, 2021, there was an increase of 1540 sq km in the forest cover and 721 sq km in tree cover of the country as compared to the ISFR 2019. Over the years, FSI has been making use of improved quality of remote sensing data and technologies of image processing. This has improved the accuracy of interpretation which can be utilized for better operational management and planning in the forestry sector of the country. For the 17th cycle FCM, 310 scenes of LISS-III sensor of Indian Remote Sensing Satellite have been procured from NRSC, Hyderabad. Fully ortho-rectified satellite data is being used for Forest Cover mapping, which will improve the positional accuracy of the data.

National Forest Inventory

National forest inventory is a major activity of FSI. Since 1965, forest inventory was carried out in different parts of the country in different time periods, thus it was not possible to generate the national level estimates of growing stock. Accordingly, a new NFI design was adopted by FSI in the year 2002 to generate national level estimates on growing stock, forest area and other parameters of the forest resources. The whole country was divided into 14 physiographic zones and 60 districts were selected for survey spread all over the physiographic zones in a cycle of two years in 'forest' as well as in 'Trees Outside Forest' area. This design was continued till

2016. As the revisiting time under this design was 20 years and in view of the national and international obligations and commitment, the need for a robust NFI design was felt.

FSI redesigned the National Forest Inventory (NFI) programme from district based approach to grid based approach. Under the new design, the whole country is divided into a nationwide uniform grids of 5 km x 5 km. Thus, the revisit time has been reduced from 20 years to 5 years for Forest Inventory and 10 years for TOF inventory. In 5 years period about 33,000 forested and 1,00,000 grids in TOF will be covered under the new NFI design. In forest inventory about 7,000 and in TOF inventory 10,000 plots will be surveyed in a year.

It is pertinent to mention here that a major technological advancement in the field data collection has been implemented in the last one year by switching over to PDA based data collection from the sample plots for forest and TOF inventory. Now, Forest/TOF data is being captured using PDAs in the field and the same is transmitted to the server with the help of mobile internet. Switching over to PDA based data collection system has not only improved efficiency of the field work but has also led to improved analysis of data and monitoring progress of NFI. This advancement has brought the NFI of India to the level of best practices followed by advanced countries.

For the ISFR 2021, the NFI data of the years 2016-17, 2017-18, 2018-19 & 2019-20 has been used which covers about 80% of the country's forest area and 40% of the Trees Outside Forests area.





In the previous and current year, the fieldwork of NFI has been affected severely due to Covid – 19 pandemic and got delayed almost by six months. Generally, the fieldwork of NFI for a cycle gets completed in March, but in the current cycle it stretched almost upto August 2021. The huge backlog of fieldwork thus created was completed by deploying extra manpower.

Other major activities of FSI during the period of the report

Remapping of Forest Type of India:

Forest Type Mapping of India was carried out by FSI between year 2005 to 2011 on 1:50,000 scale using LISS-III data of year 2003. Over the years, the spatial information about the forest types of India has turned out to be an important primary information of the forests of the country and has been extensively used by the State Forest Departments, researchers, academicians and various other stake holders in numerous ways.

In 2016, a project on Remapping of The Forest Types of India has been initiated with the following objectives:

- i. To improve and update the existing Forest Types as per the present scenario.
- ii. To interpret the Forest Types as per their physiognomic distribution in the country.
- iii. To facilitate use in DSS & e-Green watch applications.

A dedicated team of technical personnel under FGD carried out the exercise. After two expert consultations, one each in 2018 and 2019, ground truthing and final checks, the Atlas

was prepared. Currently the work is in the completion stage and will be released shortly.

Near Real Time Monitoring of Forest Fires:

Forest Survey of India has been alerting State Forest Departments of forest fire locations detected by the MODIS (Moderate Resolution Imaging Spectro-radiometer) sensor on-board Aqua and Terra Satellites of NASA since 2004. Since then, there has been continuous upgradation in the forest fire alert systems. The FSI Forest Fire Alerts System (FAST) has undergone periodic changes to facilitate not only foresters but also common people in a better way. The fully automated FSI forest fire alerts system version 2.0 with near real time SNPP-VIIRS data was made operational in 2017. A new faster, quicker and more robust version of FSI Forest Fire Alerts System (Version 3.0) was launched in 2019 by adding several new features to the earlier Version 2.0. A major improvement over the previous version is the addition of large forest fire monitoring system which identifies and tracks large fires in an automated manner.

The current version 3.0 of the FSI Fire Alerts System has the following features:

- a. Improved Custom Filter which boosted its accuracy level
- b. Large Forest Fire monitoring programme based on SNPP-VIIRS to automatically identify and track large forest fires
- c. Map Server based Geoportal-Van Agni (open source) to view dynamic display of alerts along with other thematic layers
- d. Web Map Service available for integration





- with State Forest Departments Geoportal
- e. Customized alerts for 21 states at Beat level and 3 states at Range level
- f. Integration with visualization WMS, Map links in SMS
- g. Improved feedback system (via SMS and nodal officer page)
- h. Improved Nodal officer page

Large Forest Fire Monitoring:

Forest Survey of India launched the Large Forest Fire Monitoring Programme using near real time SNPP-VIIRS data as a part of the FAST

version 3.0. With the launch of Large Forest Fire Monitoring System, FSI aims to track large fire events across the country and disseminate specific Large Fire alerts with the objective to identify, track and report serious forest fire incidents so as to help monitor such fires at senior management level in the State Forest Department and also seek timely additional assistance that may be required to contain such fires.

The FSI forest fire alert system is being used by more than 1,31,100 registered users across the country

Forest Fire Alerts Dissemination

Sensor	(Nov. 2018 - June 19)	(Nov. 2019 - June 20)	(Nov. 2020 - June 21)
MODIS	29,547	22,447	52,785
SNPP-VIIRS	2,10,286	1,24,473	3,45,989

Fire Weather Index (FWI) based Early Warning Alert System for Forest Fire

FSI, with years of experience and repository of fire related data, developed in 2016, an indigenous “Early Warning Alert System for Forest Fire”. The objective was to identify areas which are more vulnerable to severe forest fires. The alerts to State Forest Departments are based on parameters like Forest Cover, Forest Type, Climatic Variables (Temperature and Rainfall) and recent fire incidences over the area. The GIS layers of these parameters were overlaid and intersect areas above threshold values were chosen and communicated as early warning forest fire alerts in the form of KML files through email to the nodal officer of the State Forest Departments. These alerts which are generated based on short term

weather variables, are valid for the ensuing week. Presently the early warning alerts are being sent to all the States/UTs of the country.

Study on identification of fire prone forest areas based on GIS analysis of archived:

FSI has carried out a study based on spatial analysis of forest fire points detected by FSI in the last 17 years to identify fire prone forest area in the country. Extent of forest cover (excluding TOF) under different fire prone classes (Extremely fire prone, very high fire prone, highly fire prone, Moderately fire prone and Less fire prone) has also been determined for each State/UT. Frequency of detected forest fires in an area over a period of time indicates proneness of the area to forest fire. Highlights of the study:





- Nearly 10.66% area of Forest Cover in India is under extremely to very highly fire prone zone, as per the long-term trend analysis performed by FSI; which needs to be addressed with priority.
- States under North-Eastern Region, showed the highest tendency of Forest Fire, as these states are falling under extremely to very highly forest fire prone zone.
- States like Mizoram, Tripura, Meghalaya, Manipur in North-Eastern Part of India exhibits the highest forest fire probability in term of its frequency of event occurrence.
- Parts of Western Maharashtra, Southern part of Chhattisgarh, Central Part of Odisha and few parts of Andhra Pradesh, Telangana and Karnataka are showing patches of extremely and very highly fire prone zones.

National Spatial Data Infrastructure (NSDI)

National Spatial data Infrastructure (NSDI) is a national program monitored by NSDI division of Department of Science and Technology to build consensus on harmonizing the available country-wide spatial database to a common set of standards, parameters and to minimize the disparity in data themes among various institutions, organizations across the country. In this context, Forest Survey of India (FSI) has been identified as a partner institution and a member of working groups (WG) assigned with the important responsibility of creating theme layers pertaining to forest resources and their categories. FSI has worked on creation of Metadata on National level, Creation of Web Map Service (WMS) for the FSI- Forest Cover and Forest Type for the entire country. Forest Data

Content Standard Document based on Forest UML Diagram with unique codes for forest cover and forest type to be included in National data Registry. FSI has also been nominated and is working as the technical member for the working group of the National Data Registry (NDR). FSI is working on the guidelines of the NDR group and technical guidance from NSDI identified System Integrators. NDR Data node is accessible and functional with the allocation of Virtual Machine (VMs) to all the respective NDR node agencies including FSI for serving interoperable data/map services towards geospatial data integration.

Decision Support System (DSS)

It is a web-GIS based application which has been developed to provide qualitative and quantitative information with respect to forest area. It uses different spatial layers for providing different information on different issues related to forest and wildlife areas. Geospatial data used in the DSS application includes state and district boundary layer protected area, tiger reserves, tiger corridors, forest type map, biological richness, landscape integrity, hydrological layer, forest cover map time series layer, recorded forest area and recorded forest administrative boundary. All State Forest Departments and Regional offices of MoEF&CC have been provided with the user ID and password to access and use the application website (www.fsigeoportal.gov.in/dss). This service has been extended upto the level of DFOs in many States and around 1000 users are using this portal for decision making related to FCA. The credentials of DSS have been provided to Central Electricity Authority





(CEA), Power Grid Corporation of India (PGCI), Mineral Exploration Corporation Ltd. (MECL), Department of Hydrocarbon (DOH), National Highway Authority of India (NHAI) and Geological Survey of India (GSI), also.

e-Green Watch

The e-Green Watch portal, which has its genesis in the order of 10th July, 2009 of the Hon'ble Supreme Court of India and been developed by NIC in consultation with the MoEF&CC, FSI and SFDs, is an integrated, web-based, user friendly online monitoring system to facilitate management and monitoring of all plantation and other activities being carried out by the SFDs using CAMPA funds. Monitoring of activities is carried out under following categories

- i. Compensatory Afforestation Land (CA Land)
- ii. Diverted Land (DL)
- iii. Other Plantation Work (OPW)
- iv. Plantation Work (PW)
- v. Assets

A total of 2,25,637 polygons have been uploaded on the e-Green watch portal and out of which 1,52,145 polygons pertaining to 32 SFDs/UTs have been checked by FSI through this portal till October 2021. E-Green Watch is included in all the training programmes, which are conducted for Forest Department officials at FSI to improve their participation in the monitoring programme as well as to improve the accuracy of the polygons uploaded in the portal.

Mapping of Rubber plantation and Waterbodies and Assessment of Bamboo Resources for the State of Tripura

On request of Tripura Forest Department (TFD), FSI has initiated this project for the State. Mapping of Rubber plantation and Waterbodies is being carried out using employing Remote Sensing Techniques with LISS IV data (5.8 m Resolution). The Mapping is on a scale of 1:12,500 and the minimum mapping unit is 0.06 ha. Assessment of Bamboo Resources will be carried out using field sampling techniques. Tripura SFD will collect the field data regarding bamboo and further analysis will be done by FSI. Work was initiated in the month of March of 2020 after signing of MoU between FSI and Tripura SFD in the month of February. Ground truthing of Mapping of Rubber and Water bodies is completed and writing of report is in progress. It is expected to be completed by January, 2022.

Inventory of Trees Outside Forests (TOF) in various States

On the request of various SFDs, FSI is currently engaged in carrying out the TOF studies in the States of Jammu & Kashmir, Himachal Pradesh, Rajasthan Bihar & Tripura.

JICA Project:

FSI has taken a project for conducting a base line survey in collaboration with West Bengal Forest Department for forest growing stock under the 'West Bengal Forest and Biodiversity Conservation Project'(WBFBCP) being implemented by Forest Department of West Bengal with assistance of Japan International





Cooperation Agency (JICA) in 8 districts of West Bengal to establish bench mark. Objectives of this project is to improve forest ecosystem and conserve biodiversity by undertaking afforestation, regeneration and wildlife management activities through Joint Forest Management approach. The final report of the project has been submitted to the WBFBCP for final vetting.

Forest Carbon Stock and Bamboo Resources Assessment in Nagaland (Phase-II):

At the request of Nagaland Forest Department, an additional report on forest carbon and bamboo resources of Nagaland is to be prepared from the data collected during the field inventory on forest resources. Forest type and density-wise Forest Carbon Stock under different carbon pools and Quality Wise Bamboo Resources in the state of Nagaland will be estimated under the project. The data processing work for estimation of Bamboo resources in the Nagaland has been completed. The estimation of Carbon is in progress.

Forest Carbon Projects under NATCOM:

FSI has been estimating carbon stock in the country’s forests on regular basis for various National Communications (NATCOMs) and providing valuable inputs to the MoEF&CC in preparation of GHG inventory of the country.

At present work on NATCOM- III is going on. Presently the following three projects have been sanctioned by the MoEF&CC to FSI under the funding from UNDP.

1. Developing volume equations for 30 important species each in forest and TOF area
2. Estimation of Soil Organic Carbon (SOC) in TOF
3. Estimation of carbon stock in Mangrove Eco-system.

Methodologies for the above projects have been finalized and work is under progress.

Training Courses by FSI

FSI imparts training to forestry personnel working at various levels in State Forest Departments to sensitize them with the latest advancements in application of Remote Sensing & GIS for preparation of Working Plans, GPS Applications in Forest Survey and Demarcation, Application of GIS in Forest Resources Management etc. Due to prevailing Covid – 19 pandemic, the training courses have been adversely affected and the offline training courses have been suspended since March 2020. The following courses were conducted online during the period 1st January 2021 to 31st October 2021.

S. No.	Theme	Date	Total Participants
1.	Quantum GIS in Forestry Applications	12 - 13/02/2021	19
2.	Forest Fire Monitoring and Damage Assessment	23/02/2021	09
3.	Decision Support System (DSS) & e-Green Watch	12 -13/04/2021	37
4.	Application of RS/GIS in Preparation of Working Plan	13 -14/07/2021	16





S. No.	Theme	Date	Total Participants
5.	Decision Support System (DSS) & e-Green Watch	26 - 27/07/2021	09
6.	Forest Fire Monitoring and Damage Assessment	09/08/2021	25
7.	Role of growing stock & carbon pool assessment in sustainable development of Forest	20 - 24/09/2021	28
8.	Application of Drone/DGPS in Forest Survey & Demarcation	27 - 28/09/2021	12
9.	Decision Support System (DSS) & e-Green Watch	04 - 05/10/2021	10

Details of visitors to FSI during the period January, 2021- October, 2021 are as follows:

S. No.	Name of the organization	Number of Participants	Date
1.	Tamil Nadu Forest Academy, Tamil Nadu	01	25/01/2021
2.	Forest Training Institute & Rangers College, Himachal Pradesh	25	05/02/20
3.	Indian Institute of Remote Sensing, Dehradun	11	02/03/2021
4.	Forest Training Institute & Rangers College, Himachal Pradesh	26	15/03/2021
5.	Tamil Nadu Forest Academy, Tamil Nadu	32	07/04/2021
6.	University of Agriculture & Horticultural Sciences, College of Forestry Ponnampet - Kodagu	64	22/06/2021
7.	CASFOS, Dehradun	33	12/08/2021
8.	Telangana State Forest Department, Telangana	65	30/09/2021
9.	IGNFA, Dehradun	66	20/10/2021
10.	Karnataka, State Forest Department, Karnataka	38	27/10/2021

2. Export & Import of forestry products and tariff structure of forestry items:-

The SU Division deals with the formulation of guidelines and directions for domestic and international trade in forest produce and necessary regulation of export and import of forest produce as per the Foreign Trade Policy as well as the applied tariff rates. The Division also deals with the issue of NOC for grant of license for export of

wood and wood products for the application received through Directorate General of Foreign Trade, New Delhi. This includes Sandalwood, Red Sanders and other wood products. During the year, many reference regarding export and import of red sanders and sandalwood were processed and reply furnished to Directorate General of Foreign Trade, Ministry of Commerce & Industry, New Delhi.





3. Regulation of Wood Based Industries in the country:-

The SU Division prepared the Guidelines for Wood Based Industries (Establishment and Regulation) Guidelines, 2016 in compliance of order of Hon'ble Supreme Court dated 05.10.2105 in W.P. (C) No. 202/1995 in the matter of T.N. Godavarman Vs. Union of India and Ors. The Wood Based Industries (Establishment and Regulation) Guidelines, 2016 were subsequently modified as per the comments received from State/ UT Forest Department and concerned stakeholders. The modified guidelines were published in the Gazette of India on 12th September, 2017. On the basis of these guidelines, the State Level Committees for Wood Based Industry will take decision on issue of new licenses/renewal of licenses for wood based industry. The Division has received many references from State Forest Departments regarding various issues related to wood based industries which were examined and suitable reply was furnished to concerned State.

4. State Forest Development Corporation:-

The Ministry has shares in 9 State Forest Development Corporations. The issue of dividend, annual General Meeting and other miscellaneous matters related to State Forest Development Corporation is being dealt with by the Division.

5. Andaman & Nicobar Islands Forest and Plantation Development Corporation Ltd.

Andaman & Nicobar Islands Forest & Plantation Development Corporation Limited (ANIFPDCL), Port Blair is the only

CPSE under the administrative control of the Ministry. It was created in 1977 with the broad objectives of development and management of forestry plantations on the Islands. The Corporation is loss making and as per the approved Cabinet Note, Ministry is implementing the closure plan of the Corporation.

6 Nodal Division for Bamboo related matter in the Ministry.

SU Division is the Nodal Division for bamboo related matters in the Ministry. The Ministry has also created a 'Bamboo Cell' in SU Division to deal with all matters related to Bamboo. References received regarding bamboo were dealt in the Division.

7. International Tropical Timber Organization (ITTO)

India is a founder member of ITTO which aims for conserving tropical forest and assisting countries to develop economically in the field of forestry. The ITTO brings together producer and consumer member countries to discuss and exchange information and develop policies on all aspects of the World Tropical Timber Economy. The Headquarter of ITTO is in Yokahama, Japan. There are 74 members countries out of which 36 are producers and 38 are consumers. India belongs to the group of the producer member countries. The ITTO's membership represents 90% of world trade in tropical timber and 80% of the world's tropical forests. The Ministry of Environment, Forest & Climate Change is a Nodal Ministry for ITTO related matters





and the SU Division is the Nodal Division for the same with MOEFCC.

8. International Bamboo and Rattan Organisation (INBAR)

INBAR is an intergovernmental organization established in 1997. INBAR is dedicated to improving the social, economic, and environmental benefits of bamboo and rattan. INBAR plays a unique role in finding and demonstrating innovative ways of using bamboo and rattan to protect

environments and biodiversity, alleviate poverty, and facilities fairer pro-poor trade. INBAR connects a global network for partners from the government, private, and not-for-profit sectors in over 50 countries to define and implement a global agenda for sustainable development through bamboo and rattan. The Ministry of Environment, Forest & Climate Change is a Nodal Ministry for INBAR related matter and SU Division is a Nodal Division for the same with MOEFCC.





CHAPTER
02

Conservation





2.1 Conservation and Survey-III (Biodiversity) Division

a. Brief introduction and objectives and functions of the Division

The areas of work dealt within CS-III (Biodiversity) Division can be broadly categorized under following categories:

- **International obligations:**
 - I. Convention on Biological Diversity (CBD).
 - II. Nagoya Protocol on Access and Benefit Sharing (ABS).
 - III. National Biodiversity Action Plan (NBAP) and National Biodiversity Targets (NBTs).
 - IV. National Reports to CBD.
 - V. Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).
 - VI. Domestic measures, namely, Biological Diversity Act, 2002 (BD Act) and National Biodiversity Authority (NBA).
 - VII. Projects related to the above.

CBD is one of the key agreements adopted during the Earth Summit held in Rio de Janeiro in 1992. The three objectives of the CBD are: conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising out of the use of genetic resources. Pursuant to ratification of the CBD by India on 18th February, 1994, several steps were initiated to meet the commitments under the Convention, and to realize the

opportunities offered by the Convention. India enacted the BD Act in 2002 to give effect to the provision of this Convention. India has also prepared a National Biodiversity Action Plan (NBAP) in 2008, and an Addendum to NBAP was prepared in 2014 with 12 National Biodiversity Targets, developed in line with the 20 global Aichi biodiversity targets.

The Nagoya Protocol on ABS, adopted under the aegis of CBD in 2010, is aimed at fair and equitable sharing of benefits arising from the utilization of genetic resources. India signed the Protocol on 11th May, 2011, and ratified it on 9th October, 2012. The Nagoya Protocol on ABS entered into force on 12th October, 2014. The Nagoya Protocol is being implemented at national level inter alia through the BD Act.

IPBES was established by the Governments of various countries in April, 2012 as the biodiversity counterpart of Intergovernmental Panel on Climate Change, for strengthening the science-policy interface on biodiversity so as to provide policy makers with reliable, independent and credible information on biodiversity, thus promoting human well-being and sustainable development through sustainable use of biodiversity.

The BD Act, 2002 is implemented through a three-tier institutional mechanism: NBA, State Biodiversity Boards (SBBs)/ UT Biodiversity Councils and Biodiversity Management Committees (BMCs). NBA is a Statutory body that performs facilitative,





regulatory and advisory functions for the Government on biodiversity related issues.

b. Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021) including celebrations for Azaadi ka Amrit Mahotsava

Convention on Biological Diversity:

The Ministry celebrated the “International Day on Biological Diversity 2021” on 22nd May, 2021. The theme for this year’s celebrations was “Our solutions are in nature”. During the event, the winners of the 5th India Biodiversity Awards were announced. A total of 10 winners and 5 jury special mentions were felicitated across 5 categories: Conservation of Wild Species, Conservation of Domesticated Species, Best Biodiversity Management Committee (BMC), Sustainable Use of Biological Resources and Replicable Mechanisms for Access and Benefit Sharing (ABS). Winners of a Short Paper Writing Competition held by NBA for law students from Northeast India were also awarded during the programme.

Several important knowledge products and programmes were also launched during the event, including a web-portal and compendium on OECMs, OECMs Initiative for Northeast India, Extended Phase II of the Biodiversity Finance Initiative, Handbook for Researchers on Access and Benefit Sharing, and Multimedia Film Series and Training of Trainers’ module for capacity building of BMCs.

The 3rd NBA-UNDP Biodiversity Samrakshan

Internship Program has been undertaken in the year 2021-22 and the course would commence from January 2022 till December 2022. Also, nominations have been called for India Biodiversity Awards 2023.

Establishment of BMCs and Preparation of PBRs

In pursuance of the Order passed by the Principal Bench of the Hon’ble NGT in O. A. 347 of 2016 dated 09.08.2019, and based on the subsequent orders, 8 Review meetings have been conducted by NBA through video-conferencing in the year 2020 with the SBBs and UTs on implementation of the BD Act.

As on date 28 States and 4 UT Biodiversity Councils have constituted 2,76,160 BMCs and prepared 2,65,458 PBRs.

Azadi ka Amrit Mahotsav

As a part of Azadi ka Amrit Mahotsav, the Division weeded out 786 physical files during the special drive.

C. Progress/Achievements both cumulative and for the reference period including innovations.

Internationally Recognized Certificate of Compliance (IRCC) issued under Nagoya Protocol

Nagoya Protocol on ABS requires Parties to issue a permit or its equivalent at the time of access as evidence that access to genetic resources was based on prior informed consent and that mutually agreed terms were established. The Protocol further





requires that Parties make information on the permit or its equivalent available to the ABS Clearing House for it to constitute an IRCC. Since October 2015, the NBA has been uploading the approval granted to users of biological resources in the ABS CH website for generating IRCC. As on date, 2361 IRCCs have been generated out of total 3320 published globally.

d. Promulgation of new Acts/ Rules, if any, along with the details along with major amendments/ deletions.

The Biological Diversity (Amendment) Bill, 2021, was introduced on 16th December 2021 in the winter session of Parliament.

e. Continuing committees/commissions-their work during the year and present position

The Second meeting of the Indo-German Joint Working Group on Biodiversity was held on 3rd February, 2021 to strengthen the collaboration on biodiversity conservation front.

f. Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation- action taken

The Indian delegation participated in the first part of Fifteenth Conference of Parties (COP-15), virtually, during 11- 15 October, 2021.

g. MEAs, Agreement with countries, international organizations, compliance

India joined the High Ambition Coalition on 7th October, 2021, which shall promote an international agreement to protect at least

30% of world's land and 10% of the ocean by 2030.

h. List of major publications brought out-brief purpose of each, wherever necessary.

- Compendium on OECMs.
- OECMs Initiative for Northeast India.
- Handbook for Researchers on Access and Benefit Sharing
- Multimedia Film Series and Training of Trainers' module for capacity building of BMCs.

i. Autonomous bodies- appraisal of the functioning of each of the autonomous bodies/institutions in relations to their objectives.

The National Biodiversity Authority is a body corporate established in accordance with the provisions of Section 8 of the Biological Diversity Act, 2002, at Chennai w.e.f. 1st October, 2003 under the Ministry of Environment, Forest and Climate Change. It is an autonomous, statutory and regulatory organization which is intended to implement the provisions of Biological Diversity Act, 2002. The Biological Diversity Act 2002 came into force in 2003. The Act extends to the whole of India. The objectives of the Act are: conservation, sustainable utilization and fair and equitable sharing of benefits arising out of the use of biological resources and associated knowledge. The Act is being implemented through a three-tiered institutional structure, NBA at National level, State Biodiversity Boards at





State level and Biodiversity Management Committees at local level.

The main objectives of NBA are:

- To regulate access to biological resources of the country to conserve the sustainable use of biological diversity;
- To respect and protect the knowledge of local communities related to biodiversity;
- To secure sharing of benefits with the local people as conservers of biological resources and holders of knowledge and information relating to the use of biological resources;
- Conservation and development of area of importance from the view point of biological diversity by declaring them as biological diversity heritage sites;
- Protection and rehabilitation of threatened species; involvement of institutions of state government in the broad scheme of implementation of the Biological Diversity Act through constitution of committees.
- The Authority has been fulfilling its assigned mandate and steps are being undertaken to step up the conservation and advisory role of NBA.

Grant-in-aid released to Institutions/ organizations including NGOs

S. No.	Name of Organisation	Purpose	Total Amount Released	Status of third party evaluation	Remarks
1	National Biodiversity Authority	As per the provisions in the Biological Diversity Act, 2002	Rs. 13.2 crores in current financial year	Conducted by CAG	

2.2 Conservation and Management of Mangroves & Coral Reefs

Objectives:

- Conservation and Management of Mangroves and coral reefs;
- Eco-restoration and afforestation in potential and also in degraded coastal areas;
- Maintenance of genetic diversity especially of threatened and endemic species;
- Creation of Awareness on importance of these ecosystems leading to their conservation.
- Livelihood improvement of people in coastal areas.

Activities undertaken

- 12 Management Action plans (MAPs) submitted by the different Coastal States/ UTs Government have been approved in 2020

Progress/Achievement

- 12 MAPs have been approved under the scheme.
- In the 2019 assessment by FSI’s biennial Report titled ‘India State of Forest Report (2019), mangroves were reported as 4972 sq km which has increased to 4995 sq km in the latest 2021 ISFR report.

Promulgation of new Acts/ Rules

Mangroves and Coral Reefs are protected





through a range of regulatory measures such as Environment Protection Act (1986), the Coastal Regulation Zone notification (2011 & 2019) and Island Protection Zone notification 2011 issued under the said Act, 1980.

The following three tier monitoring system has been adopted.

- National Committee on 'Mangroves and Coral Reefs' under the Chairmanship of Additional Secretary/ Special Secretary in-charge.

- State Level Steering Committees have been constituted by the concerned Coastal States/UTs.
- A third-party independent evaluation system has also been established.

Challenges in work due to COVID-19: Organization of the meetings on conservation of mangrove and coral reefs of State Level Steering Committee was delayed and the States were unable to submit the proposal. However, now the States are conducting SLSC meetings through video conferencing.

Grant-in-aid released to Institutions/organizations

S. No.	Name of Organisation	Purpose	Total amount Released/ concurred by the IFD	Status of Third party evaluation
1	Forest Department of Gujarat	Conservation & Management of Mangrove and Coral Reefs	Rs. 4.86 crore	Under process
2	Forest Department of Karnataka		Rs. 1.1 crore	Under process
3	Forest Department of Odisha		Rs. 1.54 crore	Under process
4	Forest Department of Goa		Rs. 1.06 crore	Under process

• Note : MAPs –Management Action Plans

State/Union Territories	Mangrove and Coral Reefs Sites
West Bengal	1. Sunderbans
Orissa	2. Bhaitarkanika
	3. Mahanadi
	4. Subernarekha
	5. Devi
	6. Dhamra
	7. Mangrove Genetic Resources Centre
	8. Chilka
Andhra Pradesh	9. Coringa
	10. East Godavari
	11. Krishna





State/Union Territories	Mangrove and Coral Reefs Sites
Tamil Nadu	12. Pichavaram
	13. Muthupet
	14. Ramnad
	15. Pulicat
	16. Kazhuveli
Andaman & Nicobar	17. North Andamans
	18. Nicobar
Kerala	19. Vembanad
	20. Kannur (Northern Kerala)
Karnataka	21. Coondapur
	22. Dakshin Kannada/Honnavar
	23. Karwar
	24. Mangalore Forest Division
Goa	25. Goa
Maharashtra	26. Achra-Ratnagiri
	27. Devgarh-Vijay Durg
	28. Veldur
	29. Kundalika-Revdanda
	30. Mumbra-Diva
	31. Vikroli
	32. Shreevardhan
	33. Vaitarna
	34. Vasai-Manori
	35. Malvan
Gujarat	36. Gulf of Kutchh
	37. Gulf of Khambhat
	38. Dumas-Ubhrat
Coral Reef Sites	
Gujarat	1. Gulf of Kutch
Tamil Nadu	2. Gulf of Mannar
Andaman & Nicobar	3. Andaman and Nicobar Coral Reef
Lakshadweep	4. Lakshadweep

2.3 Biosphere Reserves

The idea of 'Biosphere Reserves' was initiated by UNESCO in 1973-74 under its Man and Biosphere (MAB) Programme. The MAB,

launched in 1970 by UNESCO, is a broad-based ecological programme aimed to develop within the natural and social sciences a basis for the rational use and conservation of the resources





of the biosphere and for the improvement of the relationship between man and the environment, to predict the consequences of today's actions on tomorrow's world and thereby to increase man's ability to manage efficiently the natural resources of the biosphere.

The Indian National Man and Biosphere (MAB) Committee identifies and recommends potential sites for designation as Biosphere Reserves, following the UNESCO's guidelines and criteria. There are 18 designated Biosphere Reserves (BRs) in the Country. Out of 18 Biosphere Reserves, 12 Biosphere Reserves have been included in the World Network of Biosphere Reserves of UNESCO.

Objectives:

- To reduce loss of biodiversity by conserving the diversity and integrity of plant and animals within the natural ecosystems;
- To provide facilities for education training and multi-faceted research and monitoring;
- To improve livelihood of local people and enhance social, economic and cultural condition for environmental sustainability.

Activities undertaken

- Funds released to the 3 BRs for habitat management/ improvement, value addition, forest protection, livelihood improvement of the communities, development of infrastructure for eco-tourism, research, monitoring and documentation activities in the core and buffer zone.
- Memorandum of SFC for continuation

of Biosphere Reserve Scheme has been approved by Hon'ble MEFCC.

- Five years Integrated Management Plan (IMP) has been initiated instead to Annual Management Action Plan (MAP).

Progress / Achievements.

- Five Management Action Plans (MAPs) have been approved by the Ministry for carrying out various management activities in the 5 BRs.
- Budget of Rs. 12 Cr. has been allocated for 18 BRs in the current Financial Year.

Promulgation of new Acts/ Rules: The BR Scheme supplements implementation of regulations under Environment (Protection) Act 1986/ Wildlife (Protection) Act, 1972, Forest (Conservation) Act ,1980 etc. Besides, the Scheme reinforces commitments as envisaged under various International Conventions which include UNFCCC, UNCCD and UNCBD.

Continuing Committees/ Commissions-their work during the year and present position.

Indian National MAB Committee has been reconstituted vide order dated 8.11.2021. Annual meeting of the MAB Committee is proposed in January, 2022.

Conservation of Natural Resources and Ecosystems (Biosphere Reserve)

Introduction and Objectives:

The Biosphere Reserve is a sub-scheme under the umbrella Scheme viz. "Conservation of Natural Resources and Eco-systems". The Scheme on Biosphere Reserves was initiated in India with identification of 14 potential sites by a Sub-Committee of the Indian National





MAB Committee in 1979. This was followed by approval of a proposal by the Committee of Secretaries in their meeting held on 12th August, 1983 recommending initiation of the Scheme for conservation of critical ecosystems in the Country as Biosphere Reserves. The programme was initiated in 1986 and till date, 18 sites have been designated as Biosphere Reserves (BRs) in different parts of the Country. The Ministry through the Centrally Sponsored Scheme of 'Biosphere Reserve' provides Grants-in-Aid to States on 60:40 sharing basis in case of States other than NER and on 90:10 basis in case of North Eastern Region States for conservation and management of the designated Biosphere Reserves. The Indian National Man and Biosphere (MAB) Committee constituted by the Ministry is the apex body to oversee the programme, provide policy guidelines and review the programme.

The sub-scheme of Biosphere Reserve (BR) is a continuation of the existing Scheme aimed at achieving in-situ conservation of

representative ecosystems of major biogeographic zones of the country that are globally important. Under the said sub-scheme financial assistance is extended to the State Forest Departments except in respect of the State of Madhya Pradesh, where it is being implemented by Environment, Planning and Coordination Organisation (EPCO). The cost of implementation is on 60:40 sharing basis between Central and State Governments, except for North East and Hill States, where it will be 90:10. In this Financial Year 2021-2022, an amount of Rs.12 Crores has been allocated at BE Stage.

Progress/ Achievements both cumulative and for the reference period.

- Five Management Action Plans (MAPs) have been approved by the Ministry for carrying out various management activities in the 5 BRs.
- An amount of Rs. 3.55 Cr. released/ approved for five (5) Biosphere Reserves in the reference period.

Grant-in-Aid released to Institutions/ organisations including NGOs.

S. N.	Name of Organisation	Purpose	Total amount released (Rs. In Lakhs)	Remarks
1	Panna, Madhya Pradesh	For habitat management/ improvement, value addition, forest protection, livelihood improvement of the communities, development of infrastructure for eco-tourism, research, monitoring and documentation activities in the core and buffer zone.	62.000	Work in progress
2	ABR, Kerala		39.880	
3	Agsthyamalai BR, Kerala		92.90*	
4	DehangDibang, Arunachal Pradesh		56.70*	
5	Nokrek, Meghalaya		103.67*	
	Total		355.150	

*Approved and under process for release





**CONSTRUCTION OF A 3 WIDE CONCRETE ROAD APPROXIMATELY FROM DARIBOKGRE VILLAGE
TOWARDS CHECK POINT**

DARIBOKGRE N 25°29'4.19" E 090°19'12.25"



DISTRIBUTION OF BEE BOXES

DARIBOKGRE N 25°29'22.44" E 090°19'23.20"





2.4 Biosafety

I. Cartagena Protocol on Biosafety:

- The Division got Project Identification Form (PIF) approval for the proposal to access funds under GEF 7 Cycle PIF in association with United Nations Environment Program (UNEP) / Global Environment Facility (GEF) for project titled “Promoting the safe application of biotechnology through Multi Country Cooperation in the implementation of National Biosafety Framework in Asia” with a budget of around USD 1,61,597 GEF Grant.
- The Division provided training on Biosecurity and Biosafety: Policies, Diagnostics, Phytosanitary Treatments and Issues in association with ICAR- National Bureau of Plant Genetic Resources to various stakeholders
- The Division participated in the discussions related to Post 2020 Global Biodiversity Framework, organized by Convention on Biological Diversity Secretariat.

II. Genetic Engineering Appraisal Committee:

- The 142nd and 143rd meetings of Genetic Engineering Appraisal Committee were held on 11th May, 2021 and 14th June, 2021 and applications were processed pertaining, inter-alia, to confined field trials, commercial/ environmental release, import/ export of LMOs, clinical trials and vaccines.

III. Monitoring and Enforcement of illegal cultivation of unapproved GM crops as per Rules 1989:

- Requested Chief Secretaries of all States/ UTs to constitute and strengthen State Biotechnology Coordination Committee (SBCC) and District Level Committees (DLCs) and take penal action under Section 15, 16 and 17 of the Environment (Protection) Act, 1986, in case cultivation of illegal Genetically Modified Crops are detected. Also requested the States/UTs to provide lateral flow strip test kits for preliminary field level testing and also train the frontline staff for field inspections.

IV. Court Cases:

- As MoEFCC is a Respondent No. 5 and Genetic Engineering Appraisal Committee as Respondent No. 8 in Writ Petition (Civil) 10015 of 2021 titled as Dattaguru Farmer Producer Company Limited Versus Union of India & Ors before High court of Delhi. Necessary inputs were provided for filing the affidavit to the Ministry of Fisheries, Dairy and Animal Husbandry.

2.5 All India Coordinated Project on Capacity Building in Taxonomy (AICOPTAX)

Mission: Enhancement of Country’s capabilities for inventorizing, monitoring, conserving and utilizing biodiversity as well as establishing leadership in the field of taxonomy at regional and global levels.

Goals of the proposal:

- Survey, inventorisation and monitoring of India’s bio-resources;
- Human resource development in taxonomy;





- Community participation in the assessment.
- Conservation and utilization of biodiversity

Objectives:

- Survey, collection, and maintenance of collections of taxonomic groups including microbes for which no information is available and of unexplored and under-explored areas;
- Taxonomic analysis of collections made;
- Training in India and abroad to develop taxonomic expertise on various groups;
- Collection of ecological and population data for assessment of conservation status;
- Biosystematics research for the groups which require modern tools for refinement of taxonomy especially of economically important groups;
- Survey, collection, identification, and inventorisation of domesticated biodiversity;
- Storage and retrieval of taxonomic data;
- Creation of higher centres of learning and establishment of chairs in taxonomy; and exploring the possibility of institution of Indian and foreign associateships for in-service as well as pre-service scientists;
- To promote field biological studies in colleges located in/near areas rich in biodiversity;
- To train school and college teachers and local communities in parataxonomy skills;
- Initiatives for making taxonomy as attractive as biotechnology among graduate and post graduate students;
- Preparation of manuals and other education materials to create awareness on the role of taxonomy in conservation and sustainable utilization of biodiversity among the public.
- To promote awareness and to provide parataxonomic skills among local communities.
- India is a mega-diverse country and taxonomy is the key science to help ensure conservation of biological resources, their sustainable utilization and implementation of the CBD to which India is a party.
- The AICOPTAX is a flagship scheme of the Ministry for taxonomic research, biodiversity conservation & sustainable development. The Programme is envisaged to address the taxonomic impediment as recognized on a global basis by the Convention on Biological Diversity (CBD). As a signatory to the CBD, India stands committed to capacity building in taxonomy and to undertake exploration and preparation of a survey and inventory of her living resources. Since the inception of the AICOPTAX, survey and inventory of plant, animal and microbial species in the Country is significantly enriched and huge information on diversity and distribution of various components of biodiversity has been collected and disseminated.
- In view of inadequate number of taxonomists in the Country, the AICOPTAX programme will enhance Country's capabilities for inventorizing, monitoring, conserving, and utilizing biodiversity as well as establishing leadership in the field





of taxonomy at regional and global level by awarding projects to various research institutes.

Activities undertaken during the reference period (i.e., 1/1/2021 to 31/03/2021) including celebrations for Azadi ka Amrit Mahotsava

- With due process, an Expert Group for independent 3rd party evaluation of the AICOPTAX programme for continuation of the AICOPTAX from 2020-21 and onwards has been constituted.
- The Expert Group has submitted its evaluation report within the stipulated time frame.

Progress/Achievements

- A total 91 research proposals were recommended by the Steering Committee of the AICOPTAX for funding.
- All 91 proposals are being processed for financial support.
- All 35 ongoing research projects are also serviced.

Promulgation of new Acts/ Rules:

- The AICOPTAX is a flagship Scheme of the Ministry for taxonomic research, biodiversity conservation & sustainable development.
- Now, the AICOPTAX is apart of the R&D for conservation and Development under an Umbrella of “Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation.

Challenges in work due to COVID-19

- Delay for release of the financial support to the grantee institutions for ongoing research projects due to late receipt of

the Utilization Certificate, Statement of Expenditure and progress report etc. from them;

- Delay for organization of the Subject Expert Committee (SEC) meetings for initial scrutiny of the research proposals;
- Delay in organization of the Steering Committee Meeting (s) for final decision on the research proposals, review and monitoring of the progress of the ongoing research projects.

Response of the Divisions:

- All pending research proposal will be placed before the SEC concerned and further before the Steering Committee for taking final decision;
- The processing Division is in a position to sort out all the shortcomings and utilize the allocated funds i.e., ₹1.25 crore during the CFY 2021-22.

Progress/Achievements both cumulative and for the reference period.

- Presently, the AICOPTAX is a part of the R&D for conservation and Development under an umbrella of “Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation” for the period 2021-2026.
- Financial assistance will be released to all ongoing research projects.

Grant-in-aid released to Institutions/ organizations including NGOs: Funds are being released to the various academic /research institutions for a period of three years’ duration in project mode.





S. No	Name of Organization	Purpose	Total Amount Released	Status of third-party evaluation	Remarks
1	Comptroller, University of Agriculture and Horticultural Science, Shivamoga	Taxonomic research	₹8,03,335/-	SFC Memo on R&D Scheme including AICOPTAX programme has been finalized on 11.11.2021	Since the SFC has been finalized on 11.11.2021, hence, the allocated funds are being released to the grantee institutions.

2.6 Assistance to Botanic Garden (ABG)

The scheme on Assistance to Botanic Gardens was initiated in 1992 to augment facilities for ex-situ conservation of rare, endangered threatened (RET) and endemic plant species of the country.

Objectives of the Program:

- Ex-situ conservation of indigenous; particularly RET species and their multiplication;
- Establishment of seed banks, arboreta and mist propagation facilities;
- Promotion of education and public awareness in respect of above said plants;
- and Reintroduction and rehabilitation of said plants in natural habitats in collaboration with State Forest Department on project basis.

A. Progress/Achievements (Physical Financial) both cumulative and for the reference period along with photographs, bar/pie charts etc.

Physical

- Funds worth 150 lakh approved by Ministry

to 18 ongoing botanic gardens already established in different phytogeographic region of India till 31.03.2021.

- National Botanic Garden Congress conducted in CSIR-NBRI Lucknow in collaboration with Botanical Survey of India from 19.03.2021 to 21.03.2021. in which about 150 Botanic Gardens institute participated and future road map prepared to strengthen the Assistance to Botanic Garden program.
- Expert Group Committee meeting on Assistance to Botanic Garden (ABG) program held on 14.09.2021 for the revision of ABG Guidelines.
- Funds worth Rs. 55.00 Lakh sanctioned to (5) ongoing botanic Gardens till 22.11.2021.
- Scientific Audit of Assistance to Botanic Garden program was successfully conducted by Director General of audit Environment and Scientific Dept., New Delhi in Kolkata from 27.09.2021 to 02.10.2021.
- Inventory of 356 Botanic Gardens prepared





which has been set up under ABG program from 1992 till date.

- Inspection of 09 Botanic Gardens conducted by BSI through BSI Regional Centers.
- 315 Threatened plant species conserved in 18 Botanic Gardens as per the target sps. approved by Expert Group on ABG.

- New Expert group Committee on Assistance to Botanic Garden under approval of HMEF&CC.

Financial:

S. N.	Budget Allocation in FY 2021-22	Expenditure in FY 2021-22
1	75 Lakh	53.35 Lakh as on 22.11.2021

Grant-in-aid released to Institutions/organizations including NGOs.

S. N.	Name of Organization	Purpose	Total Amount Released from MoEFCC in 2021-22	Status of third party evaluation	Remark
1	Dr. Y S Parmar University of Horticulture and Forestry, Nauni, Solan H.P-173230	Lead Botanic Garden	Rs. 11,23,200/-	To be undertaken in FY 2022-23	
2	Guru Nanak Dev University Amritsar, Punjab -143005	Small Botanic Garden	Rs. 07,60,000/-	-do-	
3	Sikkim University Sikkim-737102.	Small Botanic Garden	Rs. 12,40,000/-	-do-	
4	Kumaun University Nainital	Small Botanic Garden	Rs. 11,22,000/-	-do-	
5	Modern College Kohima Nagaland	Small Botanic Garden	Rs. 10,90,000/	-do-	
Note: No fund to NGOs		Total fund sanctioned	53,35,200	-do-	

Progress/Achievements made during 2021-22 along with photographs.

In current financial year funds have been released to 1 Lead Botanic Garden and 4 Small Garden thereby ensuring the ensuring the ex-situ conservation of nearly 315 RET plant species in all ongoing 18 Botanic Gardens.

Some of the important RET plant species conserved are depicted below:



Bulbophyllum



Bulbophyllum manipurensis syn





Bulbophyllum careyanum



Rhododendron formosum



Hedychium speciosum



Chlorophytum malabaricum a RET Orchid





Students visiting the plant houses in the Botanic Garden as per the Public Awareness and Education Program



Bentinckia nicobarica & *Dischidia bengalensis*



Sapindus emarginatus Vahl (*Sapindaceae*)





Botanic Garden of Indian Republic (BGIR)

a. Brief introduction, objective and functions of the Division

Botanic Garden of Indian Republic (BGIR) was established by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt. of India in 2002 as per the brief objectives as below:

OBJECTIVES

- Plant Biodiversity conservation through maintenance of plant collections, research, training, environmental education, public awareness, aesthetics and recreation.
- To serve as a centre of excellence in plant conservation of RET and Endemic species.
- To built public awareness through education on plant diversity conservation and needs.

b. Important activities undertaken during the reference period (i.e., 1/1/2021-31/12/2021) including celebrations for Azaadi ka Amrit Mahotsava

1. Celebration of World Environment Day
2. Celebration of World Biodiversity Day
3. Celebration of World Ozone Day
4. Celebration of Van-Mahotsav
5. Celebration of Hindi Pakhwara

Representative pictures attached at Annexure I.

c. Progress/Achievements both cumulative and for the reference period including innovations

1. About 260 spp. of 9161 accessions of endemic plant saplings were collected during 2021-22 from BSI regional centers and Research Institutes in Noida and

Greater Noida.

2. For the Botanic Garden about 22 species of threatened plants have been collected from various phytogeographic regions of India specifically having feasibility of growing at our Botanic Garden in NOIDA, U.P.
3. Under plantation program of BGIR, about 3184 plants of 181 species were planted in this Botanic Garden
4. Bilingual Plant labeling of all plants completed in entire forest arboretum/ woodland.
5. Seed laboratory made operational and presently contributing to rapid seed germination and multiplication.
6. Internal scientific projects on Phenology, seed germination protocol, medicinal and endemic plant databases started.
7. Revisionary work on following Genera Ephedra, Gentiana, Allium, Fagopyrum under progress or near completion

d. Continuing Committees/Commissions:

Ministry has constituted Steering Committee of experts to oversee the development of BGIR Noida

e. Important conferences organized in India or International conference

1. ALL INDIA BOTANICAL CONFERENCE OF THE INDIAN BOTANICAL SOCIETY ON Sustainable Development of Plant Resources and Conservation of Threatened Plants in Botanic Gardens.
2. Hands on Training on molecular plant systematics held on 21st and 22nd of November 2021. Online mode





organized by Mansarovar Global University along with BSI, Kolkata

3. Workshop on INDEPENDENT INDIA @ 75: SELF RELIANCE WITH INTEGRITY 28 October, 2021)

f. MEAs, Agreement with countries, international organizations, compliance.

1. Membership of BGCI taken for research work of international standard.



Sapindus emarginatus Vahl (*Sapindaceae*)

g. List of major publications brought out-brief purpose of each, wherever necessary
Research Publications 2021-22)

1. Mayank D. Dwivedi, Sandeep Chauhan, Amber Srivastava, Pragya Sourabh, Shivani Mishra, Julie Thakur and Achuta Nand Shukla, 2020, Systematic position and habitat distribution modelling for reintroduction of critically endangered medicinal plant *Pittosporum eriocarpum* Royle (Pittosporaceae).
2. Deepakshi Babbar, Damini Sharma, Kusum Upadhyay Mayank D. Dwivedi and Sandeep Kumar Chauhan, 2021, Reassessment of threat status of *Allium carolinianum* Redouté (Amaryllidaceae) 14(2): 331 - 359
3. Deepakshi Babbar, Damini Sharma, Kusum Upadhyay, Mayank D. Dwivedi and Sandeep Kumar Chauhan, 2021, Spatial

analyses of Soil quality in Botanic Garden of Indian republic, Noida, using geo-spatial techniques. Remote Sensing applications: Society and environment.

4. Damini Sharma, Deepakshi Babbar, Kusum Upadhyay, Mayank D. Dwivedi and Sandeep Kumar Chauhan. 2021 Systematic position and habitat distribution modelling for reintroduction of *Allium carolinianum* Redouté in western Himalaya. *Biologia*..
5. S. K. Chauhan. 2021. Effect of biotic and a- biotic stress on some rare medicinal plant sps grown in High altitude region of Himachal Pradesh –a case study .
6. Manish K. Kandwal, Sandeep Tambe and G. S. Rawat 2020. *Anthoxanthum monticola* (Bigelow) Veldkamp [Poaceae]: A new record for India *Pleione* 14(2): 249 - 253.
7. Manish Kumar Kandwal and M. Vijay *Grass*





- Feeding Habits of Migratory Waterbirds at Asan Conservation Reserve, Dehradun, Uttarakhand 2021, New Vistas in Indian Flora (Vol. II) : pp. 803-808 ISBN: 978-81-946147-1-5*
8. Manish Kumar Kandwal *The Diversity of Grasses in Uttarakhand, India* New Vistas in Indian Flora (Vol. II) : pp. 667-682, ISBN: 978-81-946147-1-5.
 9. *Bambusa daporijoeana*- A New Species Of Bamboo From Arunachal Pradesh By H.B.Naithani and Manish K. Kandwal in press Indian forester.
 10. Molecular phylogeny and systematic evaluation of the *Caragana opulens* species complex (Fabaceae, Papilionoideae) based on the molecular and morphological data SA RATHER, W SHU, MD DWIVEDI, C ZHAOYANG *Phytotaxa* 478 (2), 179-200.
 11. Applicability of Start Codon Targeted (SCoT) and Inter Simple Sequence Repeat (ISSR) markers in assessing genetic diversity in *Crepidium acuminatum* (D. Don) Szlach. J Thakur, MD Dwivedi, N Singh, PL Uniyal, S Goel, AK Pandey *Journal of Applied Research on Medicinal and Aromatic Plants* 23, 100310
 12. Molecular systematics of the genus *Musa* L. (Zingiberales: Musaceae) in Andaman and Nicobar Islands LJ Singh, MD Dwivedi, S Kasana, MC Naik, GA Ekka, AK Pandey *Biologia* 75 (11), 1825-1843.
 13. Books edited or written : Status of Rare, endangered and threatened plant species conserved under Assistance to Botanic Garden Scheme of MoEF&CC (under final

compilation)

14. Flora of BGIR: an illustrated handbook MoEF&CC (under final compilation).

h. Public Service rendered:

- a. No of visitors(Indian) : 1003
- b. No of students/scholars: 250

i. Challenges in work due to COVID and the response of Division:

1. Reduction in number of garden staff to maintain COVID Proper behaviour
2. Administrative work suffered due to lack of staff
3. Scientific work hampered due to grant inaccessibility and manpower.
4. Plants of high endemism conserved at BGIR NOIDA got affected.

Response of the division:

1. Masks and sanitizers provided to the garden staff to maintain COVID proper behaviour.
2. Green house and irrigation (foggers etc.) installed for proper maintaining of plants of endemic and threatened status.

Annexure I



Aquatic Plants Section





Van Mahotsav
2021



Vertical Garden at BGIR 2021





Awareness programmes Student Visits



RAMC meeting 2021



OZONE DAY 2021





World Environment day celebration



World Biodiversity day celebration

2.7 Forest Conservation

A. Brief introduction, Objectives and functions of the Divisions:

- Forest Conservation Division of the MoEF&CC implements the provisions of Forest Conservation Act, 1980, to ensure sustainable development in the country. The Act came into force with effect from 25th October 1980 and was enacted with a view to check further deforestation which ultimately results in ecological imbalance. Under the provisions of this Act, prior approval of the Central Government is essential for diversion of forest land for the non-forestry purpose. Forest (Conservation) Act, 1980 is a regulatory framework which ensures development and ecological security to the citizens of the Country.
- The proposals seeking prior approval of the Central Govt for using forest land for non-forestry purpose are analysed with due diligence and effort is made to avoid the use of forest land or to keep it at bare

minimum. Wherever the use of forest land is unavoidable, the same is allowed to be used, subject to raising of Compensatory Afforestation and payment of Net Present Value as per norms. Additional mitigation measures in the form of Catchment Area Treatment (CAT) Plan, Wildlife Management Plan, soil and moisture Conservation works and maintenance of safety zone etc. are stipulated on case-to-case basis.

B. Progress/Achievements:

- The FC Division through the implementation of Forest (Conservation) Act, 1980 has succeeded in controlling the indiscriminate use of forest land for non-forestry purpose. Prior to 1980, the rate of diversion of forest land for non-forestry purposes was about 1.43 lakh hectares per annum which has significantly reduced after this Act came into force. During the calendar year 2021, the Ministry has accorded final approval to 2,078 proposals of various projects involving 18,154.41 hectares of forest land.





- ii. Ministry has launched 'PARIVESH', the web portal for online processing of forest clearance, besides Environmental Clearance and Wildlife Clearance as a single window system. This initiative has significantly improved the entire process of approval accorded under Forest (Conservation) Act, 1980. This has further improved the transparency and efficiency in the system. The user agency now gets the updates about the status of application online. The additional information with reference to the shortcomings in the applications can also be submitted online. The Ministry is taking steps to upgrade and further improve the portal to make it more user friendly.
- iii. For the purpose of transparency, streamlining and for the quick disposal of forest land diversion proposals under Forest (Conservation) Act, 1980, a handbook of Forest (Conservation) Act, 1980, Acts, Rules, Guidelines and clarifications has been prepared. The above-mentioned Handbook and the other guidelines issued by the Ministry are available in public domain on PARIVESH portal.
- iv. A GIS based software developed by Forest

Survey of India is being used as a decision support system. The different layers of geospatial data and the indicators used in the software facilitate the speedy and informed decision making.

C. Important Conferences organized in India or International conferences:

- v. Conference of the Pr. Chief Conservator of Forest (HoFF)/ Heads of Forest Department of all States/ Union Territories was organized on 11th and 15th November, 2021 for addressing the importance emerging issues in the Forestry and Wildlife sector. The status of identification of Land Banks and raising of Compensatory Afforestation (CA), promotion of Trees Outside Forest (TOF) by way of enabling regulatory framework, working Plans, digitization of forest boundaries, rejuvenation of rivers, Nagar Van Yojna, improving and strengthening the working conditions of forest front-line staff and other important matters were reviewed during the conferences.

D. Statement showing total Forest Area diverted (State wise and category wise) for non-forestry purposes under the provisions of Forest (Conservation) Act, 1980 is enclosed.

Statement of Stage-I & Stage-II approval for use of forest land for non-forestry purpose under FCA, 1980

Category: All Category		During the periods : 01/01/2021 to 31/12/2021			
S. No.	State/UTs	In-principle Approval		Final Approvals	
		No. of Proposals	Area Diverted (in Ha.)	No. of Proposals	Area Diverted (in Ha.)
1	Andhra Pradesh	17	35.95	14	1038.21
2	Arunachal Pradesh	20	837.73	18	964.70





Category: All Category		During the periods : 01/01/2021 to 31/12/2021			
S. No.	State/UTs	In-principle Approval		Final Approvals	
		No. of Proposals	Area Diverted (in Ha.)	No. of Proposals	Area Diverted (in Ha.)
3	Assam	44	273.59	3	318.45
4	Bihar	55	328.41	53	321.41
5	Chandigarh	0	0.00	1	0.05
6	Chhattisgarh	32	3953.52	10	1063.23
7	Dadar & Nagar Haveli	3	4.88	1	2.43
8	Delhi	7	109.74	1	13.52
9	Goa	7	171.50	4	32.05
10	Gujarat	188	217.02	358	2132.92
11	Haryana	272	307.37	418	527.00
12	Himachal Pradesh	94	927.86	80	371.49
13	Jammu and Kashmir	110	938.91	4	75.28
14	Jharkhand	15	393.83	21	459.98
15	Karnataka	29	577.30	17	102.00
16	Kerala	7	3.04	3	3.08
17	Madhya Pradesh	96	2143.85	190	4150.36
18	Maharashtra	74	609.91	21	593.93
19	Manipur	20	925.43	1	191.62
20	Meghalaya	2	4.73	1	6.55
21	Mizoram	1	104.77	0	0.00
22	Orissa	43	3193.07	28	1434.06
23	Punjab	121	114.92	340	576.33
24	Rajasthan	73	1208.94	43	201.33
25	Sikkim	45	234.00	1	0.77
26	Tamil Nadu	24	65.87	9	10.10
27	Telangana	29	227.06	21	725.50
28	Tripura	35	357.97	35	360.50
29	Uttar Pradesh	127	465.55	279	1794.06
30	Uttarakhand	135	677.94	101	566.61
31	West Bengal	6	17.18	2	116.90
Grand Total		1731	19431.84	2078	18154.41

Source: <https://parivesh.nic.in> (During the period: 01-01-2021 to 31-12-2021)





Statement of Stage-I & Stage-II approval for use of forest land for non-forestry purpose under FCA, 1980

Category: All State/UTs		During the periods :01/01/2021 to 31/12/2021			
S. No.	State/UTs	In-principle Approval		Final Approvals	
		No. of Proposals	Area Diverted (in Ha.)	No. of Proposals	Area Diverted (in Ha.)
1	Approach Access	268	12.58	560	36.28
2	Canal	10	9.85	2	10.45
3	Defence	51	314.08	12	43.53
4	Dispensary/Hospital	4	6.81	3	11.87
5	Drinking Water	107	240.28	56	457.82
6	Forest Village Conservation	2	133.00	4	90.27
7	Hydel	10	1402.30	11	63.26
8	Industry	11	186.11	5	66.87
9	Irrigation	34	1811.64	35	1982.33
10	Mining	33	7268.65	49	4334.36
11	Optical Fibre Cable	132	199.61	135	96.61
12	Others	229	319.68	326	1552.57
13	Pipeline	98	70.14	172	136.30
14	Quarrying	3	10.26	1	1.21
15	Railway	38	1305.95	41	909.88
16	Rehabilitation	17	653.54	5	82.50
17	Road	532	4021.20	454	4972.16
18	School	10	25.32	2	37.93
19	Solar Power	2	1.03	2	0.07
20	Sub Station	6	4.89	8	9.38
21	Thermal	0	0.00	1	38.10
22	Transmission Line	124	1336.70	182	2925.36
23	Village Electricity	9	81.75	12	295.30
24	Wind Power	1	16.19	0	0.00
Grand Total		1731	19431.84	2078	18154.41

Source: <https://parivesh.nic.in> (During the period: 01-01-2021 to 31-12-2021)





2.8 Compensatory Afforestation Fund Management and Planning Authority (CAMPA)

The “National Compensatory Afforestation Fund Management and Planning Authority (National Authority)” came into existence in place of the Ad-hoc CAMPA with effect from 30.09.2018; the day the Compensatory Afforestation Fund (CAF) Act, 2016 and Compensatory Afforestation Rules (CAF) Rules, 2018 have come into force. Hon’ble Minister, Environment, Forest and Climate Change, Government of India is the Chairperson of the Governing Body of the National Authority. The Governing Body is assisted by an Executive Committee and Monitoring Group and an administrative support mechanism. The CAF Act led to the establishment of two special interest-bearing funds, namely the “National Compensatory Afforestation Fund (National Fund)” and “State Compensatory Afforestation Fund (Name of the State)” under the Public Account of India and under the Public Accounts of such States/ UTs, respectively.

The CAF realized against approvals under the Forest (Conservation) Act, 1980 and/ or under section 18, 26A or 35 of the Wildlife (Protection) Act, 1972) is distributed in the National Fund and the State Fund in the ratio 10:90. and is made available to the National Authority and to respective State Authorities through budgetary process. The user agencies are crediting compensatory levies into state specific bank accounts maintained by the National Authority as a well-defined payment mechanism integrating e-KUBER of the RBI with PARIVESH of the MoEF&CC for online

remittance of the levies by the user agencies is in progress.

Thus, till 02.12.2021 funds amounting to Rs 6,63,63.12 crore was transferred from the bank accounts to the National Fund Compensatory Afforestation Deposits (CAD) in the Public Account of India under “Major Head 8336- Civil Deposits” as per the CAF Act, 2016 and funds to the tune of Rs. 48,606.39 crores have been disbursed from the National Fund to 32 States, who have created their public accounts and reconciled project wise and component wise amount with the National Authority. The state-wise status of disbursement of funds is given in Table-I.

Table: I: The State/UT-wise List of Disbursement of Funds from National Fund to Respective State Funds (as on 02.12.2021)

Sl. No.	Name of State/UT	Funds transferred (in Rs crore)
1	Andaman & Nicobar	16.41
2	Andhra Pradesh	1734.81
3	Arunachal Pradesh	1588.72
4	Assam	560.81
5	Bihar	522.95
6	Chandigarh	11.38
7	Chhattisgarh	5791.70
8	Delhi	128.62
9	Goa	238.16
10	Gujarat	1484.60
11	Haryana	1282.65
12	Himachal Pradesh	1660.72
13	Jammu & Kashmir	764.54
14	Jharkhand	4158.02
15	Karnataka	1350.37
16	Kerala	81.59





Sl. No.	Name of State/UT	Funds transferred (in Rs crore)
17	Ladakh	249.27
18	Madhya Pradesh	5196.69
19	Maharashtra	3844.24
20	Manipur	309.76
21	Meghalaya	163.31
22	Mizoram	212.98
23	Odisha	5933.98
24	Punjab	1040.84
25	Rajasthan	1748.26
26	Sikkim	392.36
27	Tamil Nadu	113.42
28	Telangana	3110.38
29	Tripura	183.65
30	Uttar Pradesh	1819.63
31	Uttarakhand	2675.09
32	West Bengal	236.48
Total		48606.39

Special Economic Package under Atma Nirbhar Bharat:

As a part of the Atma Nirbhar Bharat Package announced by Hon'ble Prime Minister of India on May 12, 2020 the Executive Committee of the National Authority approved Annual Plan of Operations (APOs) of 30 State CAMPAs for the year 2020-21 at a total cost of Rs 7,906.16 crore under section 15(1)(i) of the CAF Act for various forestry and wildlife management activities. This has resulted in generation of around 8,04,45,836 person-days of employment for local people affected by COVID-19 pandemic during 2020-21 using CAMPA funds.

Annual Plan of Operations for 2021-22 of State Authorities:

The State/UT-wise approved APOs for the year 2021-22 of 29 State CAMPAs under section 15(1)(i) of the CAF Act is given in Table-II.

Table-II: Approval of Annual Plan of Operations for 2021-22 of State Authorities

Sl. No.	Name of State/UT	Total outlay Amount (in Rs. Crore)	Total approved Amount (in Rs. Crore)
1.	Andhra Pradesh	377.56	323.24
2.	Arunachal Pradesh	246.05	221.34
3.	Assam	97.68	95.01
4.	Bihar	108.34	100.57
5.	Chandigarh	3.85	3.60
6.	Chhattisgarh	2619.79	2465.67
7.	Delhi	17.18	16.15
8.	Goa	32.70	21.17
9.	Gujarat	200.00	200.00
10.	Haryana	319.66	317.51





Sl. No.	Name of State/UT	Total outlay Amount (in Rs. Crore)	Total approved Amount (in Rs. Crore)
11.	Himachal Pradesh	149.10	138.10
12.	Jammu & Kashmir	257.16	241.79
13.	Jharkhand	469.56	434.62
14.	Karnataka	321.09	321.09
15.	Kerala	27.19	25.13
16.	Madhya Pradesh	776.97	713.46
17.	Maharashtra	688.27	588.27
18.	Manipur	25.09	25.09
19.	Meghalaya	38.90	36.40
20.	Mizoram	20.42	18.08
21.	Odisha	903.03	901.03
22.	Punjab	222.15	218.07
23.	Rajasthan	287.58	286.71
24.	Sikkim	95.30	93.47
25.	Telangana	753.02	752.71
26.	Tripura	42.22	39.09
27.	Uttar Pradesh	600.00	586.90
28.	Uttarakhand	950.81	726.88
29.	West Bengal	59.49	58.30
Total		10710.16	9969.45

Status of Compensatory Afforestation (CA):

The overall achievement in respect of CA and Penal CA plantation at National level is 9,38,019.17 ha against a target of 10,63,031.32 ha, which comes to 88.24 percent. The backlog of 1,25,012.15 ha will be completed by 31.03.2023. Further, an overall survival percentage of 72.97 per cent against 20.81 crores trees planted under Compensatory Afforestation in the last five years has been reported.

Schemes approved under National fund:

National Authority has approved Rs. 1,133.36 crores from the National Fund for scientifically designed and techno-economically viable schemes/ pilot projects for sustainable interventions in the field of forest and wildlife to different research institute/ organizations. The list of approved schemes is given in Table-III.





Table-III: Various schemes approved under National Fund

Sl. No.	Scheme	Total Outlay (crore)	Period (years)	Implementing Agency	Starting Year
1.	National Programme for Conservation and Development of Forest Genetic Resources (FGRs): Pilot project on 'Creation of Centre of Excellence on Forest Genetic Resources (CoFGR)'	8.61	5	Forest Research Institute (FRI), Dehradun	An ongoing scheme approved initially by National CAMPA Advisory Council (NCAC) in 2016-17
2.	Project proposal for the yearly maintenance, Up-gradation and FC module and Handholding support of PARIVESH	3.71	3	National Informatics Centre Services Inc. (NICSI)	An ongoing proposal approved in 2018-19
3.	Implementing the Central Asian Flyway National Action Plan with Special Focus on Preparation of Site-specific Activity Plan, Capacity Building, and Developing Bird Sensitivity Map for Setting up of Wind Energy and Species Action Plans	3.46	3	Bombay Natural History Society (BNHS)	2019-2020
4.	Proposal for Estimation of Economic Losses in Real Term Per Hectare Basis Due to Forest Fire in Uttarakhand and Madhya Pradesh	3.78	2	Indian Council of Forestry Research and Education (ICFRE)	2019-2020
5.	Execution of Readiness Activities for Implementation of REDD+ in India	1.20	0.9	Indian Council of Forestry Research and Education (ICFRE)	2019-2020





Sl. No.	Scheme	Total Outlay (crore)	Period (years)	Implementing Agency	Starting Year
6.	Endangered Species Recovery Programme (ESRP)			Wildlife Institute of India (WII), Dehradun	An ongoing scheme approved initially by NCAC in 2015-16
i.	Recovery of Dugongs and their habitats in India.	23.58	5		
ii.	Development of Conservation plan of River dolphin	23.00	5		
iii.	Habitat improvement and conservation breeding of Great	33.85	5		
iv.	Conservation of Manipur's Brow Antlered Deer	19.95	5		
7.	Strengthening of Forestry Research for Ecological Sustainability and Productivity Enhancement	313.67	6	Indian Council of Forestry Research and Education (ICFRE), Dehradun	2019-2020
8.	Enhanced Capacity Building of Stakeholders and State Governments on Forest Landscape Restoration and Reporting Mechanism on Bonn Challenge	5.90	3.5	International Union for Conservation of Nature (IUCN)	2019-2020
9.	Monitoring Protocol for Plantations and Assets created by State Forest Departments (SFDs) from the Compensatory Afforestation Fund	13.14	6	Forest Survey of India (FSI) Dehradun.	2019-2020
10.	UNESCO Category 2 Centre (C2C) on Natural World Heritage Management and Training for the Asia-Pacific Region	3.50	3	Wildlife Institute of India (WII) Dehradun.	An ongoing scheme approved initially by NCAC in 2013-14





Sl. No.	Scheme	Total Outlay (crore)	Period (years)	Implementing Agency	Starting Year
11.	“Centre of Excellence on Forest Based Livelihoods in Uttarakhand – A Pilot Study”	2.26	3	Uttarakhand State Council for Science & Technology (UCOST)	An ongoing scheme approved initially by NCAC in 2015-16
12.	Preparation of DPR with LIDAR Survey for one pilot watershed in forest area of each State/UT”	18.38	0.9	Water and Power Consultancy Services (India) Limited (WAPCOS)	2020-2021
13.	NAGAR VAN YOJANA	415.00	5	State Forest Department- State Forest Development Agency- (SFDA)	2020-2021
14.	School Nursery Yojana	49.50	5	State Forest Department- State Forest Development Agency- (SFDA)	2020-2021
15.	Proposal for preparation of Detailed Project Report (DPR) for Rejuvenation of Damodar River through Forestry Interventions	1.17	1.5	Indian Council of Forestry Research and Education (ICFRE), Dehradun	2021-2022
16.	Submission of Financial Proposal for Satellite Survey of Encroachment position of Rejected claims as per Order of Hon’ble Supreme Court in Writ Petitions (civil) No(s) 109/2008 Wildlife First & Others vs. Ministry of Forest and Environment & other	48.00	6	Forest Survey of India (FSI) Dehradun.	2021-2022





Sl. No.	Scheme	Total Outlay (crore)	Period (years)	Implementing Agency	Starting Year
17.	Establishment of an FSI cell in Each State for Strengthening, Monitoring, and Forest Resource Assessment.	4.33	1	Forest Survey of India (FSI) Dehradun.	2021-2022
18.	PARIVESH 2.0	95.59	5	Impact Assessment Division	2021-2022
19.	Pilot project "Seed Ball Plantation"	9.04	2	Indian Council of Forestry Research and Education (ICFRE), Dehradun	2021-2022
20.	'Pan India assessment and monitoring of endangered species covered under the 'Integrated Development of Wildlife Habitats' (IDWH) scheme of MoEF&CC Government of India	19.05	2	Wildlife Institute of India (WII) Dehradun.	2021-2022
21.	Range-wide enumeration of River Dolphin populations in India	10.15	1	Wildlife Institute of India (WII) Dehradun.	2021-2022
22.	Reassessment Study for modification of Management Plan Sustainable Mining (MPSM) in Saranda and Chaibasa Forest Division in West Singhbhum District of Jharkhand submitted by FC Division.	3.54	1.6	Indian Council of Forestry Research and Education (ICFRE), Dehradun	2021-2022
Total		1133.36			





Photographs of Works carried out under CAMPA Funds.



Planation Works 1



Planation Works 2



Nursery Work



Soil and Moisture Conservation Works 2



Wildlife Conservation 1



Forest and Wildlife protection works - Watch Towers





Wildlife Conservation 2



Publicity cum awareness, Training and Capacity building under CAMPA

2.9 Forest Establishment

The Forest Establishment Division (FE) is handling the establishment matters relating to the Indian Council of Forestry Research and Education (ICFRE), an Autonomous Organization under the Ministry of Environment, Forest and Climate Change and its Institutes/Centres; Forest Survey of India (FSI) and its Regional Centres; National Zoological Park (NZP); Wildlife Crime Control Bureau (WCCB) and

its Regional Offices; Indira Gandhi National Forest Academy (IGNFA); Directorate of Forest Education (DFE) and State Forest Colleges.

General references relating to frontline staff of State Forest Departments including court cases, RTI matters and Parliament Matters concerning the above are also handled in FE Division. The following organizations are under FE Division:





I. Indian Council of Forestry Research and Education (ICFRE), Dehradun and Autonomous Organization under the Ministry which oversees the functioning of the following Institutes/Centres;

- Forest Research Institute, Dehradun
- Tropical Forest Research Institute, Jabalpur
- Arid Forest Research Institute, Jodhpur
- Himalayan Forest Research Institute, Shimla
- Rain Forest Research Institute, Jorhat
- Institute of Forest Productivity, Ranchi
- Institute of Forest Biodiversity, Hyderabad
- Institute of Forest Genetics and Tree Breeding, Coimbatore
- Institute of Wood Science and Technology, Bengaluru
- Forest Research Centre for Skill Development, Chhindwara
- Forest Research Centre for Bamboo & Rattan, Aizawl
- Forest Research Centre for Eco-Rehabilitation, Prayagraj
- Forest Research Centre for Livelihood Extension, Agartala
- Forest Research Centre for Coastal Eco-System, Visakhapatnam

II. Forest Survey of India (FSI), Dehradun has following four Zonal Offices;

- Central Zone, Nagpur

- Eastern Zone, Kolkata
- Northern Zone, Shimla
- Southern Zone, Bangalore

III. Wildlife Crime Control Bureau (WCCB) has 5 Regional offices and 3 sub-regional offices located at

- Southern Region, Chennai.
- Eastern Region, Kolkata.
- Western Region, Mumbai.
- Central Region, Jabalpur.
- Northern Region, New Delhi.
- Sub-regional office – Guwahati
- Sub-regional office – Amritsar
- Sub-regional office - Cochin

IV. Director of Forest Education (DFE), Dehradun supervises the following Central Academies:

- Central Academy for State Forest Service, Dehradun (Uttarakhand)
- Central Academy for State Forest Service, Coimbatore (Tamil Nadu)
- Central Academy for State Forest Service, Burnihat (Assam)
- Central Academy of Forest Education, Kurseong (West Bengal)

V. National Zoological Park (NZP), New Delhi

VI. Indira Gandhi National Forest Academy (IGNFA), Dehradun

Functions of FE Division:

- Recruitment Rules – framing & amendment of Recruitment Rules of technical and Ministerial posts.





- Constitution of Screening Committee for appointment of Joint Secretary and above level post in ICFRE.
- ACC approval for appointment of Director General, ICFRE.
- Consideration of proposals regarding up-gradation of pay scales, creation of posts, merger of posts, cadre restructuring and other establishment matters in r/o frontline staff of Forest Departments of States and UTs in consultation with nodal Ministries/ Departments.
- Consultation with nodal Ministries in various establishment/ service matters of all Scientific/ Technical/ Ministerial officers/ staff.
- Recruitment/ Promotion/ Deputation of Group A & B officers through UPSC.
- Appeal against penalty in disciplinary cases of Group 'A' 'B' & 'C'.
- Appeal against adverse entries in the ACR/ APAR.
- Framing policy regarding various establishment matters of ICFRE as per extant guidelines of Govt. of India.
- FE Division is Nodal Division for sending requisition to Staff Selection Commission for filling up Direct Recruitment posts in Attached and Subordinate Offices of this Ministry.
- Post of joint Director (IPS) in Wildlife Crime Control Bureau (WCCB) was filled up deputation on 16th June, 2021.
- Selection Cum Search Committee (CSCS) was constituted to select a candidate for post of DDG (ADM), ICFRE and also for the post of Director, FRI.
- Forwarding the dossiers of six selected in stenographer Grade 'C' & 'D' Examination, 2018 conducted by SSC for the post of Stenographer Gr C & D to respective regional/ subordinate offices as per their requisition.
- Post of Assistant Director (OL) was got filled through UPSC in July, 2021.
- As of 15.11.2021, FE Section has dealt with 53 RTI Requests 3 RTI Appeal 10 Public Grievances and 12 VIP/ MP references.

Challenges in work due to COVID and the response of the Division:

Due to Spread of COVID-19 infection during the year, daily activities of the Division were affected to some extent as the attendance in Govt. offices was reduced to 50 percent of the total staff. However, day-to-day working of the Division was ensured by allowing the officials to work from their homes. Officers to the level of DS and above attended office daily to ensure disposal of urgent files. Thus, there was no disturbance in the functioning of the branch and all important issues were disposed off well within the prescribed time-limit.

Activities undertaken (January 2021 to December 2021)

- Recruitment Rules (RRs) for Group 'C' posts of National Zoo Authority, New Delhi were notified in 2021.

2.10 Forest Policy

The Forest Policy Division of Ministry of Environment, Forest and Climate Change





(MoEF&CC) deals with the National Forest Policy, 1988, the Indian Forest Act, 1927 and forest related policies and legislations of other Ministries and State Governments. It is the National Focal Division for international cooperation on United Nations Forum on Forestry (UNFF), Asia Pacific Forestry Commission (APFC), Asia Pacific Forest Invasive Species Network (APFISN), Committee on Forestry of FAO (COFO), UN-REDD, Centre for International Forestry Research (CIFOR) and International Poplar Commission of FAO. The Division is mandated to deal with implementation of REDD+ programme in the Country at the national level. Forest Policy Division is also the nodal Division for all matters related to India-USAID bilateral agreement on Sustainable Forest and Climate Adaptation and coordinating implementation of USAID Forest PLUS program in India.

The Division gives policy directions and issues advisories from time to time to State Governments on important forestry matters. The Division has no subordinate offices/institutions attached with it.

Important Activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021)

Brief of activities undertaken so far during period 2021-22 are as under:

i. International Day of Forests 2021 was celebrated on the theme “Forest Restoration: A path to recovery and well-being” by hosting a virtual meeting with forestry institutions. Winners of theme-based competitions were announced during the meeting. Secretary, EF&CC,

DGF&SS and ADG (WL) delivered messages on the occasion to all participants.

- ii. A National Level Meeting was organized through VC with PCCFs and Principal Secretaries (Agriculture) of all States/ UTs under the Chairmanship of DGF&SS on 23.02.2021 on various agenda items of forestry and wildlife wings.
- iv. Forest Policy Division organized a meeting with Norway’s International Climate and Forest Initiative (NICFI) on 19.02.2021 to discuss possible scope of cooperation in the field of forestry.
- v. Meetings/Actions under United Nations Forum on Forests (UNFF):
 - Virtual meeting of 16th session of UNFF was attended by the IGF (Forest Policy) and AIGF (FP) on various thematic areas of discussions.
 - Three side events organized by UNFF at COP 26, Glasgow on 5th, 6th and 8th November, 2021 were attended virtually by officials of Forest Policy Division.
 - UNFF Expert Group Meeting (EGM) on the preparations for the International Arrangement on Forest (IAF) midterm review organized by UNFF on 17th November, 2021 was attended by officials of Forest Policy Division.
 - India submitted the survey questionnaire received from UNFF for mid-term review of the IAF.
 - UNFF Expert Group Meeting (EGM) held virtually on 13-14 December,





- 2021 to discuss reporting on progress towards United Nations Strategic Plan for Forests (UNSPF) was attended by officials of Forest Policy Division.
- vi. Revision of National Forest Policy is under consideration.
- vii. Implementation of REDD+ (Reducing Emission from Deforestation and Forest Degradation) in India:
- MoEF&CC is implementing REDD+ in the Country. The Ministry in consultation with ICFRE has prepared a draft Safeguard Information System (SIS) for implementation of REDD+ Activities in the Country. The draft document is being finalized.
 - States/ UTs were requested to establish State REDD+ Cells for implementation of REDD+ in the States. As on date, REDD+ Cell has been constituted in 15 States. Draft document on Safeguard Information System for REDD+ has been posted in the public domain for feedback. The Forest Survey of India, Dehradun has been requested to prepare the National Forest Monitoring System (NFMS) and modalities for measuring, reporting and verifying (MRV) for REDD+ implementation in India.
 - Himachal Pradesh, Mizoram and Uttarakhand have prepared REDD+ Action Plans.
- viii. Special Drive for cleanliness and weeding out of old files was undertaken in Forest Policy Division. A total of 2,905 files have been recorded and 1,810 number of files have been weeded out.
- ix. Virtual meetings with British High Commission were held to finalise the draft of Glasgow Leaders Declaration on Forests and Land Use. Views of MOEFCC on the draft declaration were communicated to M/o External Affairs for information and further necessary action.
- x. India-USAID Forest PLUS 2.0 Program:
- As a successor to the Forest PLUS programme, the Forest PLUS 2.0: Forest for Water and Prosperity programme is being implemented in three selected States, viz. Kerala, Telangana and Bihar. The key objectives of the programme include (i) strengthening ecosystem-based management of forest landscapes; (ii) factoring ecosystem services into management of forest landscapes; and (iii) increasing economic opportunities from improved landscape management.
 - The Forest PLUS 2.0 Program, in collaboration with Forest Policy Division, and State Forest Departments in Bihar, Telangana and Kerala, has developed the Van System, which comprises a mobile App and a web portal, to help State Forest Departments in preparing Forest Working Plans. The tool has been developed as per National Working Plan Code 2014. It helps in reducing time in collecting and analysing data while improving accuracy.





- Recently, two more components have been added under the partnership agreement between India and USAID viz. (i) Air Pollution with a USAID contribution of 15 million USD and (ii) Biodiversity with USAID Contribution of 25 million USD for planned life of programme.
 - An inter-ministerial meeting was held on 8.9.2021 to discuss the non-paper on the Climate Action and Finance Mobilisation Dialogue (CAFMD). Forest Policy Division of Ministry suggested including forestry as a fourth Pillar of CAFMD. The suggestion was accepted. A follow up meeting with USAID was held on 27.10.2021 and 26.11.2021 to take forward the action plan under forestry pillar of the US-India Climate Action and Finance Mobilisation Dialogue (CAFMD). IG(FP) has been made the focal point for forestry pillar of CAFMD track.
 - USAID has also agreed to support Trees Outside Forests (TOF) programme to expand the planting of trees outside of forests for enhanced provision of ecosystem services, especially carbon sequestration, and increased inclusive livelihoods and economic opportunities for the rural population. This program will feed into the Forestry Pillar of the U.S.-India Climate Action and Finance Mobilization Dialogue.
- xi. Facilitating implementation of Forest Rights Act, 2006 (FRA, 2006):
- Forest Policy Division of Ministry coordinated with Ministry of Tribal Affairs on various issues related to the implementation of Forest Rights Act, 2006. The issues of community forest resource rights, habitat rights, etc were discussed and valuable suggestions given for effective implementation of the FRA, 2006 in States.
 - A Joint Communication to States/ UTs on effective implementation of the Forest Rights Act, 2006 was signed by Secretary, Ministry of Tribal Affairs and Secretary, Ministry of Environment, Forest & Climate Change, in the presence of Minister of Tribal Affairs and Minister of Environment, Forest & Climate Change on 06.07.2021. It was issued to the Chief Secretaries of all States/ UTs.
- xii. Forest Policy Division examined proposals received from various organizations and gave its comments. These included:
- Proposal of Andaman and Nicobar Islands received through MHA regarding promulgation of the Andaman and Nicobar Islands Felling and Transit of Tree Species on non-Forest land Regulation, 2020.
 - Recommendations contained in the 12th, 13th and 14th Report of National Commission on Scheduled Tribes (NCST)
 - Matters related to G-20, India-France, India-Germany, and India-Russia cooperation





- India UK joint statement of Roadmap 2030.
- Comments on minutes of 6th meeting of governing council of NITI Aayog were sent to NITI Aayog.
- EFC for the scheme Pradhan Mantri Janjatiye Vikas Mission.
- Processing of matters related to status of implementation of decisions taken under agreed text for settlement signed between Govt. of India, the State govt. of Meghalaya, ANVC and ANVC-B.

c. Challenges in works due to COVID and response of the Division

Despite challenges due to COVID 19, the Forest Policy Division successfully dealt with forest policy related issues in the Ministry. A number of virtual meetings and consultations were organized with stakeholders to discuss various important issues. All files were processed through e-office system. International meetings were also attended virtually and India's position on various issues relating to forest policy was articulated in these meetings.

2.11 Forest Protection

a) Brief introduction, objectives and functions of the Division:

Forest Protection Division deals with protection related issues like illegal felling of trees, deforestation, encroachment of forest land, invasive weeds, forest fires, etc. Forest Protection Division is the nodal Division for disaster management related matters. The Division administers Forest

Fire Prevention & Management Scheme (FPM) which is a Centrally Sponsored Scheme.

Objective and Functions:

- Nodal division for forest fires matters.
- Implementation of National Action Plan on Forest Fire.
- Issues relating to forests protection including control of illicit felling of trees, deforestation, and encroachment of forest land.
- Application of space technology for forest fire management which includes dissemination of forest fire alerts, pre-fire warning and assessment of burnt area by Forest Survey of India.
- Miscellaneous issues relating to forest protection, Parliamentary matters, etc.
- Nodal Division for Disaster management related matters

b) Important activities undertaken during the reference period (i.e. 01/01/2021-31.12.2021)

A Central Monitoring Committee has been constituted vide Notification No. 8-4/2016-FPD dated 04.06.2019 under the Chairmanship of Secretary (EF&CC) to monitor the implementation of the National Action Plan on Forest Fire. The Third meeting of Central Monitoring Committee on Forest Fire was held on 18.03.2021 under the Chairmanship of Secretary (EF&CC).





c) Progress/Achievements both cumulative and for the reference period:

- Forest Protection Division supports the efforts of the States/ UTs in prevention and control of forest fire by providing financial assistance for various forest fire prevention and management measures such as modern tools for fire extinguishing, use of communication and information technology, etc, creation and maintenance of fire lines in forest areas, engagement of fire watchers, creation of water storage structures in forest areas, strengthening of forest infrastructure, procurement of firefighting equipment, soil and moisture conservation works in high risk areas, awareness creation, incentivizing villages/ communities for protection against forest fire etc. under the Centrally Sponsored Forest Fire Prevention and Management Scheme. A sum of about Rs. 32.86 crore (Rupees thirty-two crore eighty-six lakh) have been released to the States during 2020-21.
- For continuation of Forest Fire Prevention and Management Scheme, Standing Finance Committee draft has been prepared and it has been submitted to Ministry of Finance. The total cost of Forest Fire Prevention and Management Scheme is Rs. 394.00 crore (including the State share). The Scheme is implemented for the period of five years i.e 2020-21 to 2025-26.
- The Forest Protection Division of this Ministry has signed a MoU with NIDM for preparation of Disaster Management Plan of MoEF&CC. A total cost of this project is

Rs. 46 lakh. As per MoU National Institute of Disaster will submit the Disaster Management Plan in 18 months.

- The Forest Protection Division issued advisory to State/ UT Governments to remove encroachment and ensure that no further encroachment takes place as per the existing acts/rules.

d) Continuing committees/commissions-their work during the year and present position: -

A Central Monitoring Committee has been constituted vide Notification No. 8-4/2016-FPD dated 04.06.2019 under the Chairmanship of Secretary EF&CC to monitor the implementation of the National Action Plan on Forest Fire. The Third meeting of Central Monitoring Committee on Forest Fire was held on 18.03.2021 at 3:30 PM under the Chairmanship of Secretary, MoEF&CC.

Forest Fire Prevention and Management

- a. The scheme supports the efforts of State/ UT Governments in prevention and control of forest fire by providing financial assistance for various forest fire prevention and management measures.

Objectives of the Scheme: -

Long Term Objectives:

- a. To minimize forest fire incidences and assist in restoring productivity of forests in affected areas.
- b. To institutionalize the partnership with forest fringe communities for forest protection.





- c. To contribute to the larger goal of maintaining environmental stability.
- d. To prepare fire danger rating system and devise forest fire forecasting system.
- e. To encourage the states/ UTs for optimal use of modern technology (such as Remote Sensing, GPS and GIS) in planning, developing and operationalizing Fire prevention and management system
- f. To develop knowledge on impacts and dynamics of forest fire

Short Term Objectives:

- a. To carry out effective awareness campaign for prevention of forest fire.
- b. To effectively prevent and control forest fires by improving the traditional practices and employing available modern methods.
- c. To impart suitable training to the field staff and forest fringe communities on fire fighting with help of prescribed means and methods in the forest areas.
- d. To encourage community participation in prevention and control of forest fire.

Progress/Achievements both cumulative and for the reference period.

During the year 2020-21, an amount of Rs 32.86 Crore has been sanctioned under the FPM scheme to various State/ UTs.

2.12 Wildlife Conservation

Brief introduction, objectives and functions of the Division:

The Wildlife Division of the MoEF&CC, Government of India is the nodal Division which deals with the policy, legal and financial

issues for the conservation of wildlife in the Country. The Wildlife Wing is headed by the Additional Director General of Forests (Wildlife) who is also designated as the Director, Wildlife Preservation under the Wild Life (Protection) Act, 1972. The Division also provides financial support to the State/ UT Governments for conservation of wildlife and their habitats through the Centrally Sponsored Scheme - Development of Wildlife Habitats (CSS-DWH).

Important activities undertaken by Wildlife Division during the period January-December 2021:

- Launch of “Marine Mega Fauna Stranding Management Guidelines” and “National Marine Turtle Action Plan”
- Release of guidelines on “Handling of Greater One-Horned Rhinoceros Carcass in India” and “Monitoring protocol of Greater One-horned Rhinoceros Population”
- Organization of two-days online training workshop for 29 Central Asian Flyway range countries
- Effective and informed decision making in development related projects
- Wildlife Week, 2021 Celebrations and iconic week of Azadi Ka Amrit Mahotsav
- Release of ‘Guidelines for Sustainable Ecotourism in Forest and Wildlife Areas-2021’ in October, 2021
- Release of field guide for monitoring Ganges and Indus River dolphins, associated aquatic fauna and habitat
- Indo-German Technical Cooperation project on Human Wildlife Conflict Mitigation in India





- GEF-Gol-UNDP SECURE Himalaya Project
- India High Range Mountain Landscape Project.

Progress/ Achievements during the period January-December 2021:

- **Launch of “Marine Mega Fauna Stranding Guidelines” and “National Marine Turtle Action Plan”:** Considering the need to have a conservation paradigm for marine mega fauna and marine turtles, the Ministry released ‘Marine Mega Fauna Stranding Guidelines’ and ‘National Marine Turtle Action Plan (2021-2026)’ in January 2021. These documents not only promote inter-sectoral action for conservation but also guide improved coordination amongst the government, civil society and all relevant stakeholders on the response to cases of stranding, entanglement, injury or mortality of marine mammals and also conservation of marine turtles.
- **Release of guidelines on “Handling of Greater One-Horned Rhinoceros Carcass in India” and “Monitoring protocol of Greater One horned Rhinoceros Population”:** The Ministry released the guidelines on “Handling of Greater One-Horned Rhinoceros Carcass in India” and “Monitoring protocol of Greater One horned Rhinoceros Population” in March 2021.
- **Effective decision making in development related projects:** The Standing Committee of National Board for Wildlife (SC-NBWL) has been meeting regularly. In order to enhance the efficiency of the decision-making process, and to save time and cost, all the six (06) meetings of the Standing Committee of NBWL were convened through Video Conferencing in the year 2021.
The SC-NBWL in its 60th meeting held on 5th January, 2021 approved the inclusion of ‘Caracal’ (*Caracal caracal*), a medium size Wild Cat, found in some parts of Rajasthan and Gujarat into the list of critically endangered species for taking up conservation efforts with financial support under Centrally Sponsored Scheme- Development of Wildlife Habitat. Now, there are 22 wildlife species under the recovery programme for critically endangered species.
- **Wildlife Week, 2021 celebrations:** To instill the conservation ethos amongst the general public, Shri Narendra Modi, Hon’ble Prime Minister of India delivered a message on the occasion of Wildlife Week, 2021.
- On the occasion of Wildlife Week, 2021 (2nd-08th October 2021), Gandhi Jayanti and heralding the Iconic Week of Azadi ka Amrit Mahotsav of MoEFCC, Shri Bhupender Yadav, Hon’ble Minister for EF&CC, along with Shri Ashwini Kumar Chaubey, Hon’ble Minister of State, EF&CC and other senior officials of the Ministry flagged off a rally on wheels ‘India for Tigers’ on 2nd October, 2021.
- Activities like painting competition, webinars, documentaries, wildlife photography competition, etc. aiming





at generating awareness amongst the people, especially students were taken up during the entire week in the country through hybrid mode, following the COVID protocols.

- **Release of Guidelines for Sustainable Ecotourism in forest and wildlife areas-2021:** The Ministry released the 'Guidelines for sustainable Ecotourism in the forest and wildlife areas-2021' on 2nd October, 2021. These guidelines are applicable to ecotourism sites falling in forest, wildlife areas and eco-sensitive zone. Considering the need for a participatory approach for conservation of wildlife and its habitats, the guidelines emphasize the engagement of local communities in a manner that enriches local economies and encourage sustainable use of indigenous material through financially viable value chains to help local communities become 'Atma Nirbhar' and promotes partnership among stakeholders in development of ecotourism as well as equitable sharing of benefits with local communities. Creation of foundation in each Protected Area and sharing of revenue with local communities has also been underscored in the guidelines.
- **Release of field guide for monitoring Ganges and Indus River dolphins, associated aquatic fauna and habitat.** Dolphin is an aquatic apex predator and controls the aquatic system. Dolphin act as an umbrella species, whose conservation will result in wellbeing of associated habitat and biodiversity, including humans. Dolphin enumeration is very important to

delineate important conservation areas, where development can be planned with appropriate mitigation measures, and to also secure livelihoods of local communities. So far, there was no synchronized enumeration plan, however, sporadic enumerations have been done in past. First time a standardized monitoring protocol has been developed and was released in October, 2021. This would be employed for synchronized Dolphin enumeration exercise to be undertaken in states of Assam, West Bengal, Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Rajasthan and Punjab. Dolphin estimation is an important process and constituent of "Project Dolphin".

- **Indo-German Technical Cooperation project on Human Wildlife Conflict Mitigation in India:** India's National Human-Wildlife Conflict Mitigation Strategy and Action Plan (HWC-NAP) and 4 supplementary frameworks were released by Shri Ashwini Kumar Choubey, Hon'ble Minister of State, MoEF&CC on 8th October, 2021 in New Delhi. HWC-NAP and supplementary frameworks have been developed by the MoEF&CC with support from GIZ and WII, under the Indo-German Technical Cooperation Project on Human-Wildlife Conflict Mitigation in India. The common frameworks for developing state-level and division-level plans are being used to develop state plans for Karnataka, Uttarakhand and West Bengal and division-level plans for project pilot sites, to ensure alignment between national planning and field implementation.





The HWC-NAP, supplementary frameworks and draft guidelines are the result of over four years of participatory processes, engaging more than 80 experts including scientists, forest officers, field response teams, capacity development and strategic experts, and pilot testing the drafts in 20 forest divisions and selected protected areas (PA) during Dec 2020-Sep 2021. Several National and State level multi-stakeholder consultation meetings and workshops were organized in 2021 to finalize HWC-NAP, engaging officials and experts from key sectors and stakeholders, with organizations such as National Academy of Agricultural Research Management, IGNFA, National Police Academy, National Disaster Response Force, Directorate of Civil Defence & Home Guards- Ministry of Home Affairs, National Institute of Rural Development and Panchayati Raj etc.

The Project has successfully completed equipment support and first set of trainings for 100 response teams- RRTs and potential community-PRTs, and consultations towards cross-sector and inter-agency cooperation at the project pilot sites- Haridwar-Rajaji, Kodagu and Gorumara., and initiated work on integrating One Health into HWC mitigation measures through curriculum development, and trainings of RRTs.

- **GEF-GoI-UNDP SECURE Himalaya Project**

The GoI-UNDP- GEF SECURE Himalaya Project launched in 2017 follows landscape

approach to conservation with the objective of promoting the sustainable management of alpine pastures and forests in the high range Himalayan ecosystems that secures conservation of globally significant wildlife, including endangered snow leopard and their habitats, ensures sustainable livelihoods and community socio- economic benefits.

The Project has supported development of framework and guidelines for preparation of Landscape Management Strategy for high-altitude Himalayas in UT of Ladakh, Himachal Pradesh, Uttarakhand and Sikkim.

The Project has supported training of 80 communityvolunteers as para-taxonomists, para-vets, *safai sathis* and eco-volunteers on various aspects of monitoring and surveillance of wildlife in Uttarakhand, Himachal Pradesh and Sikkim. Of these, 60 youths have been engaged in Village Volunteer Protection Force by Uttarakhand Forest Department. 148 frontline staff of enforcement agencies (Forest and Police) have been trained for wildlife enforcement and mitigation of wildlife crime and illegal trade.

663 Households have been supported for improved and diversified livelihoods based on eco-tourism, NTFP and natural resource-based handloom and handicraft across the landscapes. Self-Help Group (SHG) has been registered under State Rural Livelihood Mission (SRLM). Besides, a MoU has been signed between Forest Department and SHG for setting up the





processing unit for Sea Buckthorns in Himachal Pradesh.

10 knowledge products have been developed on various aspects of illegal trade in wildlife and Human Wildlife Conflict such as legal literacy manual for ensuring participation of Panchayati Raj Institutions of Uttarakhand, species identification manual and pamphlets on important flora and fauna species under trade. In addition, 2 films were developed and disseminated for raising awareness on mitigation on Human Wildlife Conflict and Illegal Trade in wildlife. A Green Film Festival was organized which included workshop on green filmmaking and mobile journalism for 25 youths.

- **India High Range Mountain Landscape Project**

The Ministry and the United Nations Development Programme (UNDP) through funding from Global Environment Facility (GEF) supports the implementation of the India High Range Mountain Landscape (IHRML) project with an objective of protecting the biodiversity from existing and emergent threats through building an effective collaborative governance framework for multiple-use management. The project has achieved the following results:

Promotion of traditional agricultural practices, Sustainable Sugarcane Initiative, Organic Mankulam, Promotion of organic/safe to eat cardamom, Enhancing Reservoir Fish Production, Promotion of Medicinal

Plants, Agroforestry models for small and marginal farmers, Promotion of Passion Fruit, Promotion of Lemongrass Value Chain, Green Innovation Fund, Bamboo and Reed, Enhancement of the Livelihood Security of Tribal families, Vanasree branding, Strengthening of Business potential of Farmer/ Tribal institutions, Chilla Market, Nallathanni River Rejuvenation, Integrated Water Resource Management Plan (IWRM), State of Sector document, Developing strategies to reduce energy usage in Tea sector, Demonstration of Sustainable Tourism Models in Kuttampuzha and Mankulam Panchayaths, Spatial mapping, Capacity Development of Local Self Government Institutions and other Stake holders, Green Appraisal Tool, Sponsoring 5 tribal students from the landscape to IWST, Bangalore, Sponsoring 22 local youth for a certified course on visual media, Eco- restoration in degraded forested landscape, Removal of invasive and exotic species, Geospatial mapping to address Human Wildlife Interface, Biodiversity Parks, Mapping of high value biodiversity areas, Establishment of GIS Cell, Habitat monitoring Cell, Tree ladders and Study on Hornbills

Promulgation of new Acts/ Rules, if any, along with the details and with major amendments/deletions.

- The Cabinet on 08th December, 2021 approved the draft of the Wild Life (Protection) Amendment Bill, 2021 which seeks the incorporation of provisions of Convention on International Trade in





Endangered Species of Wild Fauna and Flora (CITES) of which India is signatory since 1976, rationalization of Schedules appended to the Act, exempting certain activities under Section 29 of the Act and facilitating proper management of Protected Areas and other relevant provisions.

- Wild Life (Protection) Amendment Bill, 2021 was introduced in the Lok Sabha on 17th December, 2021.

Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation-action taken.

Organization of two-days online training workshop for 29 Central Asian Flyway range countries: India has played a very important role in finalizing and adoption of the CMS COP 13 Resolution on Flyways. As part of the leadership role, India proposes to establish an institutional mechanism for undertaking research studies, assessments, capacity development and conservation initiatives by creating a common platform. India also proposes to facilitate the other Central Asian Flyway Range countries in preparation of respective national action plan for conservation of Migratory Birds along the Central Asian Flyway, thereby making India the nerve centre of action for the 29 countries under the CAF for the conservation of migratory birds. In this context, India organized a two-days online training workshop for CAF range countries in October, 2021.

List of major publications brought out- brief purpose of each, wherever necessary.

Shri Bhupender Yadav, Hon'ble Minister, EF&CC, Shri G. Kishan Reddy, Hon'ble Minister of Culture, Minister of Tourism and Ministry of Development of North Eastern Region and Shri Ashwini Kumar Chaubey, Hon'ble MoS, EF&CC, released a compendium of '103 National Parks and 563 Wildlife Sanctuaries in India' on 24th November, 2021. The Compendium provides a range of information on Sanctuaries & National Parks, such as location, key habitats and species etc. QR codes on location and website have been provided to make it easy for the readers to have quick access to further details. The compendium has been prepared with support from GIZ-India and addresses the interests of nature enthusiasts as well as conservation professionals in receiving information on all National Parks and Wildlife Sanctuaries in India at one place.

Challenges in work due to COVID and the response of the Division:

In view of the spread of COVID 19 in the country and lockdowns imposed by State Governments from time to time, online conduction of meetings was encouraged

Financial assistance under Centrally Sponsored Scheme- Development of Wildlife Habitat: The Ministry provides financial assistance to the State/ UT Governments for conservation and protection of wildlife and its habitat. Approximately 70% of the allocated funds were disbursed to the States/ Union Territories under CSS-DWH till December, 2021.





The scheme has following three components:

- i. Support to Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- ii. Protection of Wildlife Outside Protected Areas
- iii. Recovery programmes for saving Critically Endangered Species and their habitats.

The management and conservation efforts of the Government are discernible in the population increase of keystone species. Due to the consistent financial allocation and concerted management efforts, most of these species have shown remarkable increase in population.

2.13 Wildlife Crime Control Bureau (WCCB)

Establishment and Mandate: The Wild Life Crime Control Bureau (WCCB) was constituted by the Government of India on 6th June, 2007 under Section 38 Y of the Wild Life (Protection) Act, 1972, and became operational 2008. The Bureau has been envisaged as a multi-disciplinary body with officials from Police, Forest/ WL, Customs and other Intelligence & Enforcement agencies.

The Bureau is headed Ex-Officio by the Director, Wild Life Preservation, Govt. of India i.e. the ADG (WL); and its day to day operational activities are looked after by a senior Police Officer designated as Additional Director in the rank of IGP. The Bureau has its headquarters at Delhi, five regional offices at Delhi, Kolkata, Mumbai, Chennai and Jabalpur; three sub-regional offices at Guwahati,

Amritsar and Cochin; and five Border Units at Moreh, Nathula, Motihari and Gorakhpur & Ramanathapuram.

WCCB has been tasked with the following functions under Section 38 (Z), of the Wild Life (Protection) Act, 1972:

- a) Collect and collate intelligence related to organized wildlife crime activities and to disseminate the same to State and other enforcement agencies for immediate action so as to apprehend the criminals and to establish a centralized wildlife crime data bank;
- b) Co-ordination of actions by various officers, State Governments and other authorities in connection with the enforcement of the provisions of this Act, either directly or through regional and border units set up by the Bureau;
- c) Implementation of obligations under the various international Conventions and protocols that are in force at present or which may be ratified or acceded to by India in future;
- d) Assistance to concerned authorities in foreign countries and concerned international organizations to facilitate co-ordination and universal action for wildlife crime control;
- e) Develop infrastructure and capacity building for scientific and professional investigation into wildlife crimes and assist State Governments to ensure success in prosecutions related to wildlife crimes;
- f) Advise the Government of India on issues





relating to wildlife crimes having national and international ramifications, and suggest changes required in relevant policy and laws from time to time.

Activities undertaken:

In line with its mandate, the Bureau has undertaken the following activities:

- a) Collection, collation and dissemination of 112 intelligence inputs on wildlife crime and criminals to the Central/ State agencies concerned for operations/ joint operations/ apprehension of criminals.
- b) Collection of wildlife crime data from 36 agencies of the States/ UTs (Forest & Police Depts.) by creation of online data management system on WCCB website base.
- Wildlife Crime Enforcement under the provisions of Wild Life (Protection) Act, 1972: -
 - o Detection / search / seizures / apprehensions – 246 Wildlife Crime cases detected in Joint Operations conducted by Bureau with other State/ central Enforcement Agencies during the period.
 - o Assisted in Investigation of 38 offences detected by the officers of the Bureau.
 - o Filing of many complaints in courts in cases detected by the Bureau.
- Capacity building in dealing with wildlife crimes and investigation of wildlife offences: -
 - o Conducted 14 two-day capacity building

training courses on investigation of wildlife offences and intelligence tradecraft for 546 Police and Forest officials.

- o Conducted 144 Sensitization programmes/ workshops/ online webinars for the Central and State agencies on issues related to wildlife crimes and identification of wildlife articles in which 8242 Officials participated.
- o Conducted 15 PRI Sensitization programmes for the PRI members/ villagers on issues related to wildlife crimes and protection of wildlife in which 986 PRI members participated.
- o Provided expert resource persons to various training centers and enforcement agencies for sensitization on wildlife and wildlife crime.
- o Human Resource Development in WCCB – Deployment of WCCB officials for various training courses for their capacity building as Trainers in the relevant fields.
- Coordination and cooperation to combat organized wildlife crimes with trans – border ramifications: -

Within country:

- o Conducted 122 Joint operations with other agencies for prevention of wildlife crime.
- o Three Special Enforcement Operations coordinated by WCCB were launched with a focus on specific species wildlife





crime as well as on online illegal wildlife trade.

International cooperation: -

- o Participated in Interpol coordinated multi – national joint Operation Thunder 2021.
- o Participated in the 7th Executive Committee Meeting of SAWEN Virtual on 31st March, 2021.
- o Participated virtually in the SAWEN “Cyberspace Intelligence and Investigation to the wildlife law enforcement officials in South Asia” held on 5th to 8th April, 2021.
- o Participated virtually in UNODC “Combating Wildlife Trafficking in South and Southeast Asia India national Consultation Strengthening legislation and prosecution” held on 12th and 13th August, 2021.
- o Participated in Virtually Wildlife Seizure Training program (US Embassy) held on 17th to 19th August 2021.
- o Participated in Virtual Training on Open-Source Intelligence (OSINT) conducted by SAWEN on 23rd to 26th August, 2021.
- o Participated in India Nepal Investigative Meeting conducted by INTERPOL virtually on 31st August, 2021.
- o Participated on Online Annual Wildlife Regional Meeting conducted by INTERPOL on 14th September, 2021
- o Participated in 52nd Meeting of the CMS standing Committee virtually on 21st to 29th September, 2021.

- Sensitization and awareness campaigns on wildlife and wildlife crimes to public and other stakeholders: -
- Assistance in investigation and prosecution of important wildlife offences being investigated by other agencies: Assistance to the State authorities in investigation was provided in 38 new cases during the year.
- Assist the Customs Department in inspection of consignments in respect of violations of WLP Act, CITES and FTP. Assist and advise Customs department in identification of wildlife articles and issues related to CITES. Regulate legal trade under CITES: WCCB assisted Customs by conducting inspection of pre/post shipment of flora and fauna samples of EXIM consignments as per the provisions of the Wild Life Protection Act, 1972, CITES and EXIM Policy. Inspections resulted in detection of 64 WLPA, CITES and EXIM policy violations at various exit points across the country.
- Issue Alerts and Advisories to the stakeholders on the issues pertaining to wildlife crime enforcement, policy and legislations: During the year 04 advisories on modus operandi, trade route and trend of wildlife crime to sensitize enforcement agencies across the country and 105 actionable alerts/inputs were issued to the concerned authorities on wildlife crime related issues that resulted in seizures of various wildlife articles/protected animals and arrest of accused.





Photographs of WCCB achievements during 2021:



Detection & seizures

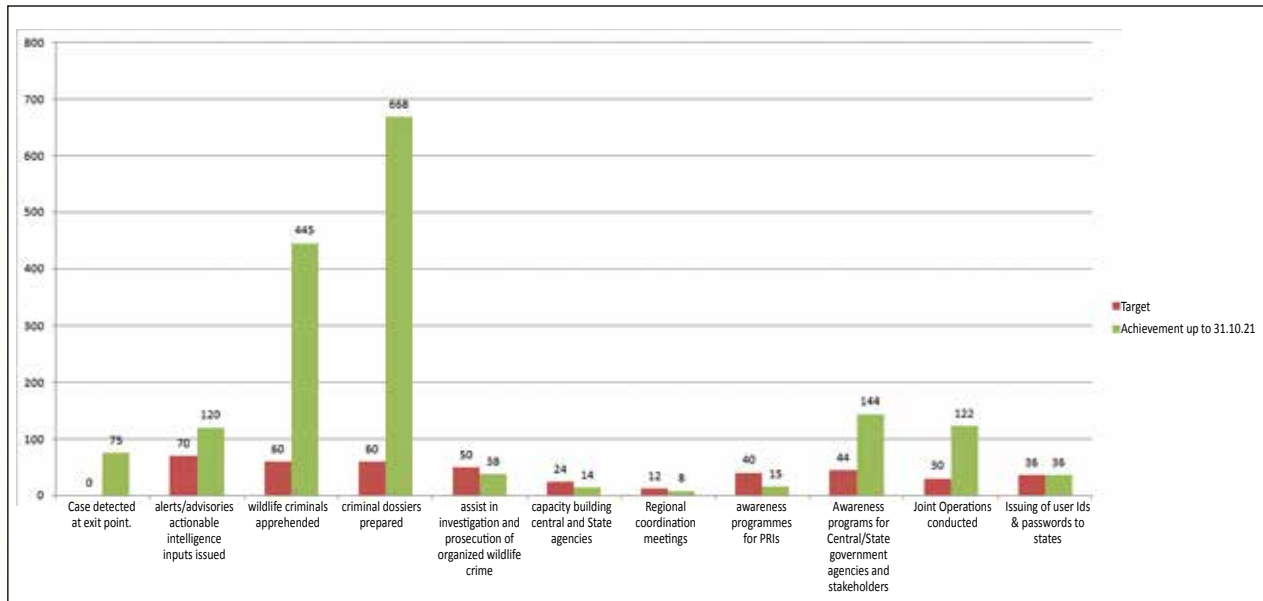


Inter - Agency Coordination Meeting to discuss wildlife crime issues





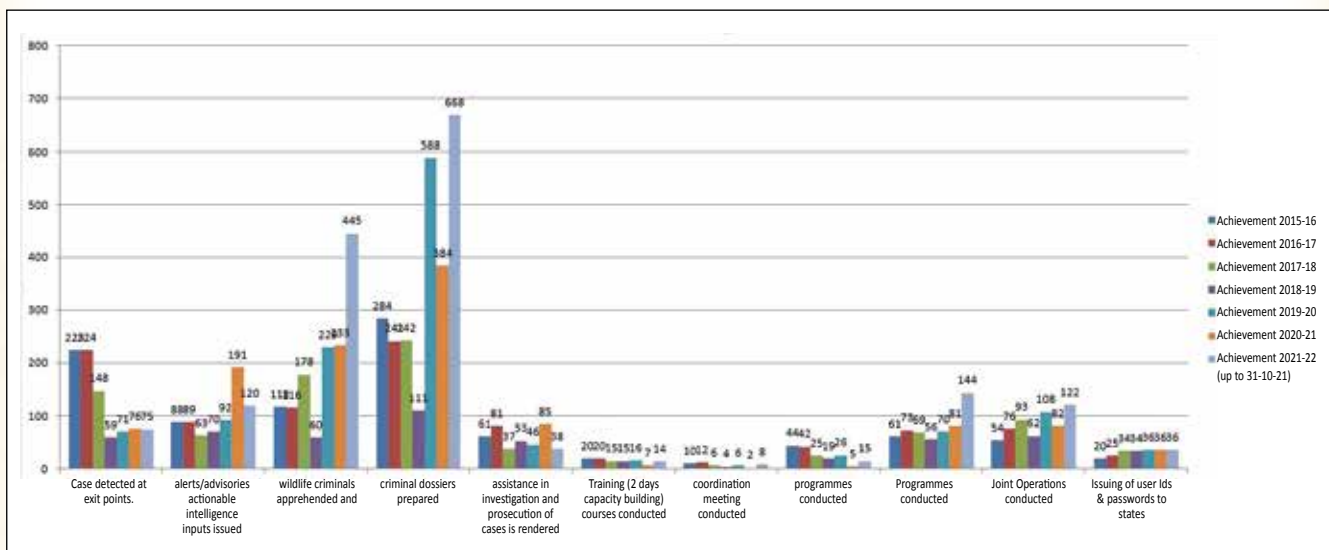
Bar Chart of Progress/Achievements made up to 31.10.2021



Note:

- a) No target fixed for detection at exit points as the same depend on the no of cases referred by Customs.
- b) 546 forest & police officials trained during capacity building of central & state agencies.
- c) 986 PRI members sensitized during awareness programmes for PRIs.
- d) 8242 officials/persons sensitized during awareness programmes for Central/State government agencies & stakeholders.

Bar Chart of Comparison of progress vis-à-vis that achieved in previous year



Note:

- a) No target fixed for detection at exit points as the same depend on the no of cases referred by Customs.
- b) 798 forest & police officials trained during capacity building of central & state agencies in 2014-15, 1009 in 2015-16, 1038 in 2016-17, 827 in 2017-18, 650 in 2018-19, 752 in 2019-20, 283 in 2020-21 and 546 on 2021-22.
- c) 1596 PRI members sensitized during awareness programmes for PRIs in 2014-15, 2425 in 2015-16, 2084 in 2016-17, 1699 in 2017-18, 1641 in 2018-19, 1388 in 2019-20, 313 in 2020-21 and 986 in 2021-22.
- d) 2925 officials/persons sensitized during awareness programmes for Central/State government agencies & stakeholders in 2014-15, 2810 in 2015-16, 4051 in 2016-17, 3802 in 2017-18, 2925 in 2018-19, 3436 in 2019-20, 10263 in 2020-21 and 8242 in 2021-22.





Special Operations conducted by WCCB:

OPERATION “TURTSIELD-II” (1st Dec 2020 to 28th Feb 2021):

- 27 cases registered and 59 turtle traders were arrested. Total 11771 live Turtles rescued.

OPERATION “FREEFLY” (1st Feb 2021 to 31st March 2021)

- 12 accused arrested and 737 live wild birds rescued.

OPERATION “WETMARK” (1st June 2021 to 30th June 2021)

OPERATION “WILDNET -IV” (1st August 2021 to 30th September 2021)

OPERATION “THUNDER 2021” (1st October 2021 to 31st October 2021)

- 59 offenders arrested in 27 cases.

Participation in Awareness Programs: -

- In a National Conference conducted by Central Zoo Authority for Zoo Directors and Veterinarians held on 10th and 11th October 2021 at Kevadia, Gujarat, WCCB launched two animated awareness videos titled *“Debunking Myths to Curb Illegal Trade in Wildlife”* and *“Live in harmony with nature, stop illegal trade in wildlife”* for general public through Hon’ble Union Minister of Environment, Forests and Climate Change, Government of India.

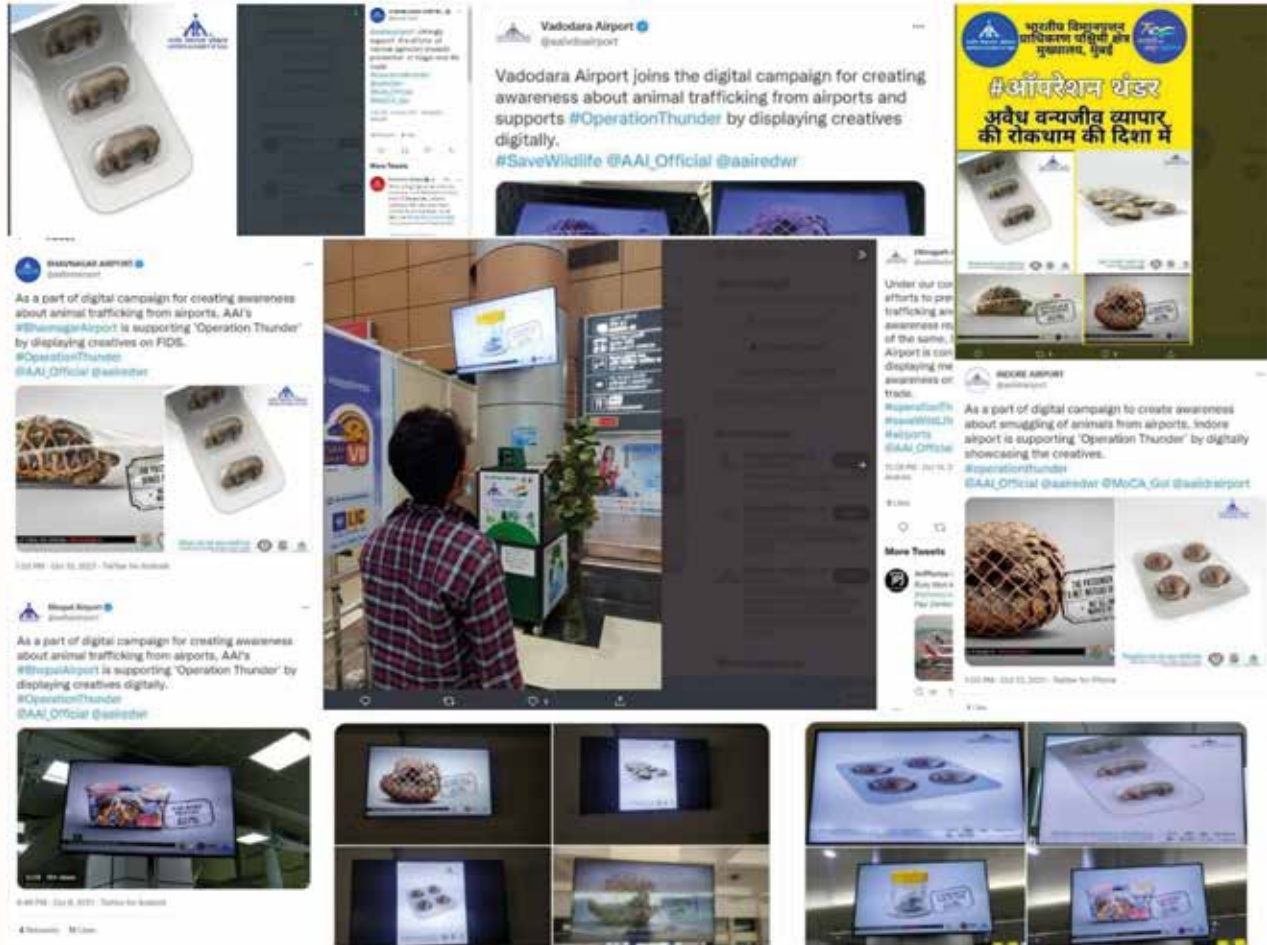




Awareness at Airports: -

WCCB collaborated with the Airport Authority of India for showcasing of digital awareness material on wildlife smuggling at 20 Airports across the country through their electronic Display Boards at arrival and departure lounges.

The digital advertisements were displayed at International Airports at Aurangabad, Bhavnagar, Bhopal, Bhuj, Chennai, Dibrugarh, Goa, Indore, Jabalpur, Jamnagar, Juhu, Kandla, Kolkata, Porbandar, Pune, Rajkot, Rupsi, Silchar, Shillong and Vadodara.



Clock wise from top left (Aurangabad Airport, Vadodara Airport, Western Region Airport, Indore Airport, Goa Airport, Bhopal Airport Bhavnagar Airport and Dibrugarh Airport)

- **Poster Awareness at Jabalpur Railway Station:** - During Operation THUNDER 2021, a poster awareness campaign was launched by WCCB within the premises of Jabalpur Railway Station in collaboration with West Central Railway of Indian Railways.

Collaboration with Online Trade Portals:-

WCCB sought cooperation from Online Trade Portals and Social Media Platforms to develop a consensus to tackle online illegal wildlife trade. As per consensus, WCCB shared list of key words/code words used for trading in wild species/articles/derivatives as detected at





various trade portal and social media platforms and simultaneously an awareness campaign was run on their web pages to sensitize online users with respect to illegal wildlife trade.

“Wildlife Week” Celebration by WCCB:

Annual “Wildlife Week” celebration was observed by WCCB from 02nd Oct to 08th Oct, 2021. Several online and field level programmes

viz. lectures, training & sensitization programmes, awareness generation rallies, painting and drawing competitions, essay competitions, quiz contest, oath Ceremony; Story/song presentation by school children; Planting and Plants distribution activities, etc. were organized by all regional offices of WCCB.



Celebration of ‘Azadi Ka Amrit Mahotsav’ by WCCB

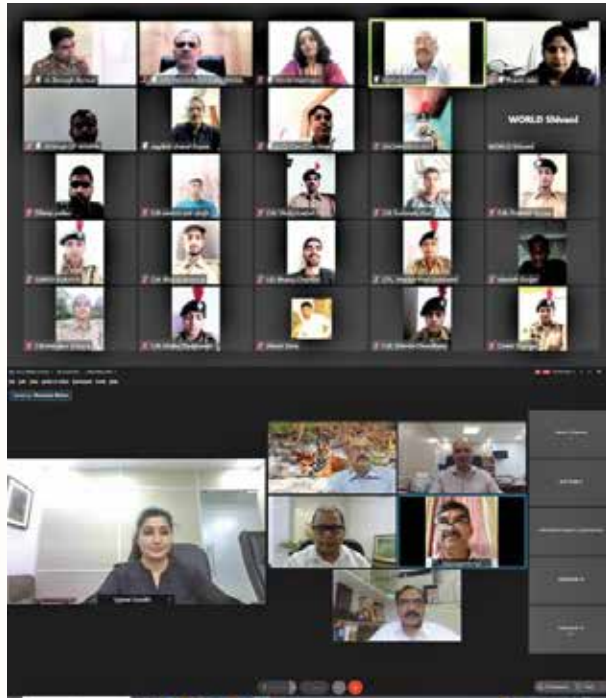
The week-long celebration marking “Azadi Ka Amrit Mahotsav” was observed by WCCB from 1st to 07th Oct, 2021.

During the period, WCCB organized four national level webinars in association with UNDP India, inviting key environmentalists and wildlife professional to participate in the event. The series was held under the ‘SECURE Himalaya’ Project and was aimed at enhancing awareness on combating wildlife crime and illegal trade in wildlife in high-altitude Himalayas.

Several virtual discussions were organized on topics viz. ‘Strengthening CITES implementation in High Altitude Himalaya’, Tackling ‘Internet Based Illegal trade in Wildlife’, ‘Harnessing Technology Based Tools for Enhanced Enforcement’, ‘Transboundary Cooperation for Tackling Wildlife Crime in High Altitude Himalaya’.

Apart from above programmes, several other activities viz. sensitization and training programmes, webinars, lectures, and discussion were also organized by all regional units of WCCB.





Introduction of Volunteers

WCCB Volunteers Scheme for enrollment of volunteers to assist WCCB in collection of information on wildlife crime, capacity building, awareness generation, achieving mandated objective. Every two years, WCCB invite application from citizens having inclination towards wildlife conservation to become Volunteer with WCCB.

Activities related to CITES and e-SANCHIT:

A. As per the recommendations of the Working Group on National Committee on NCTF on PGA regulations and procedures, WCCB has prepared Questionnaire for Chatbot for trade facilitation for making it functional on the official website of WCCB. A comprehensive Chatbot has been submitted to the ADG & MA, CITES for approval.

B. The Bureau has developed a web based app for printing of CITES Permits and report generation. The app is in the stage of finalization by this office and some minor changes are being made.

Following the recommendations of the CITES Secretariat, India should also strive towards the concept of eCITES in the near future.

C. Efforts are being made by the Department of Logistics with the Asian Development Bank to develop a digital import clearance systems for WCCB and integrate the same with the Customs platform. It is expected that the User Acceptance Testing of the system will commence soon.

D. As per recommendation of the NTFAP on PGA Procedure & Regulation, a timeline of activities requiring minor and major





procedures for cargo clearances has been prepared and uploaded on the website for trade facilitation and public information.

E. CITES Annual Report, 2020 has been prepared & submitted to the M.A., CITES, New Delhi & also uploaded on the WCCB website.

Hindi Section Report 2021

Wildlife Crime Control Bureau (WCCB) conducted Hindi Pakhwada dated 14.09.2021 to 28.09.2021 which includes various competitions like Essay writing competition, Hindi Quiz contest, Bilingual word meaning and oral Test, Interpretation Test, Dictation test & Speech competition. WCCB also conducted "Vigilance Awareness Week" dated 26.10.2021 to 01.11.2021. During this, competitions were organized and the winners were awarded prizes along with certificate.

Weeding out of old Files and Special Campaign:

WCCB, BHQ examined and selected the category 'C' old files lying in the Bureau Headquarter, in the Admin, RTI, DDO, I & C and CITES sections for weeding out, subject

to approval of the Competent Authority. Total 137 files were reviewed for weeding and all the 137 files were recommended for weeding.

2.14 Central Zoo Authority (CZA)

The Central Zoo Authority (CZA) is a statutory body under the MoEF&CC, Government of India. It was constituted in 1992 under the provisions of Wildlife (Protection) Act, 1972 to oversee the functioning of zoos in India and provide them with technical assistance. The prime concern of the CZA has been to raise the existing standards of animal housing, upkeep and health care in the zoos of the Country.

Objectives:

- Enforce minimum standards and norms for upkeep and healthcare of animals in Indian zoos and
- Control mushrooming of unplanned and ill-conceived zoos.

Functions:

The Authority has been assigned following functions under Section 38 (C) of the Wildlife (Protection) Act, 1972

i.	To specify the minimum standards for housing, upkeep and veterinary care of the animals kept in zoos;	The CZA has prescribed following standards for housing and upkeep of animals housed in captivity: <ul style="list-style-type: none"> • Recognition of Zoo Rules • Guidelines for the Scientific management of zoos
ii.	To evaluate and assess the functioning of the zoos with respect to the prescribed standards or norms;	<ul style="list-style-type: none"> • During the reporting period, the Central Zoo Authority has physically evaluated 21 zoos.





iii.	To recognize or derecognize zoos;	<p>The CZA granted recognition/ renewal of recognition to 3 zoos. Besides, approval for establishment of 19 new zoos was provided.</p> <p>At present there are 150 recognized zoos in the country.</p>
iv.	To identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo;	<p>The Central Zoo Authority has identified 74 species of indigenous faunal species for focused conservation breeding. This includes 24 species of birds, 46 species of mammals and 4 species of reptiles. For this purpose, 42 zoos have been identified, of which 29, are designated as coordinating zoos. It was envisioned earlier that at least 100 individuals of each identified species are established that are genetically, physically and behaviourally fit individuals. The goal is to have these populations as an ‘insurance’ (maintaining a viable ex-situ population of the species to prevent predicted local, regional or global species extinction and preserve options for future conservation strategies) in case species restoration is planned. Broadly, the establishment of these populations follow the “IUCN Species Survival Commission Guidelines on the Use of Ex-Situ Management for Species Conservation Version 2.0”. The CZA also published the first “Guidelines/ Norms for Conservation Breeding Programme of the Central Zoo Authority” in 2011. As part of this, 25 species were provided financial assistance by the Central Zoo Authority. This includes 17 threatened species (3 Critically Endangered, 5 Endangered and 9 Vulnerable species).</p> <p>Indian Chevrotain (<i>Moschiola indica</i>), Cheer Pheasant (<i>Catreus wallichii</i>), Western Tragopan (<i>Tragopan melanocephalus</i>), White-backed Vulture (<i>Gyps africanus</i>) have fared well in captivity.</p> <p>In addition to 152 individuals released previous year 52 more number of individuals of Indian Chevrotain have been released in the wild. Similarly, reintroduction was attempted for Western Tragopan & Cheer Pheasant by releasing 4 & 18 individuals respectively. 11 more individuals of White rumped vultures were released from the Jatayu Conservation and Breeding Centre at Pinjore Haryana.</p>





v.	To coordinate the acquisition, exchange and loaning of animals for breeding purpose;	During the reporting period, CZA has approved 63 animal exchange proposal between Indian Zoos and 10 exchange proposal between Indian & Foreign Zoos.
vi.	To ensure maintenance of studbooks of endangered species of wild animals bred in captivity;	Out of studbook of 34 identified species of captive wild animals housed in Indian Zoos, Studbook 5 captive animal species were updated during the reporting period. The program is currently being updated using the global standards including the IUCN- Conservation Planning Specialist Group - One Plan Approach.
vii.	To coordinate training of zoo personnel in India and outside India;	CZA conducts dedicated in-person training programs at all verticals of zoo management such as - Zoo Managers, Veterinarian, Educationist, Biologist, Middle level official & Zoo Keepers. The details are tabulated under sr. no. "f".
viii.	To coordinate research in captive breeding and educational programmes for the purposes of zoos;	During the period, CZA has granted NOC to several research projects that have zoo/ ex-situ linkage. However, financial assistance was not provided to any research project as no such request was received.
ix.	To provide technical and other assistance to zoos for their proper management and development on scientific lines;	MoEF&CC has allocated an amount of Rs. 11.00 Crores during the reporting period out of which CZA has received an amount of Rs. 5.75 Crores. The same has been utilized and released to the zoos/ organization for approved works and also include establishment expenditure.
x.	To perform such other functions as may be necessary to carry out the purposes of this Act with regard to zoos.	Other than above the CZA has convened 1 meeting of the Central Zoo Authority, 4 meetings of the Technical Committee of CZA & 11 Meetings of Expert Group on Zoo Designing, CZA to finalize the various Technical and Administrative issues. The Meeting of Administrative Committee could not be convened.

Important activities undertaken during the reference period (i.e., 1/1/2021-31/12/2021)

- The Central Zoo Authority is celebrating "Azadi ka Amrit Mahotsav", Commemoration of 75 Years of India's Independence by a unique initiative "Conservation to Co-existence: The people connect" with selected #75zoos

for #75weeks of #75 native captive animal species for maximum awareness and outreach to the masses.

- 8 Capacity Building Programme (In-person, hybrid mode and virtually) were organized for Indian zoo professionals.
- CZA Prani Mitra Awards for recognition of exceptional contribution of Indian zoo





professionals were awarded under Best Zoo Director/ Curator, Zoo Vet, Biologist and animal keeper category.

- The CZA, as part of its efforts to achieve transparency, better access, ease of operation, promote paperless functioning and enhanced utility of data in performance of functions assigned under Section 38-C of the Wild Life (Protection) Act, 1972, developed a web application titled “Zoo Management Information System (ZOO-

MIS)”, for the benefit of all stakeholders.

- 13 Publications were published during the reporting period which also includes “Guidelines for COVID-19 Investigation in Captive Wild Animals”.

Progress/Achievements both cumulative and for the reference period including innovations

During the reporting period, 3 in-person capacity building programme, 4 in hybrid mode and 1 virtual workshop was organized. The details are tabulated below:

Topic	Date of organization	Participation	Participants benefitted	Theme
National Zoo Keeper Training Programme on Captive Management of Reptiles in Indian Zoos	March 15-17, 2021	Zoo keepers from all over country	85 (Hybrid Mode)	Management of Reptiles in captivity
Regional Zoo Keeper Training Programme at Bilaspur, Chhattisgarh	February 9-12, 2021	Zoo Keeper from East Region	29 (hybrid mode)	Scientific Management of zoos
Regional Zoo Keeper Training Programme at Ahmedabad, Gujarat	February 14-18, 2021	Zoo Keeper from West Region	30 (hybrid mode)	Scientific Management of zoos
Technical Workshop on the CZA coordinated Vulture Conservation Breeding Programme	September 20-21, 2021	Zoo Director, Veterinarian and Biologist	22	Conservation Breeding & Management of the Vulture
National Conference of Zoo Directors and Veterinarian at Kevadia, Gujarat	October 10-11, 2021	Zoo Director & Veterinarian	103	Scientific Management of zoos and road ahead
Regional Zoo Keeper Training Programme at Bhubaneswar, Odisha	November 24-26, 2021	Zoo Keeper from East Region	21 (Hybrid mode)	Management of Reptiles in captivity
Regional Zoo Keeper Training Programme at Guwahati, Assam	December 1-3, 2021	Zoo Keeper from North East Region	23	





Topic	Date of organization	Participation	Participants benefitted	Theme
Refresher Training on Wildlife Health Management for Veterinary Professionals	February 22-25, 2021	Veterinarian from zoos and protected area	102 (Virtual Mode)	Veterinary health care Management

MEAs, Agreement with countries, international organizations, compliance.

Indira Gandhi Zoological Park, Visakhapatnam with Parco Natura Viva, Italy

Details: The main objective of this sister zoo collaboration is to promote technology transfer, knowledge exchange and capacity strengthening through mutually agreed terms between the zoos thereby maximizing the gains in animal conservation and sustainable economic development.

Promulgation of new Acts/ Rules, if any, along with the details along with major amendments/deletions.

S. No.	Policy Review	Details
1	Zoo as Forestry Activity	Proposal to consider zoos as a forestry activity for the purpose of Compensatory Afforestation Fund Rules 2018.
2	Revision of zoo recognition rules and renewal fee	Proposal of revision of zoo establishment, recognition and renewal of recognition fee by amending Rule 4 of the RZR, 2009 with provision of review the same after 2 years interval.
3	Formulation of minimum housing guidelines for Rhesus Macaque and Bonnet Macaque in rescue centres.	Overall objective to develop minimum dimensions for off-display enclosures and arrive at stocking density/ carrying capacity for housing of Macaques (Macaca sp.) in long-term care facility and rescue centres.
4	Guidelines on recommended stocking density/carrying capacity of crocodilian species in Indian zoos.	Revised recommended stocking density/carrying capacity of crocodilian species in Indian zoos and rescue centres.

List of major publications

1. Ex-Situ Updates – Double Edition.
2. Ex-Situ Updates Vol 2 Issue 2.
3. Ex-Situ Updates Vol 2 Issue 3.

Details – Quarterly newsletter styled for outreach to the general reader with the

primary aim to create conservation awareness and outreach.

1. Management Effectiveness Evaluation of Indian Zoos (MEE-ZOO)
2. Standard Operating Procedure for Elephant Endotheliotropic Herpesvirus - Hemorrhagic





- 3. An Introduction to Genetic Resource bank for Wildlife Conservation
- 4. Field guide for rehabilitation of Indian pangolin
- 5. Guidelines for COVID-19 Investigation in Captive Wild Animals
- 6. Guidelines for WASH facility in Zoos
- 7. Vision Plan for Indian Zoos and strengthening of Central Zoo Authority
- 8. Indian Zoo Year Book-2021
- 9. Proceedings of the Technical Workshop for the Central Zoo Authority Coordinated Vulture Conservation Breeding Program

10. Winter Management for Reptiles in Indian Zoos

Details: All the above publications are regarding the management of the zoos on scientific basis covering the related topic including management of Zoo Inmates, COVID-19, Wildlife health care, Conservation Breeding and Hygiene etc.

Challenges in work due to COVID-19: To deal with the challenges of prevailing COVID-19 in the zoo, the CZA has published the “Guidelines for COVID-19 Investigation in Captive Wild Animals”. Various circulars were also circulated among the zoos to scientifically deal with the situation.

Grant-in-aid released to Institutions/organizations including NGOs.

Sl.	Name of Organization	Purpose	Total amount released	Status of third-party evaluation	Remarks
1	Central Zoo Authority	Scientific Management of Zoos	4.75	To be taken up	Total Amount received has been utilized
2		Salary and Operational cost	1.00		



Newly born cubs of Snow leopard at Conservation Breeding Centre, Padmaja Naidu Himalayan Zoological Park, Darjeeling, West Bengal



Asiatic lion at Nawab Ali Saha Zoological Garden Lucknow, Uttar Pradesh





Enrichment for common leopard at National Zoological Park, New Delhi



Sloth bear at Agra Bear Rescue Facility, Agra, Uttar Pradesh

2.15 Project Elephant

Project Elephant (PE) was launched by the Government of India in the year 1991-92 as a Centrally Sponsored Scheme (CSS) with the following objectives:

- To protect elephants, their habitat and corridors
- To address issues of man-elephant conflict
- Welfare of domesticated elephants

The implementation of Project Elephant is through the CSS Plan Scheme with the grant to State Governments on items of recurring expenditure on operational costs under Project Elephant at the rate of 100% of approved cost up to October, 2015 after that funding pattern changed to the ratio of Central: State share to 60:40 and 90:10 for North East and Himalayan states respectively. Presently the Project is being implemented in 22 States/ UTs, viz. Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Kerala, Maharashtra, Meghalaya, Nagaland, Odisha, Tamil Nadu, Tripura, Uttarakhand, Uttar

Pradesh, West Bengal, Rajasthan, Andaman & Nicobar, Bihar, Punjab, Gujarat and Haryana (where an elephant rescue centre has been set up supported by Project Elephant). There are 31 notified Reserve in the country.

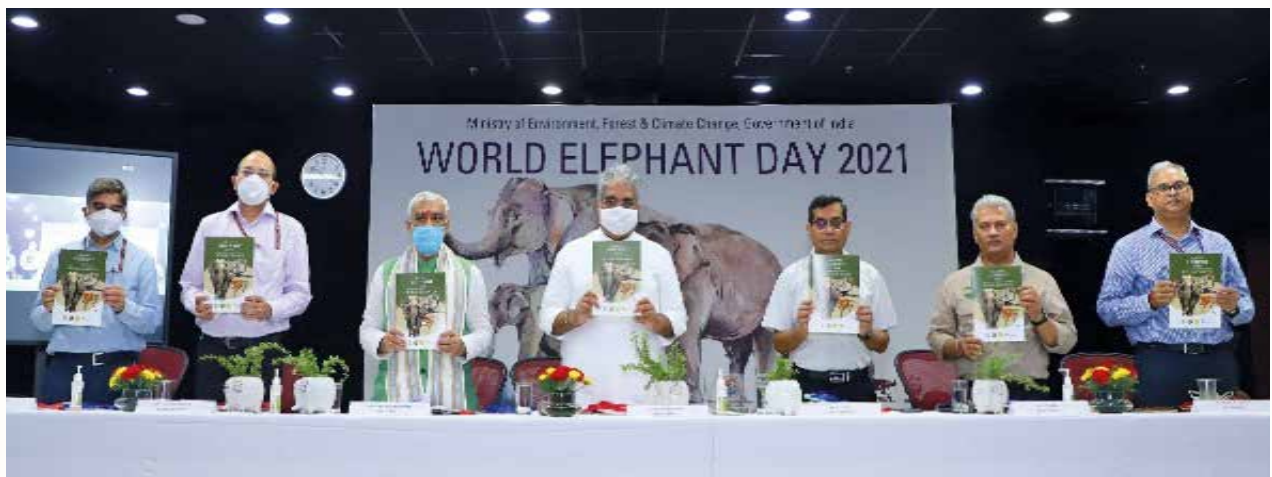
Objectives:

- To conserve and protect viable population of wild elephants in their natural habitats in the Country;
- To conserve and protect and, wherever necessary, to restore natural habitats and traditional corridors/migratory routes or movement paths used by the elephants – through eco-restoration, acquisition etc.;
- To take concrete measures to protect the elephants from poaching and other threats by taking suitable measures like deployment of patrolling squads, intelligence gathering etc;
- To create a viable mechanism to ensure inter-state, regional and national level coordination in protecting and conserving the elephants and its ranges;





- To create infrastructure and other facilities for conservation support activities like veterinary care, management training, humane methods of capture, tranquilizing and translocation etc of wild elephants, as and when required;
- To improve and create infrastructure for the welfare of elephants in domestic use, including their veterinary care, training of mahouts and supervisory staff in proper treatment of elephants in captivity;
- To encourage and create facilities for research related to the management and ecology of elephant, and also with respect to its veterinary care;
- To take appropriate steps to mitigate man-elephant conflict through suitable measures, such as eco-development, public education and awareness programmes, scientific management, ex-gratia payments, deployment of anti-depredation teams etc.
- To take measures for detection and prevention of diseases in wild elephants.



Activities undertaken

1. In the wake of sudden death of seven elephants in Karlapat Wildlife Sanctuary, Kalahandi South Division in Odisha from 1st to 14th February, 2021, a Central Investigation Team constituted by the Project Elephant Division, MoEF&CC visited Odisha between 18th to 22nd February, 2021. Investigation of the site revealed the death of the elephants to have been caused due to Haemorrhagic Septicemia, caused by *Pasteurellamutocida*.
2. The virtual meeting with the Chief Wildlife Wardens of the Elephant Range States regarding, poaching and death of elephants, elephant population estimation and securement of elephant corridors was held on 15th April, 2021 under the Chairmanship of Shri Soumitra Dasgupta, Additional Director General of Forests (Wildlife), MoEF&CC.
3. The virtual meeting with the elephant experts to finalize the approach/ methodology for elephant census was held on 17th June, 2021 under the Chairmanship of Shri Brijendra Swaroop, IGF & Director





- (PE), MoEF&CC. It was decided that WII to submit the detailed methodology on elephant population estimation 2022 to the Ministry.
4. Azadi Ka Amrit Mahotsav was launched across the country beginning March 12 as part of celebrations to mark 75 years of Independence. The Project Elephant Division has conducted following event in order to celebrate Azadi Ka Amrut Mahotsav from 3rd August, 2021 to 12th August, 2021.
 - A Stakeholder workshop on problem management of captive elephants and reviewing of guidelines of captive elephants was held on 3rd August, 2021 through Video Conferencing. The webinar was focused on revisiting the Guideline issued by the Ministry in 2008 on “Care and management of captive elephants.
 - A painting Competition organised by Project Elephant Division in collaboration with National Museum of Natural History organised on 5th August, 2021
 - 6th August, 2021 Essay writing competition of college students organised with WWF-India
 - 7th August, 2021 Film shows for children organised in collaboration Wildlife Trust of India.
 - 9th August, 2021 Workshop on role of technology in mitigation of human-elephant conflict
 - A webinar on elephant conservation vis-à-vis ecological security of the country was conducted on 10th August, 2021. Participants from various states were participated in the webinar.
 5. World Elephant Day 2021 was celebrated on 12th August 2021. The event was organized with the esteemed presence of Shri Bhupender Yadav, Hon’ble Minister EF&CC, Shri Ashwini Kumar Choubey, Hon’ble MoS, EF&CC, Shri Subhash Chandra, DGF&SS, MoEF&CC; Dr. S. P. Yadav, ADG (NTCA), Shri Ramesh Kumar Pandey, IGF & Director Project Elephant, MoEF&CC and other senior officers of MoEF&CC. The State Forest Departments, WII and other stake holder organizations joined the celebrations on the virtual mode. Shri Bhupendra Yadav, Hon’ble Minister, EF&CC emphasized public participation and local knowledge are necessary tools for elephant conservation and addressing man-animal conflicts. There is a need to identify areas where man-animal conflicts exist and visit local areas while framing a policy to address these issues.
 6. Intelligence during cyber patrolling reveals the emergence of digital middlemen working between buyer and seller for trade in ivory. Addressing these concerns, a meeting was organized with all elephant range states on 02.09.2021 to discuss various issues related to conservation and management. Intelligence during cyber patrolling reveals the emergence of digital middlemen working between





buyer and seller for trade in ivory. Addressing these concerns, a meeting was organized with all elephant range states on 02.09.2021 to discuss various issues related to conservation and management of elephants.

7. Regional workshops for identification and ground-truthing of elephant corridors have been conducted under the Chairmanship of Shri Ramesh K Pandey, IGF & Director, Project Elephant in the Northern, North-eastern, East Central and Southern region from 1st October to 18th October, 2021.
8. A virtual meeting on the Elephant trade Information System (ETIS) and Monitoring Illegal Killing of Elephants (MIKE) was held on 5th October 2021 under the chairmanship of Shri Ramesh K Pandey, IGF & Director, Project Elephant. The meeting was focused on elephant conservation issues including HEC, crimes and trade related to elephants.
9. Government of Chhattisgarh has declared Lemru Elephant Reserve with the approval of Government of India on 7th October, 2021. The Lemru Elephant Reserve is the 31st Elephant reserve in the country. The Lemru Elephant Reserve is located in Korba, Surguja, Raigarh district of Chhattisgarh and spreads over an area of 199548.00 ha. (1995.48 sq. km.).
10. The Project Elephant divisional and Assam Forest Department has jointly organized an online workshop on “HEC Mitigation: A Holistic Approach from 23rd

to 24th November, 2021. The Workshop was attended by the Hon’ble Minister, Environment & Forest, Assam.

11. The Project Elephant division and Elephant Cell, Wildlife Institute of India have jointly organized a day Workshop on “capacity enhancement in controlling illegal killing, trade and other crimes on elephants” from 22nd to 23rd November, 2021 at WII, Dehradun. 18 Officers from 14 states have participated in the workshop.
12. The Project Elephant divisional and Elephant Cell, Wildlife Institute of India have jointly organized a two-day Workshop on Capacity building for managing Human Elephant Conflicts in Multiuse landscape. 20 officers from 14 elephant range states have been attended the workshop.

Progress/ Achievements both cumulative and for the reference period including innovations:

- Hon’ble Minister EF & CC had launched the methodology for conducting all India synchronized elephant and tiger population estimation 2022 during World Elephant Day celebration.
- The PE division is the ‘focal point’ under the CITES Management Authority, India dealing the issues related to elephant protection, conservation and data dissemination including illegal trade and crime, and will coordinate with national and international organization such as MIKE i.e. Monitoring the Illegal Killing of Elephants and ETIS i.e. Elephant Trade Information System for this purpose.





Promulgation of new acts/ Rule if any, along with the details:

- Guidelines for care and management of captive elephants issued by the Ministry on 8.01.2008.
- Guidelines for Management of Human Elephant Conflict issued by the Ministry on 6.10.2017.

Continuing committees /commission-

- The Steering Committee of the project Elephant (SC).
- Central Project Elephant Monitoring Committee (CPEMC).
- Captive Elephant Health care and Welfare Committee (CEHWC).



List of major publications:

- Hon’ble Minister EF & CC has released 4th issue of “TRUMPET” quarterly newsletter

Grand in aid released to Intuitions/ Organizations including NGOs:

- A sum of Rs.1.36 Crore released during the year 2020-21 to Wildlife Institute of India, Dehradun for Establishment of Elephant Cell.

2.16 Project Tiger / National Tiger Conservation Authority (NTCA)

The National Tiger Conservation Authority (NTCA) was constituted enabling provisions of the Wildlife (Protection) Act, 1972, as amended in 2006, for strengthening tiger conservation in the country by, inter alia, ensuring normative standards in tiger reserve management, preparation of reserve specific tiger conservation plan, laying down annual/ audit report before Parliament, constituting State level Steering Committees under the Chairmanship of Chief Ministers





and establishment of Tiger Conservation Foundation.

Objectives:

The main objective of NTCA is to ensure maintenance of a viable population of Tigers in India for scientific, economic, aesthetic, cultural and ecological values, and to preserve for all times, areas of biological importance as a national heritage for the benefit, education and enjoyment of the people.

Functions of the NTCA:

The main function of the NTCA is conservation of tigers and their habitat. Further details of powers and functions of NTCA are given under section 380 of the Wildlife (Protection) Act, 1972, as amended in 2006.

Activities undertaken (between 01.04.2021 to 30.11.2021)

- Functioning of Tiger Cell at NTCA headquarters was initiated in April 2021.
- In principle approval for notifying Ramgarh Vishdhari Sanctuary in Rajasthan's Bundi district on June 2021, into the fourth tiger reserve in Rajasthan.
- Approved the proposal of Chhattisgarh govt. to declare the combined areas of Tamor Pingla Wildlife Sanctuary and Guru Ghasidas National Park as 4th Tiger Reserve of Chhattisgarh
- Kumbhalgarh Wildlife Sanctuary, Rajasthan, Madhav National Park, MP and Dibang Wildlife Sanctuary, Arunachal Pradesh assessed as potential tiger reserves
- 5th cycle of All India Tiger Estimation has been initiated from July 2021

- Training workshop of trainers for All India Tiger Estimation 2022 at Mudumalai, Ranthambore, Rajaji and Manas Tiger Reserves.
- During the Celebration of Global Tiger Day-2021 ('Status of Leopards, Co-predators and Megaherbivores-2018' report was released on 29th July 2021
- Also, on the same occasion, National Tiger Conservation Authority (NTCA) released a special edition of its quarterly newsletter 'STRIPES'
- Attainment of Global Conservation Assured|Tiger Standards (CA|TS) accreditation standards by 19 Tiger Reserves in India was also received on Global Tiger Day 2021
- 'India for Tigers-A Rally on Wheels' conducted across 51 Tiger Reserves under the aegis of Azadi ka Amrit Mahotsav- 2nd October to 8th Oct, 2021.

Progress/Achievements

- India for Tigers-A Rally on Wheels traveled across 51 tiger reserves, 18 tiger range states, covering over 7500 km in 7 days and mobilizing over 75000 people PAN India across tiger landscapes
- E- office system adopted in view of COVID-19 pandemic.

Continuing committees/commission -their work

- The inspection of the Committee of Parliament on official language was successfully convened on 5th July 2021
- Expenditure Finance Committee of





umbrella schemes for Integrated Development of Wildlife Habitats (IDWH) was convened and approved. The meeting was coordinated by Project Tiger division.

- Advisory on tourism regulation during COVID-19 pandemic period issued.

Important Conferences organized in India or international conferences-

- NTCA supported the Global Tiger Forum towards organizing a virtual capacity building workshop from 17th-21st August, 2021, for senior officials of some TRCs of South and South East Asia (Bangladesh, Bhutan, Malaysia and Nepal). Apart from sharing of best practices and field

experiences, the workshop aimed towards strengthening south-south cooperation and better understanding of on-ground and region-specific solutions to conservation issues.

MEAs, Agreement with countries, international organizations, compliance.

- Virtual meeting regarding the technical collaboration with Land of the Leopard National Park (LLNP), Russia conducted. Use of Camera Trap Data Repository Analysis Tool (CaTRAT) in Russia, implementation of M-STriPES and formalizing technical collaboration between NTCA and LLNP were the key highlights of the meet.



Global Tiger Day 2021

List of major publications brought out- brief purpose of each, wherever necessary

- Release of 'Status of Leopards, Co-predators and Megaherbivores-2018' report. The report assesses the status of leopards from camera trap data and

occupancy surveys conducted in 2018-19 across 20 States of India where tigers occur. The overall leopard population in tiger range landscape of India in 2018 was estimated at 12,852 (SE range 12,172 - 13,535).





Challenges in work due to COVID and the response of the Division

- By taking cognizance of COVID-19 situation, the Government of India classified forest and wildlife protection under ‘essential services’ during the lockdown. NTCA acknowledged extraordinary contribution of forest frontline workers towards the conservation of tigers and felicitated them as ‘Bagh Rakshaks’.
- Synchronized foot patrolling conducted in all 51 tiger reserves for protection of forests and wildlife during COVID-19
- Despite several reports of wild animals getting infected due to COVID-19 pandemic, proactive measures were undertaken by NTCA to stop tourism and observe COVID-19 appropriate behavior in tiger reserves

Grant-in-aid released to Institutions/ organizations including NGOs.

S. No.	Name of Organization	Purpose	Total Amount Released (Rs. in crore)	Status of third-party evaluation	Remarks
1	Project Tiger Div.	Funds released to 51 Tiger Reserves for management of tiger reserves and Kuno National Park, MP for Cheetah introduction	Rs. 85.39 (as of 01.11.2021)	NITI Aayog has evaluated the CSS-Project Tiger through third party agency “KPMG Advisory Services Pvt Ltd”	



India for Tigers-A Rally on Wheels celebration





2.17 National Plan for Conservation of Aquatic Eco-systems (NPCA)

The Wetlands Division of MoEF&CC looks after matters relating to the conservation and wise use of wetlands. The Ministry is currently implementing a CSS namely, National Plan for Conservation of Aquatic Eco-systems (NPCA) for conservation and management of identified wetlands in the country on cost sharing basis between Central Government and respective State/ UT Governments (60:40 percentage sharing between Central Govt. and State Govt., 90:10 percentage sharing between Central Govt. and North Eastern States and 100% Central Govt. funded for Union Territories).

The scheme aims at holistic conservation and restoration of wetlands for achieving the desired water quality enhancement, besides improvement in biodiversity and covers various activities such as interception, diversion and treatment of wastewater, shoreline protection, lake front development, in-situ cleaning i.e. de-silting & de-weeding, stormwater management, bioremediation, catchment area treatment, lake beautification, survey & demarcation, bio-fencing, fisheries development, weed control, biodiversity conservation, education and awareness creation, community participation. As on 31.03.2021, financial assistance (as central share) was released to the States/ UTs for conservation and management of 160 wetlands under the scheme of NPCA.

A total of Rs. 20.26 crore has been released for conservation and management of 12 wetlands in seven states and one externally aided project during 01.01.2021 – 17.11.2021 (Annexure-1)

The World Wetlands Day was celebrated on 2nd February, 2021 virtually with minimum physical presence in Indira Paryavaran Bhawan, New Delhi. The event was chaired by Hon'ble Minister of State (EF&CC). Virtually, the event was attended by Senior Officials of Ministry, State Wetland Authorities, Knowledge Partners and other Guests. The event was also screened live at the Ministry's official YouTube Channel (https://www.youtube.com/watch?v=46_fcMDIE6U) and was thus attended by other guests as well. During the event, inter-alia, the Hon'ble MoS released a book on Faunal Diversity in Ramsar wetlands of India and a brochure on Designating and Managing Ramsar sites.

Six wetlands in Goa were notified in September, 2021 under the Wetlands (Conservation and Management) Rules, 2017.

The number of Ramsar sites (Wetlands of International Importance) in India have increased to 47 covering an area of 10,90,230 hectares which include five new sites designated in 2021 i.e. Wadhvana Wetland and Thol Lake Wildlife Sanctuary in Gujarat, Sultanpur National Park and Bhindawas Wildlife Sanctuary in Haryana and Haiderpur wetland in U.P. India has the largest number of Ramsar sites in South Asia.

As part of "Azadi ka Amrit Mahotsava (AKAM)" launched by the Hon'ble Prime Minister of India to commemorate the 75 years of Indian Independence, weekly activities are being conducted at various wetland sites over the course of 75 weeks i.e., from 12th March, 2021 to 15th August, 2022. The States/ UTs





are undertaking the listed activities as per the schedule laid down with technical support from Knowledge Partners and able assistance of Eco-Clubs.

During the Iconic Week of AKAM for MoEF&CC from 4th Oct to 10th Oct, 2021, States and UTs were guided by the Ministry to formalise the Wetland Mitra registration and all the necessary support for this activity like the pledge, logos, meeting agenda, 'Wetland Ambassador' etc. Technical and financial support was provided to all Ramsar sites and other significant wetlands (75 wetlands in total) for stakeholder awareness programs, installation of informative site-specific signage prepared by the Ministry etc. Of the reports received from the states till date, over 6000 people took pledge to conserve wetlands and more than 3000 people registered as wetland mitras with the State/ UT Wetland Authorities during the Iconic Week. More than 12,500 people (a mix of locals, educators, students, administrators, foresters, NGOs etc.)

participated in more than 250 physical and/ or virtual activities.

A dedicated web portal for wetlands to host the digital inventory and other relevant information from the State and UT Wetland Authorities has been developed and launched on 02.10.2021. The "Wetlands of India Portal", <https://indianwetlands.in/> is a publicly available information and knowledge platform in order to facilitate knowledge sharing, information dissemination, host capacity building material, and provide a single-point access data repository. One of the primary features of the portal is the Management Information System (MIS) login for each and every State/ UT wherein information pertaining to the wetlands in their administration needs to be uploaded. The portal is being enriched as a one-stop destination for all wetland related information that may be useful for wetland authorities and site managers, administrators, decision-makers and also students and citizens.

Annexure-1

Amount released during 1-1-2021 to 31-03-2021

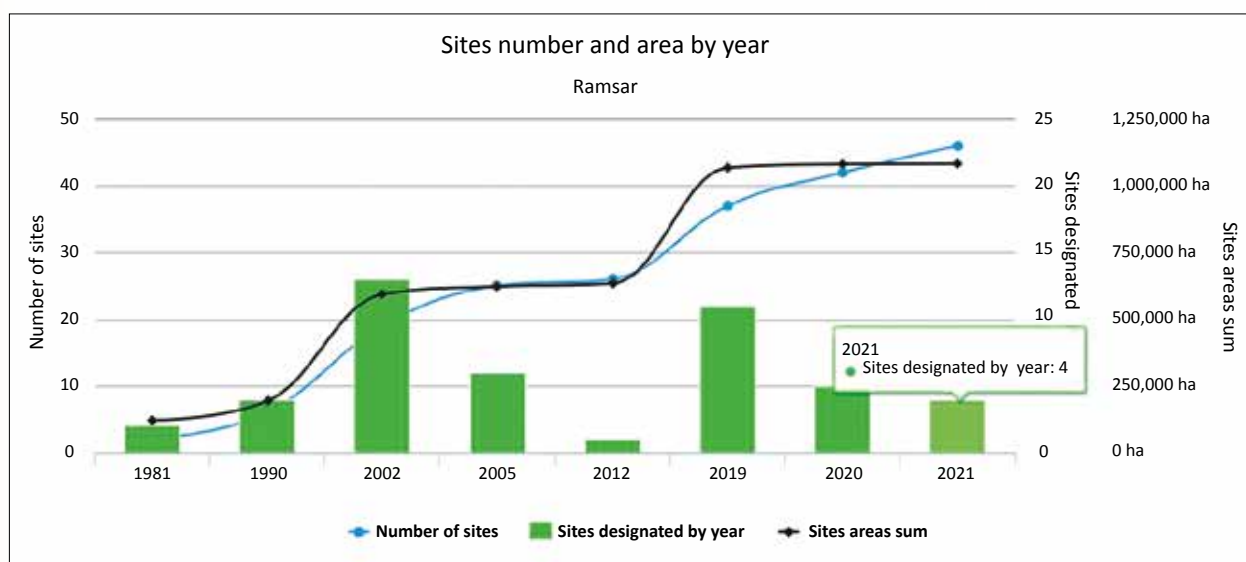
S. No.	Name of Wetland	State	Amt. in Rs. lakh	Sanction No.	Date of sanction
1.	Sita Sagar	MP	400.00	J-22012/39/2020-CS (W)	27.01.2021
2.	Chilika	Odisha	470.10	J-22012/2/86-CS (W) –Pt-V	08.03.2021
3.	Lakh Bahosi	UP	36.918	W-6/4/2021-WTL	24.03.2021
4.	Sandi	UP	35.844	W-6/3/2021-WTL	24.03.2021
5.	Nawabganj	UP	21.996	W-6/3/2021-WTL	25.03.2021
6.	Tamdil	Mizoram	202.95	22012/02/2002-CS(W)	30.03.2021
7.	Utra Pat	Manipur	110.9473	W-6/1/2021-WTL	31.03.2021
8.	Twin lake	Nagaland	50.00	J-16011/3/2007-NRCD Pt.file	18.01.2021
9.	Pala (Palak) wetland	Mizoram	75.3525	J-22012/3/2002-CS (W)	30.03.2021
Total			1404.1078		





Amount released during 1-4-2021 to 30-11-2021

S. No.	Name of Wetland/ Project	State/I.A.	Amt. in Rs lakh	Sanction No	Date of sanction
1	Utra Pat	Manipur	381.015	W-6/1/2021-WTL	18.05.2021
2	Samaspur	UP	36.534	W-6/6/2021-WTL	25.06.2021
3	Tembao	Sikkim	40.408	J-22012/07/2019-W-CS)	23.07.2021
4	Ansupa	Odisha	165.00	J-22012/48/2007-CS (W)	15.11.2021
Total			622.957		



Source:rsis Ramsar.org

Number of Ramsar Sites designated in 2021: 4, Area added: 1883.52 hectares

Number of Ramsar Sites: 46 (Third highest in Asia, Highest in South Asia)

Highlights of Iconic Week - AKAM (from reports received till date):

- **6602** people took the pledge to conserve wetlands
- The signages highlighting the values and threats of each wetland installed at **75 significant wetlands** including 46 Ramsar Sites.
- **3244** registered as wetland mitras with the Wetland Authorities
- **38** Ramsar Sites have reported installation of a standardised Ramsar Info Board
- **48** wetlands have reported installation of a factsheet board describing values and threats of the wetland
- More than 12,500 people (a mix of locals, educators, students, administrators, foresters, NGOs etc.) participated in more than 250 physical and/or virtual activities as with State Wetland Authorities
- Wetlands of India Portal launched





Hon'ble Minister launches Wetlands of India Portal



Hon'ble Minister leads the Wetland pledge at Wular Lake, J&K





Snippets from the Iconic Week Activities of Wetlands





CHAPTER

03

Environmental Impact Assessment





3.1 Environmental Impact Assessment

EIA is a planning tool to integrate environmental concerns into the developmental process from the initial stage of planning. It was first used in India as early as 1978 with river valley projects, and was subsequently extended to large public sector projects requiring Public Investment Board (PIB) clearance. These practices were formally codified for the first time in the EIA Notification, 1994, which came into effect from 27th January, 1994. The above notification made the requirement of environmental clearance mandatory for 37 categories of projects/ processes, listed therein. The criterion of investment was the basis for the projects requiring environmental clearance in different sectors. Ministry has issued the Coastal Regulation Zone (CRZ) Notification, 2011 in supersession of CRZ Notification, 1991 after a series of consultations with the various stakeholders including the fishermen community. The objective of the 2011 Notification is to ensure livelihood security to fishing and other local communities living in coastal areas, to conserve/ protect coastal stretches and to promote development based on sustainable scientific principles.

EIA Notification, 2006 and CRZ Notification, 2011 have been amended from time to time to further streamline the clearance process. The amendments have also been done to address emerging concerns stemming from the need to integrate environmental concerns into the developmental process for achieving the goal of sustainable development. While according EC to development project(s), necessary

conditions, environmental safeguard and measures are stipulated for their effective implementation during the construction and operation of the project. The safeguard measures are intended to minimize adverse impacts, inter alia, on (i) air quality, (ii) water quality, (iii) land degradation, (iv) bio-diversity, and (v) wildlife habitat. In addition, measures like rainwater harvesting, water conservation, greenbelt and plantation; wildlife conservation plan, etc. are also required to be implemented in the project.

Environmental Clearance to Developmental Projects

As per the provisions of the EIA Notification 2006, several meetings of various sectoral Expert Appraisal Committees were convened during the year for appraisal of category “A” projects from sectors of Industry, Thermal, River valley and Hydroelectric Projects, Coal Mining, Non-Coal Mining, Infrastructure, Construction & CRZ and Nuclear, Defence and related Projects. As part of appraisal process, wherever required, the Expert Appraisal Committees also visited project sites for obtaining first-hand information about the ground level realities and response of people/ stakeholders living in the vicinity. Environmental Clearance (EC) has been accorded to 527 projects (between 1st January, 2021 to till date i.e., 29th December, 2021). The sector-wise environmental clearances issued to projects by the Ministry during the year 2021 (upto December 29, 2021) is given in Fig.1 while the graphical representation of EC granted for category ‘A’ projects in current financial year and last 4 years is depicted in the Fig.2.



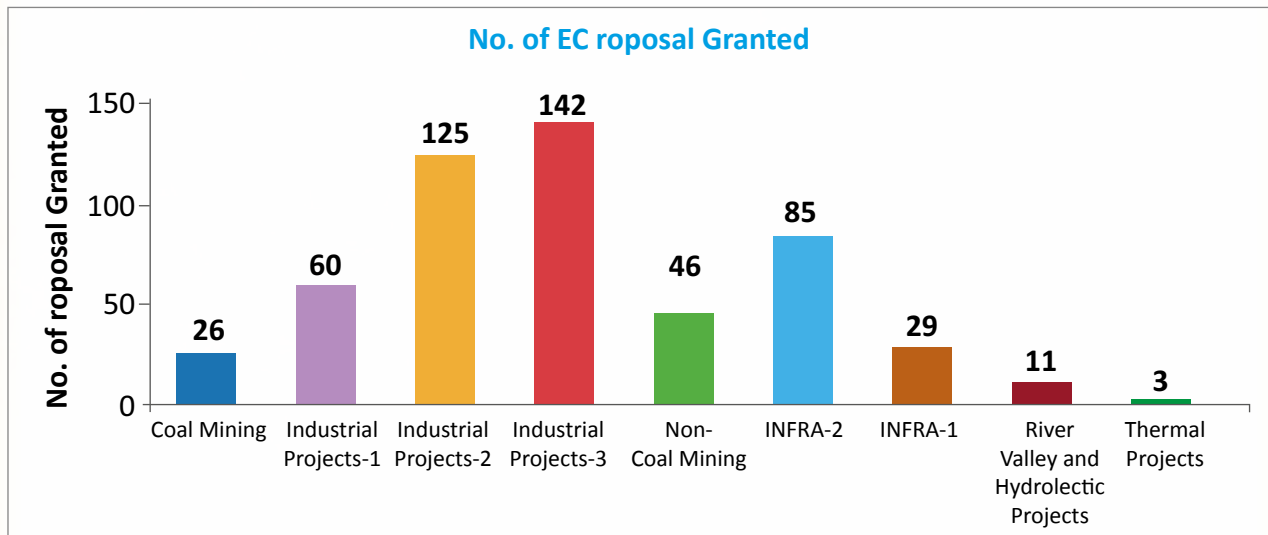


Fig. 1- Environment Clearances granted (1st January, 2021 to 29th December, 2021) Total- 527

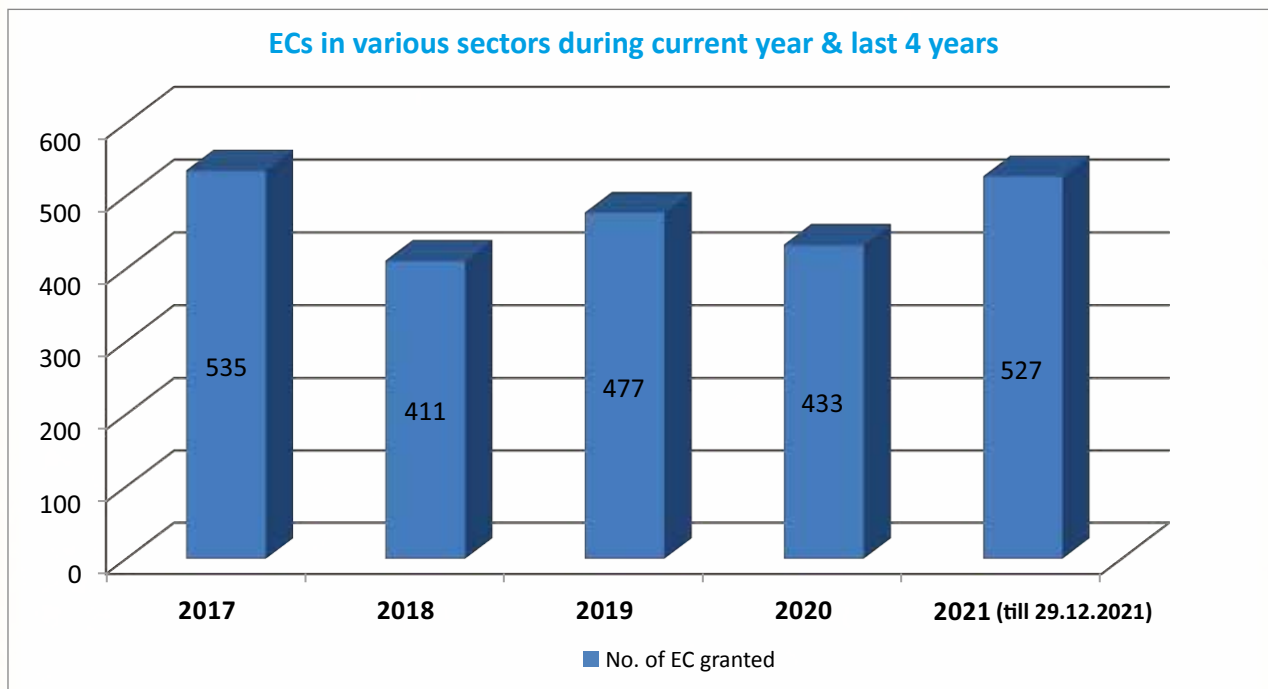


Fig. 2- Environment Clearances granted in various sectors during current year and last 4 years

Constitution of State Environment Impact Assessment Authorities (SEIAA)

As on date, the Ministry has constituted thirty-four State/ UT level Environment Impact Assessment Authorities (SEIAA) under sub section (3) of section 3 of the Environment (Protection) Act 1986 for approval of EC of

category B projects and activities which have been appraised by SEACs. Eleven SEIAA/SEAC have been constituted in 2021.

Implementation of Single-Window Integrated Environmental Management System

Pursuant to the spirit of 'Digital India' initiation and capturing the essence of Minimum





Government and Maximum Governance, a Single-Window Integrated Environmental Management System named PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single window Hub) has been developed by the MoEF&CC through NIC. The PARIVESH was launched on 10th August 2018.

The PARIVESH has automated entire process starting from submitting of application, preparation of agenda, preparation of Minutes as well as grant of clearances. It will facilitate sound and informed decision-making, real time information about the status of application with alerts at each of the stages through SMSs and emails, standardization of processing and decision making across the States as well as real time monitoring and compliances. There will be single registration and single signing for all types of clearances (Environment, Forest, Wildlife, CRZ) facilitating sustainable development of the country while keeping the environmental concerns unimpaired.

The phase two of PARIVESH involves online processing of the proposals subsequent to finalization of minutes by the EAC/SEAC and involves approval by the competent authorities (hitherto done on physical files) through the PARIVESH portal. Direction to implement the complete online processing of files at the Central level from 1st July, 2019 has already been issued vide OM no. 22-37 /2018-IA.III dated 1st May, 2019 (may remove). The implementation of PARIVESH has reduced the time taken for granting EC to about 105 days. The PARIVESH has paved a way for constituting the Centralized Processing Center (CPC) in the Ministry and has resulted in a paradigm shift

in the Environmental Clearance process with hallmarks such as transparency, accountability, efficiency, consistency etc.

Post Project Monitoring of Environment Clearance Condition:

Clearances under EIA Notification, 2006 are granted by MoEF&CC for Category 'A' projects and by State Level Impact Assessment Authorities (SEIAAs)/ UT IAAs for Category 'B' projects and District Level Impact Assessment Authority (DEIAA) for mining lease up to 5 ha. Similarly, clearances under CRZ Notification, 2011 are also granted by MoEF&CC or the respective SEIAAs as the case may be after the project has been recommended by the concerned Coastal Zone Management Authority. While granting environmental clearances under both these Notifications, various conditions and environmental safeguards are stipulated which are required to be implemented by the project proponent during various stages of project cycle. The objectives of Post-Project Clearance Monitoring are:

- to ensure that actions have been taken to incorporate the environmental safeguards during the project cycle in accordance with the conditions stipulated in the Environmental Clearance letter; and
 - to take appropriate corrective measures to check adverse impact on environment during operation of the respective projects.
- Monitoring of projects with respect to conditions stipulated in the environmental clearance issued under EIA Notification, 2006 and Coastal Regulation Zone (CRZ), 2011 is carried out through the nineteen Integrated Regional Offices (IROs).





The monitoring report is scrutinized in the Ministry and on that basis appropriate action is contemplated under the Environment (Protection) Act, 1986 for non-compliance of environmental clearance conditions.

Based on the observations made during field visits, necessary follow up action is taken with the project proponents in respect of monitored projects to ensure an effective compliance to EC conditions. The monitoring cell in the Ministry examines the monitoring reports submitted by Regional Offices. In cases of major non-compliance, further follow up action is taken for effecting compliance including issue of show cause notice followed by directions under Environment (Protection) Act, 1986 on case-to-case basis.

Accreditation of the EIA consultants with Quality Council of India (QCI / National Accreditation Board of Education and Training (NABET):

The environmental appraisal of development projects is undertaken as per the provisions of EIA Notification 2006 based on EIA/EMP reports prepared by the project proponents with the assistance of accredited consultants. Good quality EIA reports are a pre-requisite for appropriate decision making. As of now, only consultants accredited with QCI/ NABET are allowed to prepare EIA/EMP reports and present the cases before EACs/SEAC. As on 29.12.2021, there are 182 accredited EIA Consultant Organizations.

Achievements: The following notifications have been issued during the year 2021.

- SO 4790 (E) dated 18th November, 2021 - Draft Notification regarding inclusion of Gas

based power plants within the ICRZ area under the provisions of IPZ Notification 2011.

- SO 4789 (E) dated 18th November, 2021- Draft Notification regarding inclusion of Gas based power plants within the ICRZ area under the provisions of IPZ Notification 2019.
- SO 2859(E) dated 16th July, 2021 regarding the extension of time for appraisal of proposals or activities in respect of Active Pharmaceuticals Ingredients (API) as Category "B2 "projects.
- SO 2817 (E) dated 13th July, 2021 regarding the deemed transfer of Environment Clearance in case of mining leases.
- GSR 443 (E) dated 25th June, 2021 regarding amendment in Rule 3 of Environment Protection Rules, 1986 relating to Coal washeries.
- SO 2339 (E) dated 16th June, 2021 regarding Environment clearance to projects relating to manufacturing ethanol by grain based distilleries with ZLD to be used for Ethanol Blending Programme.
- SO 1247 (E) dated 18th March, 2021 regarding exemption of public hearing for projects where construction and commissioning of proposed activities have not been completed within the validity period of EC.
- SO 980 (E) dated 2nd March, 2021 regarding amendment in the EIA Notification 2006 relating to permission to increase in production capacity without EC in case no increase in pollution load.





- SO 221(E) dated 18th January, 2021 regarding extension of validity of TOR and prior EC in view of COVID 19 pandemic.

Implementing organizations along with details of responsibilities: The State Level Environment Impact Assessment Authorities (SEIAAs) have been constituted under the Environment (Protection) Act 1986 to appraise and accord environmental clearance to the projects/ activities requiring prior environment clearance, which have been categorized Category 'B' projects in the schedule under the EIA Notification 2006.

3.2 Coastal Regulation Zone (CRZ)

With the prime objective of ensuring livelihood security to fishing and other local communities living in coastal areas, and to conserve/ protect coastal stretches while also promoting development based on scientific principles, the CRZ Notification was issued vide S.O. 114(E), dated 19.02.1991. This notification

was superseded by the CRZ Notification, 2011 and issued vide S.O. 19(E), dated 06.01.2011. The notification covers categorization of CRZ areas, permissible and prohibited activities, regulation of permissible activities in CRZ areas, procedure for clearance, preparation of Coastal Zone Management Plans, mapping and areas requiring special consideration etc. The notification was amended from time to time based on representations received from the coastal state Governments, Union Territory administrations and other stakeholders, and a need was felt overtime to undertake a comprehensive revision of the notification. The MoEF&CC had accordingly constituted Committee in June 2014 under the Chairmanship of Dr. Shailesh Nayak (Secretary, Ministry of Earth Sciences) to examine the various issues and concerns of Coastal States/ UTs and other stakeholders for recommending appropriate changes in the CRZ Notification, 2011.



Fig. CRZ Classification as per 2011 Notification

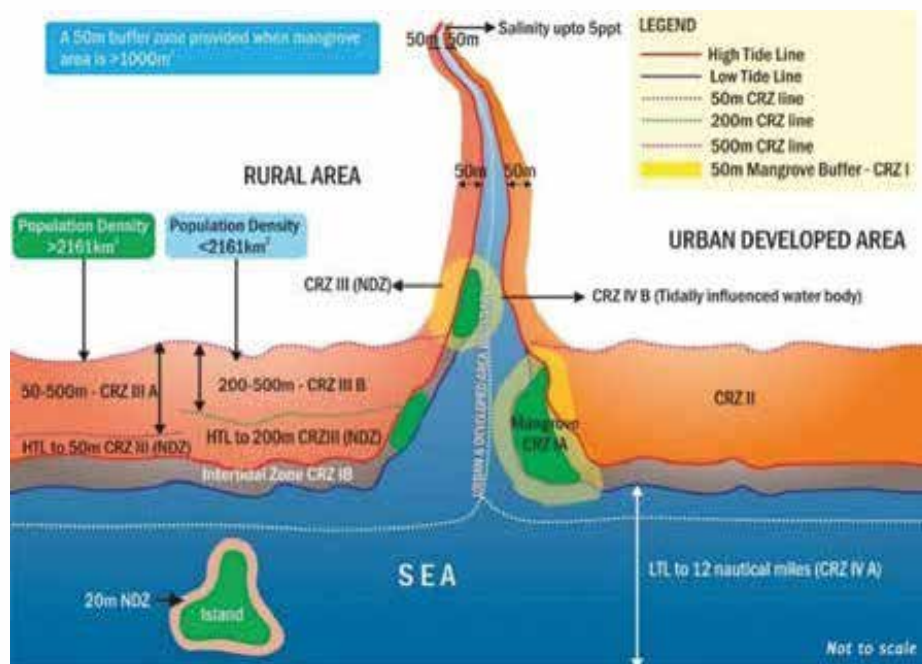




The Shailesh Nayak Committee held wide ranging consultations with State Governments and other stakeholders and submitted its recommendations in 2015. The recommendations were further examined in consultation with Members of Parliament of Coastal States and Union Territories besides other concerned Ministries of Government of India and a draft notification viz. CRZ Notification, 2018 in supersession of CRZ Notification, 2011 was issued in April, 2018 for inviting comments from public at large. A number of suggestions and comments were received by the Central Government and based on overall imperative of sustainable development of coastal areas and need for conserving the coastal environment, the Union Cabinet has approved the new Coastal Regulation Zone Notification on 31.12.2018 and finally issued vide G.S.R 37(E), dated 18.01.2019. This new CRZ Notification is

expected to go a long way in meeting the aspirations of coastal communities besides ensuring welfare of poor and vulnerable populations. Overall, this new CRZ Notification will result in greater economic growth while conserving the coastal eco-systems, thereby creating greater livelihood opportunities and better quality of life of coastal communities.

The new CRZ Notification, 2019 issued vide G.S.R 37(E), dated 18.01.2019, will however become effective only after the Coastal Zone Management Plans (CZMPs) of the respective coastal states that are aligned and updated based on the provisions of the new notification. To this effect the MoEF&CC have issued a 'Guidelines for updation of Coastal Zone Management Plan prepared as per CRZ Notification, 2011 to align it with CRZ Notification, 2019' to all coastal states for immediate action.



CRZ Classification as per 2019 Notification
(To be effective once revised/updated CZMPs are approved)





Island Regulations: The islands located along the mainland (offshore and inshore within tidally influenced water bodies) are covered under the Coastal Zone Regulation (CRZ) regulations, whereas Andaman and Nicobar and Lakshadweep group of islands are covered under the Island Protection Zone (IPZ) Notification, 2011, issued on 6th January 2011 under the Environment (Protection) Act, 1986. Akin to CRZ Notification, the Island Coastal Regulation Zone (ICRZ) Notification, 2019 was issued in supersession of IPZ Notification, 2011 vide S.O.1242 (E), dated 08.03.2019. This new notification will however become effective only after the ICRZ/ IIMPs of the islands are revised and updated as per the provision of the new notification.

Progress/Achievements

- Total of 27 CRZ clearance are issued by this Ministry for various developmental activities/projects permissible in the CRZ areas.
- CZMP of Odisha State as per CRZ Notification, 2019 was approved on 01.06.2021.
- Island Coastal Regulation zone plan of Great Nicobar as per ICRZ Notification, 2019 was approved on 01-06.2021.
- CZMP of Mumbai and Mumbai sub-urban as per CRZ Notification, 2019 was approved in October, 2021
- Notification S.O.2239€ dated 9th June, 2021 was issued regarding inclusion of National Institute of Ocean Technology (NIOT) for identifying sites for mining of sand under the provisions of the ICRZ Notification, 2019.
- Notification S.O.2353 (E) dated 17th June, 2021 was issued for constitution of Karnataka Coastal Zone Management Authority.
- Notification S.O.3794 (E) dated 15th September, 2021 was issued for constitution of Tamil Nadu Coastal Zone Management Authority.
- Notification S.O.3460 (E) dated 23rd August, 2021 was issued for constitution of Odisha Coastal Zone Management Authority.
- Notification S.O.3688 (E) dated 10th September, 2021 was issued for constitution of Lakshadweep Coastal Zone Management Authority.
- Draft Notification S.O.4547 (E) dated 1st November, 2021 was issued for seeking public comment regarding amendment in CRZ Notification 2019.
- Draft Notification S.O.4789 (E) dated 18th November, 2021 was issued for seeking public comment regarding amendment in CRZ Notification 2019.
- Draft Notification S.O.4790 (E) dated 18th November, 2021 was issued for seeking public comment regarding amendment in IPZ Notification 2019.
- Reconstitution of Puducherry Coastal Zone Management Authority has been approved and under final stage of publication.
- Reconstitution of Maharashtra Coastal Zone Management Authority has been approved and under final stage of publication.
- Amendment in CRZ Notification 2019





regarding restricting demarcation of High Tide Line (HTL) in Khazan Land to the bund/ sluice gate, collection of dead shells by traditional communities in CRZ areas and delineation of HTL and CRZ categories in the Sundarbans Biosphere Reserve has been approved and under final stage of publication.

3.3 Society of Integrated Coastal Management (SICOM)

Society of Integrated Coastal Management (SICOM) has been established under the aegis of the Ministry of Environment, Forests and Climate Change, Government of India with a vision for vibrant, healthy and resilient coastal and marine environment for sustainable development and use of coastal and marine resources for sustainable outflow of benefits to the country and the coastal communities.

Objectives

- To implement the ICZM practices; recommendation of Public Account Committee on Tsunami Relief and Rehabilitation (2009-2010); to address the International Commitments, build the capacity in the areas of Coastal Zone, to explore the Blue Economy through ICZM/ Marine Spatial Planning and overall National Coastal Mission.

Functions

- Nodal agency for Strategic planning, execution, monitoring and successful implementation of National Coastal Management Programme in territorial water (upto 12NM) and Coastal Zone, Marine Spatial Planning/National Coastal Mission/ Blue Economy etc.

- An interface to various ministries of Govt. of India and the State/ UT Govts and various line departments and Multilateral Institutions for Coastal Zone Management, activities, projects, and initiatives.
- Sustainable development of coastal regions (beaches), a first in India under Beach Environment & Aesthetic Management Services (BEAMS) for development of Coastal Regions at par with international standard
- Capacity building of Coastal State Units in planning, implementation and management of Integrated Coastal Zone Management programs and other national and State organization/ agencies associated with the project.
- Serve as an interface among coastal communities, experts, and governments for disseminating examples of best practices and guidelines for coastal and marine ecology and livelihood security of coastal and island communities.

Important activities undertaken during the reference period (i.e., 01/01/2021-31/12/2021) including celebrations for Azadi ka Amrit Mahotsav

- 10 beaches of India were accorded Global eco-label BLUE FLAG to beaches namely, Shivrajpur (Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka); Kappad (Kerala); Kovalam (Tamil Nadu); Eden (Puducherry); Rushikonda (Andhra Pradesh), Golden (Odisha) and Radhanagar (Andaman & Nicobar Islands).





- Azadi Ka Amrit Mahotsav (AKAM) to commemorate 75 years of progressive India, campaign organized on Environment Education at 10 Blue Flag beaches from 4th– 10th October, 2021 as an iconic week.
- Environment Education Events on 10 Blue Flag beaches to create awareness
- Preparatory activities carried out for sustainable development of coastal region in Lakshadweep, Odisha & Karnataka
- Preparation of draft MSP framework for Blue Economy
- Preparatory activities undertaken for the upcoming World Bank assisted ENCORE Project for sustainable development of 13 Coastal States/ UTs.
- Preparation of proposal for National Coastal Mission.

Progress/Achievements both cumulative and for the reference period including innovations.

- a. Phase-I of ICZM Project of Rs.1740 Cr under National Coastal management programme (Project area Gujarat, Odisha, West Bengal

besides National component).

- b. AKAM in 9 States/ UTs successfully held (photographs given as Annexure I to this chapter)
- c. Designed, developed and implemented Integrated Coastal Zone Management programme at 10 beaches of India and accorded Global eco-label BLUE FLAG

In progress:

- a. Sustainable development Coastal projects under NCMP of Rs 87.00 Cr for the FY 2021-22 to FY 2025-26.
- b. Preparation of MSP/ ICZM to support Blue economy in territorial water upto 12 nm
- c. Preparation of framework document for National Coastal Mission

Upcoming Project:

- a. The World Bank assisted ENCORE project for all 13 Coastal States/UTs of Rs 2400 Crores for period FY 2021-22 to 2025-26

➤ **Achievements:**

- a. Key achievements of ICZMP Phase-I are as under:

Project(s)	Location	Derived Benefits
ICZM Plans	Gujarat, Odisha, West Bengal	700 kms of coastline interventions protection and management for protection and management.
Establishment of NCSCM	Chennai, Tamil Nadu	Development of modern scientific institute in the areas of coastal research
Mapping - ESA, HTL, Hazard line	All 13 States	More informed decision making for coastal zone development.
DBOT based underground system	Jamnagar City Digha	Prevention from sewage discharge into sea (76 MLD). Zero sewage in coastal wasters to save the coastal ecosystem.





Project(s)	Location	Derived Benefits
Establishment of Data Centre	Delhi, Bangalore, Chennai	Collection, collation and dissemination of Coastal data
BEAMS Programme	Gujarat, Diu, Karnataka, Kerala, Tamil Nadu, Puducherry, Andhra Pradesh, Odisha, Andaman and Nicobar.	<ul style="list-style-type: none"> • 209MW Solar power generated • 22787 tonnes reduction in CO2 emission by solar power • Cleanliness levels from “C’ Category (Poor) to “A++ Category (Outstanding) • Reduction in marine litter by 80% to 85% from previous levels. • Conversion/ Disposal of 750 tons of marine litter • 10 kms of coastal stretch seeing revived species of coastal biodiversity • Employment to 5000 households of coastal villagers. • 100000 sq. meters of revived sand dune, native vegetation/ corals. • 08 to 10 fold increase in income of coastal community. • Saving of 1100 million liters/year of municipality water through recycling/ reuse. • Approx. 125000 beach visitors educated for responsible consumption during beach recreational activities. • 80%-90% increase in tourist footfall. • Cyclic assessment of bathing water quality @10 beaches.
Conservation through 16000 ha. mangroves plantation	Gulf of Kachchh (Gujarat)	<ul style="list-style-type: none"> • An increase of 35 sq. kms. of forest reserve recognised by FSI 2019 • Enhancement of marine ecosystem with 20% increase in biodiversity
Shelterbelt plantation of 1900 ha.		<ul style="list-style-type: none"> • Formation of 157 CBOs, about 600 EDCs/ SHGs for alternate livelihood for local community • Improvement of carbon sequestration in the area • Significant protection from cyclonic winds and soil erosion
Coral transplantation in 1200 sq. mts.		





Project(s)	Location	Derived Benefits
Development of 39 Multipurpose Cyclone Shelters	Odisha, West Bengal	<ul style="list-style-type: none"> Used as a multipurpose cyclone shelter and protecting the life of 1,51,000 vulnerable people during five cyclones and alternately used as schools, Aganwadi, cultural activities, medical emergencies like COVID-19 etc.
Development of Geo Tubes embankment.	Pentha Village, Odisha	<ul style="list-style-type: none"> Protection from Soil erosion (500 m), reduced migration of coastal communities and benefitting 41,222 vulnerable people during climate disaster since Phailin (2013)
100% Electrification of in Sagar Island	West Bengal	<ul style="list-style-type: none"> 30800 APL and 250 BPL service connections provided Prevention of air pollution from DG sets Overall economic development

Challenges in work due to COVID and the response of the Division.

Despite hardship faced due to Covid pandemic, SICOM was able to achieve the feat of re-certification of Blue flag for 8 nominated

beaches and Blue Flag Certification for 2 new beaches this year.

Input, Output and Outcome variables of the program may be specified for the year 2021:

S. No	Name of the Programme	Objective	Input	Brief Output/Outcome
1	National Coastal Management Programme	<ul style="list-style-type: none"> ➤ Conservation, Protection of coastal and marine resources ➤ Pollution abatement measures and management of coastal and marine eco system ➤ Livelihood enhancement/ security of coastal community 	Sustainable development of beaches under BEAMS Programme	<ul style="list-style-type: none"> (i) Scientific collection, recycling/disposal of marine litter (ii) International Standard of cleanliness of the beaches. (iii) Conservation of sand dunes and its vegetation (iv) Protection of coral reefs and under water marine ecosystems (v) Employment for local communities (vi) Exponential increase in tourist footfall. (vii) Assessment of water quality and associated health risks in beaches.





S. No	Name of the Programme	Objective	Input	Brief Output/Outcome
		Research Activities	<ul style="list-style-type: none"> (i) Assessment of coastal erosion and recommendation for suitable interventions- Green Coastal Infrastructure (ii) Restoration of Pulicat lagoon, monitoring lagoon ecosystem health and Lagoon Management Plan (iii) Benthic ecosystem and coastal acidification 	<ul style="list-style-type: none"> (i) Report on High/medium erosion stretches along the east coast of India will be generated. (ii) Health card for the Lagoon ECO system will be prepared (iii) Reports on Health of Coral reefs and associated benthic ecosystem will be prepared

Annexure-I







CHAPTER

04

Abatement of Pollution





4.1 Control of Pollution

Air Pollution

Air quality regulation and actions for abatement of air pollution is undertaken under various provisions of Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986 which prescribes the mechanism and authorities for handling the issue. In order to address air pollution in the country during the year, Ministry has under taken several new initiatives besides strengthening the on-going national-level as well as city-specific activities on air pollution mitigation

Major Government Interventions on Air Pollution Mitigation

1. The Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India has been implementing since 10th January, 2019, a National Clean Air Programme (NCAP) as a national- level strategy outlining the actions for reducing the levels of air pollution at city and regional scales in India.
2. The NCAP targets to achieve 20 to 30% reduction in Particulate Matter concentrations by 2024 (base 2019) across the country. The long term goal of NCAP is to meet the prescribed annual average ambient air quality standards at all locations in the country in a stipulated timeframe. Under NCAP, cities which are exceeding the National Ambient Air Quality Standards (NAAQS) for 5 consecutive years are identified as Non-Attainment cities by CPCB.
3. Rs. 430.45 Crores have been sanctioned under NCAP under which Rs. 406.70

have been released to the cities for initiating actions such as expansion of monitoring network, construction and demolition waste management facilities, non-motorised transport infrastructure, green buffers, mechanical street sweepers, composting units etc.

4. Further, the 15th Finance Commission (XV-FC) has provided a special grant of Rs 4,400 crores to 42 million plus cities/ urban agglomerations for FY 2020-21. The performance based grant of Rs. 12,139 crores for FY 2020-21 to 2025-26 have been allocated for improvement in air quality of 42 million plus cities/urban agglomerations under Million-Plus Cities Challenge Fund (MPCCF). MoEF&CC is the nodal agency for monitoring ambient air quality and recommending disbursing grants to 42 Million –plus cities.
5. NCAP is implemented in targeted 132 cities. The cities covered under NCAP and the 15th Finance Commission are mainly focused for air quality management across the country. 124 cities (NACs) are identified under NCAP and include 34 million plus cities (MPCs)/ urban agglomerations identified by XV-FC. There are 8 other million plus cities covered under XV-FC grant for receiving performance based grant for air quality improvement, which are also covered under the programme.
6. Various committees are constituted to monitor the focused cities at central, State and city level viz. Apex Committee headed by Hon'ble Minister EFCC, Steering Committee headed by Secretary,





MoEF&CC, a Monitoring committee headed by Joint Secretary (CP), MoEF&CC and Implementation Committee under Chairman (CPCB).

7. Under NCAP, MoUs have been framed and shared with NCAP cities, which are to be signed between CPCB, SPCB and ULB, to ensure implementation of city specific targets prescribed in the NCAP guidelines framed by MoEF&CC. This MoU will govern the quantum of funds to be released consequent upon fulfilment of criteria as defined in the NCAP guidelines.
8. As per the 15th Finance Commission guidelines of the Department of Expenditure, a tripartite MoU has to be signed between the MoEF&CC, State government and Urban local bodies for a year wise action plan, agreed outcomes to be achieved as per the operational guidelines of DoE for receiving 15th Finance Commission grants.
9. NCAP focuses on preparation and implementation of national level action plan, state level action plans & city level action plans of the targeted 132 cities. City Action Plans have been rolled out for implementation in 132 identified cities. The coordinated implementation of these plans would help to achieve improvement in air quality in targeted 132 cities as well as in the entire country. The national level plan will include the action plans of different Ministries/ Departments of Government of India. This includes convergence of schemes/ programmes

of different Ministries/ Departments for improving the air quality.

10. To help the States/UTs implement the action plans, this Ministry is collaborating with SPCBs and leading academic institutions in States for which MoUs have been signed under NCAP. The Ministry has designated IIT Kanpur as the nodal academic institution to coordinate with all other IITs/other leading Universities and with States and to ensure collaboration between these institutions/ technical partners & their respective SPCBs for effective implementation of NCAP.
11. Considering air pollution as an important matter not only from an environmental point of view but also for health safety, Hon'ble Prime Minister in his address during 15th August, 2020 had announced to improve air quality in more than 100 cities of the country. Accordingly, efforts are made to prepare strategies and implement actions for reducing air pollution. With this view, National Mission for Clean Air (NMCA) with the motto of 'Clean Air for All' is envisaged. Further, cabinet note and EFC have been prepared for seeking approval of NMCA.
12. MoEF&CC is also conducting regional workshops for sensitization, knowledge sharing and capacity building of the stakeholders in the State. One such workshop was organized for Western region and States of Maharashtra, Gujarat, Madhya Pradesh and Goa were sensitized about the NCAP and XV- FC grant for improvement in air quality.





13. MoEF&CC has also launched “PRANA” a portal for monitoring implementation of NCAP on 7th September 2021. This portal for Regulation of Air pollution in Non-Attainment cities: (PRANA), has been developed for monitoring physical and financial progress of city action plan implementation for improvement of air quality made in 132 identified cities and disseminating the information to public on www.prana.cpcb.gov.in.
14. Source Apportionment & Emission Inventory studies have been completed for 28 cities. Work is in progress in 60 cities and it is at proposal stage in 44 cities.
15. In order to tackle air pollution emergencies, Emergency Response System (ERS) have been developed for 117 cities. It is in progress in 15 cities. Public Grievance Redressal Portal (PGRP) has been prepared for 110 cities. Work for app development is in progress in 22 cities.
- 16 Pilot studies have been taken up in Delhi for evaluation of air pollution mitigation technologies. A pilot Smog tower, intended for localised reduction in air pollution, is being operated from October 01, 2021 onwards at Anand Vihar, ISBT and its performance is being evaluated by IIT Bombay in association with IIT Delhi for a period of 02 years, and decision for future operation/replication will depend on these results.
17. A Commission on Air Quality Management in NCR and Adjoining Areas (CAQM) was constituted through promulgation of an Ordinance on 13th April, 2021 for better

co-ordination, research, identification and resolution of problems surrounding the air quality index and for matters connected therewith or incidental thereto.

18. The CAQM constituted a sub-committee for operationalization of Graded Response Action Plan (GRAP) and issuing necessary orders to the effect, under which regular meetings are held, and Orders are issued under GRAP for mitigation of air pollution in Delhi-NCR. 9 meetings have been convened and 5 Orders have been issued so far.

19. Sectoral interventions to control and minimize air pollution

Government has taken several steps to control and minimize air pollution from various sources in the country, which inter alia include:

A. Vehicular Emission

- Leapfrogging from BS-IV to BS-VI norms for fuel and vehicles since April, 2020.
- Network of metro rails for public transport are enhanced and more cities are covered.
- Development of Expressway and Highways are also reducing the fuel consumption and pollution.
- Eastern Peripheral Expressway & Western Peripheral Expressway has been operationalized to divert non destined traffic from Delhi.
- Ban on 10-year-old diesel vehicles and 15-year-old petrol vehicles in Delhi NCR.





- Environment protection charges (EPC) have been imposed on diesel vehicles with engine capacity of 2000cc and above in Delhi NCR.
- Introduction of cleaner/alternate fuels like CNG, LPG, ethanol blending in petrol.
- Faster Adoption and Manufacturing of Electric Vehicles (FAME) -2 schemes have been rolled out.
- Permit requirement for electric vehicles has been exempted.
- Promotion of public transport and improvements in roads and building of more bridges to ease congestion on roads.

B. Industrial Emission

- Stringent emission norms for Coal based Thermal Power Plants (TPPs).
- Ban on use of PET coke and furnace oil in NCR with restricted use of pet coke in cement plants, lime kilns and calcium carbide manufacturing units.
- Shifting of industrial units to PNG.
- Installation of online continuous emission monitoring devices in highly polluting industries.
- Shifting of brick kilns to zig-zag technology for reduction of pollution

C. Air Pollution due to dust and burning of waste

- Notifications of 6 waste management rules covering solid waste, plastic waste, e-waste, bio- medical waste, C&D waste and hazardous waste.

- Setting up infrastructure such as waste processing plants.
- Extended Producer Responsibility (EPR) for plastic and e-waste management.
- Ban on burning of biomass/garbage.

D. Crop Residue Management

Ministry has convened more than 12 meetings with major Central Ministries and State Government Departments including Chief Minister and Chief Secretaries with following objectives:

- To assess the preparedness to deal with cause of air pollution in ensuing winter season
- To explore the use of Parali as resource in Power plants, fodder and other eco-friendly uses.
- In-situ bio-decomposition of Parali using proven technology and a target set for the year
- Installation and functioning of Centralised Control room at M/o Agriculture for monitoring the crop cutting and ex-situ and in-situ usage / disposal of Parali and to prevent its burning
- Task force to work out mode and means for utilizing the non-basmati Parali in Rajasthan and Gujarat
- Review of preparedness by Thermal Power Plants in NCR region by Ministry of Power
- NTPC and other plants have started using Biomass pellet as supplement to coal fuel





- Procurement of Biomass pellets for NTPC plants and mandatory raw material sourcing of 50% of paddy straw

E. Framework and action plan for effective prevention and control of Stubble Burning which includes:

- In-situ Crop Residue Management-Supported by CRM Scheme of Ministry of Agriculture for the activities – CRM machines procurement, setting up of Custom Hiring Centers, high yield and short duration paddy varieties, staggering of harvesting schedule, extensive use of bio-decomposer by IARI
- Ex-situ Crop Residue Management-Alternative usage of paddy straw viz. Biomass Power Projects, Co-firing in Thermal Power Plants, Feed stock for 2G Ethanol plants, Feed stock in Compressed Biogas plant, fuel in industrial boilers, WTE plants, packaging materials etc.
- Prohibition of stubble / crop residue burning
- Effective monitoring / enforcement
- Schemes to reduce the generation of paddy straw
- IEC activities for the plan of action
- Recording and Monitoring of active fire counts.
- Implementation of a Central Sector Scheme (CSS) on 'Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in

the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi' since 2018 with 100% share.

- Under this CSS financial assistance @ 50% of the cost of machinery is provided to the farmers for purchase of identified crop residue management machinery and financial assistance @ 80% of the project cost is provided to the Cooperative Societies of Farmers, Farmers Producers Organization (FPOs), Registered Farmers Societies and Panchayats for establishment of Custom Hiring Centres (CHCs) of identified crop residue management machinery.
- During the period from 2018-19 to 2021-22, funds amounting to Rs. 2440.07 crores have been released for these States and more than 39000 Custom Hiring Centres have been established and a total of more than 1.95 lakh crop residue management machines have been supplied to these CHCs and individual farmers of these four States.
- During 2020-21, the Government provided subsidy on balers and rakes to facilitate ex-situ management of paddy straw. Total 1395 baler machines have been supplied in Punjab, Haryana and Uttar Pradesh (Punjab- 406 balers, Haryana -721 Balers and Uttar Pradesh -268 balers).
- Sustainable Alternative Towards Affordable Transportation (SATAT) has been launched as an initiative to set up





Compressed Bio-Gas (CBG) production plants and make CBG available in the market for use in automotive fuels.

- With the efforts of the Government, overall, Net Active Fire Event (AFE) Count, as reported by Indian Agricultural Research Institute (IARI), during 15th September to 30th November 2021 (82533) in the states of Punjab, Haryana and Uttar Pradesh have decreased by 10.1% as compared to the count observed in the corresponding period of 2020 (91835).

F. Monitoring of Ambient Air Quality

- Expansion of air quality monitoring network of manual as well as continuous monitoring stations under programmes such as National Air Monitoring Programme (NAMP).
- Initiation of pilot projects to assess alternate ambient monitoring technologies such as low-cost sensors and satellite-based monitoring.
- Public Grievances and Response System (PGRS) is developed under NCAP
- Emergency Response System (ERS) has been prepared in NCAP cities.
- Air quality monitoring cell has been constituted across the country in NCAP Cities.
- Implementation of Air Quality Early Warning System for Delhi, Kanpur and Lucknow. The system provides alerts for taking timely actions.
- Public Complaints regarding air

pollution issues in Delhi NCR are taken through 'Sameer App', 'Emails' (Aircomplaints.cpcb@gov.in) and 'Social Media Networks' (Facebook and Twitter).

- At present ambient air quality is being monitored through a network of 1208 manual and real time monitoring stations in 460 towns and cities across 28 states and 7 UTs in the country which is being further strengthened under NCAP.

20. Convergence of schemes of different Ministries/ departments in improving air quality in urban centres and across the country

- a) Ministry of Housing and Urban Affairs - Urban Swachh Bharat Mission 2.0
 - Provision of Rs. 1,41,678 crores under SBM 2.0 in the Period - 2021-2026
 - Focused areas -
 - o source segregation of garbage,
 - o reduction in single-use plastic,
 - o Effective management of C&D waste
 - o bio-remediation of all legacy dump sites
- b) Ministry of Heavy Industries - Faster Adoption and Manufacturing of (Hybrid & Electric Vehicles (FAME) Scheme (Phase II)
 - Outlay - Rs. 10,000 Crore
 - Period – Started in 2019
 - Extended – for 2 years upto 31st March 2024





- Focused areas –
 - o 7,090 e-Buses,
 - o More than 15 lakh other categories of e-vehicles
- c) Ministry of Petroleum and Natural Gas - Sustainable Alternative Towards Affordable Transportation (SATAT)
 - Period – 2023-24
 - Focused areas
 - o Set up 5,000 Compressed Bio-Gas (CBG) production plants
 - o CBG for use in automotive fuels
- d) Ministry of Petroleum and Natural Gas – Pradhan Mantri Ujjwala Yojana (PMUY)
 - Target of providing 8 crore LPG connections has been achieved
 - To further increase the LPG coverage, additional 1 crore LPG connections will be released under PMUY.
 - Focused areas
 - o Reduced emissions from households due to cooking
- e) Department of Agriculture & Farmer's Welfare - Promotion of Agricultural Mechanization for in-situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi
 - Rs. 1,749.17 crores for crop residue management in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi during FY 2018-19 to FY 2020-21
 - Rs 700 crores proposed for FY 2021-22
 - Focused areas –
 - o Machines for in-situ crop residue management are promoted
 - o Subsidies are provided for establishment of Custom Hiring Centres.
- f) Ministry of Road Transport and Highways - Implementation of BSVI standards
 - Landmark decision for improvement of air quality.
 - Ministry is also focusing on phasing out older vehicles through the vehicle scrapping policy
- g) Ministry of New and Renewable Energy - Schemes for renewable energy and MSW projects
 - Promotion of solar energy
 - Focused schemes on bio-gas/ bio-methanation plants for managing organic wastes, Waste to energy plants, etc.
 - Provide financial incentives for renewable projects.
- h) Ministry of Environment Forest and Climate Change - National Mission for Green India
 - Increase forest/ tree cover on forest/ non-forest lands and improve quality of forest cover.
- i) Ministry of Power
 - Uninterrupted electric power supply
 - Phasing out old coal based power plants
 - Implementation of FGD in thermal power plants, etc.





j) Other initiatives

- Metro rail projects- augment public transport network in cities and thereby improvement in air quality
- City Gas Distribution Network- adoption of cleaner fuels in the country

21. Out of 132 identified cities, decrease in PM10 concentrations were observed in 96 cities whereas increase in PM10 concentration were observed in 36 cities during 2020-21 as compared to levels during 2019-2020.

22. Number of 'Good' to 'Moderate' days increased to 197 in 2021 (as on 13th December, 2021) as compared to 179 in 2019, and number of 'Poor' to 'Severe' days reduced to 151 compared to 169 in 2019. (As 2020 is a Covid year, the data is not compared, however, during the 2020, 'Good' to 'Moderate' days were 226 and number of 'Poor' to 'Sever' days were 123).

23. Central Sector Scheme-Control of Pollution:

The Central Sector Scheme-Control of Pollution has the following components:

- Assistance for Abatement of Pollution to Central Pollution Control Board (CPCB) and State Pollution Control Boards/ Pollution Control Committee (SPCBs/ PCCs) in lieu of Water Cess funds subsumed with GST to all the SPCBs/PCCs;
- National Mission for Clean Air (NMCA);
- Environmental Monitoring Programme;
- Assistance for ongoing projects under the CETP and CT Scheme;

e. Research Programmes;

f. Outreach programmes

In the Financial year 2021-22 (till 15th January, 2022) fund of Rs.238 crore has been released to CPCB/SPCBs/PCCs under the scheme.

24. Noise Pollution/Pollution Abatement Scheme.

a. Activities undertaken so far during the financial year 2021-22:

- Enforcement of the provisions of the Noise Pollution (Regulation and Control) Rules, 2000;
- Grant-in-aid of Rs 9.40 Crores to CPCB for National Ambient Noise Monitoring
- Formulation and availability of green firecrackers(reduced emission) with about 30% reduction of particulate emissions as per the directives of Hon'ble Supreme Court.
- Grants-in-Aid for setting up of 'Testing and R&D Facility for firecrackers – Raw Materials, Compositions and Emissions (RACE)' at Sivakasi and CSIR-NEERI, Nagpur

b. Progress / Achievements (Physical / Financial) both cumulative and for reference period:

- CPCB has been requested to initiate process for framing source standards for loudspeakers, public address systems in view of the amendments in Noise Pollution (Regulation and Control) Rules, 2000 (Noise Rules) suggested by Bihar Government.
- Ministry has devised following steps for





implementation of use of green fire-crackers.

- a. All manufactures having license from Nagpur, Regional and DM licenses should seek the green composition details from CSIR NEERI (which is coordinating lab and also part of the development of green crackers research and technologies) and sign NDA. These manufacturers will be provided hands on training for better understanding of new and improved formulations and familiarization with standard operating procedures for making green crackers and showcasing the working etc.
- b. The above manufactured composition shall be tested for emissions at CSIR NEERI and the emission certificate will be used by PESO to give approval for manufacturing.
- c. At manufacturers facilities PESO shall sample the raw material and sealed samples shall be sent to test facility with NABL labs standards created by CSIR NEERI at Sivakasi and Nagpur. Additional facility shall also be created in north India for manufacturers in North region. All samples collected shall be mandatorily tested for all manufacturers.
- d. MOEFCC shall assist in setting up facilities wherein CSIR and Manufacturers will primarily run it sustainably.
- e. All emission tests and compositional analysis shall be encrypted through

a QR code (through an app which has system of sharing all information to concerned agencies such as CPCB, NEERI, PESO as per needs) on all the products produced. This QR code will be highly useful for detecting spurious and copied products thus helping in enforcement.

- f. PESO shall be responsible for tests of any composition w.r.t stability and safety issues as also Noise standards
 - g. A committee comprising of members from MOEFCC, CPCB, PESO, CSIR NEERI and invited member from manufacturers shall be in place which will review every year:
 - (i) new and better products available for cleaner products
 - (ii) recommend improved testing and enforcement standards
 - (iii) advise on use and manufacturing processes and standards
 - (iv) report to the court steps taken towards better products and processes leading to reduced emissions from fire crackers.
- Assistance under 'Abatement of Pollution' scheme
 - i. The assistance of Rs.0.56 cr. (approx..) has been extended to Nagaland State Pollution Control Boards for salary support to scientific and technical staff under the component 'Assistance for Abatement of Pollution' of 'Control of Pollution' scheme of MoEF&CC for the year 2021-22.





- ii. Meeting held to review of fund utilization and progress made thereof under the 'Assistance for Abatement of Pollution' scheme or under the component 'Assistance for Abatement of Pollution' of 'Control of Pollution' scheme of MoEF&CC
- iii. SPCBs/PCCs of NE and weaker states have been directed to submit UCs and Progress report for consideration of new projects under the 'Control of Pollution' scheme
- Assistance under Common Effluent Treatment (CETP) scheme:
 - i. Evaluation of 15 MLD Common Effluent Treatment Plant (CETP) of Bahadurke Textile & Knitwear Association, Ludhiana being funded by MoEF& CC.
 - ii. Constitution of an Evaluation Committee for post commissioning evaluation of the (1) 50 MLD Common Effluent Treatment Plant (CETP) by M/s Punjab Dyers Association (PDA), (Tajpur & Rahon Module) at Tajpur Road, Ludhiana, Punjab & (2) 40 MLD CETP Project of M/s Punjab Dyers Association, (Focal Point Module), Ludhiana being funded by MoEF&CC
 - iii. Joint Inspection and monitoring of two CETPs in Pali, Rajasthan by an Evaluation Committee
- c. **Regulatory Acts / Rules governing the programme and promulgation of new Acts, if any, along with the details.:**
 - ii. Air (Prevention and Control of Pollution) Act, 1981
 - iii. Environment (Protection) Act, 1986
 - iv. Noise Pollution (Regulation and Control) Rules, 2000
 - v. The Commission for Air Quality Management in National Capital Region and Adjoining Areas, 2021 {29 of 2021}

Development of Environmental Standards:

The Ministry of Environment, Forest and Climate Change (MoEF&CC) formulates and notifies standards for emissions or discharge of environmental pollutants viz. air pollutants, water pollutants and noise limits, from industries, operations or processes with an aim to protect and improve the quality of the environment and abate environmental pollution. The standards are framed in consultation with the concerned stakeholders. The process is based on the best practices and techno-economic viability. The notification of standards also involves formulation of load based standards i.e. emissions/discharge limits of pollutants per unit of product obtained/ processes performed to encourage resource utilization efficiency and conservation aspects. The standards for any industrial process/ operation recommended by Central Pollution Control Board (CPCB) are subjected to stakeholder consultation including general public. The comments are compiled and technically examined by CPCB and change, if any, incorporated. In sustained efforts towards control of air/ water pollution caused by various sectors of industries, the Ministry embarked upon developing new standards/ revision of existing standards for various industrial categories.





Achievements and Progress are as follows:

- A total of about 115 standards across various categories of industries have been finally notified/ revised so far. These include: Thermal Power Plants, Common Effluent Treatment Plants, Sugar Industry, Cement Plants, Textile Industry, Slaughter House, Sewage Treatment Plants, Fertilizer Industry, Airport Noise Standards, Diesel/Petrol/LPG/CNG Gensets, Dust Mitigation Measures for Construction and Demolition Activities, Boilers using industries, Man-made Fibre Industry, Paint Industry, Coffee Processing Industry, Tannery Industry, Kerosene, and Emissions Standards for SO₂ and NO_x for five industrial sectors – Lime Kiln, Ceramic, Glass, Foundry and Reheating Furnaces, etc. Action is further on to frame and update draft Notifications for Standards for Emissions from Diesel Locomotives, Petroleum Coke Calcining Plants and Industrial Boilers.
- 2. Following Environmental Standards were published in gazette of India:
 - i. Environmental Standards for Lead Stabilizer in Polyvinyl Chloride (PVC) Pipes and Fittings Rules, 2021 was notified vide G.S.R. 228(E) dated 30.03.2021
 - ii. Amendment to environmental standards for Thermal Power Plants was notified vide G.S.R. 243(E) dated 31.03.2021.
 - iii. Environmental Standards for Bulk Drug and Formulation (Pharmaceutical) industry was notified vide G.S.R. 541(E) dated 06.08.2021.

- iv. Amendment to environmental standards for Tanneries was notified vide G.S.R. 656(E) dated 10.09.2021.
- v. Amendment to environmental standards for Tanneries was notified vide G.S.R. 657(E) dated 10.09.2021.
- vi. Regulation on Use of Water Purification System (WPS) was notified vide G.S.R. 724 (E) dated 04.10.2021

Development and Promotion of Clean Technology and Waste Minimization Strategies

Clean Technology deals with Scheme Development and Promotion of Clean Technologies and Waste Minimization Strategies. A grant-in-aid scheme on Development and Promotion of Clean Technologies was initiated in 1994. Clean Technologies are distinct and different from “end-of-pipe” abatement technologies, minimizing the generation of waste streams in the production processes and utilizing the wastes from other consumption goods and production processes, rather than treating the wastes after generation. The Ministry has been providing financial assistance under the Central Sector Plan Scheme for those projects whose primary research has already been completed and is ready for pilot scale demonstration research on innovative technologies in the areas of highly polluting categories of industries. The main objective of the demonstration research projects was to standardize the data obtained after primary research to develop and demonstrate the suitability of the prototype and to study the feasibility of the technology in the Indian





environmental conditions both from economic and scientific points of view.

The main objective of the Scheme related to waste minimization was to optimize the consumption of raw materials and also to reduce waste generation by adopting suitable production techniques which are cleaner in nature and can be adopted by the existing units without necessarily changing the production processes or unit operations. The approach to the problem was towards utilizing the existing production facilities in an optimal manner. The purpose of the scheme was to assist primarily the Small and Medium Scale units which do not have access to the requisite technical expertise to achieve waste minimization with the following objectives of: -

- i. Identification of priority areas and development of appropriate economically viable clean technologies and waste minimization strategies for small scale and medium scale industries through interface with industry, R&D establishments and academic institutions.
- ii. Promotion and adoption of clean technologies and waste minimization strategies by the industry/industrial clusters through setting up of pilot/demonstration projects on prototype development,
- iii. Absorption and up-gradation of imported clean technologies and their demonstration through pilot projects.

The Scheme was reviewed by Evaluation Committee of MoEF&CC on Review of Plan Schemes implemented in XII Five Year Plan. The committee recommended to discontinue

the scheme and accordingly it was decided by the Competent Authority that the scheme be discontinued after funding support to existing ongoing projects till completion.

Presently there are 10 ongoing projects under the Scheme and the budget allocation of 1.5 Crore has been allocated in Centre Sector Scheme of the Division.

Recognition of Laboratories under the Environment (Protection) Act, 1986

In order to simplify the procedure of recognizing the private environmental laboratories, Ministry has delegated the powers to CPCB under Section 23 of the Environment (Protection) Act, 1986 in June 2021 (Assistance to CPCB in developing web-portal and finalizing of the revised guidelines).

1. Environmental Health

Environmental Health Cell (EHC) is under the Control of Pollution – Water (CPW) Division of this Ministry and supports research for studying the health impacts of environmental pollution through sanctioning of grant-in-aid under the 'Control of Pollution' Scheme.

An Apex Committee and a Working Group on Environmental Health have been reconstituted to provide, inter alia, guidance for developing/ formulating Environment Health strategies and to review the activities on Environment Health. Details of ongoing projects are as below.

On-going Environmental Health Projects:

- (i) Project titled 'Estimating mercury levels and exposure for pregnant women and new born babies in selected coastal and interior South Indian cities: first step towards building a database on risk from





mercury pollution in India' sanctioned, IIT Hyderabad, Telangana

- (ii) Project titled 'Bioavailability of dioxine like polychlorinated biphenyls, dioxin and furan released due to combustion of electronic waste in Chennai: Implications for risk assessment' sanctioned to, SRM University, Kattankulathur, Tamil Nadu.
- (iii) Project titled 'Assessment of air pollution with co-beneficial factors for Tiruchirapalli corporation' sanctioned to Bharthidasan University, Thiruchirapalli;
- (iv) Project titled 'Development of GIS based decision system for health impact assessment due to anthropogenic pollution in River Yamuna' sanctioned to Amity School of Natural Resources and Sustainable Development, Noida (Completed)
- (v) Project titled: National Environmental Health Profile Study for 20 cities initiated in 2018-19 to make assessment of human health impact in consequence of exposure to outdoor air pollution exposures in 20 selected cities across the country.

Commission for Air Quality Management in National Capital Region and Adjoining Areas

The Commission for Air Quality Management in National Capital Region and Adjoining Areas has been set up in accordance vide Section 3 of the Commission for AQM in NCR and AA Ordinance/Act, 2021 for Air Quality Management in National Capital Region and Adjoining Areas vide notification dated 23rd April, 2021 for better co-ordination, research, identification and resolution of problems

surrounding the air quality index. Dr. M.M Kutty, former Secretary, Ministry of Petroleum and Natural Gas has been appointed as the first Chairman of the Commission. The Commission is broad-based to have a dedicated and participative mechanism, adopting a collaborative and participatory approach involving relevant Central Ministries/ Departments, State Governments, Local bodies and other stakeholders to tackle air pollution in NCR and Adjoining Areas.

- 2. Grant-in-aid to the tune of Rs. 20 crore has been allocated to the Commission for FY 2021-22. Further, in order to provide required staff to the Commission, the D/o Expenditure sanctioned creation of 56 posts in different pay levels and cadres namely Administrative Support Staff, Scientific, Legal, Accounts and Official Language, etc vide ID note no. 2421631/E. coord-I/2021 dated 07.12.2021.
- 3. The Commission has identified the major sectors contributing to air pollution in this region, namely Vehicular Pollution, Industrial Pollution, Dust from Construction and Demolition Project activities, Road and Open Areas Dust, Biomass Burning, Agricultural Stubble Burning, Municipal Solid Waste burning, Fires in Sanitary Landfills and Air Pollution from Dispersed Sources etc.
- 4. The following three sub-committees have been constituted under Section 11 of the Ordinance/ Act:
 - Sub-Committee on Safeguarding & Enforcement





- Sub-Committee on Monitoring & Identification
 - Sub-Committee on Research & Development
5. The Commission has so far issued 52 directions and 7 advisories, besides executive orders to various agencies concerned including the Govt. of NCR States and various bodies of the Central and State Governments in the region also laying down responsibilities and concrete steps to be taken by them for improving of air quality in the region.
6. Important initiatives and measures taken by the Commission in various domains, in brief, include:-

a) Industrial Pollution

The Commission is working in close coordination with various stakeholders (NCR States, GNCT of Delhi, CPCB, SPCBs of NCR States and Delhi Pollution Control Committee, etc) to ensure regular audit and inspection of the Industries and press industries operating in NCR districts to shift to PNG/cleaner fuels

With persistent efforts and follow up by the Commission, all the identified 1635 industries in Delhi have completely switched over to PNG/Cleaner fuels and the status of shifting of industries in NCR districts of the concerned states is as follows:

State	Total No. of industries identified for shifting to PNG	No. of Industries shifted to PNG
U.P	2273	1161
Haryana	1485	630
Rajasthan	525	198

b) Vehicular Pollution

The Commission has also issued advisory for “Mandating procurement of zero emission and e- vehicles” to give a further push to clean technologies in transport sector and a gradual shift towards zero emission vehicles/ e-mobility and is regularly monitoring its progress. Battery charging infrastructure have also been installed at 135 sites in Delhi.

The Commission has pursued with the States concerned and GNCTD to strictly ensure that Petrol/Diesel vehicles more than 15/10 years old do not ply in NCR. Steps are also being

taken for conversion of Public transport in NCR Districts to Clean Fuel.

With persistent efforts of the Commission and all stakeholders, all the identified 124 border entry points of Delhi have now been provided with RFID system to facilitate cashless toll/cess collection thus avoiding huge traffic congestions and resultant heavy air pollution at the border points.

Intensive drives have been conducted in the GNCTD and NCR States against old vehicles, visibly polluting, over-loaded and vehicles without PUC. During the period from April to





October, 2021, PUC (Challans issued):- Delhi – 57043, Haryana – 9464, U.P. - 9043 and Rajasthan – 2425 and further action against visibly polluting & overloaded vehicles: - Delhi –3492, Haryana – 8063, U.P. – 10690 and Rajasthan– 3528 have been taken.

c) Dust from Construction and Demolition Project activities

Working on the direction of the Commission Govt. of NCT Delhi and Uttar Pradesh have already set up a dedicated web portal for Monitoring of Dust Control measures at Construction and Demolition sites in NCR. Govt. of Haryana and Rajasthan are also in the advance stages of setting up of similar web portal. Other steps taken to mitigate the C&D pollution includes Video fencing of projects, Installation of Anti- smog guns, screens at construction sites, Use of Dust-suppressants and water mist, Transportation of C&D materials in covered vehicles, Installation of air quality monitoring sensors in project sites and Self-audit and certification mechanism by the agencies concerned.

d) Dust from Roads and Open areas

The Commission has directed road owning/maintaining agencies to set up Dust management cells. Accordingly, Dust management cells have been set up in 12 Departments / Agencies in NCT of Delhi, 17 Departments / Agencies in Uttar Pradesh, 17 Departments / Agencies in Haryana and 08 Departments / Agencies in Rajasthan in their respective jurisdiction in the NCR for monitoring and implementation of various dust control measures in all such road projects/activities. The Dust management

cells will monitor various mitigation activities like optimum utilization of mechanized means of sweeping of roads, scientific disposal of dust collected in designated sites/landfills., sprinkling of dust suppressants and water on roads and open areas, proper maintenance of roads, conversion of non-paved road sides to paved or into green, greening of central verges, preference to cemented roads over bituminous roads especially in Industrial Areas, etc.

e) Agricultural Stubble Burning

The Commission has identified Crop Residue Management as one of the priority areas. Based on the deliberations and discussions held in series of meetings with the State Governments of Punjab, Haryana, UP, Rajasthan, Government of NCT of Delhi, State Pollution Control Boards of NCR States and Delhi Pollution Control Committee (DPCC) and various other stakeholders and knowledge institutions like Indian Council of Agricultural Research (ICAR), Indian Agricultural Research Institute (IARI), Indian Space Research Organization (ISRO) etc., the Commission developed a framework for effective prevention and control of Stubble Burning.

Directions have been issued to the State Governments of Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi on 10.06.2021 to prepare state specific detailed and monitorable action plans, based on following six components of the framework i.e. In-situ Crop Residue Management, Ex-situ Crop Residue Management, Prohibition of Stubble/Crop Residue Burning, Effective monitoring/enforcement, Plans / Schemes to





reduce the generation of paddy straw and IEC activities for the Plan of Action.

Based on the framework, detailed state specific action plans have been developed by Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi. The Commission issued statutory directions to the Chief Secretaries of Punjab, Haryana, Uttar Pradesh, Rajasthan and Delhi on 16.09.2021 for "Implementation, Monitoring and periodic review of the respective plan of action for prevention and control of stubble burning".

Guided by the Commission, ISRO developed a standard protocol, in consultation with major stake holders including IARI, for recording and

monitoring of crop residue burning events, which shall avoid a diverse assessment of fire events/counts.

Directions were also issued by the Commission to the States of Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi on 16.08.2021 to ensure adoption and application of the standard protocol for estimation of Crop Residue Burning Fire Events using Satellite Data. The Commission has closely monitored the daily fire counts and taken up with the State Governments concerned, on a daily basis for enforcement actions.

Comparative table depicting Paddy residue burning events 2021 vis-à-vis 2020 is as follows:

State	Punjab		Haryana		UP(NCR)	
	2020	2021	2020	2021	2020	2021
Period(Year)						
Cumulative Paddy Stubble Fire Counts till 30.11.2021	83,002	71,304	4,202	6,987	407	252

IEC Activities

Extensive IEC activities /Awareness programs have been undertaken by the concerned state governments/GNCTD through electronic media, social media, print media, Fixing of hoardings, Audio- visual clips on TV, Broadcast of radio jingles, PA system mounted vans, District and state level 'kharifgosthi', 'Nyay panchayat level kharifgosthi', Demonstration camps, Public addressing system etc.

f) Open Biomass / Municipal Solid Waste Burning / Fires in SLF Sites.

The Commission is pursuing with States/ GNCTD to implement State-wise action plan for control of Bio-mass/Municipal Solid

Waste Burning and fires in Landfill Sites, focusing on deployment of enforcement teams, quick complaint redressals and corrective actions through IT enabled platforms and for strict compliance of the plan of action.

- 7. The Commission has developed a Bi-Monthly reporting mechanism for monitoring 48 vital parameters, to ensure effective enforcement of the air pollution control measures by GNCTD and concerned states in the NCR.

8. Constitution of an "Expert Group"

The Commission has constituted an 'Expert Group' comprising of the experts/





officials from reputed institutions that are India Meteorological Department, Delhi, Indian Institute of Tropical Meteorology (IITM), Pune, Central Pollution Control Board (CPCB) and Delhi Pollution Control Committee and subject experts, having domain knowledge in meteorological data, statistical modelling and historical scientific data on air quality related parameters in Delhi-NCR to conduct a scientific study of air quality based on available data of previous years bearing upon recorded levels of air pollution duly factoring seasonal variations and relevant parameters.

9. Commission has set up a Committee comprising of experts from reputed institutions like IMD, IITM, IIT Delhi, TERI, NEERI and C- DAC Pune for development of a Decision support system (DSS) for facilitating early warning and informed actions on critical issues related to the ambient air quality management in NCR and adjoining areas.
10. A Pilot project has been carried out for assessment and abatement of pollution from various 'Non-Point' Dispersed sources, in the SDMC, North DMC, East DMC and New Delhi Municipal Council (NDMC) areas jurisdiction. A Standard Operating Procedure (SOP) has also been formulated to facilitate replication and up scaling of the project, envisaged along with improved inter-agency coordination among Delhi Pollution Control Committee (DPCC), Nodal Officers and support from other agencies concerned.

11. Graded Response Action Plan (GRAP) for Air Quality

Sub-Committee for Operationalization of GRAP has been constituted with Member Secretary, Central Pollution Control Board, as its Chairman and comprising of members from DPCC, HSPCB, RSPCB, UPPCB, IMD and the Commission.

The GRAP provides specific set of actions depending on air pollution levels, which are to be implemented by identified agencies for minimizing the pollution, particularly during critical winter season. Regular review meetings are being conducted by the Sub-Committee to monitor the GRAP.

12. Emergent action for deteriorated air quality during winter

- The Commission has been continually and closely studying the Air Quality parameters and associated meteorological conditions and necessary directions / orders are being issued by the Commission from time to time taking due cognizance of the prevailing adverse climatic and meteorological conditions advised and projections by IMD.
- A total of 40 nos. of Inspection Teams/ Flying Squads have been constituted for incognito inspections/surprise checks in various sites across different sectors viz. industry, construction & demolition sites, DG Set operations in commercial/ residential complexes, open waste burning and miscellaneous





sources across all the NCR districts of Haryana, Uttar Pradesh, Rajasthan and the NCT of Delhi.

- A five -Member “Enforcement Task Force” (ETF) has been constituted by the Commission, which meets frequently to review and take stock of the ground situation to closely monitor the field level implementation and compliances of the various directions and orders issued by the Commission. Non-conformities / non- compliance in respect of various directions and orders identified by the Flying Squads and are presented before the Enforcement Task Force for detailed deliberations and deciding action against serious violations.

4.2 Central Pollution Control Board

a. Brief Introduction, objectives and functions of the Division

Under the provisions of The Water (Prevention & Control of Pollution) Act, 1974, the Central Government constituted the ‘Central Board for the Prevention and Control of Water Pollution’ on September 23, 1974. The name of the Board was amended to Central Pollution Control Board (CPCB) under the Water (Prevention & Control of Pollution) Amendment Act, 1988 (No. 53 of 1988). The Central Pollution Control Board has been entrusted with the added responsibilities of Air Pollution Control since May, 1981 under the provisions of the Air (Prevention and Control of Pollution) Act, 1981. The

enactment of the Environment (Protection) Act, 1986, which is the umbrella legislation for enforcement of measures for protection of environment, and several notifications of Rules under the Act widened the scope of activities of the Central Board.

Central Pollution Control Board (CPCB) has been playing a key role in abatement and control of pollution in the country by generating, compiling and collating data, providing scientific information, rendering technical inputs for formation of national policies and programs: training and development of manpower and through activities for promoting awareness at different levels of the Government and Public at large.

Functions of the Central Pollution Control Board :

The main functions of CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, are:

- (i) To promote cleanliness of streams and wells in different areas of the States through prevention, control and abatement of water pollution; and,
- (ii) To improve the quality of air and to prevent, control or abate air pollution in the country.
- (iii) To give directions, in the performance of its functions under these Acts.
- (iv) The Central Board shall be bound by such directions in writing as the Central Government may give to it.





(v) In particular, and without prejudice to the generality of the foregoing function, the Central Pollution Control Board may perform all or any of the following functions, namely:

- (a) Advise the Central Government on any matter concerning prevention and control of water and air pollution;
- (b) Co-ordinate the activities of the State Boards in compliance of the rules and regulations under the above referred Acts, and resolve disputes among them;
- (c) Provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of water and air pollution, and for their prevention, control or abatement;
- (d) Plan and organise training of persons engaged in programmes for prevention, control or abatement of water and air pollution;
- (e) Organise through mass media, a comprehensive mass awareness programme on prevention, control or abatement of water and air pollution;
- (f) Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention and control and prepare manuals, codes or guides relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts and disseminate information;
- (g) Lay down, modify or annul, in consultation with the State Governments concerned,

the standards for stream or well, and lay down standards for the quality of air;

- (h) Plan and cause to be executed a nationwide programme for the prevention, control or abatement of water and air pollution; and

b. Important activities undertaken during the reference period (1/1/2021 to 31/12/2021) including celebrations for Azadi Ka Amrit Mahotsava

- Annual Action Plan for the Financial Year 2020-21 was approved by the Central Board for utilization of Grant-in- Aid amount of Rs. 100.00 Crore with priority focus on Delhi air quality management, overseeing implementation of Action Plans in 122 non-attainment cities and 61 high-concern polluted river stretches with focus on River Ganga, R&D solutions to COVID-19 challenges, establishing E- office system, implementation of waste management rules etc. The Draft Annual Report for year 2020-21 was prepared and submitted to MoEF&CC for approval.
- The Board shall meet at least once in every three months and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed, as per the Water (Prevention and Control of Pollution) Act, 1974 and The Air (Prevention and Control of Pollution) Rules, 1982.

During the financial year 2020-21, following meetings of the Central Board were held.

- 190th dated 9th June, 2020





- 191st dated 18th August, 2020
- 192nd dated 20th January, 2021
- CPCB has been delegated powers for recognizing environmental laboratories and government analysts under Section 12 and 13 of the Environment (Protection) Act, 1986 for the Government & Semi-Government Organizations and Public Sector Undertakings. On the recommendations of the Expert Committee, the Board approved environmental laboratories of Kerala Pollution Control Board, Project & Development India Limited, Noida, Environment Management & Policy Research Institute, Karnataka, Maharashtra Pollution Control Board, and 12 government analysts for analysis of specified parameters.
- Based on the recommendations of the Expert Committee, substitution of the aforesaid government analysts of Central Laboratory, Telangana State Pollution Control Board was approved by the Central Board.
- The Hon'ble National Green Tribunal (NGT) order, dated 19th March, 2020 in the matter of O.A. No. 462/2018, has directed that "The CPCB may co-ordinate with the concerned authorities, including the State Administration, for undertaking "Carrying Capacity Assessment" of at least one eco-sensitive area in a State, which may be thereafter replicated for all eco-sensitive areas in the next three months". In compliance with the order, the report on "Assessment of Environmental Carrying Capacity of Eco-Sensitive Zone: Sanjay Gandhi National Park, Mumbai, Maharashtra" conducted by CSIR-NEERI was submitted.
- CPCB has formulated a standard procedure to perform all inspections, report preparation and actions delineate the inspection procedure, steps to be followed before, during and post-inspection, and report submission.
- Initiatives taken to construct a Smog tower at Anand Vihar, an air pollution hotspot in Delhi, in compliance to the directions of the Hon'ble Supreme Court. This is a pilot project being executed for the first time in the country wherein Indian Institute of Technology (IIT), Bombay is the lead partner responsible for formulation, co-ordination and performance evaluation. IIT, Delhi has been associated with IIT, Bombay for co-ordination and performance evaluation of the smog tower.
- National Water Informatics Centre (NWIC), also termed as India Water Resources Information System, is a GIS-enabled centralized platform for water resources information including surface and groundwater data. Central Pollution Control Board (CPCB) in association with the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) have established water quality monitoring network under National Water Quality Monitoring Programme (NWMP). A Water quality monitoring network has been established at 4,294 locations across the





country covering 28 States and 07 Union Territories (UTs).

- During the pre-lockdown period (March, 2020), 20 SPCBs have done water quality analysis for 19 major rivers (Beas, Brahmaputra, Baitaani & Brahmani, Cauvery, Chambal, Ganga, Ghaggar, Godavari, Krishna, Mahanadi, Mahi, Narmada, Pennar, Sabarmati, Sutlej, Subarnarekha, Tapi and Yamuna) at 387

monitoring locations and 365 number of samples from the monitoring locations during lockdown (April, 2020). The collected samples were analyzed for the critical parameters viz. pH, Dissolved Oxygen (DO), Bio-chemical Oxygen Demand (BOD), Fecal Coliform (FC) and the results were compared with the Primary Water Quality Criteria for Outdoor Bathing notified under the Environment (Protection) Rules, 1986. The analysis results are presented in Table 1.

S. No.	Parameter	No. of Water Samples complied with primary water quality criteria during March, 2020	No. of Water Samples complied with primary water quality criteria during April, 2020
1	pH	375 out of 387	355 out of 365
2	DO	351 out of 387	331 out of 365
3	BOD	315 out of 387	298 out of 365
4	FC	324 out of 387	299 out of 365
Analysis Results of Water Quality		299 out of 387 monitored locations complied (77.26%) complied with primary water quality criteria for outdoor bathing	277 out of 365 monitored locations complied (75.89%) complied with primary water quality criteria for outdoor bathing

Report on “Assessment of Impact of Lockdown on Water Quality of Major Rivers” has been released on the occasion of 46th Foundation Day of CPCB. Copy of the report has been uploaded in CPCB website at <https://cpcb.nic.in/upload/Assessment-of-Impact-Lockdown-WQ-Major-Rivers.pdf>.

- Ambient Air Quality Status under National Ambient Air Quality Monitoring Programme (NAAQMP) and Continuous Ambient Air Quality Stations (CAAQMS)
Under Sub-section 2 (h) of Section 16 of the Air (Prevention and Control of Pollution)

Act, 1981 National Ambient Air Quality Standard (NAAQS) has been notified on November 18, 2009 as a policy guideline that regulates the effect of human activity on the environment.

Ambient air quality was monitored across the country through manual monitoring under National Ambient Air Quality Monitoring Programme (NAMP) and real-time monitoring under Continuous Ambient Air Quality Monitoring System (CAAQMS).





National Ambient Air Quality Monitoring Programme

National Ambient Air Quality Monitoring Programme (NAMP) was started in 1984 with 7 stations in Agra and Anpara. The growth of

operating Ambient Air Quality Monitoring Stations in the country is given in Fig.1. The manual ambient air quality monitoring network has 818 operating stations covering 352 cities/towns in 29 States and 6 Union Territories.

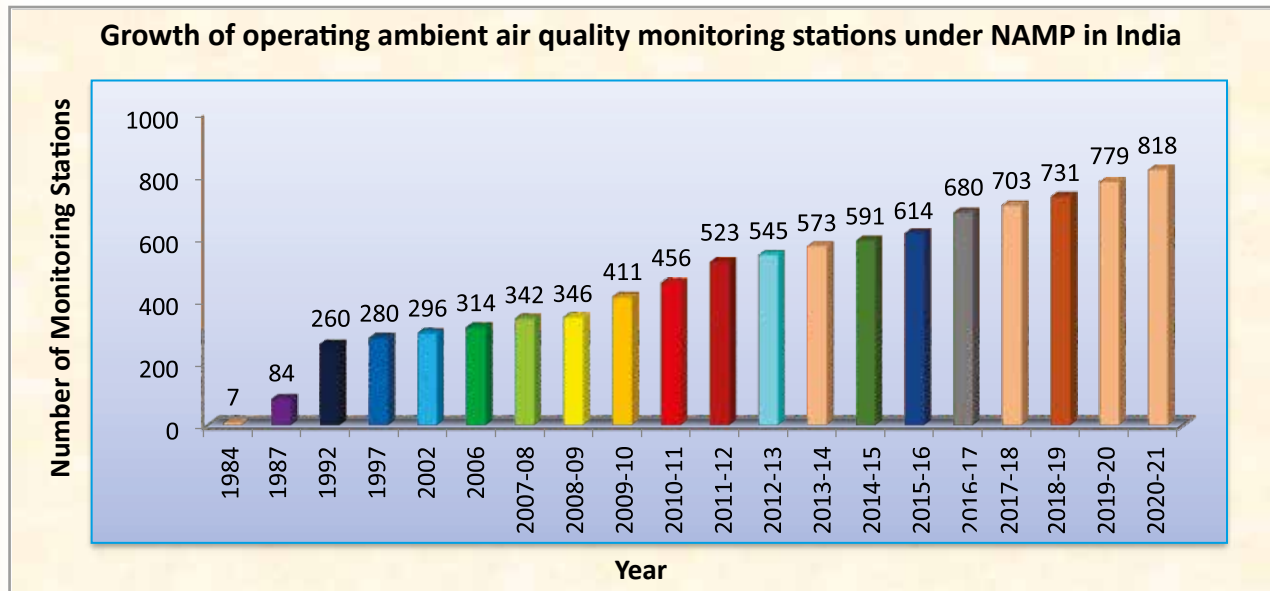


Fig. 1: Ambient Air Quality Monitoring Stations in the Country

The State Pollution Control Boards (SPCBs), Pollution Control Committees (PCCs), National Environmental Engineering Research Institute (NEERI), Nagpur and Central Pollution Control Board (CPCB) are carrying out ambient air quality monitoring at monitoring stations.

Under NAMP, three criteria pollutants Particulate Matter (PM10), Sulphur Dioxide (SO2) and Nitrogen Dioxide (NO2), alongwith Carbon Monoxide (CO), Ammonia (NH3), Ozone (O3), PM2.5, Benzo(a)pyrene {B(a)P}, Lead (Pb) and Nickel (Ni) are being monitored at selected locations.

- Continuous Ambient Air Quality Monitoring System

The network of Continuous Ambient Air Quality

Monitoring Stations (CAAQMS) is expanding in the country and at present, 296 CAAQM stations covering 148 cities in 22 States and 4 UTs are existing across the country. The Continuous Ambient Air Quality Monitoring Stations in the Country is given in Fig.2.

Under CAAQMS the Particulate Matter (PM10&PM2.5), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2), Ammonia (NH3), Carbon Monoxide (CO), Ozone (O3) and Benzene (C6H6) are being monitored at all locations. The CAAQM stations are also equipped with sensors to measure meteorological parameters such as Wind Speed, Wind Direction, Ambient Temperature, Relative Humidity, Solar Radiation and Rainfall.



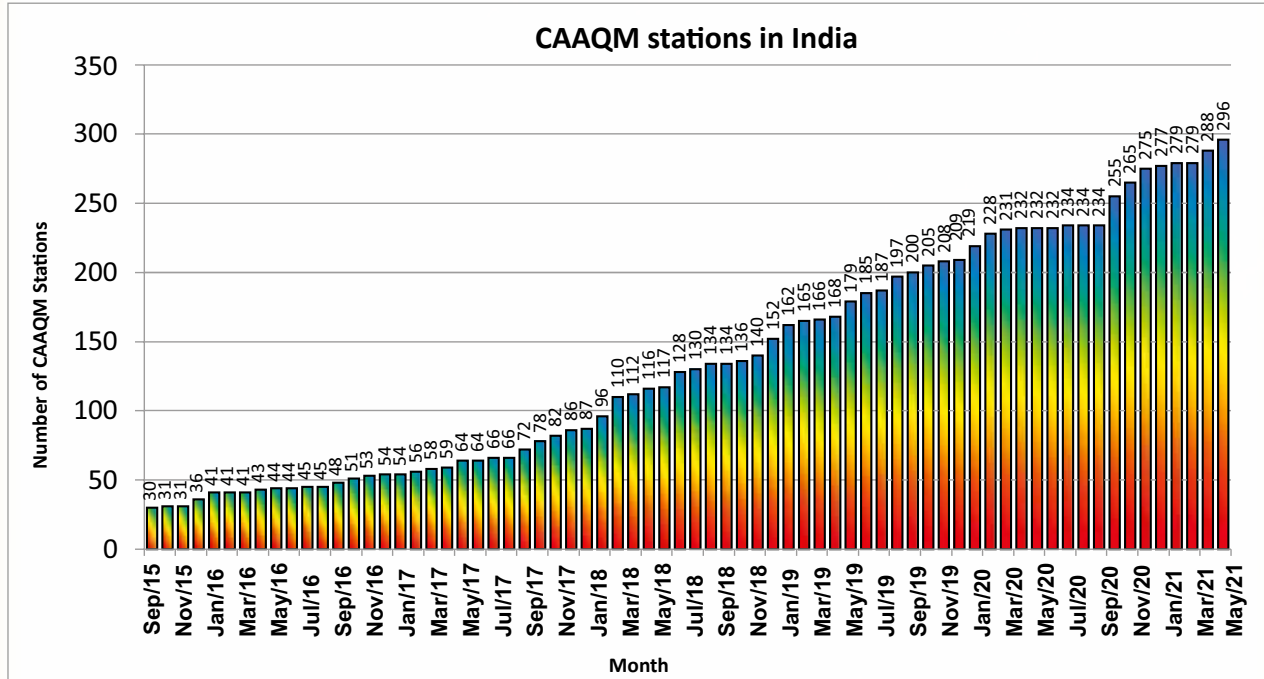


Fig. 2 - Continuous Ambient Air Quality Monitoring Stations in the Country

National Ambient Noise Monitoring Network in India

The Ambient Noise Quality for day & night for industrial, commercial, sensitive zones has been notified in Schedule III under Rule 3 of The Environment (Protection) Rules, 1986. The Central Pollution Control Board in association with State Pollution Control Boards has established National Ambient Noise Monitoring Network (NANMN) in 7 Metro-cities (Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow and Mumbai). A total of 70 Noise Monitoring Stations are operational in these Metro-cities (10 Stations in each metro-city).

Celebration of Azadi Ka Amrit Mahotsav

In co-ordination and guidance from MoEF&CC, CPCB celebrated “Azadi Ka Amrit Mahotsav” to commemorate 75th Year of Independence. An Iconic Week during 4th to 10th October,

2021 was celebrated in CPCB with the theme “Awareness Programme to Avoid the Use of Single Use Plastics”

CPCB observed the following activities during the Iconic Week:

- Banners /Posters were displayed on the restricted Single Use Plastic items and alternative to Single UsePlastic items (Do’s and Don’ts provided by MoEF&CC) and given in Table 2.
- these banners/ posters (bio-degradable paper) were displayed in the CPCB premises and publicized through Social Media through WhatsApp, Facebook, Twitter & CPCB’s website
- Awareness material provided to SPCBs/ PCCs, Regional Directorates to publish in English, Hindi & Local Languages
- Webinar organised on Single use plastics





in participation with CII, Association of Compostable Products in India (ACPI)& Cellophane

- Quiz on Do's and Dont's for Single Use Plastic by CPCB, HO with students of Laxmi

Nagar, Delhi.

- advertisement on the restricted Single Use Plastic items and alternative to Single Use Plastic items (Do's & Don'ts) in leading Newspapers of Metro-cities



QUIZ COMPETITION



केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा आयोजित प्रश्नोत्तरी प्रतियोगिता में राजकीय सर्वोदय कन्या विद्यालय, लक्ष्मीनगर, दिल्ली-110092 के विद्यार्थियों की प्रतिभागिता





Table 2: Campaign to reduce/eliminate use of single use plastic

Campaign to reduce/eliminate use of single use plastic	
Do not use disposable single use plastic items:	Discourage use of the following:
<ul style="list-style-type: none"> Plastic/thermocool (polystyrene) disposable cutlery including plates, cups, glasses 	<ul style="list-style-type: none"> Plastic carry bags;
<ul style="list-style-type: none"> Cutlery such as forks, spoons, knives, straw, trays, stirrers, used for serving eatables/drinks. 	<ul style="list-style-type: none"> Artificial plastic flowers
<ul style="list-style-type: none"> Thermocol for decoration, Plastic flags. 	<ul style="list-style-type: none"> PET plastic water bottles especially less than 1 litre;
<ul style="list-style-type: none"> Wrapping or packing films around gifts and invitation cards 	<ul style="list-style-type: none"> Plastic folders and any other plastic material for which an alternative exists.
<ul style="list-style-type: none"> Plastic or PVC (flex) banners less than 100 micron. 	

Redressal of Public Grievances through CPGRAM Portal

Centralized Public Grievances Redress and Monitoring System (CPGRAMS) has been launched for prompt and effective redress of grievances of citizens. The system is a single window grievance portal for the Ministries / Departments / Organisations to record and receive the grievances online and redresses them indicating actions at different levels. Complaints related to pollution control were either disposed within the specified time or forwarded to

the concerned SPCBs for immediate action.

During the financial year 2021, 1414 of public grievances were successfully redressed through CPGRAMS Portal with disposal period less than 15 days and disposal rate close to 100%.

Status of the Court / Tribunal Cases

The status of Court / Tribunal cases filed by the individuals, entity, organizations etc. before all Courts of India where CPCB is a party Respondent, handled during year 2020-21 are given in Table 3.

Table 3 - Status of Court / Tribunal Cases during year 2020-21

Particulars	Supreme Court	High Courts	NGT Principal Bench	NGT Zonal Benches
As on March, 2020	93	226	235	234
New cases during 2020-21	48	53	58	47
Disposed of during 2020-21	10	10	123	41
As on March 2021	131	269	170	240



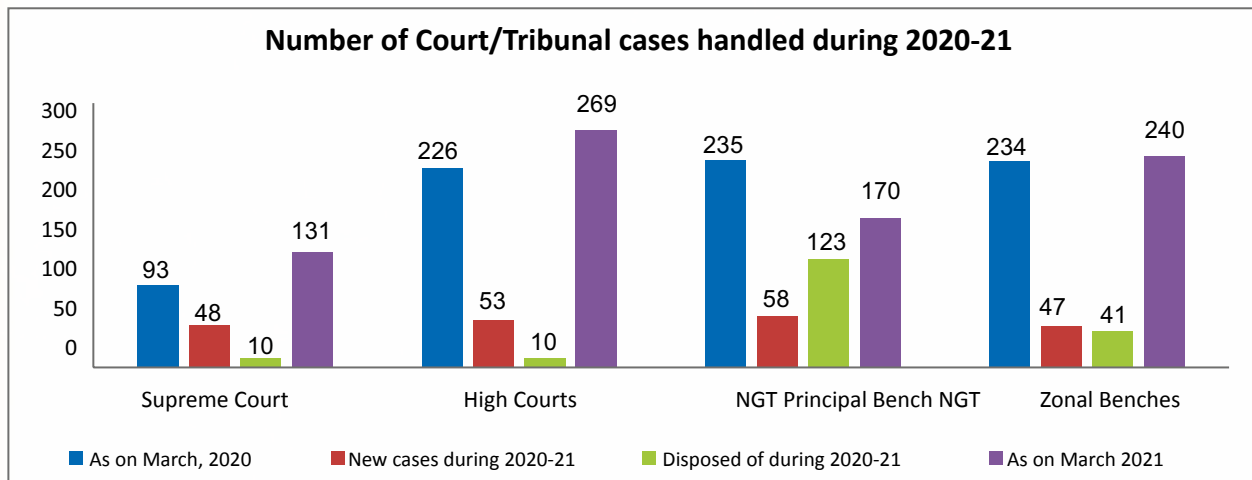


Fig 3- Number of Court/ Tribunal Cases handled during year 2020-21.

Following cases have been dealt during 2020-21 in the Hon'ble NGT court:

- In the matter of O.A. No. 106/2020 (PB) regarding "Another Gas Leakage at Vizag Factory killed two, critically injured four" regarding Benzimidazole gas leakage at Sainor Life Sciences factory at Parawada industrial area, on the outskirts of Visakhapatnam on 30.06.2020 resulting in damage to the environment and human health.
- In the matter of O.A. No. 107/2020 (PB), regarding Ammonia gas leakage accident at Nandyal in Kurnool District, Andhra Pradesh.
- In the matter of O.A. No.134/2020/ PB regarding massive fire engulfed the chemical plant of Visakha Solvents Ltd, Vizag on 13.07.2020 at Ramky CETP Solvents building in Pharma City.
- Hon'ble NGT, in O.A. No. 804/2017 (PB) in the matter of Rajiv Narayan and Ors. Vs Union of India and Ors. has taken

the matter regarding compliance of the Hazardous and other Waste (Management and Transboundary Movement Rules, 2019 (Hazardous Waste Management Rules) and assessment and remediation of contaminated sites. The Hon'ble NGT, vide order dated 30.07.2018, Monitoring Committee was constituted by the CPCB to compile information about the status of compliance of the Hazardous Waste Management, Rules and status on contaminated sites. Accordingly, status report on compliance of Hazardous Waste Management, Rules & contaminated sites was filed by CPCB and SPCBs / PCCs.

c. Progress/Achievements both cumulative and for reference period including innovations

• Sewage Treatment Plants

Inventorization of Sewage Treatment Plants (STPs) was carried out during the year 2020. Assessment of quantities of sewage generation and its treatment was conducted in association with State





Pollution Control Boards / Pollution Control Committees and Local Bodies through questionnaires survey from the concerned

stakeholders. Comparative statistics and capacity of STPs in the country during the years 2014 and 2020 is given in Table 4.

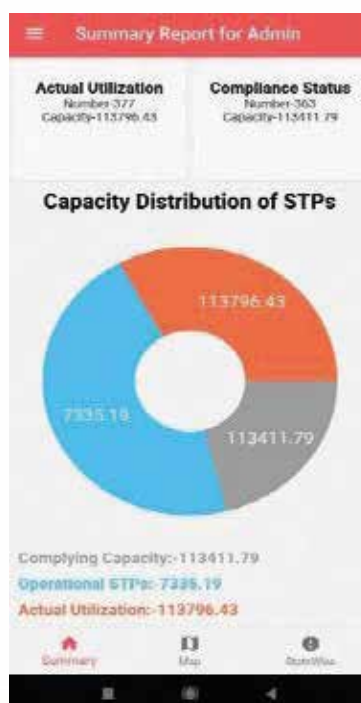
S. No	STP Status	2014		2020	
		No of STPs	Capacity (Mld)	No of STPs	Capacity (Mld)
1.	Operational	522	18,883	1,093	26,869
2.	Actual Utilization	-	-	1,093	20,235
3.	Compliance	-	-	578	12,197
4.	Non-operational	79	1,237	102	1,406
5.	Under Construction	145	2,528	274	3,566
Total (S. No. 1+4+5)		746	22,648	1,469	31,841
6.	Proposed	70	628	162	4,827

Out of 522 STPs, 490 STPs are designed on Sequencing Batch Reactor (SBR) technology followed by 321 STPs designed on Activated Sludge Process (ASP). Apart from conventional treatment technologies, STPs based on natural treatment systems are also established all over the country. 67 STPs are based on Waste Stabilization Pond system and 61 STPs belong to the category of Oxidation Ponds.

STPs to Urban Local Bodies, States and Central level and 1600+ STPs will be linked. This App can be downloaded from the Mobile App Store. Information on capacity and qualitative parameters like pH, TSS, COD, BOD and Faecal Coliform will be reported and the same will be updated on weekly basis.

States of Maharashtra, Gujarat, Uttar Pradesh, NCT of Delhi and Karnataka are the top 5 States which have installed significant sewage treatment facilities. These 5 States jointly contribute to 19,250 MLD i.e. 60.5 % of the total installed treatment capacity of the country. These 5 States and the States of Haryana, Madhya Pradesh, Punjab, Tamil Nadu and Rajasthan, i.e. these 10 States, contribute to the tune of 86 % towards total installed treatment capacity.

- **STP Monitoring App:** This App to facilitate information flow from





- E-Office has been commissioned in CPCB for paperless, effective and transparent working and initiation of instant action.
- E-Waste Management: For implementation of E-Waste (Management) Rules, 2016 following specific efforts have been made:
 - Implementation of guidelines for E-Waste (Management) Rules, 2016 comprising nine (9) specific guidelines have been prepared and uploaded on the CPCB web site.
 - Guidelines for Producer Responsibility Organizations (PRO) have been prepared and uploaded on the CPCB web site.
 - The guidelines for Environmental Compensation Charges (ECC) under E-Waste rules have been prepared in December, 2020 and submitted before the Hon'ble NGT (PB).
 - An Action Plan is in place for enforcement of the E-Waste (Management) Rules, 2016 in the country, and is being implemented through SPCBs / PCCs. The Action Plan has 11 action points for implementation of the said Rules. The SPCBs / PCCs are regularly carrying out activities as per the Action Plan and have been uploading their verification reports on the web portal on quarterly basis.
 - Show-cause notices were issued to 1,001 producers during year 2020-21 for non-compliance (186 for not meeting collection target, 292 for non-functional collection centre and 523 for non-submission of Annual Report) under the E-Waste rules.
- Direction issued under Section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 and under the Air (Prevention and Control of Pollution) Act, 1986 to UPPCB on 05-05-2020 for taking action against three dismantlers and recyclers for violation of E-waste rules and guidelines of CPCB. Accordingly, UPPCB ordered for closure of these units. According to the report of UPPCB, the three units are now complying.
- 400 dismantlers / recyclers of E-Waste are operating in 20 States namely Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and West Bengal. These authorised dismantlers / recyclers have annual processing capacity of 10,68,542.72 tonnes.
- **Hazardous Waste Management**

Standard Operating Procedures (SoPs) were developed for utilization of hazardous waste in environmentally-sound manner. During 2020-21, 14 SoPs have been developed as given below:

 - Utilization of Spent TiO₂-NaCl cake generated from process residue/waste containing chloride from the catalyst manufacturing industries for recovery of Titanium Dioxide (TiO₂).





- Utilization of Spent Sodium Hypochlorite along with Fresh / Spent Caustic Solution for manufacturing of Sodium Hypochlorite.
- Utilization of ETP sludge generated from Textile Industry to use as a supplementary fuel along with coal in Thermic Fluid Heater (TFH) / Boiler.
- Utilization of Sludge generated from spent acid neutralization facility of Common Effluent Treatment plant (CETP) for manufacturing of bricks.
- Utilization of Effluent Treatment Plant (ETP) Sludge generated from secondary clarifier as fuel in recovery boiler.
- Utilization of Magnesium Chloride Salts generated from DEMP (Diethyl Methyl Phosphonite reaction) in the MAP (Magnesium Ammonium Phosphate) Process in CETP.
- Utilization of Brine Sludge generated from Caustic Soda Unit for manufacturing of bricks.
- Utilization of ETP Sludge generated from pickling process for manufacturing of Red Oxide & Gypsum to manufacture Paver Blocks.
- Utilization / Distillation of Dilute Acetic Acid generated from Pharmaceutical / Pesticide / Chemical Sector as resource material for manufacturing of Acetic Anhydride or Glacial Acetic Acid.
- Utilization of metal and metal-bearing wastes (Tin/Tungsten, Cobalt/Tantalum/Vanadium/Niobium scrap) for recovery of metal salts / alloys.
- Utilization of Spent Sulphuric Acid generated during manufacturing of Hydrobromic acid (HBr) as resource material for manufacturing of Bromine (liquid) through bittern route.
- Utilization of Spent Hydrochloric Acid (generated from manufacturing of Chlorinated Paraffin Wax) for manufacturing of Calcium Chloride.
- Utilization of spent hydrochloric acid generated from Trichloro / Perchloroethylene (or) Chlorinated Paraffin Wax (CPW) in manufacturing of ADCA.
- Utilization of waste salts from CETPs / ETPs of textile manufacturing / processing industries for recovery of salts for industrial use.

All SoPs are placed in public domain at <https://cpcb.nic.in/sop-for-hw-specific/>

• **Solid Waste Management**

Overview of Solid Waste Management in the country is given below:

Total Solid Waste Generation: 1,50,847 tpd
Solid Waste Collected : 1,46,053tpd (96.8%)
Solid Waste Treated: 70,973 tpd (47%)
Solid Waste landfilled: 40,863tpd (27.08%)
Solid Waste Unaccounted: 39,010tpd (25.8%)

Status of Solid Waste Management

- Source segregation of Solid Waste has been initiated in 34 States/UTs (100% compliance in 4 States).
- Total 1,359 Solid Waste landfill sites have been identified and 379 sites are operational in 21 States.





- There are 3,075 dumpsites in the country, 91 dumpsites have been capped and 14 dumpsites have been converted into sanitary landfills.
- CPCB has issued directions under Section 5 of EPA, 1986 for enforcement of provision of Solid Waste Management (Rule), 2016 regarding Bio-Mining waste in January, 2020.
- Presently, there are 12 'Wastes to Energy' plants are operational in the country. As

per the directions of Hon'ble NGT, joint monitoring was conducted by CPCB & DPCC. The three 'Wastes to Energy' plants have been found to be non-compliant and Show Cause Notice has been issued to the three plants.

• **Plastic Waste Management**

The status of Plastic Waste Management during 2020-21 in the country is given in Table 5.

S. No	Item	Quantity	Remarks
1	Estimated Plastic Waste Generation	34,69,780tpa	Based on data provided by 35 States in Annual Report
2	Recycling Capacity (20 States)-	15.62 Lakhs tpa	Based on data provided by 20 States in O.A. No. 247/2017
3	Co-processing	1.67 Lakhs tpa	Based on data provided by 20 States in O.A. No. 247/2017
4	Major three States generating Plastic Waste	Maharashtra (13%), Tamil Nadu (12%) & Gujarat (12%)	Based on data provided by 35 States in Annual Report

Implementation of Plastic Waste Management Rules

- Standard Operating Procedure (SOP) as well as the online portal for registration of Producers, Importers & Brand Owners (PIBOs) has been developed. 307 Brand-Owners (BO) and 04 Producers have been issued registration till date having Extended Producer's Responsibility (EPR) target of 8 Lakhtpa.
- CPCB has framed the Standard Operating Procedure (SOP) and developed the online

portal for certification of compostable plastic Manufacturers/Sellers.

- As per provision 4(h) of PWM Rules, 2016, certificates have been issued to 163 compostable Manufacturers/Sellers till date. The certified capacity has increased substantially, from nil in 2016 to 2,80,000 tpa which addresses approximately 8% of the total Plastic Waste generated in the country.
- The direction issued under Plastic Waste Management (PWM) Rules, 2016 are given in Table6.





Table 6. - Direction Issued under Plastic Waste Management Rules, 2016

S. No	Direction issued	Date of direction issued	Directions issued to
1.	Directions issued to SPCBs/PCCs regarding registration of plastic brand owners / producers and fulfilment of EPR as per provision of PWM Rules	06-10-2020	All SPCBs / PCCs
2.	Directions issued to All SPCBs / PCCs / secretary UD under section 5 of EPA for setting up of Institutional Mechanism for enforcement of provisions of PWM Rules	09-10-2020	<ul style="list-style-type: none"> All SPCBs / PCCs Secretary, UD of all States/ UTs
3.	Directions issued to Secretary UD of all States under section 5 of EPA for non-submission of information/ submission on incomplete information on PWM to CPCB in the matter of OA no. 247/2017	09-10-2020	Secretary, UD of all States / UTs
4.	Directions issued to SPCBs / PCCs for Enforcement of provisions of PWM Rules for storing, packing or selling cigarettes, gutka, tobacco and pan masala in all forms.	22-10-2020	All SPCBs / PCCs
5.	Directions u/s 5 of EPA issued to SPCBs / PCCs for Enforcement of Rule 4 (h) of PWM Rules regarding issue of Certificates to compostable plastic manufacturers	04.03.2021	All SPCBs / PCCs

d. Promulgations of new Acts Rules, if any, along with the details along with major amendments/deletions

- Updated and compiled 7th Edition of Pollution Control Acts, Rules & Notification issued thereunder in 2020- 2021.
- Notification for the constitution of Jammu & Kashmir and Ladakh Pollution Control Committees notified in the Gazette of India.
- Standards for Hot Mix Plant has been proposed and given below:

S. No.	Type of hot mix plant	Proposed Emission Standards (mg/Nm ³)
1.	Batch hot mix plant	150
2.	Drum hot mix plant	300

- Introduction of SO₂ and NO_x standards for industrial boilers and five Industrial





Sectors (Ceramic, Foundry, Glass, Lime Kiln & Reheating Furnace);

e. Continuing committees/commissions-their work during the year and present position

- Reconstitution of Board of Central Pollution Control Board the tenure of the Board was up to November 18, 2021. Hence, the process for re-constitution of Board of Central Pollution Control Board has been initiated
- A Committee has been constituted for improving environmental quality in and around Hon'ble Supreme Court premises comprising concerned implementing agencies NEERI, CPWD, SDMC, NDMC, Delhi Police, DPCC.

f. List of major Publications brought out-brief purpose of each, wherever necessary The following reports/technical documents have been published during 2021:

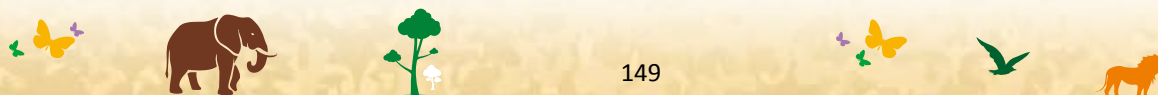
- A Ready Reckoner for Personnel engaged in Environment Management in Small and Medium Scale Industries;
- Impact of Lockdown on Water Quality of Major Rivers;
- Impact of Lockdown on Ambient Air Quality;
- National Ambient Air Quality Status & Trends - 2019;

- Updated and compiled 7th Edition of Pollution Control Acts, Rules & Notification issued thereunder in 2020- 2021;
- Annual Report of CPCB for Financial Year 2020-21 in Hindi & English

g. Challenges in work due to COVID

Conversion of N2 plant to Oxygen Plant

Considering the COVID-19 pandemic situation and to further augment availability of oxygen for medical purposes in the country, Central Government had asked Central Pollution Control Board (CPCB), to identify the industries having spare nitrogen plants and explore the feasibility of converting of existing Nitrogen plants to produce oxygen. CPCB has discussed with 500 industries having nitrogen plants and 60 industries wherein existing nitrogen plants may be spared for producing oxygen without affecting their normal operations. In this regard, a portal was developed for submission of data by the Industries interested to offer services by conversion of their Nitrogen Plants to Medical Oxygen Plants.





Reporting & Tracking System for Management of COVID-19 Waste

In extraordinary pandemic situation, a system for tracking the generation, collection, and disposal of COVID-19 Bio-medical Waste has been developed. This App was developed on urgent basis within a period of 10 days. Users comprising of waste generators, waste handlers, Common Biomedical Waste Treatment Facilities (CBWTF). State Pollution Control Boards/Pollution Control Committees may use mobile App or web Application.

This system enables the waste generator to register their waste, waste handlers to pick up the waste, Common Biomedical Waste Treatment Facilities to accept waste transported by waste handlers, and regulators to track the generation and movement of waste. The system also provides various real time statistics to its users. The App can be downloaded from: <https://play.google.com/store/apps/details?id=com.cpcb.bmw>

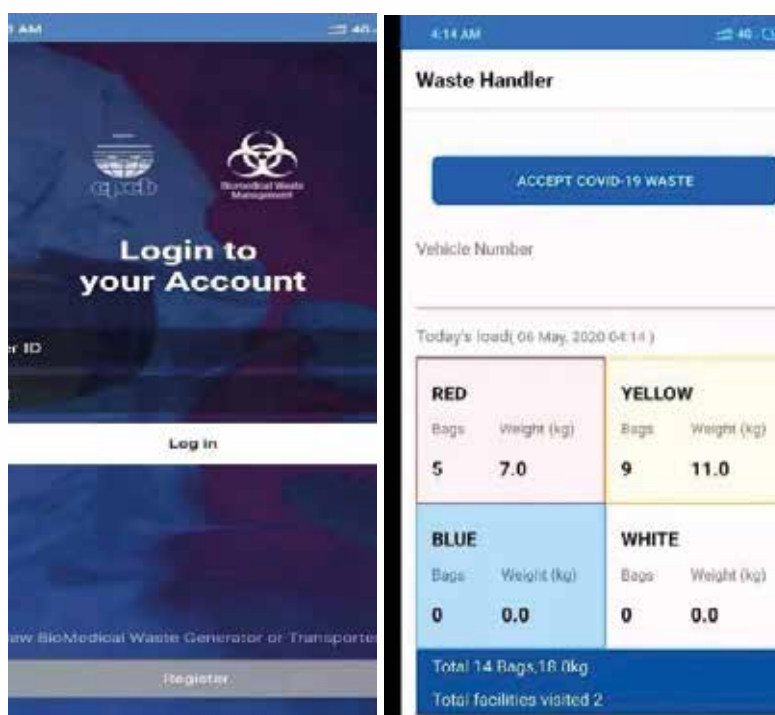
- Common Bio-Medical Waste Treatment Facility (CBMWTF) operators were directed to use COVID- 19 Bio-Medical Waste Tracking App for effective Bio-Medical Waste Management. The details and guideline manual for handling COVID-19 Bio-medical waste is given in CPCB Website.

Categorization of Industries

Categorization of Industries into red, orange, green & white, has been done on the basis of Pollution Index (PI) which is a function of Water

Pollution, Air Pollution, Hazardous Waste generation, fuel consumption and amount of Wastewater generation. During the year 2020-21, CPCB has categorized the following new industrial sectors:

- Scrapping centres (for end-of-life vehicles and other scrap, such as plant and machineries structural material, railway coaches, wagons etc.);



- Used Cooking Oil (UCO) collection centres;
- Compressed/Refined Bio-gas production from Bio-degradable wastes;
- Dairy farms, Gaushalas;
- Building and Construction Projects, having built-up area up to 20,000 m² and wastewater generation ≥ 50 kld;
- Gold assaying & Hallmarking centres;
- Construction & Demolition (C&D) waste processing plants.





2.0 Name of the Scheme / Programme and its objectives

- National Ganga River Basin Authority

The Central Government has set up the 'National Ganga River Basin Authority' (NGRBA) vide gazette notification dated 20th Feb, 2009 as a collaborative institution of Central and State Governments under the Environment (Protection) Act (EPA) of 1986 for abatement of pollution of River Ganga. National Mission for Clean Ganga (NMCG) was registered as a society on 12th August, 2011 under the Societies Registration Act 1860. It acted as implementation arm

of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the EPA, 1986.

Further, NGRBA has been reconstituted in September, 2014 and again same has been dissolved with effect from the 7th October, 2016, consequent to constitution of National Council for River Ganga (Rejuvenation, Protection and Management) (referred as NCRG), vide notification no. S.O. 3187(E), dated 7th October, 2016 under EPA 1986. There are three projects being carried out under the NamamiGangeProgramme (NGP), which are given in Table 7.

Table 7: Details of Projects under NGRBA

S. No.	Project	Funding Agency	Project Duration	Total Budget (Rs. Crore)
1	Pollution Inventorization, Assessment and Surveillance on River Ganga (PIAS)	MoEF& CC	5 years	34.77
		MoWR, RD & GR	3 months	NIL
			1 year (Revised)	3.8
	PIAS (Revised)	MoWR, RD & GR	3 months	NIL
		NMCG, MoWR, RD & GR	3 years (29.09.2017-28.09.2020)	83.25
			6 months (up to 25th March, 2021)	
		NMCG, Department of WR, RD & GR, Ministry of Jal Shakti	1 Year (up to 25th March, 2022)	
	Proposed for 3 years	-		
2	Water Quality Monitoring (WQM) System for River Ganga-Phase I	The World Bank (through NMCG)	7 years (19.06.2013-18.06.2020)	94.45
	WQM Phase-II		6 years (20.06.2020-19.06.2026)	126.17





S. No.	Project	Funding Agency	Project Duration	Total Budget (Rs. Crore)
3	Strengthening of Environmental Regulators (SER)	The World Bank (through NMCG)	8 years (19.06.2013-18.06.2021)	69.26
	SER (Revised)		Proposed for 5 years	-

Under these projects, different activities have been carried out under monitoring, surveillance of water quality of river Ganga from its origin to confluence with Bay of Bengal, such as in-depth inspection of Grossly Polluting Industries (GPIs), monitoring of Sewage Treatment Plants (STPs), Common Effluent Treatment Plants (CETPs), Ground water monitoring to assess the impact of CETPs/STPs and major drains falling into the river Ganga and its tributaries, like river Banganga, Ramganga, river Kali East,

river Pandu &Hindon sub-basin (river Hindon, Kali–West and Krishni).

The objective of the project is to inventorize the pollution sources (both point and non-point) and to assess the pollution load being discharged into the river Ganga directly or indirectly through tributaries, namely Banganga, Ramganga, Kali-East and Pandu. The activities carried out under the project during April, 2020- March, 2021 are given in Table 8.

Table 8: Inspections / Monitoring under PIAS Project during 2020-2

S. No.	Activities	No. of inspections monitoring	Frequency of monitoring
2.	Compliance verification of Grossly Polluting Industries (GPIs) (by CPCB)	26*	Yearly
3.	Compliance verification of Grossly Polluting Industries (GPIs) (through Third party technical institutes)	2,357 (Ganga basin including Yamuna) + 258# (Hindon sub- basin)	Yearly
4.	Adequacy Assessment of Common Effluent Treatment Plants (CETPs) & Common Chrome Recovery Unit (CCRU)	20##	Quarterly
5.	Performance evaluation of Sewage Treatment Plants (STPs)	256	Quarterly
6.	Periodic Pollution assessment of major drains falling into the river Ganga	401	Half-yearly

Note:

* All GPIs were inspected under NGT direction

Out of 383 inventorized GPIs in Hindon Sub-basin in 2019, 258 GPIs were inspected during 20-21, whereas, the rests were already inspected during 2019-20.

due to nation-wide lockdown because of Covid-19, some of the inspection/monitoring could not performed during 1st and 2nd quarters of the year 2020-21.





Action taken for Ganga Basin during 2020 for 'Environmental Compensation' for the direct discharge from drains into river Ganga in the 5 Ganga States were calculated from 1st November, 2019 to 31st January, 2020. Directions were issued under Section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 to the State Pollution Control Boards (SPCBs) of the five Ganga basin states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal) that no Authority shall allow the discharge of polluted sewage or polluted effluents directly into a water channel or stream even during monsoon season.

- **Phasing out of Single Use Plastics**

- PWM Amendment Rule-August 2021 following Single use items are restricted from July, 2022
 - Polystyrene [Thermocol] for decoration
 - Packing films around sweet boxes, invitation cards, and cigarette packets ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks
 - Ice-cream sticks, plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping stirrers
 - Plastic or PVC banners less than 100 micron
 - Minimum Specified thickness of carrybags/ sheets 75 Micron w.e.f September, 2021 & 120 micron w.e.f December, 2022
 - Complete ban on plastic carry bags:

25 States/ UTs namely, Andaman & Nicobar, Assam, Bihar, Chandigarh, Chhattisgarh, Daman Diu and Dadra Nagar Haveli, Goa, Haryana, Himachal Pradesh, Jharkhand, Kerala, Karnataka, Lakshadweep, Madhya Pradesh, Maharashtra, Manipur, Odisha, Punjab, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh.

4.3 Hazardous Substance Management (HSM)

Hazardous Substances Management (HSM) Division is the nodal point in the Ministry for management and safe use of chemicals and wastes. The HSM Division is involved in formulation and administration of rules pertaining to wastes and chemicals. The Division is also the nodal point for multilateral conventions related to wastes and chemicals representing Government of India.

Major programmes/activities are as follows:

Solid Waste Management Rules, 2016:

Solid Waste Management Rules, 2016 were notified on 8th April, 2016 and its applicability has been extended beyond municipal areas to urban agglomerations, census towns, notified industrial townships, etc. The source segregation, door to door collection of waste has been mandated to channelize the waste for useful purposes such as recovery, reuse and recycle.

E-Waste (Management) Rules, 2016:

E-Waste (Management) Rules, 2016 were notified on 23rd March 2016 and applicability





has been extended to manufacturer, dealer, refurbisher, e-retailer and Producer Responsibility Organization (PRO) to address leakage of e-waste to informal sector at any stage of the chain. It also has provision for extended producer responsibility (EPR).

Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016:

The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 were notified on 4th April, 2016 incorporating waste management hierarchy in the sequence of priority i.e. prevention, minimization, reuse, recycling, recovery, co-processing and safe disposal. These rules shall apply to every occupier of the facility who is engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, utilization, offering for sale, transfer or disposal of hazardous and other wastes.

Bio-Medical Waste Management Rules, 2016:

Bio-Medical Waste Management Rules, 2016 were notified with the objectives to improve segregation, collection, processing, treatment and disposal of infectious bio-medical waste in an environmentally sound and safe manner. These rules are applicable to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, AYUSH hospitals, clinical establishments, research or educational institutions, health

camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs.

Plastic Waste Management Rules, 2016:

Plastic Waste Management Rules, 2016 were notified on 18th March, 2016. These rules apply to the manufacture, import stocking, distribution, sale and use of carry bags, plastic sheets or multilayered packaging etc. The jurisdiction of applicability of the rules have been expanded from municipal area to rural areas as well. For the first time, responsibility of waste generators has been prescribed. Individual and bulk generators like offices, commercial establishments, industries are to segregate the plastic waste at source, handover segregated waste, pay user fee as per bye-laws of the local bodies.

Construction & Demolition (C&D) Waste Management Rules, 2016:

For the first time the Government notified Construction & Demolition Waste Management Rules, 2016. The rules apply to everyone who generates construction and demolition waste such as building materials, debris, and rubble waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organization or authority. The rules mandate for collection, transportation, storage and re-processing of C&D waste. Emphasis was given on recycling/recovery of valuable materials and C&D waste as 'RESOURCE'. Scope of the rules includes construction & demolition/ renovation of buildings, excavation, road/ flyover/





underpass/ bridge construction, laying utility pipelines etc. Timeline were prescribed for creation of physical reprocessing facility at all places for recycling C&D waste.

Batteries Management:

The Batteries (Management & Handling) Rules, 2001 were notified in May, 2001 regulate the collection, characterization and recycling as well as import of used lead acid batteries in the country. These rules inter-alia make it mandatory for consumers to return used batteries. All manufacture/assemblers/ re-conditioners/importers of lead acid batteries are responsible for collecting used batteries against new ones sold as per a schedule defined in the rule. Such used lead acid batteries can be auctioned/ sold only to recyclers registered with the Ministry on the basis of their possessing environmentally sound facilities for recycling/recovery. The Ministry formulates regulations for all types of batteries including Lithium Ion batteries for management waste generated from E-vehicles.

Ash utilisation notification, 2021:

The Ministry of Environment, Forest and Climate Change has reviewed the existing fly ash notification, 1999 and issued new notification on 31st December, 2021 with an aim to achieve 100% ash utilisation generated from coal and lignite based thermal power plants. The notification mandates thermal power plants to achieve 100% utilisation of current generation of ash in 3 year cycle and legacy ash in 10 years. The eco-friendly purposes for utilisation of ash have been prescribed. Environmental compensation is to be imposed

on thermal power plants for non-compliance of timelines provided in the notification. The users involved in road construction, roads and flyover embankments laying, construction of dams, mining, manufacture of ash based products, building construction have been mandated to use ash or ash based products located within 300 km radius of thermal power plants.

Chemical Safety:

The Ministry of Environment, Forest and Climate Change notified the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and the Chemical Accidents (Emergency Planning, Preparedness and Response) (CAEPPR) Rules, 1996 for ensuring chemical safety in the country. Objective of these rules is to prevent chemical accidents from industrial activities and mitigate impacts of chemical accidents. Occupier of the hazardous chemicals is required to declare major hazards of industrial activity to public and prepare on-site emergency plan & safety reports, conduct regular safety audits and mock-drills, etc. Further, crisis management framework for chemical emergencies has been formulated. Crisis Alert System i.e. Red Book is prepared and updated annually to facilitate quick information exchange during chemical emergencies.

Public Liability Insurance:

The Public Liability Insurance Act, 1991 enacted with a purpose to provide immediate relief to the persons affected by accident occurring while handling hazardous substance and for matters connected therewith or incidental





thereto. PLI Act, 1991 covers death or injury to any person other than workman (General Public) or damage to property resulting from an accident while handling hazardous substance. The Act covers 179 chemicals and flammable substances. As per Section 7A of the Amended Act, 1992, the Major Accident Hazard (MAH) units shall contribute an amount equal to the amount of premium of the insurance policy to the Environment Relief Fund (ERF) to be created by the Central Government.

Resource Efficiency and Circular Economy:

The Division handles matters related formulation of policies and mainstreaming the circular economy and resource efficiency. The Division has constituted Resource Efficiency and Circular

Economy Cell for bringing institutional and regulatory interventions to mainstream the resource efficiency for sustainable consumption and production and circular economy of wastes. The Cell also is involved in knowledge management and capacity building. The Ministry has drafted National Resource Efficiency and Circular Economy Policy (NRECEP) for implementing several measures in this sector. The Cell is also responsible for implementation of recommendations of circular economy committees in several categories of wastes, reporting on SDG 12 under 10 Year Framework Programme (10 YFP) and facilitation of development of National Indicators for SDG 12 targets.

Central Sector Scheme ‘Creation of Management Structure for Hazardous Substances’ :

HSM Division promotes environmentally sound management of wastes and chemicals through innovative solutions and pilot projects, capacity building, awareness and training for sustainable management of wastes and Hazardous Substances. Central financial assistance is provided to the proposals recommended under the Central Sector Scheme.

The following institutions were engaged in HSM Division under the Scheme :

- i. CSIR-NEERI has been engaged to provide technical assistance to Ministry in implementation of Stockholm convention
- ii. IIT Hyderabad has been engaged to provide technical assistance to Ministry in implementation of Minamata convention.
- iii. IIT Chennai has been engaged to provide technical assistance to Ministry in implementation of SAICM objectives.
- iv. NLSUI, Bangalore has been engaged to provide assistance to Ministry in implementation of legal, policy and strategic aspects for all multilateral agreements dealt in HSM Division.

The following grant-in-aid released to institutions and organisations including NGOs:

Sl.No.	Organisation	Purpose	Amount released
1.	M/s National Informatics Centre Services Inc. (NICS)	National Hazardous Waste Tracking System	Rs.94,12,935/- out of sanctioned amount Rs.2,75,97,911





Multilateral Agreements: The Division is also the nodal point for the following multilateral agreements

Basel Convention:

The Convention regulates transboundary movement of hazardous wastes and disposal (import and export) and prescribes environmentally sound management of wastes domestically. The Convention also restricts trade on plastic waste. India ratified the Convention in June, 1992. To implement the provisions of transboundary movement of hazardous waste, the Ministry has established a Prior Informed Consent (PIC) mechanism for regulating import and export of hazardous waste under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Stockholm Convention:

Stockholm Convention is a global treaty to protect human health and the environment from Persistent Organic Pollutants (POPs). The Convention obligates all parties to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally-sound manner. India banned 12 chemicals (dirty dozen) during its ratification of the Convention in January, 2006. Subsequently, 7 more chemicals have been ratified in October, 2020. These chemicals include pesticides, industrial chemicals and unintentionally produced POPs. To implement the obligations, the Ministry has notified the Regulation of Polychlorinated Biphenyls Order, 2016; and Regulation of

Persistent Organic Pollutants Rules, 2018 to prohibit production, import and use of hazardous chemicals. The Ministry has prepared National Implementation Plan for 12 POPs.

Rotterdam Convention:

The objective of the Rotterdam Convention is to promote shared responsibility and cooperative efforts among parties in the international trade of chemicals to protect human health and the environment, and contribute to the environmentally sound use of chemicals. The Prior Informed Consent (PIC) procedure is a mechanism for formally obtaining and disseminating the decisions of importing Parties as to whether they wish to receive future shipments of those chemicals listed in Annex III of the Convention and for ensuring compliance with these decisions by exporting Parties.

India ratified the convention in May, 2005. A total of 52 chemicals are listed in Annex III includes pesticides and industrial chemicals. India has established the mechanism for Prior Informed Consent for import and export of hazardous chemicals. Designated National Authorities (DNA) viz. Ministry of Chemical Fertilizers and Ministry of Agriculture and Farmer Welfare have been nominated for grant of PIC for industrial chemical and pesticides, respectively.

Minamata Convention:

The Minamata Convention is a global legally binding instrument with the objective to protect human health and the environment from anthropogenic emissions and releases





of mercury and mercury compounds. The Convention addresses the life cycle of mercury, including supply, trade, mercury-added products, industrial processes using mercury, artisanal and small-scale gold mining, emissions to air, releases to land and water, interim storage, waste and contaminated sites. India ratified the Convention in June, 2018.

The Convention provides timelines to phase out certain mercury added products and manufacturing processes involving mercury. India has registered extension of 5 years for meeting the timelines for phasing out mercury added products and one manufacturing process. India's interests of use of mercury in Ayurveda, Siddha and Unani (ASU) medicines and traditional/religious practices have been protected under the Convention. India has established a mechanism for Prior Informed Consent for import and export of mercury to meet its obligations.

Strategic Approach to International Chemicals Management (SAICM):

SAICM is a global policy framework to promote sound management (production and use) of chemicals throughout their life-cycle to minimise significant adverse effects on human health and environment.

To promote safe use of chemicals, Ministry has notified a Regulation on lead content in Household and Decorative Paints Rules in November, 2016 to prohibit manufacture/ trade/ import/ export household and decorative paints with Lead or Lead compounds in excess of 90 parts per billion.

Externally funded projects:

HSM Division implements the following externally funded projects in collaboration with agencies involved in implementation and execution in the field of chemicals and wastes:

- i. GEF-UNIDO: Environmentally Sound Management of Poly Chlorinated Biphenyls (PCBs) in India;
- ii. GEF-UNIDO: Development and promotion of non-POP alternatives to DDT;
- iii. GEF-UNIDO: Environmentally Sound Management of Medical waste in India;
- iv. UNEP: India-Norway Marine Pollution Initiative;
- v. UNEP: Partnership for Action on Green Economy (PAGE);
- vi. GIZ: Circular Economy Solutions (CES) preventing Marine Litter in Ecosystems;
- vii. EU: EU-Resource Efficiency Initiative (EU-REI), and SWITCH-Asia Programme;
- viii. Development of Regulatory Framework for Minamata Convention in India.

Activities undertaken:

- i. To meet the commitment made by the Hon'ble Prime Minister to ban on Single Use Plastics on Swachh Bharat Diwas (2nd October, 2019), Plastic Waste Management Rules, 2016 have been amended on 12th August, 2021 for phasing out identified single use plastic items by 1st July, 2022. Thickness of carry bags made of virgin or recycled plastic has been increased from 50 micron to 70 micron by 30th September,





- 2021 and 120 micron by 31st December, 2022.
- ii. Plastic Waste Management Rules, 2016 were amended on 17th September, 2021 to allow carry bags made of recycled plastics for storing, carrying, dispensing, or packaging ready to eat or drink food stuff inline with the standards and regulations made by the Food Safety and Standards Authority of India (FSSAI) under the Food Safety and Standards Act, 2006
 - iii. Draft Regulations on the Extended Producer Responsibility under Plastic Waste Management Rules, 2016 have been published on 6th October, 2021.
 - iv. Report containing various measures on Circular Economy of Tyre and Rubber Waste has been prepared with action plans to be implemented by several stakeholders.
 - v. Notification containing Draft provisions on Extended Producer Responsibility for waste tyres has been published on 31st December, 2021.
 - vi. Notification on ash utilisation from coal and lignite based thermal power plants has been published on 31st December, 2021.
 - vii. Prior Informed Consent (PIC) mechanism for import and export of mercury in the Country has been established through DGFT notification on 09th September, 2021.
 - viii. In view of Covid-19 pandemic, Ministry has reduced the targets for e-waste collection to 40% for the current financial year 2021-22 on 2nd December, 2021 as against the existing target of from 50% given under E-waste (Management) Rules, 2016. Further, shortfall if any up to 10% over the revised target is to be carried forward in the financial year 2022-23.
 - ix. Policy for import and export of glass cullet, paper waste, printed circuit boards has been finalised and amendment to implement these policy measures in Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 have been notified on 12th November, 2021. The amendment has brought the following modifications:
 - a) Exempted import and export of glass waste from obtaining permission from MoEFCC.
 - b) import of plastic waste containing Polyethylene terephthalate has been removed from prohibited category.
 - c) Chemical analysis report has been exempted for metal wastes having code from Institute of Scrap Recycling Industries (ISRI).
 - d) Uniform format for grant of one time authorization by State Pollution Control Board/ Pollution Control Committee for traders for import of waste has been published.
 - e) Preparation and submission of manifest system in Form 10 for transportation of hazardous and other wastes has been exempted for 50 types of wastes.





- x. Hon'ble Minister's delivered speech during Berlin Forum on Chemicals and Sustainability on 7th July, 2021 and emphasized India's commitment to sustainable development and safe use of chemicals.
- xi. Restoration plan and compensation plan related to accident occurred at M/s LG Polymers has been prepared.
- xii. 'Integrated Guidance Framework for Chemicals Safety in respect of industries covered under MSIHC Rules, 1989' has been prepared in consultation with stakeholders.
- xiii. A National Task Force, under chairmanship of Secretary, EFCC, has been constituted on June 25, 2021, for taking measures to eliminate identified Single Use plastic (SUP) items in mission modexiv. Pan India Essay Writing Competition for School Students in Hindi, English and regional languages on reducing plastic pollution has been organised.
- xv. India Plastic Challenge- Hackathon, 2021 has been organised for inviting digital solutions for plastic waste management and alternatives to Single Use Plastics from students and startups.
- xvi. Central Monitoring Committee meeting held on 7th December, 2021 to review nation wide implementation of rules on construction and demolition waste.





CHAPTER

05

Regeneration and Eco-development





5.1 National Afforestation and Eco-Development Board (NAEB)

In order to promote afforestation, tree planting, ecological restoration and eco-development activities in the country, the National Afforestation and Eco-Development Board (NAEB) was set up in August 1992. Special attention is given by NAEB to the regeneration of degraded forest areas and adjoining areas, national parks, sanctuaries and other protected areas as well as the ecologically fragile areas like the Western Himalayas, Aravallis, and Western Ghats etc.

NAEB operates the following two major schemes:

- A. National Afforestation Programme (NAP) Scheme
- B. Eco-Development Forces (EDF) Scheme

(A) National Afforestation Programme (NAP) Scheme:

National Afforestation Programme (NAP) is a major Afforestation scheme of the NAEB in the Government of India. Launched in 2000-01, the scheme has acquired a Pan India ambit over the last sixteen years of its implementation and was being implemented by 28 states of the country through a twin institutional set up of Forest Development Agencies (FDAs) at the forest division level and Joint Forest Management Committees (JFMCs) at the village level. From the year 2010-11, State Forest Development Agency (SFDA) has been constituted at the State level to smoothen the fund flow to the FDAs. The programme is now implemented

through a three tier system of State Forests Development Agency (SFDA) at the state level, Forest Development Agency (FDAs) at the district/forest division level and Joint Forest Management Committees (JFMCs) at the village level. Under Entry Point Activities, community assets are created with a 'care and share' concept.

Objectives:

- Protection and conservation of natural resources through active involvement of the people.
- Checking land degradation, deforestation and loss of biodiversity
- Ecological restoration and environmental conservation and eco-development
- Evolving village level people's organization which can manage the natural resources in and around villages in a sustainable manner
- Fulfillment of the broader objectives of productivity, equity, and sustainability for the general good of the people
- Improve quality of life and self-sustenance aspect of people living in and around forest areas
- Capability endowment and skill enhancement for improving employability of the rural people.

Activities undertaken since its inception till close of previous year; cumulative performance, both financial and physical:

28 SFDA Projects have been operationalized in the country at an expenditure of Rs. 3941.55 crore to treat an area of 22.15 lakh





hectares since inception of the NAP scheme till 30.10.21. NAP Scheme stands merged with Green India Mission as per Order dated 30th January, 2018. However, during the year 2021-22, Rs. 5.13 crore has been released to carry out committed liabilities of plantation activities taken up during previous years under

the NAP scheme. The funds are being routed through State Governments under Central Assistance to State Plan (CASP) and from State Governments. The funds are released to State Forest Development Agencies.

Year-wise and State-wise progress of National Afforestation Programme is given in Table No.1.

Table No.1 – Year-wise progress of National Afforestation Programme

Table : Year-wise progress of National Afforestation Programme(From the year 2000-02 to 2021-22)		
Year	Project Area* approved (ha.)	Release** (Rs. in crores)
2000-02	71068	47.53
2002-03	404799	151.26
2003-04	282536	207.98
2004-05	106743	233.00
2005-06	54432	248.12
2006-07	0	292.75
2007-08	493061	392.95
2008-09	173435	345.62
2009-10	103556	318.17
2010-11	57126	309.99
2011-12	141448	303.00
2012-13	55529	193.37
2013-14	80583	257.62
2014-15	74435	243.78
2015-16	35986	94.16
2016-17	2359	59.35
2017-18	39847	80.00
2018-19	16636	95.38
2019-20	19724	21.98
2020-21	750	40.42
2021-22	0	5.13

* Area approved for advance soil work/preparatory plantations during the year for all ongoing FDA projects.

** Total (financial assistance provided during the year for planting, advance soil work, maintenance, etc.) for all ongoing FDA projects.





- The year-wise data for sanctioned Advance work Area and Releases under NAP since inception of the scheme are depicted in the following Graphs/Charts of Fig.1 and Fig.2

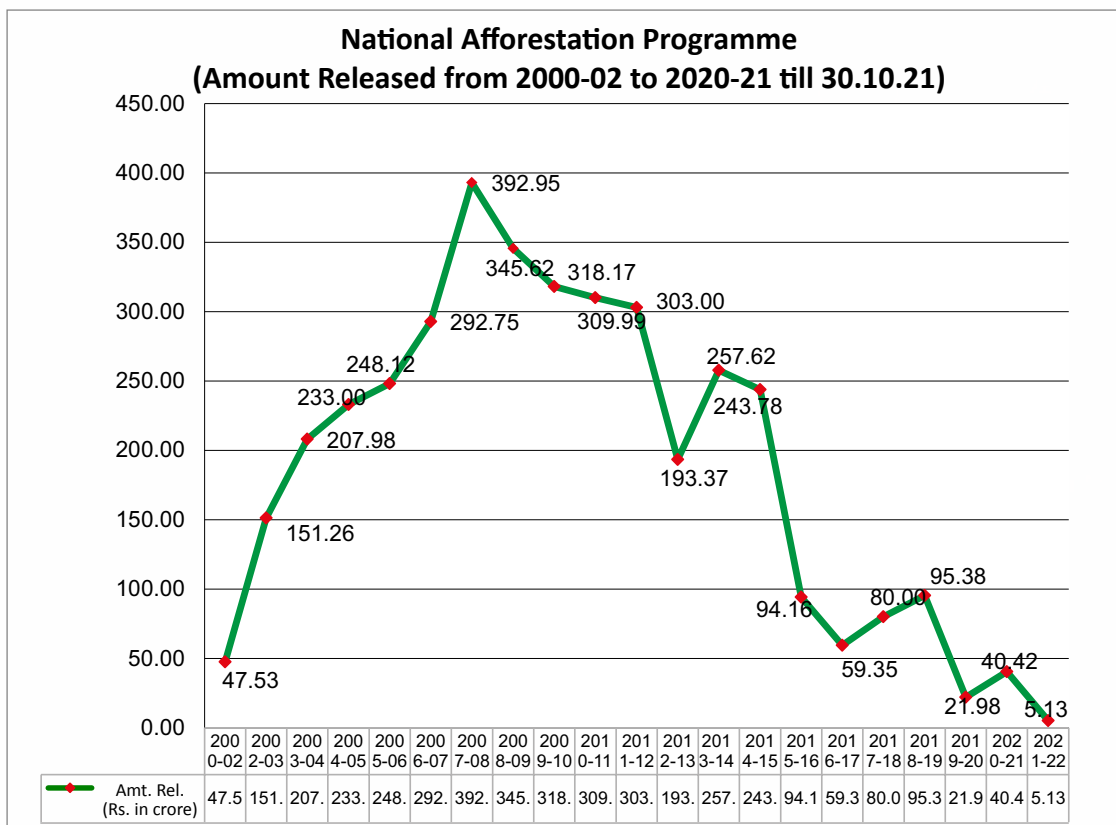


Fig.1

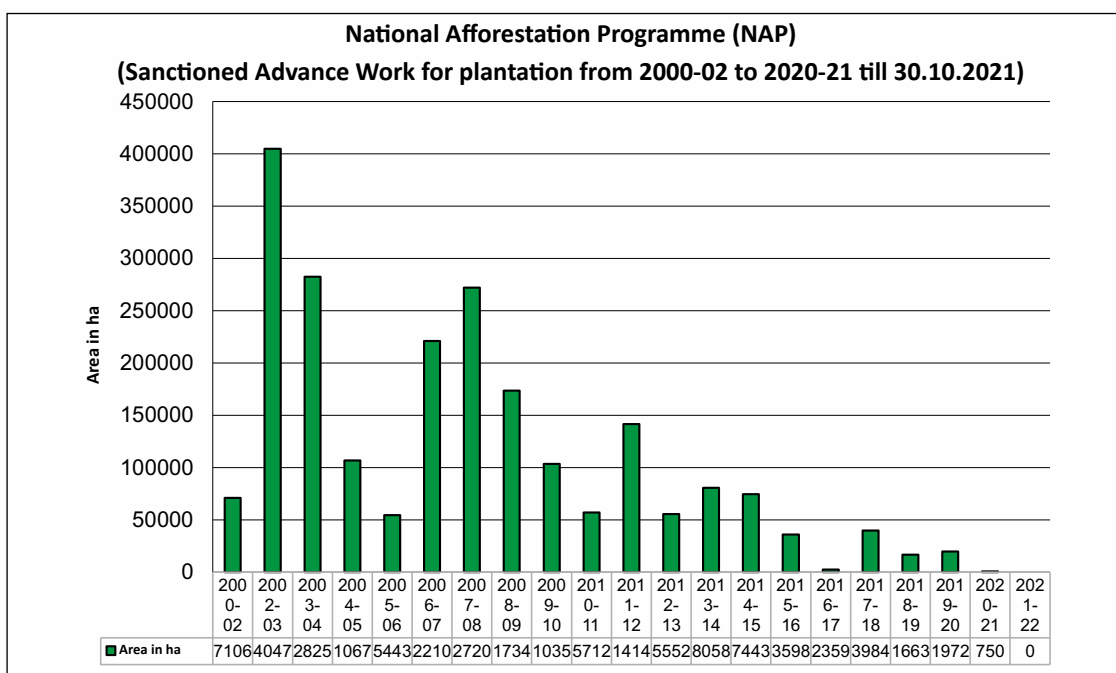


Fig.2

**(B) Eco-Development Forces (EDF) Scheme**

Eco-Development Forces Scheme was established in 1980s as a scheme implemented through Ministry of Defence for ecological restoration of terrains, rendered difficult either due to severe degradation or remote location or difficult law and order situation. The scheme of Eco-Development Forces is based on twin objectives of ecological regeneration in difficult areas, and promotion of meaningful employment to ex-servicemen. Under this scheme, the establishment and operational expenditure on the Eco Task Force (ETF) Battalions raised by Ministry

of Defence is reimbursed by Ministry of Environment and Forests while the inputs like sapling, fencing, etc. and also the professional and managerial guidance is provided by the State Forest Departments. In ETF battalions, the Ministry of Defence deploys its ex-servicemen, preferably from within the area of operation, whereas the nuclear core of the force is constituted of regular servicemen. Some of the ETF Battalions have undertaken successful eco-restoration of highly degraded sites, for example the limestone mining areas in the Mussoorie Hills. The progress of ETF Battalions during the year 2020-2021 is given in Table No.3.

Table No.3 : The progress of ETF Battalions during the year 2020-21

BATALLION	LOCATION	No. of plants planted (in lakh)	Area Covered (in ha.)
1	2	3	4
127 Inf. Bn(TA) Eco	District TehriGarhwal (Uttarakhand)	4.00	400
128 Inf. Bn(TA) Eco	ShriMohangarh, District Jaisalmer (Rajasthan)	5.00	500
129 Inf. Bn(TA) Eco	BahuPurmandal Project, Samba (J&K)	1.00	148
130 Inf. Bn(TA) Eco	Pithoragarh (Uttarakhand)	2.83	496
134 Inf. Bn(TA) Eco	Sonitpur District (Assam)	1.28	35.78
135 Inf. Bn(TA) Eco	Chirang Res. Forest, Kokrajhar, (Assam)	2.04	300
TOTAL		16.15	1879.78

Six ETF battalions are being supported by the Ministry under the EDF Scheme in the States of Uttarakhand, Rajasthan, Jammu & Kashmir and Assam. During 2021-22, bills to the tune of Rs. 60.00 (till December, 2021) crores pertaining

to these ETF battalions were reimbursed to the Ministry of Defence. All ETF Battalions have undertaken works like raising nursery and plantation and protection measures to protect the plantation area. They have also constructed





stone dams and also other soil and moisture conservation works.

NEW INITIATIVES

Programmatic initiatives:

➤ Nagar Van Yojana

- NAEB has initiated a pilot scheme 'Nagar Van Yojana' with a vision to increasing green cover and biodiversity in urban areas thereby providing a wholesome healthy and pollution free environment to the city dwellers. 400 'Nagar Vans' and 200 Nagar Vatikas are proposed to be developed in the vicinity of Cities/ Municipal Corporations easily accessible to the residents of the city and on degraded forest areas, facing threat due to destruction, encroachment etc. in five year period (2020-21 to 2024-25).

A total of 126 projects (as on 31st October, 2021) have been received from States/UTs out of which 75 projects for creation of Nagar Van have been sanctioned in Phase I and Phase II during 2020-21 and 2021-22 respectively. Remaining projects are at various stages of approval.

1. School Nursery Yojana

The Ministry is making all efforts to improve and increase green cover in the country with peoples' participation. Considering that the young students, who are the future generation, need to be sensitized towards protecting our environment and ecology and in order to create awareness and inculcate a habit of caring for the nature by creating a bonding between students and plants, the Ministry proposes to implement a scheme 'School Nursery Yojana' in the country. The scheme 'School Nursery

Yojana' is proposed to be implemented for the period of five years from 2020-21 to 2024-25. A total of 942 SNY projects pertaining to 22 States - Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Chandigarh, Jharkhand, Goa, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal - with total cost of Rs. 889.20 lakhs have been shortlisted during 2020-21 for implementation. So far 293 School Nursery Yojna proposals from 8 States/UTs have been approved by NA of CAMPA for release. Due to on-going pandemic and closure of schools the projects could not be initiated by the schools during 2020-21.

Study initiatives:

1. DPR for rejuvenation of 13 Rivers through forestry interventions

NAEB has also initiated a study in thirteen major rivers for their rejuvenation through forestry interventions following holistic approach, in finding permanent solution to many of the environmental concerns including land degradation, ensuring water security, augmenting green cover and conserving the carbon stock in the forest in the catchment of rivers etc. The 13 major rivers chosen for the study include Beas, Chenab, Jhelum, Ravi, Sutlej, Luni, Yamuna, Narmada, Godavari, Kaveri, Krishna, Brahmaputra and Mahanadi.

2. Enhanced Capacity Building of Stakeholders and State Governments on Forest Landscape Restoration and Reporting Mechanism on Bonn Challenge





Besides, pilot project on Enhanced Capacity Building of Stakeholders and State Governments on Forest Landscape Restoration and Reporting Mechanism on Bonn Challenge has been awarded to IUCN and the project is under progress.

3. LiDAR technology for Watershed Management

MoEF& CC, with the participation of State Forest Departments has identified one major ridge inside a forest block in 26 States/UTs with average area of 10,000 ha selected in each State for preparation of Detailed Project Reports for planning and identifying locations and structures for construction of appropriate and feasible micro soil and water conservation structures consistent with site specific geography, topography and soil characteristics and in accordance with the 'Ridge to Valley' approach of watershed management. This is being done using LiDAR technology with which the 3-D (three dimensional) DEM (Digital Elevation Model), imagery and layers of the project areas will be prepared. This LiDAR produced data will be processed by using cutting edge tools and technologies and the DPRs will be prepared. The project has been awarded to WAPCOS, a PSU under the aegis of Ministry of Jal Shakti, Government of India and the LiDAR survey and DPRs of 20 States have been submitted and remaining are under progress.

4. Tree Plantation/Afforestation Targets under Twenty Point Programme:

Although India is one of the few countries

in the world where the area under forest cover is increasing steadily, the current rate of increase in forest cover needs to be stepped-up to achieve National Forest Policy 1988 goals and targets. It may be recalled that India's commitment to several global multi-lateral environmental agreements, such as India's NDC targets to create additional Carbon sink of 2.5 to 3 billion tonnes CO₂ equivalent by 2030 through additional forest and tree cover and UNCCD targets to restore 26 million ha degraded land by 2030 advocates for massive afforestation efforts by all stakeholders. The Vision 2024 document of the Ministry also envisages doubling the annual plantation target to 253 crores seedlings by 2024 from the current 143 crores, which means each State / UT, has to make a special and consistent effort. Accordingly, the targets for afforestation under Twenty point programme for the year 2021-22 have been finalized as 2.69 m.ha and 175 crore seedlings. Hon'ble Minister of Environment, Forest and Climate Change vide his D.O no E. 4-1/2021-B1 (NAEB) dated 31.03.2021 has written to the Hon'ble Chief Ministers to take all possible measures for tree planting achievements in excess of the target this year.

For online monitoring of the monthly achievements of tree plantation targets, the 'Proforma' for submitting the monthly achievements has been uploaded in the Ministry's website and the States/UTs are submitting the achievements in the online portal.





Advisories:

- MoEFCC also advised States/UTs to take up tree plantation under various schemes, and on all available vacant land within and outside forest areas by involving local communities, educational institutions, NGOs, local bodies etc.
- States have been advised to take up plantation drive during special occasions like Van Mahotsav, World Environment Day, World Forestry Day, 150th Birth Anniversary of Mahatma Gandhi etc.
- Advisory also issued to State Forest Departments (SFDs) to consider distribution of good quality seedling. Many SFDs distribute seedlings free of cost or at minimal cost to the framers and other tree growers during planting season (especially during May to July) every year for promoting agro and farm forestry
- States/UTs also advised to report their achievement under Forest landscape restoration for reporting the progress under Bonn Challenge pledge.



Capacity Building Activities under NAP



JFMC Training of members





Eco-Restoration Activities under NAR



JFMC Meeting

5.2 National Mission for a Green India (GIM)

a. Brief Introduction:

National Mission for a Green India (GIM) is one of the eight Missions outlined under the National Action Plan on Climate Change which aims towards protecting, restoring and enhancing India's forest cover and responding to Climate Change. It envisages a holistic view of greening and focuses on multiple ecosystem services along with carbon sequestration and emission reduction as co-benefit.

Mission Objectives

- Increased forest/tree cover and improved quality of the existing forest cover.

- Improved ecosystem services including biodiversity, hydrological services and carbon sequestration.
- Increased forest-based livelihood income of households living in and around the forests.
- Enhanced annual CO2 sequestration.

(b) & c) Activities undertaken so far during the reference period (01-4- 2021-till date):

- GIM activities were started in year 2015-16 and so far, a sum of Rs. 584.35 Crores have been released to Fifteen States and one union territory for undertaking the afforestation activities over an area of 193498 ha





and livelihood improvement activities of forest dependent communities.

- During the FY 2021-22, so far fund amounting to Rs. 128.62 crore has been released to Nine states namely Arunachal Pradesh, Chhattisgarh, Karnataka, Madhya Pradesh, Mizoram Odisha, Punjab, Sikkim, Uttarakhand, for carrying out the afforestation activities over 26347 ha. and livelihood improvement activities of forest dependent communities.
- Green India Mission (GIM) is implementing Ecosystems Services Improvement Project (ESIP), in the two States namely Chhattisgarh and Madhya Pradesh with the overall objective to improve forest quality, land management and Non-Timber Forest Produce (NTFP) benefits for forest dependent communities in the selected landscapes.
- Project Steering Committee (PSC) of ESIP in its 4th Meeting has approved the Annual Plan of Operations at a cost of Rs. 56.12 Crores for undertaking activities like training on Forest carbon stock measurement and monitoring, sustainable utilization of NTFPs for local communities, creation of community reserves etc. and restoration work on degraded forest land.
- Ministry has released 13.90 Crores to Indian Council of Forestry Research

and Education for carrying out the ESIP activities in the State Madhya Pradesh and Chhattisgarh.

- 02 Carbon Flux Tower with 42-meter height equipped with 3-D sonic anemometer infrared gas analyzer have been installed in the Madhya Pradesh and Chhattisgarh to estimate the carbon flux rate from the forest ecosystem on realtime basis.
- (d) Apart from afforestation activities taken up under Green India mission, various livelihood improvement activities like fish farming, Mahua collection, Lac cultivation, making of incense sticks, computer trainings, driving, Sitafal processing, Sewing, bee keeping, poultry, Processing and packaging of NTFPs, etc. has also been taken up by members of JFMCs.
- (e) **Continuing committees/commissions-their work during the year and present position:** The National Executive Council (NEC) has approved Annual Plan of Operations (APOs) for carrying out the GIM activities in 15 States and one Union Territory for the FY 2021-22 and balance work of FY 2020-21.

2. Progress/Achievements both cumulative and for the reference period:

A sum of Rs 584.35 Crore has been released to 15 states and one union territory from the year 2015-16 to 2021-22 for carrying out the afforestation activities over 193498





ha in the forest and non-forest areas along with various livelihood improvement activities and distribution of alternate

energy devices. The State wise details of afforestation being taken up and funds released is given in table below:

S. No.	Name of the State	Afforestation being	Funds Released (Rs. in crore)
		taken up (in ha.)	
1	Andhra Pradesh	2737	4.17
2	Arunachal Pradesh	10777	13.43
3	Chhattisgarh	24610	72.75
4	Himachal Pradesh	5480	17.09
5	Jammu & Kashmir	5680	25.73
6	Karnataka	2435	13.41
7	Kerala	12298	25.47
8	Madhya Pradesh	25617	66.76
9	Maharashtra	6766	10.30
10	Manipur	16920	38.37
11	Mizoram	19643	102.81
12	Odisha	18742	67.31
13	Punjab	5804	18.84
14	Sikkim	3983.2	16.41
15	Uttarakhand	13340	82.09
16	West Bengal	18666	9.43
Total		193498	584.35

3. Grant-in-aid released to Institutions/ organizations including NGOs:

Funds released to the State Forest

Development Agencies (SFDA) for carrying out the GIM activities during the FY 2021-22 under the Green India Mission (01.04.2021 to till date):





S. No.	Name of Organization	Purpose	Total Amount Released (Rs in crore)	Status of third-party evaluation
1.	SFDA, Arunachal Pradesh	Advance Work	13.43	Third Party evaluation of Green India Mission has been completed by NITI Aayog.
2.	SFDA, Chhattisgarh	Advance Work	6.12	
3.	SFDA, Karnataka	Advance, Creation and Maintenance Work	4.45	
4.	SFDA, Madhya Pradesh	Advance, Creation and Maintenance Work	11.94	
5.	SFDA, Mizoram	Creation and Maintenance Work	29.86	
6.	SFDA, Odisha	Advance and Maintenance Work	17.74	
7.	SFDA, Punjab	Advance, Creation and Maintenance Work	3.32	
Total			107.3075	
8.	SFDA, Sikkim	Advance, Creation and Maintenance Work	7.77	
9.	SFDA, Uttarakhand	Advance, Creation and Maintenance Work	33.99	
Total			128.62	





CHAPTER
06

Research





6.1 Research in Environment

The Research and Development (R&D) Scheme for Conservation and Development of RE Division support and funds research projects for building database, generate information and knowledge for finding practical solutions to problems of environmental conservation and management and for developing policies, strategies, action plans for better management and conservation of natural resources. The R&D scheme for conservation and Development is open to all institutions including NGOs in India with expertise in identified thematic areas to undertake projects on specific areas related to environmental conservation and conservation of natural resources in the Country. Institutions availing funds under the Scheme are provided a Grant for the project duration. The major thematic areas for funding are:

Major objectives of the R&D Scheme are as under:

- Biodiversity conservation (including Alien and invasive species, Human-wildlife interface).
- Ecosystem conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem services.
- Socio-economic issues of environment and sustainable development.
- Conservation and Management of landscapes and ecologically sensitive areas including issues of sustainable livelihoods.
- Sustainable Management of Natural Resources, Natural Resource Management using remote sensing data.
- Climate Change: Vulnerability & Risk

Assessment, Process, Mitigation and Adaptation.

- Pollution Prevention-Clean Technologies and processes, cleaner production Management of waste, Environmental health.
- Use of Remote Sensing and geo-spatial technology for inventorisation, assessment and monitoring of Country's natural resources such as land, water, forests, wetlands, glaciers, etc., for environmental conservation and protection.

Major objectives of the R&D Scheme are as under:

- To generate information and knowledge required for developing policies, strategies, action plans from outcomes of R&D projects. This also includes technologies and methodologies including pilot studies and demonstration projects for better environmental management and conservation of natural resources.
- The outputs/ outcomes of the projects would be used to prepare a Road Map/ Action Plan for implementation of the findings in the field/ communities for improving quality of life and for sustainable livelihoods.
- To find practical solutions to problems of environmental protection and management (e.g. Eco-regeneration of degraded areas, management of wastes, bio-remediation of contaminated sites, conservation of ecologically sensitive areas and landscapes, etc.).
- To build indigenous capacities and





strengthen scientific manpower in multidisciplinary and emerging areas of environment and ecology and sustainable development.

- To conduct R&D in cleaner technologies and production including the 3Rs, Resource Efficiency, Waste minimization and management, etc.
- To generate, document and analyse information for taking policy decisions relating to environment and natural resources, and Action Plans of GOI, including preparedness for international negotiations on Conventions, Treaties, Protocols, Laws, etc.
- To support basic research which leads to applied research in the areas of environment and ecology with the aim of

development of management and policy interventions. Adoption of successful technologies, demonstration projects in Industry and in other sectors, and to find cost-effective solutions to environmental problems.

- Creation of MIS-Portal in Ministry website for database management at one single point in the Ministry.

Activities undertaken in 2020-2021 (as on 10.12.2021):

- Convening the Technical and Financial Appraisal Committee (TFAC) Meetings for review of Annual Progress Reports/ Final Technical Reports of the R&D Project and appraisal/ approval of new R&D proposals;
- Releasing next installment of Grants for ongoing R&D projects.

b. Progress/ Achievements in FY 2021-22 (as on 10.12.2021):

i.	New Proposal/applications received for funding	54
ii.	Total No of project applications appraised in the TEAC	71
iii.	Number of meeting of the Technical & Financial Appraisal Committee (TFAC) held during the year	01
iv.	Number of meeting of the Steering Committee (SC) held during the year	01

6.2 Eco-Sensitive Zone

The National Environment Policy, 2006 defines Eco-Sensitive Zones as areas/ zones, ‘with identified environmental resources having incomparable values which require special attention for their conservation’. The purpose of declaring Eco-sensitive Zone (ESZ) is to create some kind of “Shock Absorber” for specialized Ecosystems such as Protected Areas (PAs) which include National Parks and Wildlife Sanctuaries.

The ESZs act as transition zones for areas requiring high protection to areas where development may be permitted.

- Notifying Eco-Sensitive Zones around the PAs is an important objective of MoEF&CC for sustainable development and for conservation of Wildlife and Biodiversity. As part of Wildlife Conservation Strategy, in the year 2002, it was decided that an area around each PA (National Park,



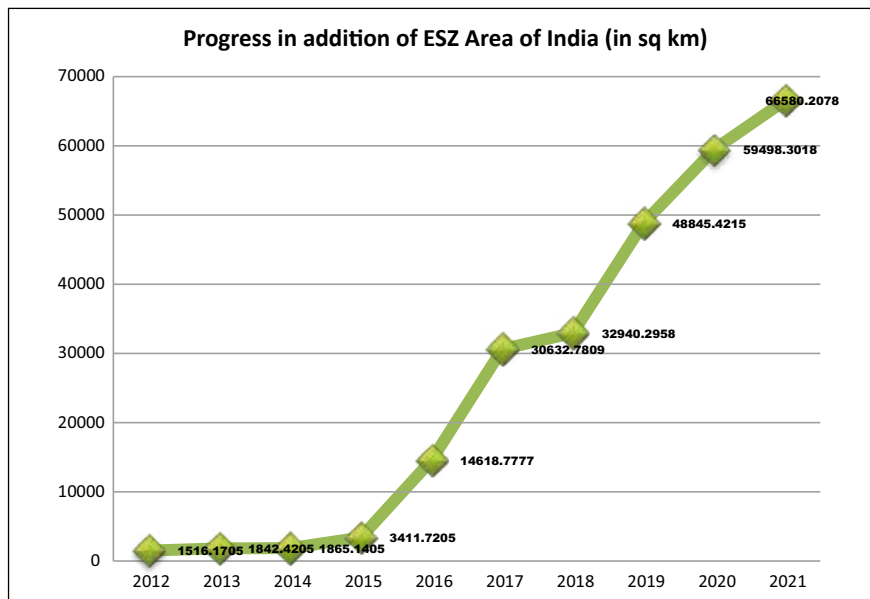
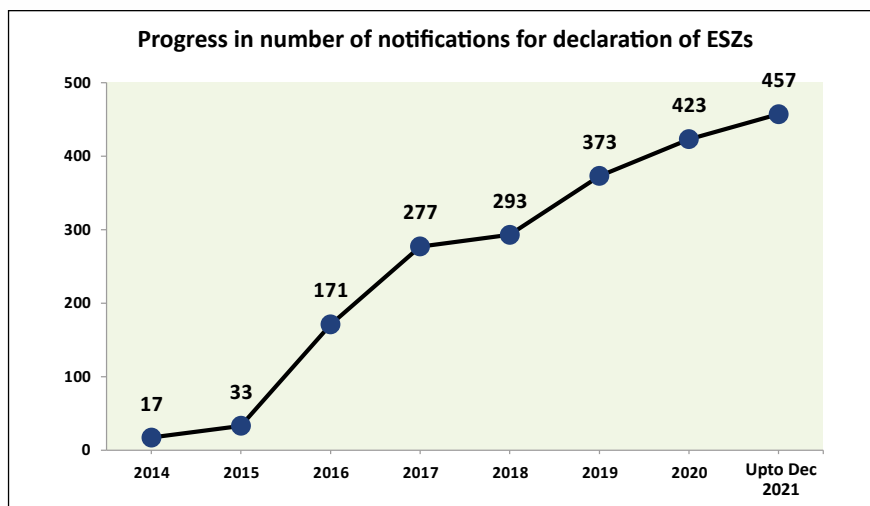


Biosphere Reserve, Wildlife Sanctuary, Tiger Reserve, etc.), requires to be notified as Eco-Sensitive Zone for creating a buffer as further protection around PAs.

- Whereas, on the other hand, Ecologically Sensitive Areas (ESA) are “areas with identified environmental resources having incomparable values which require special attention for their conservation.” The ecologically sensitive areas notified by the Ministry include Dahanu Taluka, Mahabaleshwar-Panchgani, Matheran,

Mount Abu, Bhagirathi, Doon Valley and Western Ghats, etc. As on 31.12.2021, ESZ notifications in respect of 77 Protected Areas in the country were issued. These include draft Notifications for 43 PAs and final Notifications for 34 PAs. In addition, nine amendments in respect of the ESZ/ESA notifications and amendment in Environment (Protection) Rules, 1986 were issued.

Graphical representation of Progress/Achievement of ESZ Division:





4. Amendment in ESA and ESZ notification were carried out with the purpose of decentralizing power and empowering the concerned State Government for approval of the Zonal Master Plan/ Regional Plan/ Master Plan/ Development Plan etc. and for reconstitution of the Monitoring

Committee required for enforcement of the notifications. The status of draft and final ESZ notifications published and the amendments to the ESZ/ESA notifications issued during the period 01.01.2021-31.12.2021 are as follows:

Table 1: Final ESZ Notifications Published in the year 2021
(1st January 2021 to 31st December 2021)

S. No.	State	Name of final Notification	Date of Publication
1.	Andhra Pradesh	Sri Venkateswara Wildlife Sanctuary & Sri Venkateswara National Park (2 PAs)	18.06.2021
2.		Coringa Wildlife Sanctuary	21.09.2021
3.		Nagarjunasagar Srisaillam Tiger Reserve (2 PAs)	18.10.2021
4.	Andaman & Nicobar Islands	Campbell Bay National Park	12.03.2021
5.		Galathea National Park	12.03.2021
6.	Arunachal Pradesh	Kane Wildlife Sanctuary	08.04.2021
7.	Assam	Chakrashila Wildlife Sanctuary	08.04.2021
8.	Gujarat	Balaram Ambaji Wildlife Santuary	08.11.2021
9.	Haryana	Nahar Wildlife Sanctuary	16.08.2021
10.	Himachal Pradesh	Kugti Wildlife Sanctuary	12.07.2021
11.		Sri Renuka Ji Wildlife Sanctuary	10.09.2021
12.		Kanawar Wildlife Sanctuary	08.11.2021
13.		Kais Wildlife Sanctuary	22.11.2021
14.	Jammu and Kashmir	Ramnagar Wildlife Sanctuary	01.06.2021
15.		Hirpora Wildlife Sanctuary	18.06.2021
16.		Kishtewar High Altitude National Park	13.10.2021
17.	Karnataka	Yadahalli Chinkara Wildlife Sanctuary	19.02.2021
18.		Jogimatti Wildlife Sanctuary	17.12.2021
19.	Madhya Pradesh	Kanha Tiger Reserve (Kanha National Park & Phen Wildlife Sanctuary) (2 PAs)	12.03.2021
20.		Veerangana Durgawati Wildlife Sanctuary	08.11.2021





S. No.	State	Name of final Notification	Date of Publication
21.	Maharashtra	Tamhini Wildlife Sanctuary	25.02.2021
22.		Katepurna Wildlife Sanctuary	12.03.2021
23.		Karanja Sohal Blackbuck Wildlife Sanctuary	18.06.2021
24.		Thane Creek Flamingo Sanctuary	14.10.2021
25.	Rajasthan	Bassi Wildlife Sanctuary	08.04.2021
26.		Bhainsrodgarh Wildlife Sanctuary	10.09.2021
27.	Tamil Nadu	Sathyamangalam Tiger Reserve	19.02.2021
28.	Tripura	Sepahijala Wildlife Sanctuary and Clouded leopard National Park (2 PAs)	19.02.2021
29.	Uttarakhand	Binsar Wildlife Sanctuary	21.09.2021
30.		Askot Wildlife Sanctuary	02.12.2021

Table 2: Draft ESZ Notifications Published in the year 2021
(1st January 2021 to 31th October 2021)

S. No.	State	Name of Draft Notifications	Date of Publication
1.	Assam	Bherjan Borajan Wildlife Sanctuary	Draft republished on 07.06.2021
2.		Deepor Beel Wildlife Sanctuary	25.08.2021
3.		Panidehing Wildlife Sanctuary	Draft republished on 28.09.2021
4.		Borail Wildlife Sanctuary	Draft republished on 01.10.2021
5.	Gujarat	Balaram Ambaji Wildlife Sanctuary	05.01.2021
6.	Himachal Pradesh	Shikari Devi Wildlife Sanctuary	Draft republished on 12.01.2021
7.		Kais Wildlife Sanctuary	Draft republished on 05.02.2021
8.		Tundah Wildlife Sanctuary	Draft republished on 12.03.2021
9.		Dhauladhar Wildlife Sanctuary	Draft republished on 07.06.2021
10.		Rupi Bhabha Wildlife Sanctuary	12.07.2021





S. No.	State	Name of Draft Notifications	Date of Publication
11.	Jammu & Kashmir	Surinsar-Mansar Wildlife Sanctuary	Draft republished on 12.01.2021
12.		Kishtewar National Park	12.01.2021
13.		Tata Kutti Wildlife Sanctuary	28.01.2021
14.		Kazi Nag National Park (Kazinag National Park, Limber Sanctuary and Lachipora Sanctuary) (3 PAs)	07.06.2021
15.		Dachigham National Park Baltal Thajwas Sanctuary Overa-Aru Sanctuary (3 PAs)	07.06.2021
16.		Gulmarg Wildlife Sanctuary	07.06.2021
17.		Nandini Wildlife Sanctuary	Draft republished on 23.07.2021
18.	Karnataka	Jogimatti Wildlife Sanctuary	07.06.2021
19.	Kerala	Eravikulam National Park (5 PAs)	Draft republished on 12.01.2021
20.		Parambikulam Tiger Reserve	Draft republished on 28.01.2021
21.		Wayanad Wildlife Sanctuary	28.01.2021
22.	Madhya Pradesh	Veerangana Durgawati Wildlife Sanctuary	Draft republished on 12.03.2021
23.		Ralamandal Wildlife Sanctuary	08.11.2021
24.	Maharashtra	Thane Creek Flamingo Sanctuary	Draft republished on 30.04.2021
25.		Bor Wildlife Sanctuary (3 PAs)	05.02.2021
26.	Meghalaya	Baghmara Pitcher Plant Wildlife Sanctuary	18.06.2021
27.		Nokrek National Park	Draft republished on 12.07.2021
28.	Mizoram	Tokalo Wildlife Sanctuary	28.01.2021
29.	Rajasthan	Bhainsrodgarh Wildlife Sanctuary	Draft republished on 28.01.2021
30.		Sariska Tiger Reserve (Sariska National Park and Sariska Sanctuary) (2 PAs)	04.03.2021
31.		Tal Chappar Sanctuary	14.09.2021





Table 3: Amendment of ESZ/ESA Notifications Published in the year 2021
(1st January 2021 to 31st December 2021)

S. No.	State	Name of Notification	Date of Publication
1.	Maharashtra	Final notification amendment of Dahanu Eco-Sensitive Area 22.02.2021	04.06.2020
2.		Final notification amendment of Matheran Eco-Sensitive Area	27.08.2021
3.	Rajasthan	Final notification amendment of Mount Abu Eco-Sensitive Area	29.09.2021
4.		Final notification amendment of Bandh Baretha Wildlife Sanctuary Eco-Sensitive Zone	18.05.2021
5.	Bihar	Final notification amendment of Valmiki Sanctuary, NP and Tiger Reserve Eco-Sensitive Zone	09.07.2021
6.	Haryana	Final notification amendment of Sultanpur National Park Eco-Sensitive Zone	17.02.2021
7.	Madhya Pradesh	Final notification amendment of Satpura Tiger Reserve, Panchmari and Bori Eco-Sensitive Zone	12.03.2021
8.		Final notification amendment of Kanha NP and Phen Sanctuary Eco-Sensitive Zone	09.09.2021
9.	All UTs/ States	Fourth amendment Environment (Protection) Rules, 1986	16.06.2021

5. ESZ-Division provides Grants-in aid to Dahanu Taluka Environment Protection Authority, Mumbai from the Budget Head of PL Division for protection and conservation of Dahanu Taluka.

S. No.	Name of Organization	Purpose	Total Amount Released as on 31.12.2021	Status of third party evaluation	Remark
1.	Dahanu Taluka Environment Protection Authority (DTEPA)	Functioning of Authority	Rs. 27,50,000/- (including carry forward of Rs. 2,92,586/- from last FY)	NIL	The funds was released from the scheme of Establishment Expenditure (EF&CC) (3493) Major Head '3435' Ecology and Environment, Grant in-aid-General (3435.01.001.04.04.31), under Demand No.27, Ministry of Environment, Forests and Climate Change during the Financial Year 2020-2021 (Plan) from the budget head of PL-Division.





6.3 National Natural Resources Management System (NNRMS)

The prime objective of NNRMS scheme is utilization of Remote Sensing Technology for inventorization, assessment and monitoring of country's natural resources. The procedure for evaluating and sanctioning of the proposals under this scheme are executed through the Technical and Financial Appraisal Committee (TFAC) and Steering Committee since its merger with the R&D Scheme under RE Division vide duly approved memorandum of Standing Finance Committee (2017-2020).

Objectives

- Utilization of remote sensing technology for inventorization, assessment and monitoring of country's natural resources such as land, water, forest, wetlands, glaciers, etc. for environmental conservation and protection.
- Identification and addressing the GIS and Remote Sensing data and knowledge gaps in various scientific disciplines for conservation and sustainable utilization of bio resources & environment.
- Promotion of infrastructure facilities in the scientific organizations for undertaking research and generation of documents/information for taking policy decisions relating to environment and natural resources.
- Generation of time series geo-spatial data on different environmental variables, which could be used in policy formation and devising effective strategies for

conservation of bio resources and addressing the key environmental issues of the country.

- The NNRMS scheme helps in addressing gaps in ongoing activities/schemes/objectives of the Ministry i.e. conservation and protection of environment in respect of forest cover, land degradation, snow cover, ocean and marine biodiversity.
- It also helps in taking appropriate course correction in policy making for conservation and management of natural resources.

The Scheme "National Natural Resources Management System (NNRMS)" of the Ministry is a Central Sector Scheme, merged with the R&D scheme under RE division.

6.4 Conservation and Survey-I (Mountain) Division

Brief introduction, objectives and functions of the Division:

Planning, implementation and coordination of activities for sustainable development in Indian Himalayan Region. The main activities of Mountain Division are:

- (i) Functioning of G.B. Pant National Institute of Himalayan Environment, Almora, an autonomous institute of MoEF&CC.
- (ii) Implementation of National Mission on Himalayan Studies (NMHS) a Central Sector (CS) Grant-in-Aid Scheme of MoEF&CC.
- (iii) Co-ordination with International Centre for Integrated Mountain Development (ICIMOD).





Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021) including celebrations for Azadi ka Amrit Mahotsav

- 51 R&D projects were implemented across the Indian Himalayan region (IHR).
- Institute is working on the guideline of “Transformative Work” of Govt. of India in selected village clusters across the IHR.
- Development of one spring sanctuary (Jal Abhayaranya) Model in each of the IHR States/ UT.
- Technical support extended to various Biodiversity Management Committees (BMCs) in the preparation of People’s Biodiversity Register (PBRs) so as to strengthen the Access and Benefits Sharing (ABS) mechanism.
- “Community Driven Eco-smart Model Village Development to Improve Livelihoods and Foster Ecological Security” in the 5 village clusters.
- An umbrella project, “Fostering Climate Smart Communities in the IHR” is addressing the concerns across the IHR.
- Following activities were performed under Azadi Ka Amrit Mahotsav (AKAM) in the IHR: (1) Mahotsav celebrated at the GBPNIHE-Ladakh RC with 50 participants. (2) 1 day training workshop organised at Masi village, Almora with 80 participants. (3) A field workshop on “Conservation of Pollinators through Community Participation” with 30 participants. (4) Kosi river cleanliness drive was conducted with 95 participants. (5) NLC-

Nagaland conducted Nature Conservation Programme at Ao Kashiram, Nagaland with 70 participants. (6) A wall painting program organized at WLW Sepahijala Sanctuary, Tripura with 83 participants.

- Strengthening the Indian Himalayan Region (IHR) Database w.r.t Springs inventory, Flora and Fauna etc
- Under NMHS “Mobile Cold Mixer-cum-Paver” technology has been up scaled and commercialized.
- State Govt. of Uttarakhand has implemented four (4) Action Plans and Research Models developed under the NMHS through MGNREGA, National Livelihood Mission (NRLM), etc.: These are (1) Spring rejuvenation for water security; (2) Nurti Garden Model for Villages; (3) Participatory Employment through Wild Edible Products; and (4) Implementation of Agro-techniques and market linkages of high altitude medicinal and aromatic plants.

Progress/Achievements both cumulative and for the reference year of 2021 including innovations.

- Under Jal Abhayaranya Programme launched as 100 days programme for rejuvenation of Himalayan springs, data for 4346 springs in 10 IHR States has been collected and geo-tagged.
- Long term data recording on aerosols, black carbon and surface ozone has been undertaken.
- Under the “Transformative Work” of Govt.





of India, 5 village clusters (50 villages) have been selected across H.P., Uttarakhand, Sikkim and Arunachal Pradesh for developing them as eco-smart model villages.

- Prepared PBRs of 22 Panchayats and 5 blocks in Mandi and Kullu districts.
 - Developed grid based spatial datasets for natural plants for 63 grids in Sikkim totaling 58,434 individuals.
 - Inventorization and documentation of 638 medicinal plant species of Sikkim.
 - Inventory of 1,504 species of wild edibles (750 genera and 173 families) prepared in all IHR.
 - Capacity building programmes on climate change and livelihood conducted covering 523 local community people of the IHR.
 - At Rural Technology Complex (RTC) 63 training programmes organized with 1513 stakeholders.
- Belwal T, Chemat F, Venskutonis PR, Cravotto G, Jaishwal DK, Bhatt ID, Devkota HP & Luo Z (2020). Recent advances in scaling-up of non-conventional extraction techniques: Learning from successes and failures. *Trends in Anal. Chem.* 127: 115895.
 - Bisht H, Kotlia BS, Kumar K, Joshi LM, Sah SK & Kukreti M (2020). Estimation of the recession rate of Gangotri glacier, Garhwal Himalaya (India) through kinematic GPS survey and satellite data. *Arab. J. of Geo.* 79:329.
 - Bui Y, Lodhi MS, Chand K & Kuniyal JC (2020). Public awareness, concerns and perceptions about anthropogenic impacts and climate change in rangnadi river basin, Arunachal Pradesh, India. *Int. J. of Env. Sci. and Nat. Res.*, 26(4): 127-133.
 - Dash J, Behera MD, Jeganathan C, Jha CS, Sharma S, Lucas R, Khuroo AA, Harris A, Atkinson PM, Boyd DS & Singh CP (2020). India's contribution to mitigating the impacts of climate change through vegetation management. *Trop. Ecol.* 13:1-4.
 - Gaira KS & Dhar U (2020). Phenological change modelling for selected Himalayan medicinal herbs using herbarium records: A case study. *Ecol. Info.*, 60, 101177.
 - Mehta P, Chandra Sekar K, Bhatt D, Tewari A, Bisht K, Upadhyay S, Negi VS & Soragi B (2020). Conservation and prioritization of threatened plants in IHR. *Biod. & Con.* 29(6): 1723-1745.
 - Nand M, Maiti P, Joshi T, Chandra S, Kuniyal JC, Ramakrishnan MA &

List of major publications of G.B. Pant National Institute of Himalayan Environment as follows:

- Arya, SC & Negi, GCS (2020). Building self-reliant SMART villages for inclusive growth through green business and traditional folk art in Uttarakhand. *Int. J. Adv. in Engg. & Mgmt.* 2(12):94-103.
- Ballav S, Mukherjee S & Dimri AP (2020). Response of a global spectral model for simulation of Indian summer rainfall. *Jour. of Clim. Chan.* Doi:10.1007/s10546-020-00525-w





Pande V (2020). Virtual screening of anti HIV1 compounds against SARS CoV 2: machine learning modelling, chemoinformatics and molecular dynamics simulation-based analysis. Sci. Rep., 10:20397.

- Pant, M., Negi G.C.S. & Kumar P., (2020). Soil macrofauna diversity and population dynamics in Indian Himalayan agro-ecosystems. Soil Res. 58 (7): 636-650.
- Thakur S & Singh RK (2021). "Mountain Specific Rural Technologies for Sustainability of Rural Livelihoods in Himachal Pradesh, India". Int. J. Current Res. 13, (01), 15500-15505.

Challenges in work due to COVID-19 of G.B. Pant National Institute of Himalayan Environment.

1. Difficulty in carrying out research work/ field work and operation of Laboratories
2. Reduction in fund flow of different projects and schemes.

6.5 National Mission on Himalayan Studies (NMHS)

Name of the Scheme: National Mission on Himalayan Studies (NMHS)

Scheme Type: Central Sector (CS) Grant-in-Aid Scheme

Implemented by: Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India

Project Management Unit: G.B. Pant National Institute of Himalayan Environment (GBP-NIHE)

Brief Introduction

- The National Mission on Himalayan Studies (NMHS) was launched in 2015-16 as a Central Sector Scheme to support the sustenance and enhancement of the ecological, natural, cultural, and socio-economic capital assets and values of the Indian Himalayan Region (IHR). The Mission has 5 complementary components as :
 - conducting demand-driven action research,
 - Strengthening Key IHR Institutions with R&D Infrastructure, fellowships Grant, etc.,
 - Creating formal collaborations with IHR States through Nature Learning Centres and State Government Projects (SGPs) in each IHR state,
 - Building core competence of PMU and Data Centre, and
 - Increasing the program level integration with other schemes/ programmes.

Progress/ Achievements both cumulative and for the year 2021

- Rejuvenated Sherpatar Lake and its associated sub-streams in Pandam hill in East Sikkim.
- Prepared GIS based Disaster Resilience Action Plans.
- Development of biodegradable superabsorbent hydrogels for agriculture application.
- Establishment of functional foods R&D centre.
- Up-scaling of climate-friendly pen aquaculture technology.





- A value chain of Saffron in new areas of NW Himalayas.
- Demonstration of Climate-resilient bamboo housing structures.
- Demonstration models of low-cost and durable Model Housing Structures by using Bamboo Micron Fibres.
- Sustainable road pavements in high altitude regions using geosynthetics.
- Synthesis of grapheme, a carbon-nano material from waste plastic.

Autonomous bodies- appraisal of the functioning of each of the autonomous bodies/institutions in relations to their objectives.

- The Department of Expenditure in its report no. AB-14 in 2020 regarding rationalization of Autonomous Bodies has stated that GBPNiHE is a unique Institute with a special objective. Hence, it is recommended that GBPNiHE may continue functioning as an Autonomous Body under MoEF&CC.

Grant-in-aid released in F.Y. 2021-22 to Institutions/ organisations including NGOs.

S. No.	Name of Organization	Purpose	Total Amount Released	Status of third party evaluation	Remarks
1.	GBPNiHE	To fulfil the above mentioned objective	17.30 crore	-	-
2.	GBPNiHE (For Implementation of NMHS Scheme)	To fulfil the above mentioned objective	26.00 crore	The Third Party Evaluation has been carried out by M/s CS Datamation Pvt. Ltd. The scheme is recommended for continuation.	-

6.6 Forestry Research

Research & Training Division (RT) is the nodal division for the Central Sector Scheme “Forestry Training and Capacity Building”. The division looks after the administrative, financial and other matters of five research & training institutions, viz. Indira Gandhi National Forest Academy (IGNFA)-Dehradun, Directorate of Forest Education (DFE)-Dehradun, Indian Plywood Industries Research and Training

Institute (IPIRTI) - Bangalore, Indian Institute of Forest Management (IIFM)- Bhopal, and Indian Council of Forestry Research & Education (ICFRE)- Dehradun.

Indian Council of Forestry Research and Education (ICFRE), Dehradun

a. Brief introduction, objectives and functions of the Division

Indian Council of Forestry Research and Education (ICFRE) is an autonomous





organization under the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India (GoI) and is registered under the Societies Registration Act, 1860. The ICFRE Society, subject to guidelines as issued time to time by Government of India, has full authority to perform all acts and issues such directions as may be considered necessary incidental or conducive to the attainment of the objective of the Council. The Hon'ble Minister of MoEF&CC is the President and the Director General, ICFRE is the Chief Executive officer. The General Body is the supreme authority of the ICFRE, headed by the Union Minister, MoEF&CC, GoI. The members consist of serving and retired officers from various state governments, educational institutes, NGOs and scientific organizations. During the year two Annual General Body Meetings were held.

b. Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021) including celebrations for Azadi ka Mahotsav

- A four days ICFRE-IUFRO workshop on **Forest Landscape Restoration** was held (virtually) from 9th -12th November, 2021 in which more than 100 participants from IUFRO-ICFRE, Heads of State Forest Departments, retired forest officers, professors from universities and experts from other organizations participated and deliberated upon various aspects of Forest Landscape Restoration viz. interventions into Social-ecological Systems, Contribution to Climate

Change Mitigation and Adaptation started, Reclaiming and Rehabilitating Ex-mining Areas, Financing and Building Capacities. The four days workshop included Key Note addresses, Technical sessions and Panel discussions for deliberations on the above topics.

- ICFRE has released 22 varieties/ clones of forestry tree species for commercial cultivation including the species Poplar, Dalbergia sissoo, Neem, Calophyllum inophyllum etc in this year.
- In the year 2021, four patents have been granted to ICFRE on the following technologies
 - a) A transparent wood composite.
 - b) Simple and rapid detection method for discrimination of pure sandalwood and essential oil.
 - c) Management of fungal deterioration of stored medicinal plant products.
 - d) Vacuum Kiln - Fabrication and Performance study of vacuum based wood dryer for fast and efficient drying of Indian timbers.
 - e) In this year, 12 patent applications have been filed
- ICFRE has finalized the draft Safeguards Information System for implementation of REDD+ activities in India, and submitted the final draft to the Ministry for approval.
- Resource manuals (in Hindi and English) and brochure (in Hindi) on Measurement of Forest Carbon Stocks for Capacity Building of State Forest Departments and





Joint Forest Management Committees have been developed. 1200 personnel of SFDs and JFMCs of Madhya Pradesh and Chhattisgarh have been trained on measurement of forest carbon stocks under the World Bank funded ecosystem services improvement project.

- The draft road map has been developed for institutional and policy mainstreaming of Sustainable Land and Ecosystem Management (SLEM) which would provide specific guidelines to different Ministries/ Departments/ Research Organizations/ Civil Society Originations involved in restoration of degraded lands and to combat land degradation/desertification.
- A novel process for isolation of fibre from pine needles which is simple, eco-friendly and does not demand large space, energy, instrumentation etc. has been developed. Technology has been transferred to Uttarakhand Bamboo and Fibre Development Board.
- ICFRE during last year established 3 new Van Vigyan Kendra (VVKs). The establishment of 5 new VVKs was initiated. A demonstration nursery in HP was established. A new demo village was also established at Baragaon, Shimla and the new demo villages were

identified at Mohangarh Jaisalmer and Topra, Jharkhand establishment of 8 Technology Demonstration centres is also in progress

- **Webinars/ Seminars/ Trainings-** During year 2021, 123 Webinars/ Seminars/ Training were organized by various Institutes in council for all stakeholders including women, farmers, scientists and officer of state forest departments on various topics.
- **Azadi Ka Amrit Mahostav-** As part of Azadi Ka Amrit Mahostav, 44 programmes were organized by various institutes. These programmes including Plantation drives, Webinars/ Seminars, Competitions Beach, cleanup drives, cleaning and disposal of plastics wastes etc.
- 10 research proposals by ICFRE on emerging fields of research in forestry sector were submitted for consideration and funding by NITI Aayog.
- The revised guidelines for testing and releasing of Tree Varieties and Clones of Forestry Species (First revision 4th October 2021) were issued.
- Two studies have been completed by the following organization to carrying out policy research study under CFPR:

Study	Organization
Popularization of the use of wood and wood substitutes as per the National Forest Policy and modalities for facilitating industries for its optimum utilization.	NCCF, New Delhi
Functioning of Forest Department Corporations and their Role in the present scenario.	IUCN and IORA, New Delhi





- ICFRE Awards for Excellence – 2020 have been awarded to the following scientists/ officers and SAU :

SN	Category of Awards	Name of Awardees
1.	ICFRE Best Research Paper Award (For ICFRE personnel serving in ICFRE (Hq.) and its institutes/centres)	Dr. Gaurav Mishra, Scientist -D RFRI, Jorhat, Assam
2.	ICFRE Young Professional Award (For ICFRE personnel serving in ICFRE (Hq.) and its institutes/centres)	Dr. Naseer Mohammad, Scientist D, TFRI, Jabalpur (M.P)
3.	ICFRE Forestry Research Award for State & UT's Forest Department/Forest Corporation/State Agricultural Universities (For Non-ICFRE individuals, institutions and organizations)	College of Forestry, University of Agricultural and Horticultural Sciences, Shimoga, Ponnampet, Distt. Kodagu, Karnataka

- Under HRD plan 10 trainings conducted for Scientists in which 249 personnel participated. 12 trainings were conducted for technical staff with 421 participants. 02 trainings were conducted for administrative staff with 56 participants.
- NAEB, MoEF&CC, Govt. of India entrusted ICFRE to prepare DPR of thirteen major Indian rivers namely Jhelum, Chenab, Ravi, Beas, Sutlej, Yamuna, Brahmaputra, Luni, Narmada, Godavari, Mahanadi, Krishna, and Cauvery through forestry Interventions. All the project reports were submitted to the Ministry.

c. Progress/ Achievements both cumulative and for the reference period including innovations.

Research Highlights

RFRI Jorhat (do we need to write the full forms here?)

- National Mission of Himalayan

Studies (NMHS) funded project titled “Documentation of the traditional ecological knowledge (TEK) and quantification of medicinal plants used by the Karbi tribe of Karbi Anglong hill district of Assam” completed on 31.03.2021. In this Project documented the all possible TEK of the Karbis related with medicinal plants, the traditional craft materials, country liquor, traditional attires, natural dyes and fauna.

- Specific regression models for volume estimation were developed for Quercus serrata & Pinus kesiya using the non-destructive procedures.
- Two-hectare High Tech Bamboo nursery was established at Droi Beat under Sonari Range, Sivasagar Forest Division, Assam and raised total 30,000 seedling of Bambusa tulda and bambusa balcoa.
- The study done under the project





“Traditional Tribal Medicines practiced by the Tribes of Tripura” revealed the prevalent use of medicinal plants and herbs among the Tribal communities as an immediate primary medication in the rural areas of the state of Tripura. This information collected on traditional applications of medicinal plants and herbs among the tribes could enrich significantly towards preservation and revival of the fading knowledge of these communities.

IFGTB, Coimbatore

- The fast-growing hybrid clones of *Casuarina* released by IFGTB have been widely planted in Peninsular States during 2021. Paper Industries and private nurseries who have taken license from IFGTB have produced nearly 60 million plants and supplied to farmers to raise about 10,000 ha of plantations. The cumulative area under cultivation of IFGTB clones is around 50,000 ha since 2017. The first batch of harvests made by farmers during 2021 showed that the new clones had a productivity of 40 to 50 tonnes of pulpwood per ha per year compared to 25 to 35 tonnes per ha per year of existing varieties. Farmers get an average additional income of Rs.80,000/- per ha at the time of harvest with the high yielding clones.
- *Rhizophora* is the most commonly exploited genus in mangrove restoration of India's peninsular region. *R. apiculata* and *R. mucronata* are two species that share a common habitat and naturally generate hybrids. Molecular techniques were

employed to identify the natural hybrids and their pure species parents. The taxonomic identity of species and its genetic structure provides the basis for effective mangrove conservation. Pollination studies showed *R. apiculata* producing abnormal pollen tetrads and plenty of cytoplasm empty cells. Resident mites are the potential pollinator in *R. apiculata* and *R. mucronata*

- The draft genome of *Korthalsia laciniosa*, a climbing rattan was sequenced, de novo assembled and annotated. Phylogenomics analysis using the plastome sequence revealed the phylogenetic relatedness of this genus to *Eugeissona*, in contrast to its present taxonomic position.
- Isolated fungal endophytes of entomopathogenic significance from tropical tree species for the development of chitosan encapsulate nano-biopesticides for use in forestry and agriculture. Six species of fungal endophytes viz., *Aspergillus* sp., *Aspergillus terreus*, *Trichoderma harizanum*, *Acremonium borodinense*, *Lecanicillium lecanii* and *Phialemonium* sp. were identified at molecular level.

FRI, Dehradun

- **Livelihood improvement through sustainable utilization of *Grewia optiva* (Bhimal) in Uttarakhand-** Slant of nutrient agar for bacteria has again been prepared for identification and isolation from surface of Bhimal twig for extraction of fibre and kept on observation for further experiment. Various treatments were given to determination of some chemical





properties of Bhimal fibre. The report of Physical properties of Bhimal fibre of all the samples has been received from NITRA. Collection of samples of Bhimal twigs has been done and identified persons to involve in fibre extraction work in area. The NGO have been consulted to give their service toward development of market linkage. Scientific equipment i.e. SETM has been received and testing of fibre extraction using it is under progress. Treated Bhimal twig fungi “*Aspergillus niger*” for extraction of fibre.

- Digitization and enrichment of National Forest Insect Collection (NFIC) of Forest Research Institute, Phase-II (minute insects) was carried out by editing and compressing 600 photos. Corrections in the database records of 3071 accessions/species in the cabinets 103-130 (part), based on the verification report prepared earlier by physically verifying each and every species in the collection, were done. Database on insects infesting Western Himalayan oaks in Uttarakhand was prepared for 232 species of insects.
- Field surveys for the project “**Estimation of economic losses in real term per hectare basis due to forest fire in Uttarakhand and Madhya Pradesh**” were conducted.
- **Under National Programme for Conservation and Development of Forest Genetic Resources** 2500 specimens have been digitized and entered in to Digital Herbarium Specimen Database. Regeneration of identified species has

been analyzed from different locations of Uttarakhand under the project.

- As part of the project Bioprospecting for industrial utilization of lesser-known forest plants needles of two populations of *Cupressus torulosa* grown in Uttarkashi and leaves of one population of *Neolitsea umbrosa* found in Suwakholi, Mussoorie of Uttarakhand were hydro distilled and their essential oil contents were determined and chemical composition of the fatty oil isolated from the seeds of *Prinsepia utilis* was studied. Total phenolic contents and total flavonoid contents in the leaves of *Cupressus torulosa* and total flavonoid contents in the peels of *Punica granatum* to assess their antioxidant potential were determined.
- A bioremediation experiment has been initiated by using 4 bacterial isolates (*Halobacterium spp*, *Bacillus sp.*, *Pseudomonas sp.* and *Streptococcus sp.*) to see their effects on the growth of *Dalbergia sissoo* and *Terminalia* species in saline condition.
- Three populations of *Taxus baccata* grown in Uttarakhand were characterized for their 10-DAB-III content determined in their needles.
- Method for isolation of natural dye from the peels of *Punica granatum* (PG) was optimized using Box Behnken design.
- Monitoring & evaluation of plantation under CAMPA funds for the states of Uttarakhand and Punjab was completed.
- The data on GHGs emission and soil





parameters from two wetland ecosystem i.e. Nakraunda and Manu situated in Himalayan foothills were collected under DST funded project.

- Ensemble species distributions modelling was done to predict the habitat suitability of Himalayan cheer pheasant (*Catreus wallichii*) in response to future climate change under NMHS funded project. Study reported a decline of climatically suitable habitats and shifting elevation in the Himalayan region upwards in response to various climatic scenarios of 2050 and 2070.
- Observations on phenological phenomenon i.e. leaf initiation, leaf maturity, flower bud initiation, etc. of *Lagerstroemia speciosa* L were in response to rising atmospheric temperature. It was inferred that rising atmospheric temperature induced early leaf (25-35 days) initiation and flower bud formation compare to ambient temperature.
- Carbon Sequestration and Carbon dioxide Emission from the Soils under different Forest Covers in Uttarakhand were assessed. Data recorded so far reveal higher CO₂ emissions in Sal vegetation 3.02 $\mu\text{mol CO}_2\text{m}^{-2}\text{sec}^{-1}$ as compared to Chirpine vegetation 2.71 $\mu\text{mol CO}_2\text{m}^{-2}\text{sec}^{-1}$. These average higher values of carbon dioxide emission in Sal vegetation correspond to the average higher soil temperature 19.50 °C and soil moisture 25.59 %.
- Updation of Biodiversity Conservation and Wildlife Management Plan of Kuther HEP

(240 MW), District Chamba, Himachal Pradesh, JSW Energy Ltd was done.

- A week long field survey of extended drilling sites in Assam under ONGC & Oil India Ltd, were surveyed for rapid assessment for impact on faunal diversity in forested areas of extended drilling at 3 locations.
- A patent document entitled “**Removal of Quinones from Cassia tora/obtusifolia gum and endosperm**” has been prepared by Chemistry and Bioprospecting Division and filed.
- A patent “**Removal of Quinones from Cassia tora/obtusifolia gum and endosperm**” has been filed as Indian Patent vide No. 202111012654 on 24th March, 2021.

AFRI, Jodhpur

- Study on crop yield, soil fertility and gum production in Acacia Senegal based traditional agroforestry system in arid region of Rajasthan was carried out. Economic return was highest for pearl millet (Rs. 28,688/ha) under irrigated and lowest (Rs. 2,360/ha) in rainfed condition in Kharif season. In Rabi season, economic return was Rs. 18,742-29,581/ha in cumin-based agroforestry in irrigated condition.
- **Impact of harvesting on soil nutrients and carbon stock in canal side plantations of Indira Gandhi Nahar Pariyojana (IGNP) was studied.** Different linear and non-linear models were fitted to establish relationship between dry biomasses of different components of above-ground part of trees of these species with diameter at breast height (dbh) and total height (H)





and allometric equations were selected based on model performance statistics.

- Four trainings to 72 women farmers were imparted at Tiwari, Falodi Bilara and Osian tehsils of Jodhpur district, on application, importance and mass multiplication of biofertilizers. The women farmers were given demonstration about the applications and mass multiplication of these bio-inoculants which increase the yield of the economically important crops and impart value addition to plants.

IWST, Bangalore

- Patent was granted on “Simple and Rapid Infrared (IR) Spectrum based detection method for discrimination of pure Sandalwood and other essential oils” (Inventors: S.S. Bisht, K.K. Pandey). (Indian Patent No. 373596, date of filing 11/06/2018).
- Patent was granted on “A Transparent Wood Composite” (Inventors: K.K. Pandey, A.S. Rao, Giridhar B.N., S. Nair), Indian Patent No. 376245; Application No. 201841032986; Date of filing 03/09/2018).
- Environmental impacts and life cycle assessment of wood polymer composite, prepared by mixing bamboo powder with polypropylene and high density polyethylene, has been evaluated.
- An UV stable transparent wood composite using wood veneers (poplar, silver oak, *Melia dubia*) and epoxy resin functionalized with an UV-absorber was fabricated.
- Bamboo lumber using different bamboo

species was developed and its various properties and utilization potential as alternate to solid wood lumber for different structural applications were evaluated.

- Improvements in different properties of low-density woods such as *Melia dubia*, Poplar, *Measopsiseminii* were recorded by impregnating different polymeric resins fortified with nanoparticles. The process has the potential to add value to low density woods.
- Two Palm woods, namely *Borassus flabellifer* and *Areca catechu* were evaluated for different properties and their suitability was determined for various applications.
- Various methods such as chromatography, UV-visible, near infrared spectroscopy and molecular marker techniques are being developed to distinguish *Dalbergia latifolia* and *D. sissoo* wood.
- To evaluate the heartwood formation in Sandalwood and Red Sanders, the Electrical Resistivity Tomograph (ERT) equipment was standardized by developing a linear regression model using actual and ERT heartwood data. Achieved a similarity of 90 and 91%, respectively.
- Leaf samples were collected from 372 trees from 22 natural populations of Red Sanders (*Pterocarpus santalinus*) in Eastern Ghats of Andhra Pradesh. Whole genome sequencing by Illumina Hiseq and De-novo genome assembly was done in Galaxy platform using various tools.
- Identified two plots of 5 ha in Kudremukh





National Park and three plots of 3 ha in Anshi Dandeli National Park for long term monitoring purpose.

- More than 60 accessions of *Dendrocalamus stocksii*, established at Gottipura, and Honnavar, have been evaluated for further selection using multi-trait analysis method. A total of 10 clumps of *T. oliveri* have been evaluated for selection.
- Existing sandalwood based agroforestry models were surveyed in different parts of Karnataka.
- For preparing soil health card, 232 soil samples were collected and were analyzed for macro and micro-nutrients.
- The specificity of the newly developed primers was evaluated for leaf DNA samples in two mangrove species – *Sonneratia alba* and *S. apetala*.

TFRI, Jabalpur

- The impact of canopy openings created due to Selection Cum Improvement (SCI) felling on the sub-canopy regeneration in Mixed Deciduous forests of Dindori Forest Division, Madhya Pradesh revealed that the proportion of new individuals that regenerated from gaps was higher in canopy openings occurring due to felling ($R^2 = 0.15$, $P = 0.0002$), while lower in natural gaps ($R^2 < 0.01$, $P = 0.57$), indicating that artificial canopy gaps trigger a set of new forest structure and composition.
- Monitored plantations for their survival, health and growth raised in Madhya Pradesh and Maharashtra under NTPC Ltd. Accelerated Afforestation Programme.
- Collected data on vegetation sampling for tree, shrub and understory flora; and carbon stock assessment in 5C pools (above ground, below ground, dead wood, litter and soil) using quadrat nested method at 33 sites in Madhya Pradesh.
- Phenotypically superior trees of *Azadirachta indica* were selected in agroclimatic zone 8, *Dalbergia latifolia* were selected in Madhya Pradesh and Maharashtra and Phenotypically superior trees of *Madhuca longifolia* were selected in Madhya Pradesh and Chhattisgarh.
- 121 trees of *P. marsupium*, sampled from different forest divisions of Madhya Pradesh, were genotyped using 20 ISSR markers for diversity assessment. Promising trees of *Buchnania cochinchinensis* were also selected from various locations of Madhya Pradesh, and morphometric data along with GPS coordinates recorded.
- Planting material of *Celastrus paniculatus* and *Plumbago zeylanica* was produced through stem cuttings, tissue culture.
- 09 Phenotypically superior trees of *Tectona grandis* were selected from Madhya Pradesh for assessing their genetic worth. Morphometric data alongwith GPS coordinate were recorded.
- A germplasm bank of 24 accessions of teak representing Madhya Pradesh, Chhattisgarh, Maharashtra and Odisha was established.
- Flowering and fruiting status of Seed production areas (SPA), Clonal seed orchards (CSO) and Seedling seed orchards





(SSO) located in Madhya Pradesh and Chhattisgarh were recorded.

- Comparative field performance of cutting raised plants and seedlings of *Dalbergia latifolia* was assessed. Cutting raised plants are better in terms of height (14%), collar diameter (21%), number of primary branches (43%) and crown diameter (15%) than the seedlings.
- Established bamboo based Agroforestry system in farmers' fields covering 10 ha area of Madhya Pradesh to develop value chain of the system by involving all stakeholders like wood based industry, farmers, financial institution and TFRI.
- Standardized Gmelina based Agroforestry system for Madhya Pradesh.
- Developed seed handling techniques of important tree species including RET species.
- Selected eight Sal forest compartments in three forest ranges in Dhamtari forest division, Chhattisgarh to assess the impact of Silviculture systems on the natural forests of Chhattisgarh with special reference to Sal and Bamboo.
- Conducted various training cum demonstration programme for the stakeholders like farmers, Women SHGs, forest officials and students on Lac cultivation, Agroforestry and seed handling techniques as well as NTFPs sustainable harvesting, processing, essential oil extraction and its value addition.

IFP, Ranchi

- Release of 7 outperforming clones of

poplar is in progress. Introduction and identification of *Salix* and *Ulmus* clones was carried out in Bihar as a potent Agroforestry species. Cloning procedure of *Embelia ribes*, 10 bamboo sps, Sarpghandha, *Tinospora cordifolia* were developed.

- Raised 20 ha of plantation of clonal planting stocks of bamboo in urban and agriculture ecosystem in Jharkhand and Bihar. *Melia dubia* has been screened as potent agroforestry species in Bihar and Jharkhand state. (Fig.4).
- Geotagged information regarding two sacred groves was documented. Required information was documented relating to no. of plant species, no. of plants within the species, density of species, frequency of occurrence of species, height and DBH.
- Collected 110 different accessions of *Melia dubia* from different parts of the country including North India, South India and Eastern India. Established germplasm bank of *M. dubia* including 88 different accessions. Established field trial at three different locations one in Bihar and two in Jharkhand. Field trials of 21 different genotypes have been established in RBD fashion with 5 replications and 5 plants per genotype per replication. Demonstration plots of *Melia* have been established at IARI Barhi (Hajaribag) and FREC, Jadua Hajipur. A subsistence agroforestry model has been established at Lalgutwa. The model has been established to demonstrate intensive agroforestry system to the farmers and obtaining maximum return per unit area.





IFB, Hyderabad

- Two multi locational trials of *Eucalyptus camaldulensis* have been established in two different agroclimatic zones of Telangana (Mulugu, Palvoncha) to identify and promote suitable clones for the respective zones.
- Field trials were laid in Narsapur forest range, Telangana for evaluation of biopesticides developed from extracts of tree-borne oil seeds.
- Established *Gmelinaarborea* – chilli agroforestry trial in the institute.
- Phenology data of major mangrove species like *Avicennia marina* and *Bruguieracylindrica* were recorded in the mangroves of Visakhapatnam district, Andhra Pradesh.
- The Institute drafted 16 Peoples Biodiversity Registers of Andhra Pradesh.

d. Important Conferences organized in India or international conferences – nature of participation, subjects discussed, implementation-action taken.

A four days ICFRE-IUFRO workshop on **Forest Landscape Restoration** was held (virtually) during 9th -12th November, 2021 in which more than 100 participants from IUFRO-ICFRE, Heads of State Forest Departments, retired forest officers, professors from universities and experts from other organizations participated and deliberated upon various aspects of Forest Landscape Restoration viz. interventions into Social-ecological Systems, Contribution to Climate Change Mitigation and Adaptation started,

Reclaiming and Rehabilitating Ex-mining Areas, Financing and Building Capacities.

e. MEAs, Agreement with countries, international organizations, compliance.

A. MoUs with National and International Organizations for collaboration in the field of forestry research, education and extension:

- ICFRE, Dehradun and Amity University, Noida
- ICFRE, Dehradun and Botanical Survey of India (BSI), Kolkata
- ICFRE, Dehradun and Institute of Rural Management Anand (IRMA), Anand
- Letter of Intent (LoI) between ICFRE, Dehradun and International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal has been finalized.

B. ICFRE Institutes have signed MoUs with SFDs for developing synergy in the field of forestry research, education and extension:

1. HFRI, Shimla with Ladakh Union Territory Forest Department
2. IFP, Ranchi with Bihar Forest Department
3. AFRI, Jodhpur with Rajasthan Forest Department
4. TFRI, Jabalpur with Chhattisgarh Forest Department

C. ICFRE, Dehradun is in the process of signing MoUs for collaboration with seven National and International organizations working in the field





of forestry research, education and extension.

f. List of major publications

In the last year 162 research papers have been published in various National/International journals by the ICFRE personnel. They have also published 13 books/bulletins, and contributed 25 book chapters and 34 popular articles.

g. Challenges in work due to COVID and the response of the Division.

The second wave of COVID-19 had seriously

impacted the work of the council. The grants and funds were received late due to which the research work suffered. Due to the COVID-19 related restrictions the field tours and training programmes could not be conducted during April-June, 2021. The Council motivated the staff to take the vaccination and all COVID-19 related protocols were implemented. The meetings and the trainings were conducted online thereby reducing the physical contact.

a. Progress/Achievements both cumulative and for the reference period.

Sl.	Projects	Achievements	Remarks
	Plan Research projects		
1	To carry out ICFRE funded ICFRE plan research projects implementation	Ongoing = 93 New = 26	
	Scheme funded by National Authority CAMPA Scheme- 1 “Strengthening Forestry Research for Ecological sustainability and Productivity Enhancement”		
2 (a)	Component I: All India Coordinated Research Projects (AICRPs) in collaboration with ICFRE and Non-ICFRE Institutes.	a) Compilation of existing knowledge/data for all the projects completed. b) Methodologies developed and finalized for each project. c) Identified land/sites for trials and field experiments in AICRPs d) Institute wise work elements of each projects finalized.	





Sl.	Projects	Achievements	Remarks
2(b)	Component II: Programme for Conservation and Development of Forest Genetic Resources (FGR).	In this component priority list of 200 FGR important species for different institutes (FRI, AFRI, HFRI, IFP, RFRI, IFGTB, IWST, TFRI, IFB) have been prepared. Pictorial guide for selected FGR Species have been developed. Shortlisted species are being studied for molecular characterization and chemical characterization.	
2 (c)	Component III: Policy studies under Centre for Forest Policy Research.	Under this component 2 studies have been completed on “Policy issues in agroforestry” and “Institutions of community participation including Joint Forest Management Committees. 2 studies have been awarded and EOI for six studies has been initiated.	
2(d)	Component IV: Capacity Building of State Forest Departments for developing “State REDD+ Action Plans” under National REDD+ strategy.	In this component ‘Resource Manual on Capacity Building of State Forest Departments for Developing State REDD+ Action Plans’ has been prepared and published.	
2 (e)	Component V: Operationalization of Forestry Extension Strategy and Action Plan of ICFRE.	This component aims to reach out stakeholders through various means like establishment of Technology Demonstration Centre (TDC) for interactive meet with innovators of technologies of ICFRE institutes. Institutes are reaching stakeholders through online seminars and meets. Documentaries related to technologies developed by ICFRE are being prepared for stakeholders.	
2 (f)	Component VI: Operationalization of Human Resource Development Plan of ICFRE.	14 trainings have been conducted and 9 others are being planned for balance of financial year.	





Sl.	Projects	Achievements	Remarks
3	Scheme – 2 “Estimation Of Economic Losses In Real Term Per Hectare Basis Due To Forest Fire In Uttarakhand And Madhya Pradesh”	<p>i. Inception meeting of all the project partners (Forest Survey of India-Dehradun, Wild Life Institute-Dehradun, National Institute of Hydrology-Roorkee, GBPNIHESD Almora, ICFRE Dehradun, Forest Research Institute Dehradun and Tropical Forest Research Institute-Jabalpur) and Nodal Officers of State Forest Departments (Uttarakhand & Madhya Pradesh) was organized.</p> <p>ii. The burnt scar polygon having minimum area of 3 hectare with following attributes have been identified.</p> <p>iii. The statistical expert from ICFRE identified 42 forest fire polygons (moderately burnt =32, low burnt =10) for the study in Uttarakhand which stands communicated to all the project partners.</p>	
4	Preparation of DPRs of 13 major rivers	Prepared all the 13 DPRs and submitted to MoEF&CC, Gol.	
5	1. Biodiversity Assessment Study with respect to the proposal for prospecting of 1745.883 Ha. of forest of Kente extension an coal block in favour of M/s Rajasthan Rajya Vidyut Utpadan Nigam Limited for exploration of coal reserves by undertaking Bore holes of 4”m in dia in Surguja District in the State of Chhattisgarh.	Collection of baseline data on biological & social component	Due base line data on biological and socio-economic aspects collected from the field. Draft report prepared and submitted to the project authority in the month of July, 2021.





Sl.	Projects	Achievements	Remarks
6	2. Preparation of Environmental Management Plan and Reclamation and Rehabilitation of three iron ore mining leases of BIOM, Kirandul complex, south Bastar, Dantewada District, Chattisgarh, NMDC Ltd.	Preparation of EMP &RR plans of 01 iron ore mines	Final report submitted to the project authority.
7	Monitoring of NTPC Accelerated Afforestation programme of Plantation of 10 Million Trees – in the states of Madhya Pradesh, Maharashtra, Assam, Karnataka, Andhra Pradesh, Telangana and Bihar, NTPC Ltd.	Annual monitoring of NTPC assisted plantations	Annual monitoring report for year 2020-21 submitted, as per ToR. Work is in progress for the annual monitoring of plantation for the year 2021-22.
8	Third Party Monitoring of Catchment Area Treatment Plan of Vishnugad Pipalkoti Hydro Electric Power Project (444 MW), District Chamoli, Uttarakhand. THDCIL	Collection of data and preparation of six monthly monitoring report	Due data collected and reports prepared and submitted to project proponent.
9	Reclamation and Rehabilitation Plan” for 166 mine affected areas of Bellary, Chitradurga and Tumkur Districts, Karnataka and preparation of Comprehensive SMP of these three districts of Karnataka. Karnataka State Official Authority	ICFRE observation on production enhancement of different mines towards already approved R&R plans of category A, B, & C iron ore mines	ICFRE submitted observations on production enhancement to CEC on 01 category A mine, 03 category B mine and 01 category C mine after due field visits.





Sl.	Projects	Achievements	Remarks
10	Diversion of balance forest land of 746.3325 ha. including 11.8305 ha. for safety zone (excluding 95.60 ha of pre-1980 broken up forest land already diverted and 4.467 ha of forest land being proposed for diversion in separate proposal for mining infrastructure of Daitari ML) within total forest land of 846.3995 ha located within approved Mining lease area of 1018.3085 ha for Iron Ore Mining in Daitari Mining lease in Cuttack Forest Division of Jajpur District and Keonjhar (WL) Division of Keonjhar District, Odisha) M/s OMC Ltd. during Mining lease period as extended under the amended provision MMDR Act.	Collection of baseline data on biological & social component	Due base line data on biological and socio-economic aspects collected from the field. Preparation of draft final report is in progress.
11	Environmental Audit and Environmental performance Index Ranking of 35 coal mines of CIL	EA EPIR of 02 coal mines of CIL	Fund received and work initiated under the project. Till 31st December, 2021, field visit for 07 mines were carried out and report is under preparation.





Sl.	Projects	Achievements	Remarks
12	Amendment/Modification in report on Management Plan for sustainable mining in Saranda and Chaibasa Forest Divisions in West Singhbhum District of Jharkhand	In principle approval accorded for this new project by the MOEF&CC, GoI	Field works will be initiated after receipt of funds from the MoEF&CC, which is still awaited.
13	Ecological Studies related to Umrer OC Coal Mine and Niljay OC Coal Mine of Western Coalfield Limited in Maharashtra. Western Coalfield Limited (WCL)	Baseline data generation of one season	Baseline data for monsoon season collected and interim report prepared.
14	'Updation of Biodiversity Conservation and Wildlife Management Plan of Kutehr HEP (240 MW)'. JSW Energy Limited	Field data collection as per scope of work and report preparation	Field data collected as per scope of work and report is under preparation.
15	Environmental Monitoring & Evaluation of Reclamation and Rehabilitation plan activities at John Mine of R. Praveen Chandra (ML No. 2294), Chitradurga District, Karnataka.M/s. R. Praveen Chandra (ML No. 2294), Jayanagar, Bengaluru	Monitoring & Evaluation of one-year work	Monitoring & Evaluation of one-year work was carried out.
16	Third Party Assessment of EC Conditions Compliance in respect of Manikpur OC mine of SECL, Korba Area, Bilaspur, Chhattisgarh. M/s. South Eastern Coalfields Limited (SECL)	3rd party assessment of compliance of EC was to be carried out	Field visit for 3rd party assessment of compliance of EC was carried out and report is under preparation.





Sl.	Projects	Achievements	Remarks
17	Preparation of Environmental Management Plan & Reclamation and Rehabilitation of two iron ore mining leases of BIOM, Kirandul Complex, Bachel, South Bastar, Dantewada District, Chattisgarh'. NMDC Ltd., Bailadila Iron Ore Mine, Bachel Complex.	Invoice raised for release of first instalment	Fund received towards first instalment.
18	Study on improvement of water quality in immediate catchment of proposed Navnera Reservoir on Kalisindh River through requisite measures and rehabilitation of lost habitat of scheduled wildlife (reptiles) in remaining forest area near Abra village, Tehsil Digod, district Kota, Rajasthan. Water Resource Zone Kota, Rajasthan	Award letter received in December,2021. Work under the project is yet to be initiated.	-
19	Environmental Audit of Dipka Expansion Project, Dipka Area, South Eastern Coalfields Limited (SECL), Korba, Chhattisgarh. SECL, Korba, Chhattisgarh	Award letter received in December,2021. Works under the project are yet to be initiated.	-
20	REDD + SRAP	Organised training programmes in 22 states on capacity building of SFD personnel	





Sl.	Projects	Achievements	Remarks
21	Safeguard Information System	Final draft on SIS prepared and submitted to MoEFCC for approval	
22	Ecosystem Improvement Project <ul style="list-style-type: none"> Forest Carbon stocks measuring and monitoring-capacity Building (training on application of eddy covariance system for carbon measurement) Capacity building for measurement and monitoring of forest carbon stock Capacity Integrated sustainable land and ecosystem management approaches for reducing la degradation and desertification Roadmap for institutional and policy mainstreaming of SLEM in other sectors Development of online national reporting data base for capturing trends and status of key impact Dissemination of SLEM knowledge 	<ul style="list-style-type: none"> Organised 02 training to SFD personnel and S&T institutions 14 trainings organised to SFD personnel and JFMC members Lac cultivation for livelihood generation and biodiversity conservation Distributed improved cookstoves (2386 in Chattisgarh and 2862 in MP) in project area Organised 71 trainings on SLEM Final report on SLEM prepared 10 SLEM best practices disseminated through ICFRE portal 	





Forestry Training and Capacity Building (FTCB), Scheme

Training of IFS Officers

The MoEF&CC, Government of India is planning to organize 19 in-service training courses of one week for IFS Officers in various disciplines in various institutions in the Country. The basic aim of the in-service training courses is to upgrade their managerial skills in the changing socio-economic scenario of the Country and expose them to the recent developments in the field of forestry and allied subjects to enable them to handle their present duties and future needs better. The training courses also provide a forum for the IFS officers serving in different regions of the Country for sharing of experiences for efficient discharge of Government duty. Officers are also sponsored for long-term training courses. In addition to sponsoring short-term refresher courses, MoEF&CC is planning to sponsor 12 in-service 1-3 day training workshops and seminars on emerging topics of regional, national and international importance. The training workshops/ seminars will be sponsored in the premier institutions/ organization in the Country depending upon their expertise in a particular field/ discipline.

Training of Personnel of Other Services

The component provides awareness programs through short-term trainings, workshops, and study tours for the personnel of various Departments such as Police, Revenue, Customs, etc. MoEF&CC is planning to organize 9 training courses for IFS Officers in various disciplines in various institutions in the Country for the personnel of Other Services.

Foreign Training of Forestry Personnel

The component is aimed at encouraging specialization amongst the forestry personnel by sponsoring them for various short-term and long-term training courses at various Institutions overseas. MoEF&CC is planning to organize training courses in various disciplines at various Institutions overseas in the next financial year as per the guidelines of DoPT.

Training of Other Stakeholders

The component provides awareness programme through study tours, workshops and seminars for these stakeholders i.e., Panchayat members, elected representatives, teachers, nature clubs/ eco-clubs and social activists, NGOs, and media persons. MoEF&CC is planning to organize 12 training courses for IFS Officers in various disciplines in various institutions in the country for these stakeholders.

Indian Plywood Industries Research and Training Institute (IPIRTI), Bengaluru.

a. Brief Introduction, objectives and functions of the Division.

IPIRTI is a Society registered under the Karnataka Societies Registration Act, 1962; Union Minister for Environment, Forest and Climate Change is the ex-officio President of the Society. Statutory members include Secretaries to Government of India in Ministries of Environment, Forest and Climate Change, Agriculture, Science & Technology, CEO NITI Aayog, Director General of Forests and Special Secretary MoEF&CC, Chief Secretary- Government of Karnataka, Director General-ICFRE and





representatives of scientific organizations like CSIR and regulatory bodies like BIS. Membership is also open to industries. It is recognized as a Scientific & Industrial Research Organization by the Government of India under the Department of Scientific and Industrial Research Scheme, 1989. Since, 1999, it is also recognized as a nodal centre by Forest Research Institute, Dehradun for pursuing Research programme for award of Ph.D. degree. The Institute has its headquarters in Bengaluru spread over an area of about 7 hectares where the most modern R&D, testing & training facilities are housed. It has outreach field station located at Kolkata and a Centre at Mohali, Punjab.

The vision of IPIRTI is to be an apex institution of international repute for knowledge generation and carry out Research & Development on panel products from plantation wood, bamboo and other renewable natural fibers.

In order to accomplish this vision, IPIRTI is continuously engaged in Research & Development, Training & Education, Testing & Standardization and Extension on all aspects related to plywood and panel products from wood, bamboo and other lignocellulosic materials.

b. Important activities undertaken

- Research on all aspects of manufacturing plywood and other allied engineered and reconstituted wood and lignocellulosic products, including improvement of materials,

manufacturing processes, machines and appliances and conditions of work standard of factories.

- Training in connection with forest product utilization mainly related with wood-based panel and allied industries. Imparting technical education and/ or short-term trainings on agro and forest products, adhesives, laminates and/ or synthetic finishing and manufacturing machinery.
- Testing and Standardization of forest products viz., plywood, wood, timber, hardboard, particleboard, chipboard, furniture, glue-lam, compreg, doors, fire check door, block board, flush door, veneers, laminated panels, composite boards, and the products of allied trade and industry.
- Extension includes transfer of technology for commercialization, information dissemination through research/ technical reports, quarterly newsletter and participation in exhibitions, seminars, conferences and workshops also scientists visit the industries to assist in process and product development.

c. Progress/Achievements

- 1. Research:** During the period 86 projects including new projects were undertaken. Out of these, 8 Institute projects, 4 sponsored projects and 4 consultancy projects are completed. Three patents for innovations have been granted during this year.

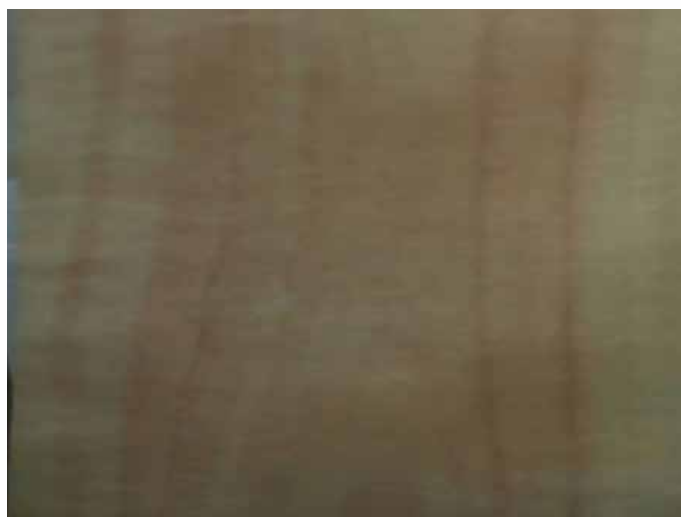




2. New Product/ Process: About 9 products/ processes have been recently developed by IPIRTI. Some of the major products/ processes developed are given below:

2.1 Development of transparent wood composite: Process parameters for wood modification and epoxy polymer infiltration was optimized for 25cm x 25cm sample (250mm x 250 mm). Transparent wood

composite upto 80% transparency has been achieved for 0.88 mm sample. After polymer infiltration using epoxy resin, transparent wood with total transmittance of 41-80% depending on the thickness of the material has been achieved. Effect of lignin percentage, density of species and thickness of the samples has found to impact the transparency properties of the composite.



Raw wood



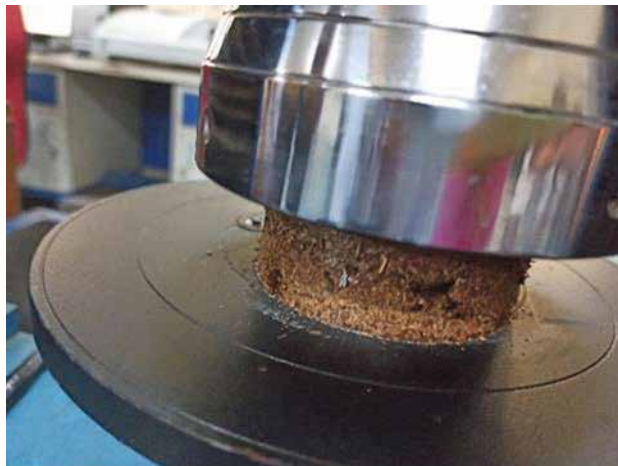
Transparent wood composite





2.2. Study on the suitability of pith and wood dust for the manufacturing of Particle composite: Dye was designed for 3-inch dia core plugs and installed and commissioned at the institute. Core plugs of 3inch were developed using wood dust and bagasse pith. The samples were tested for crushing strength and it was observed that the results obtained are much higher than core plugs supplied by the sponsor. The performance test on paper reel core and

crushing strength practically tested by the sponsor and the compression of strength of core plug samples satisfied the TNPL's minimum requirement of 10 KN. This study would help to overcome the storage/disposal of the solid waste simultaneously utilizing the waste generated from paper mill for the manufacture of product like wooden core plug to TNPL. The project comes under circular economy concept.



Wooden core plugs

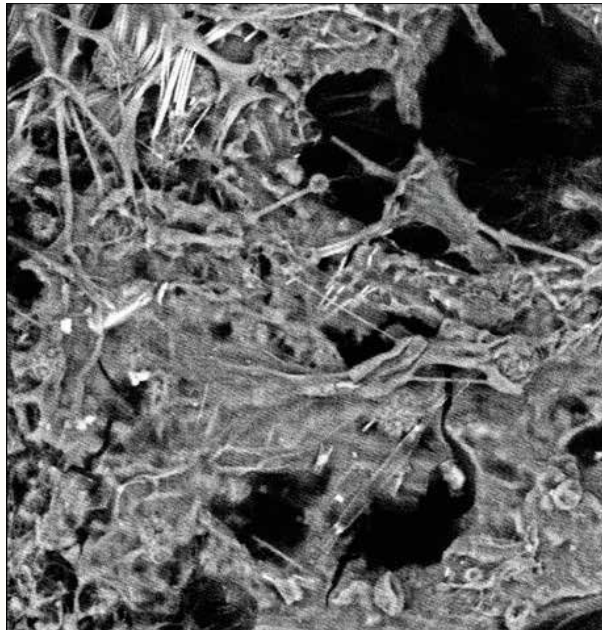
2.3. Investigation on the susceptibility of various panel products to wood-deteriorating biological agents: In this study, Plywood, Medium Density Fiber (MDF) board and particle board samples were treated with 1% permethrin preservative chemical to study its resistance to biological agents. It was observed that the samples had resistance to termite attack. Scanning Electron Microscope (SEM) analysis was also done to understand the penetration of fungal mycelia into the composite products. Plywood samples showed less mycelia penetration compared

to other two composite products. White rot fungus exposed samples showed more weight loss as compared to brown rot fungus exposed samples. Under this project, to have market samples behavior to biological degradation, samples of MDF, Plywood and Particle board received for testing from different agencies were also studied for resistance to fungus mold and termites. From the test results, it was observed that all the composite materials have shown degradation. Plywood samples have shown less percentage of weight loss as compared to MDF and Particle boards.

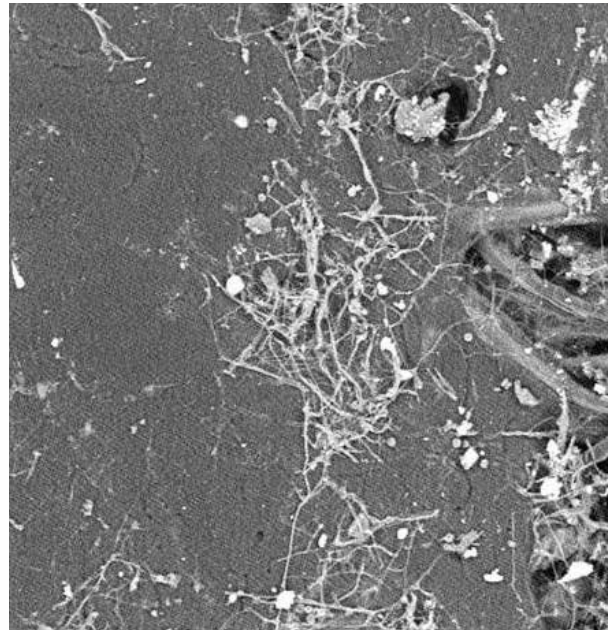




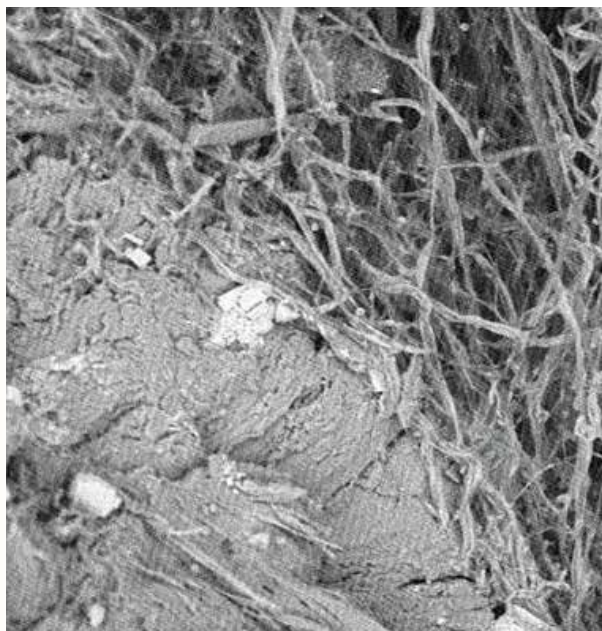
SEM images



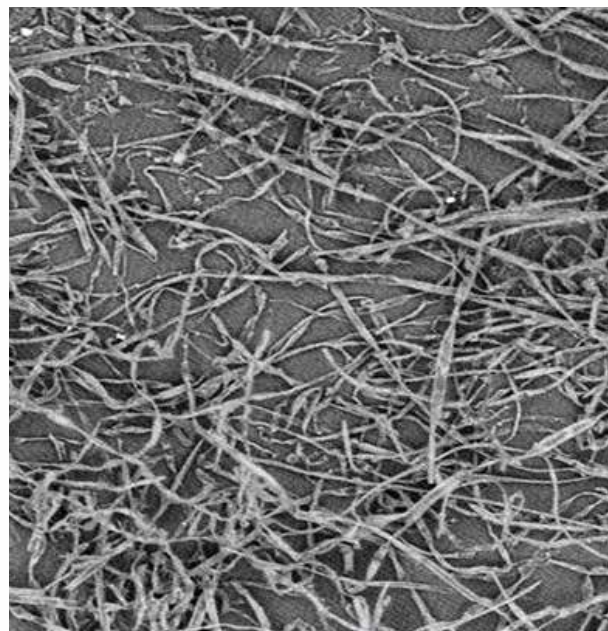
Plywood sample showing fungus penetration



MDF sample showing fungus penetration



Particle Board sample showing fungus penetration



wood destroying Fungus Mycelia fungus.

2.4. Protection and Preservation of wooden Artefacts (Mango, Eucalyptus, Neem and Jaman Trees): Suitable wood preservative treatment methods for protection

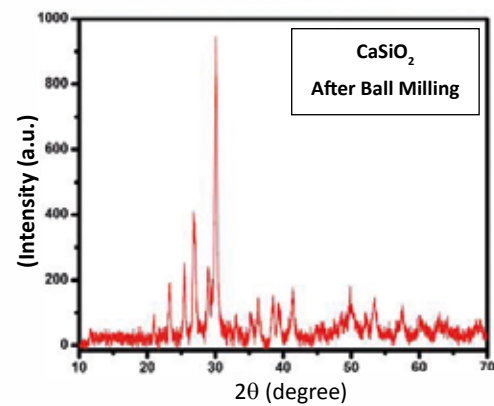
of wooden artifacts from biological deterioration were worked out onsite. Few wood entreated artefacts are given below:





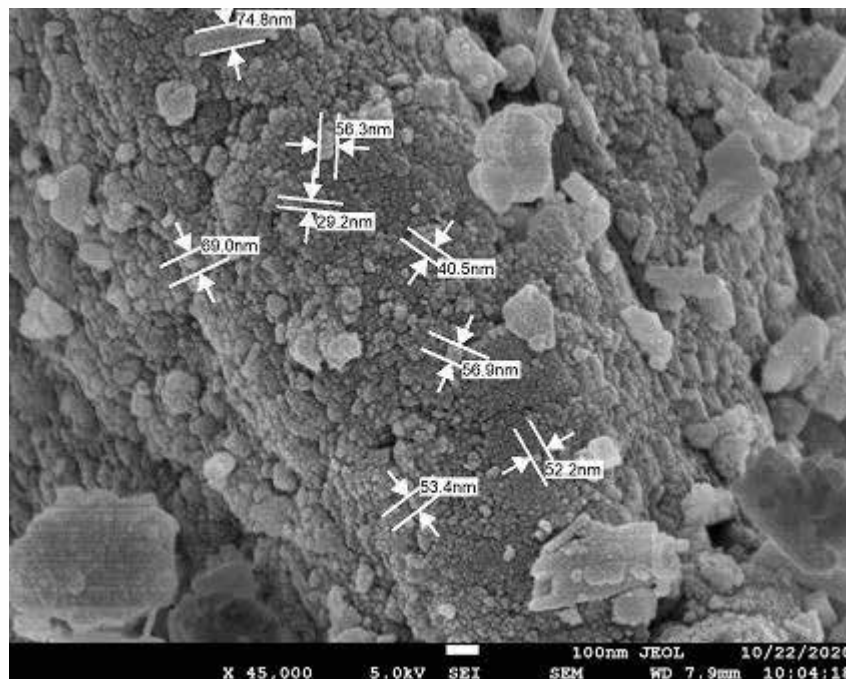
2.5 Development of low formaldehyde emitting Particle Board panels by Nano particle reinforcement: Low formaldehyde emitting particle board as environment friendly composites using nanotechnology has been developed under this project. The urea formaldehyde resin used for the production of particle boards were reinforced with various nanomaterial (wollastonite, Silica and Montomorillonite)

at different loading levels. The addition of a small percentage of nanowollastonite, nano silica and nano K10 particles improved the performance of thermosetting urea formaldehyde resin, used as adhesive for particle board. The results obtained in this study indicated that nano material reinforcement significantly reduced the formaldehyde emission of the particle board.



XRD image of nano wollastonite





FESEM micrographs of nano wollastonite

3. Training and Education:

(i) 28 candidates of 31st Batch of one-year Post Graduate Diploma Course in Plywood and Panel Products Technology (PPPT) completed the course successfully

and 100% placement was arranged through Campus selection process. Training course for 32nd batch is set to commence in the 3rd week of December, 2021.



(ii) Eight short term vocational training courses have been conducted from 01.01.2021 till date.



(iii) Two courses of One week Compulsory

Training Course for Indian Forest Service Officers on "Bamboo/ Wood Resource Development and Value Addition for Sustained Livelihood during 18th to 22nd





January, 2021 and on “Wood Resource Development and Value Addition for Sustained Utilization” during 22nd to 26th November 2021 were conducted through virtual mode by IPIRTI, Bengaluru, sponsored by the MoEF&CC.

IPIRTI (Indian Plywood Industries Research & Training Institute) organized MoEF&CC sponsored two-day (16.09.2021–17.09.2021) online training workshop for Indian Forest Service officers at IPIRTI Bengaluru on “**Practical guide for State Forest Departments (SFDs) to support small scale panel industries**”. 26 participants from 19 states attended the programme. The training was intended to provide basic understanding of wood/ bamboo/ agro-residues utility for the support of small-scale panel industries in India.

- 4. **Testing:** Testing of Samples were conducted as per relevant Bureau of Indian Standards (BIS) and international standards. The total number of samples tested from 01.01.2021 till date is 720.
- 5. **Extension:** During the period, about 10 industry visits have been taken up by the scientists from various fields to solve the floor level problems faced by the industries during production. Four webinars related

to the latest technologies developed at IPIRTI were organized by IPIRTI through virtual mode. Many extension activities during the year have been attended through virtual mode.

d. Continuing committees/commissions- their work during the year and present position.

Following are the major committees of IPIRTI: -

- (i) Members of Annual General Meeting.
- (ii) Board of Governors.
- (iii) IPIRTI Corpus Fund Management Committee.
- (iv) Research Advisory Committee.
- (v) Expenditure Finance Committee.

e. Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation-action taken.

Due to the pandemic situation and the restrictions imposed by the Government from Jan 2021 till date, conferences have not been organized by IPIRTI. 4 webinars have been organized.

(h) List of major publications brought out- brief purpose of each, wherever necessary.

Following Research Reports have been published from January 2021 till date.

RR No.	Title & Project Code
223	IP/151/Bamboo/Weathering/VKC/2016 Accelerated weathering study on Bamboo Lumber
224	IP/161/WIC/Market/VKU/2017 Estimation and forecasting of particle board and MDF in India





RR No.	Title & Project Code
225	IP/157/NWC/Product/BSM/2017 Development of transparent wood polymer composite
226	NWC/127/PRESERVATIVE/2014 Investigation on the susceptibility of various panel products to wood-deteriorating biological agents.
227	IP/171/BC/Bamboo/MCK/2018: To Study the properties of low-density particle board from bamboo for different end use applications.
228	IP/142/WC/Modified PFR/SS/2016 Development of fast curing modified phenol – formaldehyde resin for manufacture of plywood at lower curing temperature.
229	IP/143/WC/PMDI/SS/2016 Development of PMDI/UF modified resin for interior plywood manufacturing having better water resistance and rheological properties
230	IP/141/WC/Nano/RV/2016 Development of low formaldehyde emitting plywood panels by Nano particle reinforcement
231	IP/156/WC/Product/BSM/2017: Development of geopolymer for the manufacture of wood - geopolymer composite.
232	IP/176/BC/Tox/DS/2019 Study on the toxic chemicals released on burning of bamboo round sticks and incense sticks made from bamboo
233	IP/162/Bamboo/NER/VKU/2017 Investigation on scenario of bamboo utilization in north east India

(i) Challenges in work due to COVID-19 and the response of the Division

Most of the training programmes which are skill based and required hand on experience have been affected. Most of trainees are from socio-economically challenged background and come from Uttar Pradesh, Bihar, Madhya Pradesh and Odisha. In addition to this the statutory meetings such as Internal Research Committee (IRC) and Research Advisory Committee (RAC) meetings of the Institute have been affected. The Institute has set up

the online platform and conducted webinars and RAC meeting through virtual platform. Practical classes were organized by maintaining the COVID-19 protocols. Industrial visits for live demo could not be taken up. Through virtual mode the industries were suggested for technical improvements.

Indian Institute of Forest Management (IIFM) IIFM Activities Profile – 2021

In the year 2021, Indian Institute of Forest Management (IIFM) has entered into





the 4th decade of its existence executing multidimensional institutional activities and executing the responsibilities entrusted on it.. IIFM has established a niche for itself in the field of environment, forestry and climate change through dedicated applied research, consulting, training and high-quality educational activities spread in diverse fields of knowledge.

During the year 2021, IIFM was engaged in various activities as per Govt. of India guidelines as part of the 'Azadi ka Amrit Mahotsav' including Independence Day, Republic Day, Constitution Day pledge and talk, participation in International Herbal Fair etc. Besides, there have been series of research, consulting, trainings and workshops organized at IIFM as given below:

Research at IIFM

IIFM has conducted a number of relevant research which include sustainable forest management & forest certification, marketing of forestry products, trees outside forests, medicinal plants, environmental impact assessment, ecosystem services and management, forest policy, community forestry & livelihood, institutional linkages, gender studies, biodiversity, protected area management, human-wildlife conflict, forest economics, climate change, REDD+, human behavior, behavioral/ human resource studies, indigenous knowledge, watersheds, corporate social responsibility, development finance, forestry extension & communication and information systems to name a few.

The completed research during 2021 are -

1. "Co-production of Sustainable MFP management Solutions: a study in Sehore Forest Division of Madhya Pradesh". (Sponsored by MP MFP Federation).
2. "Developing Climate Change Adaptation Strategies for Sal and Teak Dominated Landscape" as a part of Preparation of Third National Communication (TNC) and other new information the UNFCCC (Sponsored by the UNDP-GEE-MoEF&CC, New Delhi).

Ongoing Research Projects are: Eight research projects are ongoing for the year 2021 and the broad subject area includes Information Technology, Environment, Marketing management, Climate change, Access Benefit-sharing mechanism, Human-wildlife conflict. The details of the ongoing projects and the funding organization are:

- 1) Developing Evaluation and Monitoring Framework for Enhancing Adaptive Capacity through Climate Smart Village of Madhya Pradesh – (Sponsored by EPCO, Government of Madhya Pradesh;
- 2) Developing Monitoring Framework (identification and estimation) for Hydrological Services of Forest landscape - (Sponsored by Madhya Pradesh Forest Department under green India Mission (GIM);
- 3) Economic Services of Forest of Jharkhand – (Sponsored by Jharkhand Forest Department (CF Plantation, Research & Evaluation, Jharkhand, Ranchi);
- 4) Suggesting mechanism for Sustainable Management of Biodiversity and Access





- and Benefit-sharing mechanism in the state of MP – (Sponsored by Madhya Pradesh Biodiversity Board);
- 5) Organizing capacity building training program for Working Plan Officers from state forest departments and C&I approach towards assessing responsible forest management at FMU level- (Sponsored by Ministry of Environment, Forest & Climate Change, New Delhi);
 - 6) A study to identify local communities' view on the mitigation of human-wildlife conflict in the wildlife sanctuaries of MP – (Sponsored by Madhya Pradesh State Biodiversity Board);
 - 7) Long Term Ecological Observatory: (Projects on Birds/ Grassland/ Soil/ Forest Plot/ Field laboratories setup (Sponsored by Ministry of Environment, Forest & Climate Change);
 - 8) Exploring up-scale business for Vermi-Compost based enterprises of VPOs with support of Research and Extension Wing of the Forest Department of Madhya Pradesh- (Sponsored by Research Extension & Lok Vaniki, Madhya Pradesh Bhopal).

Consultancy

The Institute has been undertaking consulting works to provide solutions to the sector-specific challenges and regular inputs for policy making. Consulting assignments are undertaken by Faculty members of the Institute which encompasses a broad spectrum of subject areas including, Ecology, forestry, Natural Resources, and Environmental Economics, Environmental, and Ecosystem Services, Natural Resource Management,

Socio-economic aspects, Organizational Management, Developmental Management, Rural Development & Management, Various functional management (HR, Finance, Projects, Marketing, etc.) and cross-functional areas (Sustainable Resource Management and Certifications) etc. The ongoing and completed consultancies during the period 2021 are summarized as below –

In the year two consultancies assignment- Preparation of Integrated Wildlife Management Plan for Moher sub basin for Northern Coalfields Ltd., Singrauli Region- Northern Coalfields Ltd. Singrauli and Third Party Evaluation of Increasing Green Cover (IGC) Programme in Odisha- Odisha Forest Department, Bhubaneswar were completed.

Ongoing Consultancy Assignments are:

- i. Assignment of Weights to Climate Smart Agricultural Code (Client-Solidaridad Network Asia);
- ii. Mid-term Evaluation of NMCG Plantations along the banks of River Ganga in Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal (Client-National Mission for Clean Ganga (NMCG) under the Namami Gange Programme;
- iii. Ecosystem services accounting and valuation of Madhya Pradesh Forests (Client-GIM, M.P. Forest Department);
- iv. Identifying tradeable parameters for relevant products from agroforestry systems" (Client-FAO Technical Cooperation Programme (TCP);
- v. A Study of Milk Collection and Marketing





of value-added products of MP State Co-operative Dairy Federation: Analysis of best Practices and its Implication Strategies (Client-MP State Co-operative Dairy Federation Ltd (DugdhSangh);

- vi. Peripheral Tree Planting at Azim Premji University Campus, Bhopal (Client-Azim Premji Foundation for Development, Bhopal);
- vii. Strategic Plan for Green Infrastructure and Performance Assurance System Design for Vindhyan and Bundelkhand Zone (Under UPPCB TOR) (Client-Uttar Pradesh Pollution Control Board); and
- viii. Impact Assessment Study of CSR Initiative Undertaken by -NHDC Ltd. (Client- NHDC Ltd.).

Trainings & Workshops

During the year, in spite of pandemic linked challenges and movement restrictions, the Institute conducted 16 Management Development Programmes and 02 workshops training 547 professionals while 99 persons attended the workshops. Some of the important programmes were Environmental Leadership and Life Skills, Community Resource Management, Natural Resource and Environmental Management, Behavioural Adaptation with Climate Change in Himalayan Region, Climate Change Adaptation for Natural Resource Management, Corporate Social Responsibility, Mass Communication and Media Management and forest certification.





Indira Gandhi National Forest Academy (IGNFA), Dehradun

Indira Gandhi National Forest Academy (IGNFA) was constituted in the year 1987 by renaming the erstwhile Indian Forest College, which was originally established in 1938 for training senior forest officers. IGNFA is currently functioning as the Staff College for the officers of the Indian Forest Service (IFS). The primary mandate of the Academy is to impart knowledge and skills to the professional foresters and help them to develop competence for managing the Country's forest and wildlife resources on a sustainable basis. In the Academy training is provided at different levels of seniority in the

Indian Forest Service besides training the new entrants to the service.

Important activities undertaken during the reference period

1. IFS Professional Training Programme:
 - a. 73 IFS Probationers of 2019 Batch have been trained as per IFS course curriculum and were relieved from the academy to join their respective cadre states on 30th June, 2021.
 - b. 66 IFS Probationers of 2020-22 course are undergoing their training from Dec, 2020 as per IFS course curriculum and will pass out in April, 2022.

2. Mid-Career Training (MCT) Programme for in-service IFS Officers -

S. No.	Course	Duration and Period (Tentative Dates)	No. of Participants
1	MCT Phase – III (7-9 Years)	Four weeks 8 th Nov. – 4 th Dec 2020	Estimated 40

3. Two Days Training Workshop (Sponsored by MoEF&CC) (Online) - 12th - 13th Aug.2021 – Topic: “Regaining global leadership in sector developments: Lessons from around the world”

S. No.	Topic	Duration and Period	No. of Participants
1	“Regaining global leadership in sector developments: Lessons from around the world”	2-days 12 th - 13 th Aug 2021	Estimated 40

4. Professional Skill Up-gradation Course (PSUC) for inducted SFS to IFS Officers

S. No.	Topic	Duration and Period	No. of Participants
1	34 th (PSUC)	10 weeks 20 th Dec. - 25 th Feb 2022	Estimated 25





5. One-week Compulsory Training Course sponsored by MoEF&CC for IFS Officers

S. No.	Topic	Duration and Period	No. of Participants
1	One Week Compulsory Training Course Theme:- “ new tools and techniques for preparation of working plans for integrated Forest and Biodiversity Mangement and its implication”	13 th - 17 th Dec.2021	Estimated 25

Progress/Achievements both cumulative and for the reference period including innovations

- 2019-21 IFS Course consisting of 73 IFS Probationers completed their professional forestry training at IGNFA.
- At present 2020-22 IFS Course is under training at the academy.
- 2021-23 IFS Course is likely to join the Academy in the month of December, 2021.
- Regarding infrastructure development extension of Executive Hostel (by adding 40 rooms) has been completed by CCU at an estimated cost of Rs. 05.74 crore (approx.).
- The work of construction of all-weather swimming pool is in approximately 95% completed and the work is being implemented by CCU (Estimated cost Rs. 15.50 crore).

Challenges in work due to COVID-19 and the response of the Division:

The academy handled 2 batches of IFS (Probationers) during the second wave of COVID in the year 2020-21. Some of the tours and exercises could not be planned for the 2019 Batch due to the COVID restrictions in the Country, and the batch was relieved from the academy on 30.06.2021 for their respective cadre states.

The 2020 batch resumed the tours and exercises within the State of Uttarakhand from August, 2021 onwards with full COVID-19 protocols. With thorough planning and restricting the group movement to only one or two major halting stations, the tour to West India and the Wildlife techniques exercise at Sariska and the management module at IIM Lucknow was also conducted successfully in Sept-Oct 2021.

Directorate of Forest Education, P.O. – New Forest, Dehradun

(a) Brief introduction, objectives and functions of the Division:

The Directorate of Forest Education (DFE) under the Ministry of Environment, Forest and Climate Change is responsible for imparting professional/ technical training to direct recruit State Forest Service (SFS) Officers and Forest Range Officers (FROs). The Directorate also supplements the efforts of various States for the training and capacity building of the Forest Frontline Staff (Deputy Rangers, Foresters and Forest Guards) through the respective Forest Training Institutes. There are 4 (four) Academies under the Directorate. The names and intake capacity (per batch) of these Academies are as under:





S.No.	Name of the Academy	Intake Capacity
1.	Central Academy for State Forest Service, Dehradun	40
2.	Central Academy for State Forest	40
3.	Central Academy for State Forest Service, Burnihat	40
4.	Central Academy of Forest Education, Kurseong	40

Besides this, the Directorate also conducts Forest Range Officers induction training through Forestry Training Institute/ Academy under the control of State Government viz.:

1. Uttarakhand Forest Training Academy, Haldwani, Uttarakhand
2. Telangana State Forest Academy, Dulapally, Hyderabad
3. Forest Training Institute and Rangers College, Sundernagar, Himachal Pradesh
4. Tamil Nadu Forest Academy, Coimbatore, Tamil Nadu
5. Kundal Academy of Development, Administration and Management (Forest), Maharashtra
6. Gujarat Forest Rangers College, Rajpipla, Gujarat
7. Karnataka Forest Academy, Gungargatti, Dharwad, Karnataka

8. Odhisa Forest Rangers College, Angul, Odisha

Objectives:

1. To cater to the training needs of State Forest Service (SFS) Officers and Forest Range Officers (FROs) of States/ Union Territories in the Country.
2. To ensure standard and quality of training being imparted to SFS Officers and FROs.
3. To develop appropriate and relevant training contents and evaluation standards for forestry training at various levels.
4. To suggest training policy for effective Human Resource Management and Development.
5. To supplement the efforts of State Governments in the training of Forest Frontline Staff (Forest Guards, Foresters and Deputy Rangers).

Important activities undertaken/Achievements during the period 01/01/2021 to 31/12/2021 including celebrations for Azadi ka Amrit Mahotsav

1. **One (01) new batch of State Forest Service Officers for induction training at the following Academics:**

S. No.	Name of the Academy/Institute	Batch	Date of Commencement	Total No. of Seats Allotted
1	Central Academy for State Forest Service, Dehradun	2021-2023	02.08.2021 to 01.08.2023	33





II. One (01) batch of State Forest Service Officers is undergoing induction training at the following Academics:

S.No.	Name of the Academy/Institute	Batch	Date of Completion	Total No. of Trainees
1	Central Academy for State Forest Service, Coimbatore	2020-2022	23.11.2020 to 22.11.2022	53

III. Two (02) batches of State Forest Service Officers have passed out from the following Academics:

S.No.	Name of the Academy/Institute	Batch	Date of completion	Total No. of Trainees
1	Central Academy for State Forest Service, Dehradun	2019-2021	08.07.2019 to 07.07.2021	49
2	Central Academy for State Forest Service, Burnihat	2019-2021	26.08.2019 to 25.08.2021	37

IV. Eleven (11) new batches of Range Forest Officers for induction training at the following Institutes:

S. No.	Name of the Academy/Institute	Batch	Date of Commencement	Total No. of Seats Allotted
1	Kundal Academy of Development, Admin. And Management, Maharashtra	2021-2022	04.01.2021 to 03.07.2022	52
2	Central Academy for State Forest Service, Coimbatore	2021-2022	01.03.2021 to 31.08.2022	37
3	Gujarat Forest Rangers College, Gujarat	2021-2023	08.07.2021 to 07.01.2023	45
4	Forest Training Institute and Rangers College, Himachal Pradesh	2021-2023	09.08.2021 to 08.02.2023	41
5	Kundal Academy of Development, Admin. And Management, Maharashtra	2021-2023	16.08.2021 to 15.02.2023	45
6	Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu)	2021-2023	30.08.2021 to 01.03.2023	56





S. No.	Name of the Academy/Institute	Batch	Date of Commencement	Total No. of Seats Allotted
7	Central Academy for State Forest Service, Burnihat	2021-2023	27.09.2021 to 26.03.2023	32
8	Telangana State Forest Academy, Dulapally, Hyderabad (Telangana)	2021-2023	13.09.2021 to 12.03.2023	41
9	Odisha Forest Rangers College, Odisha	2021-2023	04.10.2021 to 03.04.2023	68
10	Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand)	2021-2023	15.11.2021 to 14.05.2023	45
11	Forest Training Institute and Rangers College, Himachal Pradesh	2021-2023 (II)	01.12.2021 to 31.05.2023	47

V. Four (04) batches of Range Forest Officers are undergoing training at the following Institutes:

S. No.	Name of the Academy/Institute	Batch	Date of completion	Total No. of Trainees
1	Telangana State Forest Academy, Dulapally, Hyderabad (Telangana)	2020-2022	16.11.2020 to 15.05.2022	63
2	Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu)	2020-2022	20.11.2020 to 19.05.2022	45
3	Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand)	2020-2022	01.12.2020 to 31.05.2022	48
4	Karnataka State Forest Academy, Dharwad (Karnataka)	2020-2022	07.12.2020 to 06.06.2022	73

VI. Four (04) batches of Range Forest Officers have passed out at the following Academics:

S. No.	Name of the Institute	Batch	Date of completion	Total No. of Trainees
1	Kundal Academy of Development, Admin. And Management, Maharashtra	2019-2021	18.11.2019 to 17.05.2021	37
2	Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand)	2019-2021	25.11.2019 to 24.05.2021	41
3	Forest Training Institute and Ranger College, Himachal Pradesh	2019-2021	02.12.2019 to 01.06.2021	38
4	Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu)	2019-2021	09.12.2019 to 08.06.2021	34





VII. Organizing Online One Week Theme based Workshops / General Refresher Courses for In-service State Forest Service Officers and Senior Forest Range Officers during the period 01/01/2021 to 31/12/2021

S. No.	Name of Academy	Theme Based training (one week)	Training duration	Number of Participants
1	CASFOS, Coimbatore	Human Resource Management	04.01.2021 to 09.01.2021	24
		Biodiversity Conservation for Sustainable Livelihoods	21.06.2021 to 26.06.2021	17
		Training of Trainers	20.09.2021 to 25.09.2021	22
		Wildlife Management	04.10.2021 to 09.10.2021	23
		Human Resource Management	25.10.2021 to 30.10.2021	27
		Legal Issues in Forestry and Wildlife	22.11.2021 to 27.11.2021	To be conducted
2	CASFOS, Dehradun	Biodiversity Conservation for Sustainable Livelihoods	06.09.2021 to 11.09.2021	57
		Training of Trainers	04.10.2021 to 09.10.2021	36
		Ecosystems Approach to Forest Management	15.11.2021 to 20.11.2021	To be conducted
		Human Resource Management	06.12.2021 to 11.12.2021	To be conducted
3	CASFOS, Burnihat	Wildlife Management	06.09.2021 to 11.09.2021	21
		Biodiversity Conservation for Sustainable Livelihoods	04.10.2021 to 09.10.2021	18
		Human Resource Management	08.11.2021 to 13.11.2021	To be conducted
		Legal Issues in Forestry and Wildlife	06.12.2021 to 11.12.2021	To be conducted





VIII. Organizing Online One Week Training for the Frontline Staff (Deputy Rangers / Foresters) in the State Forest Training Institutes during the period 01/01/2021 to 31/12/2021

S.No.	Name of Institute	Training duration
1	Forest Training Institute Pinjour, Haryana	17.05.2021 to 21.05.2021
2		07.06.2021 to 11.06.2021
3	Tamil Nadu State Forest Department, Tamil Nadu	07.06.2021 to 11.06.2021
4		07.06.2021 to 11.06.2021
5	Odisha Forest Ranger Collage Angul, Odisha	24.05.2021 to 29.05.2021
6		26.07.2021 to 31.07.2021
7	Forestry Training Institute Kanpur, Uttar Pradesh	25.10.2021 to 30.10.2021
8	Kundal Academy, Sangli, Maharashtra	23.08.2021 to 28.08.2021
9		22.11.2021 to 27.11.2021
10	CEFNARM, Dullapally, Hyderabad, Telangana	13.09.2021 to 18.09.2021
11		22.11.2021 to 27.11.2021
12	State Environment and Forestry Training Institute Dimapur, Nagaland	15.11.2021 to 20.11.2021
13	State Forest Training Institute, Hijli, West Bengal	22.11.2021 to 27.11.2021

IX. Organizing Online Two days training under “Forestry Training and Capacity Building” conducted during 2020-2021 in the constituent Academies under Directorate of Forest Education during the period 01/01/2021 to 31/12/2021

S. No.	Name of Academy	Name of Training	Training duration	Number of Participants
Training of Other Stakeholders				
1	CASFOS, Coimbatore	Conservation of Forests Wildlife and Environment: Know your Forest	22 to 23 Feb, 2021	23
		Training of Personnel of Other Services Forest Policy and Law for smooth interface of Forest Department and Personnel of concerned other departments	08 to 09 Mar, 2021	51
2	CASFOS, Dehradun	Training of Other Stakeholders		
		Legal Issues in forests, Wildlife and Environment	11 to 12 Jan, 2021	88





S. No.	Name of Academy	Name of Training	Training duration	Number of Participants		
		Conservation Issues in India	27 to 28 Jan, 2021	105		
		People and Forest Interface	08 to 09 Feb, 2021	85		
		Conservation Issues in India	19 to 20 July, 2021	249		
		Conservation Education	03 to 04 Aug, 2021	2991		
		Legal Issues in Forests, Wildlife and Environment	20 to 21 Sep, 2021	32		
		People and Forest Interface	27 to 28 Oct, 2021	35		
		Sensitization of Environment Management Issues	11 to 12 Nov, 2021	To be conducted		
		Training of Personnel of Other Services				
		Interdepartmental co-ordination in prosecution of forest and wildlife offence	20 to 21 Jan, 2021	90		
		Role of Judiciary in Forest and Wildlife	24 to 25 Jan, 2021	149		
		Convergence for NRM based integrated rural development	01 to 02 Mar, 2021	136		
		Wildlife Trade & Trafficking	15 to 16 Mar, 2021	190		
		Linkage between field forest manager and R&D Personnel	29 to 30 Dec, 2021	To be conducted		
		3	CASFOS, Burnihat	Training of Other Stakeholders		
				Conservation Education in-charge of Eco Club	05 to 06 Mar, 2021	215
Conservation Education	14 to 15 Jul, 2021			109		
Sensitization on Natural Resource Conservation	17 to 18 Aug, 2021			46		
People and Forest Interface	22 to 23 Sep, 2021			41		
Training of Personnel of Other Services						
Biodiversity Conservation	10 to 11 Mar, 2021			125		
Role of Judiciary in Forest and Wildlife	21 to 22 Oct, 2021			57		
Convergence for NRM based Integrated Rural Development	17 to 18 Nov, 2021			To be conducted		
Wildlife Trade and Trafficking	22 to 23 Dec, 2021			To be conducted		





S. No.	Name of Academy	Name of Training	Training duration	Number of Participants
4	CAFE, Kurseong	Training of Other Stakeholders		
		Conservation Education	10 to 11 Feb, 2021	268
		Forest Certification in the Indian Context	15 to 16 Jul, 2021	28
		Training of Personnel of Other Services		
		Natural Resource Governance vis-à-vis Integrated Rural Development	09 to 10 Mar, 2021	92

(d) Promulgation of new Acts /Rules, if any, along with the details:

- Director Forest Education along with the Principals and Faculty Members from Academies were actively involved in preparation of proposal for amendment to Entrance and Training Rules (2004) for State Forest Service Officers and Forest Range Officers. The amendment draft of Entrance and Training Rules (2004) for State Forest Service Officers is submitted to MoEF&CC, New Delhi.

(h) List of major publications brought out

- Vriksha Trees of CASFOS, Dehradun
- Safarnama – 2021 published by CASFOS, Dehradun

(i) Challenges in work due to COVID-19 and the response of the Division

CASFOS, Burnihat

- The training of 2019-2021 SFS induction course commenced on 26.08.2019 and due to COVID-19 only two study tours out of five could be completed offline, remaining

three were conducted virtually (online). During the 2nd wave of COVID-19 all classes were conducted online and the convocation was also organized online wherein the Chief Guest and Guest of Honour Hon'ble Cabinet Minister (MoEFCC) Shri Bhupender Yadav and Minister of State Shri Ashwini Kumar Choubey had taken part from New Delhi online.

- However, with the improvement of the pandemic situation the introductory tour of 2021-23 FRO Induction Course is being conducted offline with effect from 7.11.2021
- The Academy campus building, including hostels, are regularly sanitized, sanitizers and masks have been provided to the trainees and staff. Oximeters, Infrared thermometers have been purchased and oxygen level and temperature each of officer trainees and staff are regularly monitored.

CASFOS, Dehradun

- All the tours and lectures of induction course are being conducted through





online/ virtual mode. There is difficulty in conducting field exercise and tours visit place to place by the OTs.

CASFOS, Coimbatore

- Due to COVID-19 Pandemic situation, the Academy successfully conducted the classes through online mode. After the decrease in COVID-19 incidences and directions of the Government following COVID-19 Protocols and SOPs, the offline classes were resumed in the Academy. No cases of COVID-19 were reported during the reference period.
- **Conduct of classes:** During the peak period regular classes for induction training is conducted in online mode.
- **Isolation of symptomatic or Sick Officer Trainees:** Executive hostel in the campus is used for quarantine purposes. RTPCR test is made mandatory for Trainees who joins after Leave/ Vacation/ Tour.
- **Dining for Officer Trainees:** Staggered dinning time is made for both SFS and FRO batch in the Academy ensuring zero contact with mess workers.
- **Monitoring the health Officer Trainees:**
 - a) Trainees were advised to regularly monitor their body temperature and sanitize.
 - b) For that purpose Temperature Monitoring cum Hand Sanitizer Vending Machines were installed at Hostel, Class room and Main office premises.
 - c) They were provided with steam inhalation tools for taking regular steam therapy.
 - d) Two vaccination camps were arranged

for all Officer Trainees, Staff Members and Mess Workers. All of them were administered with two doses of Vaccine.

- **Prevention of outside contact:** Officer trainees were not allowed to move outside the campus without prior permission from principal, CASFOS Coimbatore.
- Moreover, 6 numbers of one week Theme Based Workshops for the in-service SFS officers and 2 General Awareness Courses for Other Stakeholders were conducted through Online Mode. The resource persons had delivered the presentation through online.

CAFE, Kurseong

- Though there were less number of staff members, duties have been fulfilled either from home or from the office.
- The Institute premises/building has been sanitized properly and has provided sanitizers/ masks to the staff.
- Mostly the challenges faced due to COVID-19 is to work online (meetings, tour, other official works) due to very poor connection of networking in hilly areas.

2. For each Scheme/Programme under the Division

Name of the Scheme/Programme and its objectives: Capacity Building in Forestry Sector, Directorate of Forest Education (State Forest Service and Rangers College) Central Scheme (CS)

- a. Progress/Achievements both cumulative and for the reference period-

Annexure I



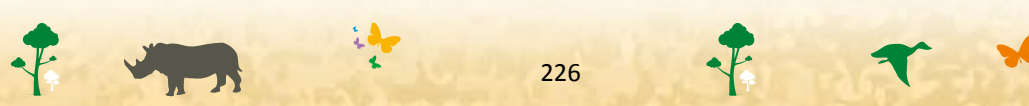


Annexure-I

DIRECTORATE OF FOREST EDUCATION

Statement of Physical and Financial target during the period 01.01.2021 to 31.12.2021

S. No.	Name of Scheme / Programme	Objective/ Outcome	BE2021-2022 (Amount in Crores)		Quantifiable Deliverables Physical Outputs	Projected Outcomes	Processes/ Timelines	Remarks/ Risk Factors
1	2	3	4		5	6	7	8
1	Capacity Building in Forestry Sector, Directorate of Forest Education (State Forest service and Rangers college) Central Scheme (CS)	<p>1. Induction training of State Forest Service (SFS) Officer and Forest Range Officers (FRO)</p> <p>2. Short-term General refresher and Computer Application Courses for in – service SFS Officers and Forest Range Officers. Theme based workshop (Wildlife) for FROs</p> <p>3. Theme based courses / workshops for SFS Officers and FROs.</p> <p>4. Refresher Courses for In-Service Deputy Rangers / Foresters / Forest Guards of the States / UTs and one-week workshop for FROs.</p> <p>5. Courses on Forestry for Sister & other organizations on request.</p>	<p>BE</p> <p>BE – 14.50</p> <p>Capital- 10.00</p> <p>Total- 24.50</p> <p>Complementary Extra-Budgetary Resources</p> <p>N.A.</p>	<p>Exp.</p> <p>7.61</p> <p>2.20</p> <p>(upto Oct, 2021)</p>	<p>1. New SFS induction training</p> <p>2. Passing out / Undergoing of SFS induction training</p> <p>3. New FROs induction training</p> <p>4. Passing out/Undergoing of FROs induction training</p> <p>5. One-week General Refresher Course/Workshop in thematic area for in-service SFS Officers/ newly promoted Senior FROs and Theme based workshop of for in-service SFS Officers / FROs</p> <p>6. One-week Refresher Course for in-service Deputy Rangers/ Foresters/ Forest Guards and One-week Workshop for FROs through State Forestry training institutes of States</p> <p>7. Forestry skill development certificate courses on different themes</p>	<p>01batch</p> <p>03batches</p> <p>11batches</p> <p>08 batches</p> <p>14</p> <p>(Workshop)</p> <p>13</p> <p>(Frontline)</p> <p>--</p>	<p>----</p>	<p>All the activities will be undertaken as per General Rules and Financial Rules and orders Moreover this is also subject to audit.</p> <p>On demand</p>





6.7 Wildlife Institute of India (WII)

Wildlife Institute of India (WII) was established at Dehradun in 1986 as an autonomous institute of the Ministry of Environment, Forest & Climate Change, Government of India. The Institute has emerged as a premier training and research institution in Wildlife and Protected Area Management in South and South-East Asia. Its primary mandates are to (i) carry out scientific and applied research on various issues of wildlife and biodiversity conservation, (ii) develop wildlife science as a discipline through academic activities, (iii) build capacity in the field of wildlife management and conservation planning, (iv) provide technical inputs to MoEF&CC and other stakeholders. The Institute has generated quality information and knowledge products in wildlife science through research and mainstreaming it in capacity building programmes for various target groups.

WII's Mission

The mission of WII is to nurture the development of wildlife science and promote its application in the field in a manner that accords with our economic and socio-cultural milieu.

Aims and Objectives

- Build up scientific knowledge about wildlife, their habitat and conservation.
- Train forest personnel at various levels in the conservation and management of wildlife.
- Carry out research relevant to management, including the development of techniques appropriate to Indian conditions.

- Provide information and advice on specific wildlife management problems.
- Collaborate with international organisations on wildlife research, management and training.
- Develop as a regional centre of international importance for the conservation of wildlife and natural resources.

Research

Research Projects

Wildlife research at the Institute is predominantly multidisciplinary, covering ecological, biological and socio-economic aspects across various ecosystems in the country. The research projects generate valuable scientific information relevant to the Indian conditions and create a cadre of trained field biologists, socio-economists and wildlife managers. The scientific information generated is utilised for wildlife conservation and management. Research also enables the Institute's faculty to keep abreast of the current field situations, management needs and research trends and continuously enhance their professional skills and update their teaching inputs. The research agenda is guided by the Training, Research Advisory Committee (TRAC), comprised of eminent conservationists, academicians and representatives of scientific organisations, and state wildlife organisations, which ensures that research conforms to the national conservation priorities.

Major Research Projects during January-December 2021

Bustard Recovery Program

India's bustards are highly endangered





as hunting in the past, habitat loss, and power lines have caused severe population decline. To conserve them, the MoEF&CC has developed the National Guidelines and commissioned the Bustard Recovery Program with funding support from National CAMPA. Great Indian Bustard eggs were collected for artificial incubation and hand-rearing of chicks to establish the founder captive population at the conservation breeding facility in Sam, Jaisalmer. Routine husbandry and veterinary activities were carried out to rear the captive birds of previous years. Great Indian Bustard females and Lesser Florican males were tagged using solar-powered GPRS transmitters to understand their ecology, movement patterns and guide conservation strategies. A large-scale survey for desert fauna was conducted in the Bikaner constituency. Key bustard breeding enclosures in Desert National Park were repaired. Technical inputs were provided on bustard conservation to MoEF&CC, power agencies and regulatory bodies, and State Forest Departments.

Conservation Action Plan for Manipur's Brow Antlered Deer or Sangai: An Integrated Approach



Capacity building of frontline staff of Forest Department and local volunteers was carried out. Conservation Breeding-cum-Rescue Centre for the Sangai and a Veterinary Centre has been established for disease surveillance and handling emergent situations. An action plan for the conservation breeding centre has been prepared. A survey of the area for earth filling and further development has been initiated and is under process. An integrated management plan of Keibul Lamjao National Park (KLNP) has been prepared after a comprehensive consultation with all stakeholders. Drone (UAVs) survey in the park is ongoing.

As a part of the establishment of a second population in the wild for Sangai, a series of meetings were organised with local people of Pumlen Pat to discuss the current affairs of villagers on the establishment of conservation reserve and reintroduction of Sangai in Pumlen Pat and Thongam Mondum Reserve Forest. A scientific management regime for the conservation of Sangai at KLNP has been put in place. Action plan for conservation breeding is in place, and conservation breeding centre has been planned, and groundwork has been initiated. Alternative livelihood options for the local communities were considered for an effective management regime.

Development of Conservation Action Plan for River Dolphin:

Ganges river dolphin abundance estimation was conducted in River Ganga (mainstream). The Independent double observer method was followed along with underwater acoustic





hydrophones. A total of around 1,500 dolphins were estimated in the mainstream Ganga. However, this data needs to be corrected for unavailability, and the actual estimate would be between 1,800-2,000 dolphins. This was the first scientifically robust estimate of the Ganges River dolphin from Allahabad to Ganga Sagar. The oil spill of Baghjan on 27th May, 2020 and subsequent fire on 9th June, 2020 destroyed about 60-70 ha of the area around the site. The oil spread out on land and dispersed into the surrounding rivers and wetlands. A rapid impact assessment survey followed by a detailed survey was done at Baghjan oil well blowout site, Assam, and the oil spill's effect in the surrounding landscape. Pingers were used as an acoustic deterrent device to keep the aquatic mammals alert of the presence of fishing gears and to avoid net entanglement. It was observed that the activity of dolphins declined when the pingers were activated in the fishing gears. This study was also able to successfully demonstrate the efficacy of by-catch mitigation devices like pingers, which will help reduce dolphin mortality through net entanglement.

Status of Peafowls in the President's Estate, India:

The Indian Peafowl, *Pavo cristatus*, the National Bird of India, is native to the Indian sub-continent and distributed in most of the States and Union Territories of India. Peafowls in the President's Estate are the natural 'National Symbol', which adorns the First Garden of India. However, there is no detailed information about their population

status, habitat use and breeding behaviour inside the President's Estate. Therefore, this study was initiated to monitor the peafowls and their habitats in the Estate during the first week of August, 2021. Total count following 'Area Search Method' was used to assess the population of the peafowl.

About 200 peafowls in the President's Estate were observed during the monsoon season in 2021. Of these, 113 peafowls were estimated at Dalikhana using distance sampling and remaining birds from other gardens, where the research team used the total count method. Peafowls have been observed roaming safely in the entire Estate. However, about 30 hectares of Dalikhana that has forest patch along with vegetable garden was found to be one of the most preferred habitats of peafowl for breeding and feeding. Herbal gardens of the Estate have also been used for nesting. In addition, a larger number of peafowls are seen in the Mughal Garden during dusk and dawn when they visit this garden for food and water, though breeding/ nesting signs are not visible. The distribution pattern of peafowls may change between the seasons; therefore, it is important to monitor them at each of the four seasons at least for a year.

Tiger Recovery Strategy and Long-term Monitoring in Sahyadri Tiger Reserve, Maharashtra:

Regular monitoring in opportunistic sign surveys, standard line transects, and camera trapping in tiger reserve has been continued. During the reporting period, prey density





was modelled within the tiger reserve (using random encounter modelling REM framework) and habitat in the larger Sahyadri landscape. The camera trapping effort totaled 7,682 trap nights and captured 23 mammal species belonging to 13 families for the reporting period. Wild boar was the most captured mammal species, followed by Indian gaur. Among felids, leopards had the highest capture rate. The research team successfully adopted the REM framework in the field and estimated prey densities. This has been done for the first time for this landscape.

Spatial Ecology of Himalayan Torrent Frog, *Nanorana vicina* (Stoliczka, 1872) in Response to Habitat Dynamics:



This is a first of its kind project initiated in Binog Wildlife Sanctuary (BWLS) and Kedarnath Wildlife Sanctuary. The research team recorded 18 species of herpetofauna belonging to 16 genera. Among them, the amphibian was represented by five species, and reptiles were represented by 13 species, including eight species of snakes and five species of lizards. In Kedarnath Wildlife Sanctuary, the team recorded 16 species of herpetofauna

belonging to 13 genera and nine families. Amphibians were represented by nine species of anurans, while reptiles were represented by four species of snakes and three species of lizards. Radio-telemetry results suggest that *N. vicina* is a stream-dwelling frog that is mainly confined to the stream’s pool section and moves less. In the present study area, a significant portion of the amphibian habitat of the stream has been modified to create artificial pools and check dams. Check dams may directly impact *N. vicina* as they lay eggs under the tree roots and boulder undercut. The results of this study suggest that *N. vicina*, like many riparian anurans, is a sedentary animal. The radio telemetry results have been supported by a visual encounter survey where they were mostly encountered in the pool section of the stream.

Influence of Micro-Climatic Variables on Herbaceous Plant Communities in Treeline Ecotone in the Himalaya:

Seasonal snow cover is a prominent characteristic feature of most alpine regions. The study examines the impact of different snowmelt regimes and constant warming on vascular plants’ abundance, growth, and diversity. The study was conducted in Timberline ecotone at and around Tungnath, Western Himalaya. An experiment on snow manipulation was conducted in Shokhark, a small meadow in the southern aspect during the winter season. Two major communities, *Potentilla*-Mixed and *Fragaria*- Mixed, were identified in the alpine meadow. The results





highlight that the warming temperature with an increase in snow cover will not have much effect on richness and density, whereas the rise in temperature with no snow cover will favour an increase in species richness and density in herbaceous alpine meadows; however, the increasing temperature will not have a significant impact on the diversity of herbaceous meadows. With similar temperatures, an increase and decrease in snow cover and no snow cover will adversely impact herbaceous alpine meadows' richness, density, and diversity. However, the results suggest a positive influence of warming on species richness and density in snow-free conditions, while the negative impact on richness, density and diversity in present conditions.

Tiger Reintroduction and Recovery Program in Panna Tiger Reserve and the Landscape Complex, Madhya Pradesh: Phase II

Tiger locations were collected by triangulation and home in methods. Later the triangulated locations were analysed by Locate III software to get the actual position of tigers. A minimum convex polygon-based home range map for individual tigers was generated using Arc GIS 10.5 and projected locations. During the reporting period, 144 transects were walked in January. The effort length was 864 km. Results show the density of all the prey species was $48.79 \pm 4.36/\text{km}^2$. In core, 76 transects were walked, the effort length was 456 km, analysis for core reveals the density of prey species inside the core was $42.59 \pm 5.47/\text{km}^2$. The

project ensured that necessary technical and management capacities were available locally. After reaching the carrying capacity, the tiger population shows dispersal behaviour while still space is left in the area.

Development of Landscape Management Plan and Monitoring with reference to Ken- Betwa River Link Project in Panna Tiger Reserve, Madhya Pradesh:

During the reporting year, the camera trapping exercise was completed in the entire landscape. Camera trap data obtained were sorted and analysed to observe the presence of tiger, co-predator, and prey species and understand the mammalian diversity in the landscape. The tiger capture rate was very low. A total of 144 species (54 families) of vegetation life forms have been recorded from the landscape, including 94 tree species (32 families), 40 herbs species (14 families) and ten shrub species (8 families). Two thousand nine hundred and four vultures belonging to seven species were recorded in the landscape. During the abundance survey in PTR, 144 active and four inactive vulture nests were identified. During the behavioural study, key behaviours like bathing and chick-rearing have been observed. The field team has accomplished a landscape-level survey on major thematic groups. Stakeholder workshops for officers and local communities have been completed, giving further insights into the strategies to be followed and resources to be allocated, which shall be incorporated in the landscape management plan.





Mitigation Measures for the Nagbhid-Itwari Railway Gauge-Conversion Project Passing through Eco-Sensitive Zone and Corridors of Umred-Pauni-Karhandla Wildlife Sanctuary:



The study's objective was to suggest mitigation measures for the proposed broad gauge railway line passing through the Eco-Sensitive Zone and corridors of the Umred-Pauni- Karhandla Wildlife Sanctuary in the central Indian tiger landscape. Three main segments of the proposed railway alignment were identified that were important from the mitigation point of view. These were passing through the eco-sensitive zone of the Umred-Pauni-Karhandla Wildlife Sanctuary.

Academic Programmes

XVII M.Sc. (Wildlife Science)

Twenty students of M.Sc. (Wildlife Science) have been collecting data in the field since January, 2021. They collected data for four months despite the challenges due to the second lockdown. After completing data collection, they returned to WII in May, 2021, after which they analysed and wrote up their

dissertations and submitted the thesis.

First M.Sc. (Heritage Conservation and Management)

During the period April-July, 2021, all seven students of the M.Sc. in Heritage Conservation and Management course continued their field dissertation semester across various sites in the Country. To complete their study, the students presented the dissertations on topics of heritage importance which included - Issues of relocation and resilience in Sariska; Impact of the road network on wildlife corridors in Assam; Snow Leopard conservation in Ladakh; Sustainability of museums; Functional continuity of religious heritage, ecological narratives of Bhotiya community; and Nature-culture perspectives of animal consumption.

Training Programmes

XLII Post Graduate Diploma in Advanced Wildlife Management, 1 November 2021 to 31 August 2022

The Post-Graduate Diploma Course in Advanced Wildlife Management for in-service Forest/ Wildlife Officers who are engaged in managing natural forest resources particularly wildlife and protected areas has commenced from 1st November, 2021 at Wildlife Institute of India. This 10-month course is designed to enhance the capacity of forest officers to effectively manage Protected Areas (PAs), wildlife related issues outside PAs and conservation of endangered species.

The course would abreast the participants in modern tools and techniques of Wildlife Management including preparation of scientific management plans for Protected





Areas and forested landscapes. Further, the course will provide a foundation of modern concepts in wildlife science, and provide an understanding of the relevant global, regional, national and state level conservation policies and legislations and their enforcement. Their Wildlife Orientation Tour was conducted in the Rajaji Tiger Reserve. Ten Officer Trainees from Assam, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, Telangana, and Uttarakhand are participating in the 42nd PG Diploma Course.

XXXVI Certificate Course in Wildlife Management Concluded, Dehradun, 1 December 2021 – 28 February 2022.

The XXXVI Certificate Course in Wildlife Management started on 1st December, 2021. Sixteen officer trainees of Range Forest Officers and equivalent levels (seven from Madhya Pradesh, five from Maharashtra, two from Andhra Pradesh and two from Uttarakhand) joined the training course at WII. The three-month course will conclude on 28th February, 2022.

Workshops, Seminars, Meetings and Other Activities

A large number of activities were conducted during the reporting period. The information on some important events is given below:

- Virtual Meet to Assess Progress on Uttarakhand State Level HWC Strategy and Action Plan (SAP); and Division Level HWC Management Action Plans (MAP), WII, Dehradun, 12 April 2021.
- Online Training Workshop on Block Level

Data Collection for People's Biodiversity Register (PBR), Wildlife Institute of India, Dehradun & Local Community Members from 17 Blocks of 9 Districts in Bihar, 13 April 2021.

- Facilitation of the Fire-Fighting Station at Keibul Lamjao National Park, Manipur, KLNP, Manipur, 20th April, 2021.
- 'Training of Trainers' course on 'Training Excellence and Human-Wildlife Conflict Management' for the Faculty Members of State Forest Training Academies and Rangers Colleges, WII, Dehradun, 22-23 April and 26-28 April, 2021.
- Online Training Workshop for Utilisation of Millets for Health and Immunity Boosting for Ganga Praharis of Uttarakhand, WII, Dehradun and Uttarakhand State, 19-21 May, 2021.
- Online Training Workshop for Utilisation of Millets for Health and Immunity Boosting, Wildlife Institute of India, Dehradun & Five Ganga River States, 25-27 May, 2021.
- Online Training and Orientation Workshop for Newly Identified Ganga Praharis from Tributaries of Ganga River, 2-4 June 2021.
- Online Training on Maintenance of Books of Record for Self Help Group (SHG), Fringe Villages of KLNP, 7-8 June 2021.
- Online Training and Orientation Workshop for Newly Identified Ganga Praharis Mainstream Ganga River, 8-10 June 2021 and 13-15 June 2021.
- Online Training Workshop on "How to make Black Gold from your Kitchen Waste?", 29 June 2021.





- Online Training Workshop “Grow Your Own Micro-greens”, 30 June - 2 July 2021.
- Himachal Pradesh Forest Department Sponsored Skill Development for Tour Guides in Great Himalayan National Park Conservation Area, Himachal Pradesh, July 2021.
- Online Training Workshop “Use and Health Benefits of Local Millets”, 7-9 July 2021.
- Livelihood Training on Sewing and Stitching, Bijnor, 12 July - 12 October 2021.
- Online Workshop on Assessment of Books of Record for SHG, KLNP, 12-13 July 2021.
- A Sensitisation - cum - Training Workshop for Uttar Pradesh Provincial Armed Constabulary on Biodiversity of Freshwater Ecosystems, Ayodhya, UP, 19 July 2021.
- Training Workshop for Frontline Staff of Ayodhya Forest Division on Biodiversity of Freshwater Ecosystem, Ayodhya, UP, 19-20 July 2021.
- Skill Development for Tour Guides in Great Himalayan National Park Conservation Area, Himachal Pradesh, 22-25 July 2021 and 2-5 October 2021.
- A Teacher Training Workshop for ‘Jalmala Samvaad’, Varanasi, UP, 24 July 2021.
- Online Hands-on Training Workshop on “Seed Paper Making”, Dehradun, 3 August 2021.
- Online Hands-on Training Workshop on “Grow Your Own Micro-greens”, Dehradun, 4 August 2021.
- Nursery Development Training for Ganga Praharis of Bijnor, Bijnor, 4-8 August 2021.
- A Teacher Training Workshop for ‘Jalmala Samvaad’, Belawon, Jaunpur, 8 August 2021.
- Mat Weaving Training for Ganga Praharis of Muzaffarnagar and Bijnor, Bijnor, 9-18 August 2021.
- Food Processing Training for Ganga Praharis of Muzaffarnagar and Bijnor, Bijnor, 11–20 August 2021.
- Biological Samples Collection and its Preservation Techniques, Ayodhya, Uttar Pradesh, 11 August 2021.
- Biological Samples Collection and its Preservation Techniques, Ambedkar Nagar, 13 August 2021.
- Teacher Training Workshops for ‘Jalmala Samvaad’, Zafarabad, Jaunpur, 16 August 2021 and Kerakat, Jaunpur, Uttar Pradesh, 17 August 2021.
- Two-week Training Programme for MoEFCC Officials, Dehradun, 16-30 August 2021.
- Online Millet Training for Ganga Praharis of Uttar Pradesh, Wildlife Institute of India, Dehradun, Uttarakhand & Uttar Pradesh, 24 August 2021.
- Biological Samples Collection and its Preservation Techniques, Barabanki, Uttar Pradesh, 25 August 2021 and Pratapgarh, Uttar Pradesh, 27 August 2021.
- A Thematic Streaming Session with the University of Tsukuba titled “Linking Nature and Culture in Asia and the Pacific:





Initiatives for Advancing Knowledge and Scaling-up Capacity Building in Landscape Conservation” in IUCN World Conservation Congress Webinar, 5 September 2021.

- Forest Governance & Interface of Laws, WII-C2C, Dehradun, September 2021.
- IUCN-ICCROM Sponsored Online IUCN-ICCROM Heritage Place Lab, September - October 2021.
- Livelihood Training on ‘Health and Wellness’, Prayagraj, 11 September – 1 October 2021.
- Training Programme for Livelihood on ‘LED Making’, Prayagraj, 11 September – 1 October 2021.
- Online Workshop on Sustainable Utilization of Water Resource, KLNP, 18 September 2021.
- Livelihood Training on Sewing and Stitching, Bhagalpur, Bihar, 23 September 2021.
- Spearhead Training Programme for Ganga Task Force and Eco Task Force on Biodiversity Conservation of Ganga River & its Tributaries, Wildlife Institute of India and Haiderpur Wetland, Bijnor, 27 September - 2 October 2021.
- District Level Training for new Ganga Praharis, Bihar Agriculture University, Bhagalpur, 30 September 2021.
- Rescue and Rehabilitation Techniques on Biodiversity Conservation, Bijnor and Muzaffarnagar, Uttar Pradesh, 1-2 October 2021.
- Teacher’s Training Programme on World Heritage at Nanda Devi National Park, Joshimath, 4-5 October 2021.
- On-site Field Training on Gangetic River Dolphin Monitoring, Ayodhya, 5 October 2021.
- UNESCO Sponsored World Heritage Cities Online Dialogue, October 2021.
- Online MEE of Protected Areas and World Heritage Sites for IFS Officers, October 2021.
- Himachal Pradesh Forest Department Sponsored Skill Development for Tour Guides in Great Himalayan National Park Conservation Area, HP, GHNP, Himachal Pradesh, October 2021.
- Vigyaan se Swavlamban: A Synergistic Alliance of Sustainable Rural Technologies and Biodiversity Conservation of Ganga River Basin, WII and Haiderpur Wetland, 21-28 October 2021.
- Livelihood Training on Incense Stick Making and Prasad Making, Kahalgaon, Bhagalpur, Bihar, 23- 29 October 2021.
- Nursery Development, Poly-house and Vermicompost Making, Naugachhia, Bhagalpur, Bihar, 23– 29 October 2021.
- One-Week Online Training Workshop on Management Effectiveness Evaluation (MEE) of Protected Areas and World Heritage Sites for IFS Officers, 25-29 October 2021.
- Human-Wildlife Conflict Mitigation Workshop and Formation of Village Response Team (VRT), Dharali, Uttarkashi, 1 November 2021 and 8 November 2021.





- Virtual Meeting with MEE Chairpersons to Review the Progress MEE of 210 National Parks and Wildlife Sanctuaries, 12 November 2021.
- Workshop on Applications of Geospatial Data in Natural Heritage Management on GIS Day 2021, Dehradun, 17 November 2021.
- Webinar on “Bastions of Conservation: Natural World Heritage in the Asia-Pacific”, 18 November 2021.
- 5th Himalayan Research Seminar on International Mountain Day, Dehradun, 11 December 2021.
- Two-week Orientation Workshop on “Wildlife and Health Management” for Field Veterinary Officers, Dehradun, 13-25 December 2021.
- Three-day Special Course in ‘Wildlife Conservation, Identification of Wildlife Part and Forensic Investigation’ for the Officers of Customs and Indirect Taxes, NACIN, Dehradun, 15-17 December 2021.

Major Achievements

Pilot Evaluation of Coastal and Marine National Parks and Wildlife Sanctuaries through Newly Developed Management Effectiveness Evaluation Framework for Marine Protected Areas, July 2021.

Wildlife Institute of India, with the approval from MoEFCC, initiated the pilot evaluation of 10 Coastal and Marine National Parks and Wildlife Sanctuaries through the newly developed Management Effectiveness Evaluation Framework for Marine Protected

Areas from July 2021 onwards. The MEE MPA framework will be finalised after the pilot study.

Initiation of Project on the ‘Development of City Biodiversity Index for Bhopal and Indore Cities of Madhya Pradesh,’ July 2021.

Wildlife Institute of India, with support from the Madhya Pradesh State Biodiversity Board initiated a project for the Development of City Biodiversity Index (CBI) for Bhopal and Indore cities of Madhya Pradesh. CBI of Bhopal and Indore will be a useful tool for urban biodiversity conservation and management planning by the Urban Local Bodies.

The Signing of Memorandum of Understanding between Wildlife Institute of India and ICLEI South Asia, August 2021.

Wildlife Institute of India signed a Memorandum of Understanding (MoU) with ICLEI South Asia in August 2021 to work on themes related to heritage conservation, urban biodiversity, city biodiversity index, open green spaces, nature-based solutions, low carbon growth, climate-resilient and sustainable development. The MoU considers both parties’ shared concerns for biodiversity conservation and achieving low carbon, climate-resilient, sustainable development.

Establish Central Asian Flyway (CAF) Secretariat in the Centre for International Conventions (CIC) at WII and meeting to Strengthen the Conservation Actions for Migratory Birds and their Habitats in the Central Asian Flyway, 6-7 October 2021.

Wildlife Institute of India, with the support





from MoEF&CC, and in collaboration with Secretariat of Convention on the Conservation of Migratory Species (CMS Convention or Bonn Convention) of Wild Animals, organised a meeting of Range Countries to strengthen the conservation actions for migratory birds and their habitats in the Central Asian Flyway (CAF), in online mode. Key CAF Range Countries of Southern, Northern and Central Asian Regions attended the workshop. The Secretariat of Central Asian Flyway India Office has been established officially within the Centre for International Conventions (CIC) at Wildlife Institute of India.

Natural Sites included in India's Tentative Lists, April 2021.

Based on technical support provided to Madhya Pradesh Tourism Board (MPTB) by WII-C2C through fieldwork and documentation, two sites of the State i.e., Bhedaghat and Lametaghat in Narmada Valley and Satpura Tiger Reserve, were added to India's Tentative List for World Heritage in April, 2021 upon approval by the UNESCO World Heritage Centre. The sites were recognised under natural beauty criteria, geological processes and in-situ biodiversity conservation.

Meghalaya Biosphere Reserve Documentation, July - November 2021.

Based on the agreement between WII-C2C and the Govt of Meghalaya, research, documentation, and consultation meetings were held with major stakeholders in Meghalaya to prepare proposals for the inscription Balpakram National Park and Narpuh-Saipung Reserved Forest as Biosphere

Reserves under UNESCO's Man and Biosphere Programme. Work is currently in progress for the same.

Periodic Reporting - Submission of State Party India Questionnaires, July 2021.

Training and technical support provided by WII-C2C to Site Managers of 8 natural/mixed World Heritage Sites of India led to the Country's successful completion and submission of Periodic Reporting Questionnaires of the sites within the UNESCO process for the Asia-Pacific Region.

Garo Hills Nomination Dossier, September 2021.

WII-C2C submitted the final draft of the World Heritage Nomination dossier for 'Garo Hills Conservation Area' (GHCA) to the Meghalaya Forest Department in September, 2021 for review and consideration. The richly illustrated dossier is a compendium of stunning images and detailed information on the natural and cultural diversity of the landscape with the necessary justification for its nomination as a World Heritage Site.

IUCN-ICCROM Heritage Place Lab, September - November 2021.

WII-C2C is part of a mixed team of researchers and practitioners selected for the inaugural Heritage Place Lab Initiative within the ICCROM-IUCN World Heritage Leadership Programme (WHL). The team will develop a practice-based research agenda with the possible funding for implementation throughout six workshops scheduled in 2021 and 2022. Four virtual workshops were held during September-





November, 2021, where WII-C2C represents the team's natural heritage perspective.

WII and DU signed the Memorandum of Understanding, Dehradun, 18 December 2021.

Registrar, WII and Registrar, Doon University (DU) Dehradun signed the Memorandum of

Understanding (MoU) on 18th December, 2021 for collaborative research and Ph. D. program from the current year (2021-2022). The students from WII, who have appeared in the entrance test conducted by DU and qualified the same, will be treated as students through WII allotted seats for their interview.





CHAPTER
07

Education and Awareness





7.1 Environmental Education, Awareness and Training

a) Brief Introduction, objectives and functions of the Division:

Environment Education, Awareness and Training (EEAT) scheme is a central sector scheme launched during financial year 1983-84. The Scheme aims to spread environment education, to promote environmental awareness and to mobilize student's participation for environment conservation. The objectives of the scheme are achieved through implementation of National Green Corps (NGC) Programme and National Nature Camping Programme (NNCP). The Scheme is implemented through State Nodal Agencies (SNAs) designated by the respective State Governments/ Union Territory (UT) Administrations.

National Green Corps (NGC) Programme.

The National Green Corps (NGC) Programme was launched in 2001-02. Under this programme, more than 1 lakh Eco-clubs have been formed in schools and colleges across the country. A financial assistance of Rs 5,000/- per Eco-club is extended under this programme with a ceiling of 500 schools, Eco-clubs per District and 100 college Eco-clubs per State. In order to sensitize students on various environmental issues, the Eco-clubs undertake activities like celebration of important environmental days such as World Environment Day, World Wetland Day, Earth Day, etc. by organising debates, quiz, slogan competitions, drawing/poster competitions etc., awareness on solid waste management (waste segregation into biodegradable and

non-biodegradable), plantation drives, cleanliness drives, etc.

National Nature Camping Programme (NNCP)

The National Nature Camping Programme (NNCP) imparts 'nature experience' to students and has huge potential to trigger their sensitivity towards nature and its conservation, which can lead to positive environmental actions. Under this programme, field visits (nature camps) are organized in different Protected Areas/ Nature Parks/ Tiger Reserves of the country for three days. Activities undertaken includes preparing small checklist of flora and fauna spotted in the nature trail, bird watching, trekking, green pledges, group discussion, sharing of experiences and other nature based activities. A financial assistance not exceeding Rs. 2,000/- per student for a camp of 2 nights and 3 days is provided under this programme, with a ceiling of 20 camps per State/ Union Territory.

b) Important activities undertaken during 2021-22: Azadi ka Amrit Mahotsav:

- **Green Good Deed of the Week campaign:** In order to commemorate the 75th year of independence, the country is celebrating a 75 week-long "Azadi ka Amrit Mahotsav". An outreach programme for promoting sustainable lifestyle – "Green Good Deed of the Week" campaign is being organized as a part of this Mahotsav through Eco-clubs since 12th March 2021. State Nodal Agencies and Eco-clubs organized various activities to promote sustainable lifestyle like cleanliness/ plantation drives, painting/ slogan/ essay competitions, awareness on single-use plastics, awareness on environment-friendly ways of celebrating festivals, etc.





Iconic week celebration: The Iconic Week of the Ministry of Environment, Forest and Climate Change (MoEF&CC) as a part of the Azadi ka Amrit Mahotsav was celebrated from 4th to 10th October, 2021. The major themes identified for activities of the week were lake/ wetland conservation, curbing single-use plastics, wildlife conservation, forest conservation and coastal conservation. Activities like Green Pledge, webinars, promotion of Green Good Deeds and screening of videos on the identified themes were organized in schools/ colleges across the country in co-ordination with Department of School Education & Literacy and SNAs. Highlights of the achievements are given below:

- A total of 7,56,053 Green Pledge responses were received in the Google Forms circulated during the Iconic Week. Students from all the 36 States and Union Territories participated in the Pledge. More than 14,000 teachers, non-teaching staff, etc. also came forward to pledge their actions green.
- Green Pledge ceremony was organized by several Eco-clubs in their schools.
- A total of 43 webinars were organized

by SNAs in association with eminent speakers from various premier institutes/ organizations, colleges, etc. on various issues like single-use plastics, water conservation, man-animal conflict, energy conservation, etc.

- Promotion of Green Good Deeds was done by Eco-clubs through organization of plantation activities, cleanliness drives, rallies, painting competitions, poster competitions, quiz competitions, etc.
- Videos on themes, viz., wetland conservation, awareness on plastic waste management, coastal conservation, ozone layer protection, wildlife conservation, etc. were screened during the Iconic Week.
- Tweeting of awareness videos done to ensure wider outreach.

Budget Allocation and Financial Performance

- The total budget allocated for Financial Year 2021-22 is Rs. 60 crore. The actual expenditure incurred during the year as on 31.12.2022 is Rs. 28.45 crore. Performance of the Scheme since 2017-18 is given in Figure 4. State-wise grants-in-aid released and number of Eco-clubs supported during FY 2021-22 (as on 31-12-2022) is given in Table 1.



Figure 1: Green Pledge ceremony organized by Eco-clubs as a part of the Azadi ka Amrit Mahotsav - Iconic Week celebrations of Ministry of Environment, Forest and Climate Change.





Figure 2: Cleanliness drive and Single-use plastic free campaign by Eco-clubs as a part of the Azadi ka Amrit Mahotsav - Iconic Week celebrations of Ministry of Environment, Forest



Figure 3: Eco-friendly idols made by Eco-club students



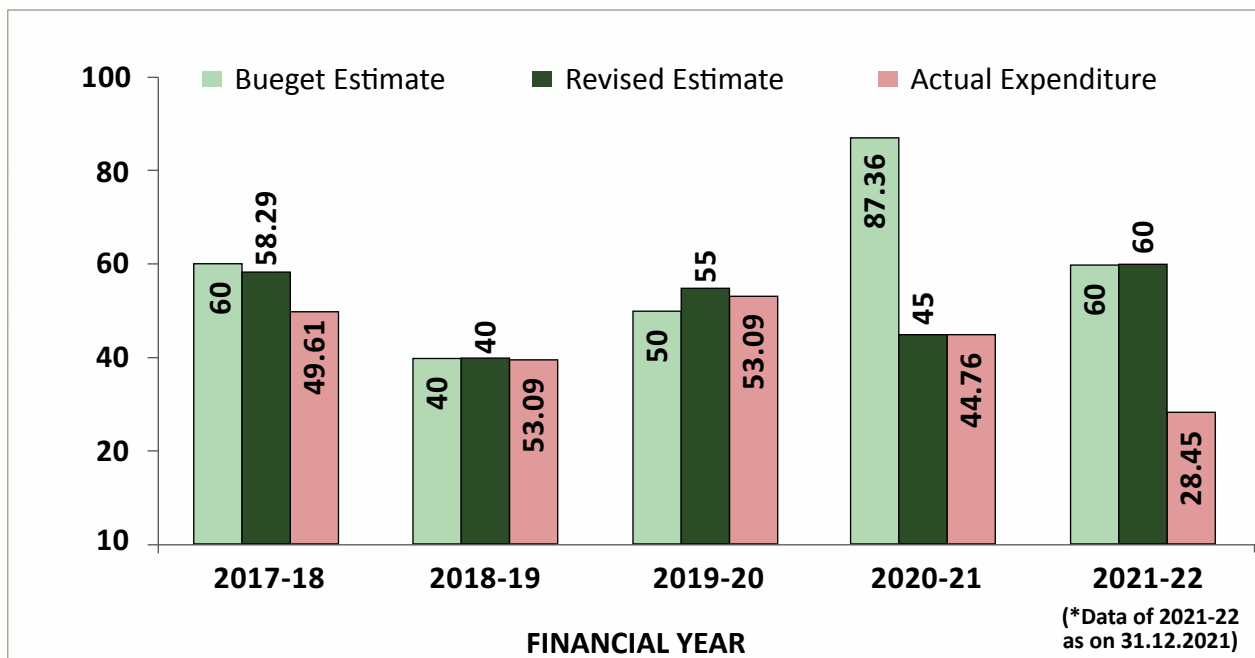


Figure 4: Financial Performance of Environment, Education, Awareness and Training (EEAT) Scheme since 2017-18

Table 1: State-wise grants-in-aid released and number of Eco-clubs supported during FY 2021-22 (as on 31-12-2022)

S. No.	State(s)	Funds Released (Rs.)	Number of Ecoclubs supported
1	Assam	4,46,87,500	8,416
2	Gujarat	5,43,77,595	10,231
3	Karnataka	5,99,85,506	10,200
4	Kerala	2,23,15,500	4,088
5	Madhya Pradesh*	8,25,80,000	15,700
6	Mizoram	1,14,24,500	2,081
7	Nagaland*	1,00,97,000	1,781
8	Odisha	5,24,50,000	9,100
9	Punjab	2,97,05,000	5,600
10	Rajasthan*	5,24,09,890	10,000
11	Sikkim	45,98,500	856
Total		42,46,30,991	78,053

* Complete/ partial release awaited

7.2 Swachh aur Swastha Bharat Cell

Aim/Objective of Swachhta Action Plan:

Swachhta Action Plan (SAP) is an inter-Ministerial initiative of Government of India.

SAP of this Ministry was initiated in the year 2017-18. A separate budget head was created for this scheme in the year 2017-18. Department of Drinking Water and Sanitation, Ministry of Jal Shakti is the nodal Ministry





looking after SAP. Under SAP, Ministry carries out awareness programmes for general public/communities through State/UT Nodal Agencies.

SAP of the Ministry is aimed at raising awareness on following themes: -

- Awareness on curbing the Single Use Plastics (SUPs)
- Awareness on Air and Water Pollution

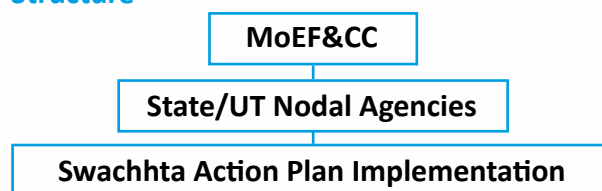
Under each theme six awareness programmes are conducted by the State/UT Nodal Agencies.

With above aim, a Swachhta Action Plan is formulated every year and shared with Department of Drinking Water and Sanitation, Ministry of Jal Shakti, the nodal Ministry for Swachh Bharat and circulated among State/UT Nodal Agencies. SAP of FY 2021-22 is given at **Annexure A**.

For 2021-22 Swachhta Action Plan was

formulated with a budget allocation of 7.13 crores and shared with Department of Drinking Water and Sanitation, Ministry of Jal Shakti. It was also circulated among the State/UT Nodal Agencies for implementation. Furthermore, Swachhta Action Plan has been added as a sub-scheme of Environment Education and Awareness training scheme for the period 2021-26. The SFC of the sub-scheme has been appraised and approval is awaited. A separate “Grant-in-aid-General Object head” has been opened in the FY 2021-22 to disburse funds under Swachhta Action Plan to State/UT Nodal Agencies. The expenditure table as on date is given at **Annexure B**.

Structure

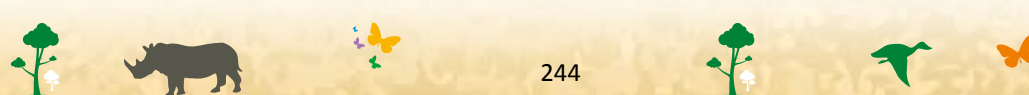


Annexure A

Government of India

Ministry of Environment, Forest and Climate Change Swachhta Action Plan (SAP) 2021-22

S. No.	Theme	Suggested Awareness Programmes	Suggested Awareness tools
1	Awareness on curbing the Single Use Plastics (SUPs)	<ul style="list-style-type: none"> • Awareness on curbing the Single Use Plastics • Swachhta Pakhwada 1- 15th June 2021 (mandatory) • Awareness on biomedical waste disposal • Swachhta Hi Seva 17th September -2nd October 2021 (mandatory) 	<ul style="list-style-type: none"> Rallies • Door-to- Door Campaigns Knowledge Workshops Cleanliness drives • Cleanliness drives at beaches, riverfronts, lakes, stagnant water • Swachhta Melas





S. No.	Theme	Suggested Awareness Programmes	Suggested Awareness tools
2	Awareness on Air and Water Pollution	<ul style="list-style-type: none"> Awareness on Air Pollution Awareness on Water Pollution (cleanliness drives at riverfront, beaches, ponds, lakes, etc) Awareness to prevent littering 	<ul style="list-style-type: none"> Posters, banners, pamphlets, Radio Jingles Videos Nukkad Nataks etc Cultural programmes Sports tournaments Social Media Campaign Webinar Advertisement on bus panels Wall Paintings Hoardings Bill Boards <p>Note: State/UT may choose the above tools or may design their own tools.</p>

Note: Six awareness programmes are to be conducted under each theme.

Annexure B

Name of States/UTs which have been provided with Financial Assistance in the current financial year (2021-22):

S.No.	State Name	Fund Sanctioned (Rs. in Lakhs)	Fund Released (Rs. in Lakhs)
1	Gujarat	20	20
2	Telangana	20	20
3	Mizoram	20	20
4	Chandigarh	20	20
5	Rajasthan	20	20
6	Puducherry	20	20
7	Karnataka	20	20
8	Sikkim	20	20
9	Nagaland	20	20
10	Madhya Pradesh	20	-
11	Goa	20	-
	Total	220	180





Photographs of the activities undertaken under Swachhta Action Plan.

Swachhta Pakhwada Celebration in the Ministry

1-15 December 2021

Essay and slogan writing competition



Awareness on Plastic Waste Management Mineco Khatia, Mizoram





Single Use Plastic Awareness programme in Sikkim



Swachhta Pakhwada Celebration, Bhopal, Madhya Pradesh



Cleanliness drive in Bhilwada, Rajasthan





Awareness on air pollution through cycle rally in Manipur

7.3 Media Cell

MoEF&CC is the nodal agency in the administrative structure of the Central Government for planning, promotion, coordination and overseeing the implementation of environmental and forestry programs and policies.

Ministry's main activities include conservation and survey of flora, fauna, forests and wildlife, prevention and control of pollution, afforestation and generation of degraded areas, protection of the environment, and research related to these activities. Media Cell of MoEF&CC is mandated with taking up awareness campaigns using print, electronic and other mass media to enhance awareness about various environmental issues which would in turn facilitate better compliance with environmental regulations.

Broad Objectives of Media, Publicity and Information:

- I. Creation of Environment awareness at all levels.
- II. Information dissemination about all Environment and Forest programmes and Biodiversity conservation.

- III. People are made aware of their responsibilities towards environment.

Major Activities of Media Division:

A. Celebration of World Environment Day:

Ministry of Environment, Forest and Climate Change celebrated World Environment Day (WED) on 5th June, 2021. This year the theme was Ecosystem Restoration. Ecosystem restoration means assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact. Healthier ecosystems, with richer biodiversity, yield greater benefits such as more fertile soils, bigger yields of timber and fish, and larger stores of greenhouse gases. Some of the major initiatives taken by India includes launch of E-100 pilot project in Pune for the production and distribution of ethanol across the country, release of E-20 notification by the government that will allow oil companies to sell 20% ethanol blended petrol from 1st April, 2023, and BIS specifications for ethanol blends E12 and E15. Some of the India's restoration initiatives are National





Afforestation Programme (focuses on the rehabilitation of degraded forests and afforestation around forests), National Mission for a Green India (aimed at improving and increasing tree cover as a climate adaptation and mitigation strategy) and National Biodiversity Action Plan (launched to implement strategies for the reduction in rates of degradation, fragmentation and loss of natural habitats).

B. Production and airing of documentary series on Doordarshan

MoEF&CC has approved production and airing of 26 episodes of documentary series 'Earth Matters' to Doordarshan. The documentary series will cover topics from Forest, Wildlife, Waste management, pollution etc. It will be anchored by the noted filmmaker and Wildlife Expert Shri Mike Pandey.

C. Azadi ka Amrit Mahotsav:

The various events/ activities undertaken during the celebrations of AKAM by the Ministry and its organizations were publicized through social media platforms viz. Twitter, Facebook, Instagram, Koo, YouTube, etc. Total 192 number of tweets were posted. Press Release of the events were also issued. Apart from this, a dedicated page was also created on the website of the Ministry and details of activities including photographs/videos/ Press Releases were shared on the same.

D. Social Media:

Ministry has social media accounts on Twitter, Facebook, Instagram and YouTube.

S. No.	Social Media Handle	Followers on 11.11.2021
1	Facebook	1,43,398
2	Instagram	72,100
3	Twitter	1,63,137
4	YouTube	6,213

Efforts have been made to ensure optimum utilization of social media for spreading awareness about the major achievements/ breakthroughs of the Ministry and its attached and subordinate offices towards protecting environment. For this purpose, Nodal Officers have been nominated by all Divisions of the Ministry and its subordinate/ attached/ Regional offices for smooth sharing of information and approvals.

7.4 National Museum of Natural History (NMNH)

The National Museum of Natural History, a subordinate office of Ministry of Environment, Forest and Climate Change, Government of India, was open to public on 5th June, 1978 at Mandi House, coinciding symbolically with the World Environment Day with aiming to create environmental awareness on nature and environment through non formal medium such as thematic galleries, exhibitions, film shows and educational activities to all masses of society in respect of to promote environmental awareness.

NMNH, New Delhi has its four Regional Museums of Natural History (RMNH) in different parts of the country viz. Mysuru, Bhopal, Bhubaneswar and RGRMNH Sawai Madhopur. Another RMNH at Gangtok is under construction to cover North-East region.

After fire incident in April, 2016, the NMNH is





functioning from CGO complex, Lodhi Road, New Delhi. Construction of permanent building of NMNH is under progress at Paragati Maidan, Bhairon Mandir marg, New Delhi. The objectives of NMNH are: to develop the NMNH in the country's Capital to achieve the highest level of quality to promote environmental education on a national level; to develop Regional offices (regional museum of natural history) in various regions of the country in order to extend its activities at the regional/local levels; to develop museum-based educational projects at the level so as to help school curriculum on environmental education (EE); to develop EE resource materials (such as audio-visual aids, low-cost teaching aids, school loan kits, etc.) to promote EE to undertake research (museological and collection based) consonant with the scope and resources of the museum; to extend professional help to other agencies/organizations regarding natural history collections/museums, to develop national and international cooperation/collaboration with other organizations/professional bodies/museums related to natural history/EE.

Activities Undertaken so far during the Financial Year 2021-2022:

The NMNH and its Regional centres has been undertaking day related educational programmes through Webinars and online programmes/workshops round the year to all masses of the society to enhance knowledge on environmental awareness during Covid-19 Pandemic such as Thematic Exhibitions (14), Temporary/Online Exhibitions (16), Summer Nature Programme (7), Teachers Training Programme (10), Online Competitions (58), Online Talks/Lectures (47), Development of New Popular Publications/Table Calendar (11), Mass Awareness Campaign (25), Programme

for Children with Special Needs (1), Campus Bird Count Programme (2), Programme/Guided Tour of IPB Visits (13),

Educational Programmes/Activities:

The Flagship programmes of NMNH were organised online such as Earth Day, World Environment Day, Van Mahotsav Week, Wildlife Week, International Tiger Day, Summer Vacation Programme, Winter Nature Programme, Teachers Orientation Workshops, and programme for under-privileged children.

NMNH and its Regional Centres organised online theme based programmes, webinars and competitions under "Azadi ka Amrit Mahotsav" to commemorate 75 years of India's Independence.

Collaborative programmes were organised with different institutions/organisations such as Government departments, UNDP and State Universities, etc. through webinars, online competitions, lectures and workshops for the betterment of users. The Resource persons and experts were invited from different institutions, organisations, universities, NGOs, Government departments to interact with students, teachers and common masses during online programmes and webinars. Social media platforms such as official website, Facebook, Instagram, Twitter were used for wide publicity of the programmes. YouTube Channel of NMNH was utilized to upload and share the educational videos. Assisted Ministry of Environment, Forest and Climate Change, in a week long programme "Good Governance Week" organised by Department of Administrative Reforms & Public Grievance. Special groups were attended during guided tour to Indira Paryavaran Bhawan to study the green features of Green Building.





CHAPTER
08

Centre of Excellence





Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore, Tamil Nadu

Introduction: SACON was established by the MoEF&CC in November, 1988 and it became functional in June, 1990. Major objectives of SACON span the entire area of natural history with a focus on ornithological research.

Objectives and functions:

- SACON's mission is to "help conserve India's biodiversity and its sustainable use through research, education, and people's participation, with birds at the centre stage;
- to design and conduct research in Ornithology covering all aspects of biodiversity and Natural History;
- to develop and conduct regular courses in Ornithology and Natural History (M.Sc., M.Phil. and Ph.D.) and also short-term orientation courses in related subjects;
- to create a data bank on Indian Ornithology and Natural History; and
- to disseminate knowledge relating to Ornithology and Natural History for the benefit of the community.

a. Important activities undertaken including celebrations for Azadi ka Amrit Mahotsav

- Thirty-four research projects were executed, of which 11 were completed .
- Thirty-three research articles, five abstracts/ posters, three popular articles, six technical reports, one book and 13 book chapters were published .
- Faculty members and research scholars

of SACON participated in more than 20 seminars, conferences, meetings and delivered talks at national and international forums.

- During the reporting period three research scholars of SACON were awarded Doctoral Degrees.
- SACON conducted several outreach activities, capacity building activities and webinars under the banner of *Azadi ka Amrit Mahotsav-75 Years of India's Independence*. These included celebrations of Wetland Day, World Environment Day, World Day to Combat Desertification and Drought, International Day for the conservation of Mangrove Ecosystem, Ozone Day, Wildlife Week, Plastic Awareness Week, World Fisheries Day.
- SACON organised National level 'Sálim Ali Nature Competition' for School Children and Teachers. Out of 692 virtual entries, 43 were declared as winners under various categories.

b. Progress/Achievements both cumulative and for the reference period including innovations.

- SACON carried out 34 research projects covering major biogeographic zones in the country, funded by MoEFCC and other national and international agencies.
- The completed projects include (1) Assessing the population status of synanthropic bird species of India, including House Sparrow and House Crow, and their response to urbanization; (2) Developing





conservation and management plans for select Important Bird and Biodiversity Areas (IBAs) of India; (3) Assessing the distribution, population and habitat use of three endangered species to develop conservation plan for species and their habitats; (4) In-situ and *Ex-situ* conservation of endemic Andaman Edible-nest Swiftlet in the Andaman and Nicobar Islands; (5) Developing a conservation action plan for Forest Owlet *Heteroglaux blewitti*, a Critically Endangered species endemic to central India; (6) Ecosystem requirements of hornbills and assess the status and distribution of select mammals in Anjunad and adjoining Landscape, Western Ghats; (7) National centre for surveillance and monitoring of the impact of environmental contaminants on ecosystem components with a special focus on birds; (8) Establishment of National Avian Forensic Laboratory (NAFL) at SACON; (9) Wetland Conservation in Noyyal and Bhavani River basins, Tamil Nadu; (10) Assessment of status, distribution and threats to the population of threatened Sarus Crane *Antigone antigone* in Gujarat , (11) Assessment of status, distribution and threats to the population of threatened Sarus Crane *Antigone antigone* in Uttar Pradesh.

- During the reporting year, the National Avian Forensic Laboratory (NAFL) at SACON, collected and preserved 1,300 biological samples (blood/ tissue/ feather/ DNA) of 150 bird species in the Avian Biobank. Of these, species-specific barcodes were

generated for 113 species. The lab also sequenced whole genomes of eight species of birds, and developed a feather catalogue for 17 species of birds which lead to the discovery of a new type of feather barb termed as 'sub-plumulaceous'. The facility is also continuously involved in providing molecular sexing services to various government agencies.

- A study on Bird/ Wildlife Hazards in selected Indian Civil Airfields was initiated. Airports Authority of India has signed an MoU with SACON for long-term collaborative studies and technical support for mitigation of bird and wildlife hazards in airports. SACON coordinated studies in five airports as suggested by AAI.
- National Ornithological Databank (NOD) Cell of SACON, updated the database to a total of 824 theses and dissertations on Indian birds with over 2,000 keywords including 656 Ph.D., 11 M.Phil., 148 M.Sc., and nine Diploma level dissertations in Indian ornithology.
- SACON in collaboration with IISER Tirupati and with the financial support of MoEF&CC has prepared Forest Owlet Conservation Action Plan (2021–2031). This species of Owlet is endemic to Central India and categorized as Endangered in the IUCN Red List. The action plan covers three components, namely Research, Policy and Outreach.
- SACON's National Centre for Avian Ecotoxicology continued to provide its analytical services to government





departments and research institutions. Wildlife poisoning cases as directed by the Madras High Court and Tamil Nadu Pollution Control Board were also investigated. Nimesulide was confirmed to be yet another threat to the declining populations of White-rumped Vulture in India.

c. Important Conferences

- SACON organised Three-day Webinar to commemorate Wildlife Week in October 2021. (1) Wing Commander Dr. S. Srinidhi, Joint Director, Aerospace Safety (Ornithology), Indian Air Force gave a talk on Conflict between Birds and Humans in Aerospace, (2) Dr. Manchi Shirish S., Principal Scientist, Conservation Ecology, SACON spoke about the wildlife inside Caves, and (3) Dr. Farah Ishtiaq, Senior Scientist, Tata Institute for Genetics and Society, inStem discussed about the zoonotic diseases with special focus on Birds.
- To commemorate 125th Birth Celebrations of Dr. Sálim Ali, SACON hosted a Memorial Lecture on “Biodiversity Conservation: Global Perspectives”, delivered by Dr. V.B. Mathur, Chairperson, National Biodiversity Authority, Government of India.

d. List of major publications brought out

- Chandramouli, S. R., Karthik, P., Naveen, R., Babu, S., Karunakaran, P. V., & Kumara, H. N. (2021). A Two-colored Forestsnake, *Smithophis bicolor* (Blyth 1855) (Reptilia: Natricidae), from the Khasi Hills,

Meghalaya, India. Reptiles & Amphibians, 28(1), 24-25.

- Chandramouli, S. R., Naveen, R. S., Sureshmarimuthu, S., Babu, S., Karunakaran, P. V., & Kumara, H. N. (2021). Catalogue of herpetological specimens from Meghalaya, India at the Salim Ali Centre for Ornithology and Natural History. *Journal of Threatened Taxa*, 13(11), 19603-19610.
- Devarajan, M., Muralidharan, S., Prakasham, K., & Nambirajan, K. (2021). Variation in Polycyclic Aromatic Hydrocarbon Contamination Between Native and Introduced Species of Fishes of Pallikaranai Wetland, Chennai, Tamil Nadu, India. *Bulletin of Environmental Contamination and Toxicology*, 1-7.
- Dey, P., Ray, S. D., Sharma, S. K., Pramod, P., & Singh, R. P. (2021). Identification of a unique barb from the dorsal body contour feathers of the Indian Pitta *Pitta brachyura* (Aves: Passeriformes: Pittidae). *Journal of Threatened Taxa*, 13(7), 18781-18791.
- Dey, P., Sharma, S. K., Sarkar, I., Ray, S. D., Pramod, P., Kochiganti, V. H. S., & Singh, R. P. (2021). Complete mitogenome of endemic plum-headed parakeet *Psittacula cyanocephala*—characterization and phylogenetic analysis. *PloS one*, 16(4), e0241098.
- Gurjarpadhye, P., Kawalkar, D., Singh, R. P., & Manchi, S. (2021). Stay or shift: does breeding success influence the decision in a cave-dwelling swiftlet?. *Journal of Ornithology*, 162(2), 369-379.





- Kumara, H. N., Babu, S., Nitte, M., & Karunakaran, P. V. (2021). Conservation Status and Potential Distribution of the Bengal Slow Loris *Nycticebus bengalensis* in Northeast India. *Primate Conservation*, 35, 1-10.
 - Manchi, S. S., Kawalkar, D., Patel, S., & Sawant, S. (2021). Occupancy and Population Abundance of Two Serpent-Eagles (*Spilornis elgini* and *S. cheela*) in the Andaman Islands, India. *Journal of Raptor Research*, 55(4), 594-604.
 - Nambirajan, K., Muralidharan, S., Ashimkumar, A. R., & Jadhav, S. (2021). Nimesulide poisoning in white-rumped vulture *Gyps bengalensis* in Gujarat, India. *Environmental Science and Pollution Research*, 1-7.
 - Patil, J. Kawalkar, D. & Manchi, S.S. (2021). Foraging Habits of Aerial Insectivores in the Coastal Region of Raigad, Maharashtra. *Ambient Science*, 8(2), DOI: 10.21276/ambi.2021.08.2.aa03
 - Prakash, L., & Balasubramanian, P. (2021). Grass Flora of Sathyamangalam Tiger Reserve, Eastern Ghats, India. *Indian Forester*, 147(1), 51-56.
 - Ray, S.D., P. Dey, N. Islam, S.K. Sharma, P. Pramod & R.P. Singh. (2021). Comparative study of Yellow-billed Babbler (*Turdoides affinis*) feathers reveals uniformity in their microstructures among individuals. *Journal of Experimental Biology and Agricultural Sciences* 9(1): 51–64. [https://doi.org/10.18006/2021.9\(1\).51.64](https://doi.org/10.18006/2021.9(1).51.64)
 - Sharma, S. K., Gurjarpadhye, P., Manchi, S. S., & Singh, R. P. (2021). A simple and cost-effective test for sex identification in edible-nest swiftlet (*Aerodramus fuciphagus inexpectatus*) and plume-toed swiftlet (*Collocalia affinis*). *Conservation Genetics Resources*, 13(2), 119-121.
 - Sureshmarimuthu, S., Babu, S., Kumara, H. N., & Rajeshkumar, N. (2021). Factors influencing the flush response and flight initiation distance of three owl species in the Andaman Islands. *Journal of Threatened Taxa*, 13(11), 19500-19508.
 - Sureshmarimuthu, S., Babu, S., Rajeshkumar, N., & Kumara, H. N. (2021). Get my head around owls: people perception and knowledge about owls of Andaman Islands. *Journal of Threatened Taxa*, 13(12), 19725-19732.
 - Vijayamma, J. K., Dhamorikar, A., & Manchi, S.S. (2021). A new species of *Caridina* H. Milne Edwards, 1837 (Family: Atyidae) from a limestone cave on Interview Island, Andaman and Nicobar Islands, India. *Zootaxa*, 5057(3), 102-114.
- e. Challenges in work due to COVID-19 and the response:**
- In accordance with the Centre and State Governments' Standard Operating Protocols on COVID-19 regulations, SACON opened the workspace when lockdown was lifted and continued to discharge its duties.
 - With most events and meetings being conducted on virtual platform, the internet





facility on campus has been significantly enhanced.

- As on date, SACON is fully prepared to carry out all academic and official activity

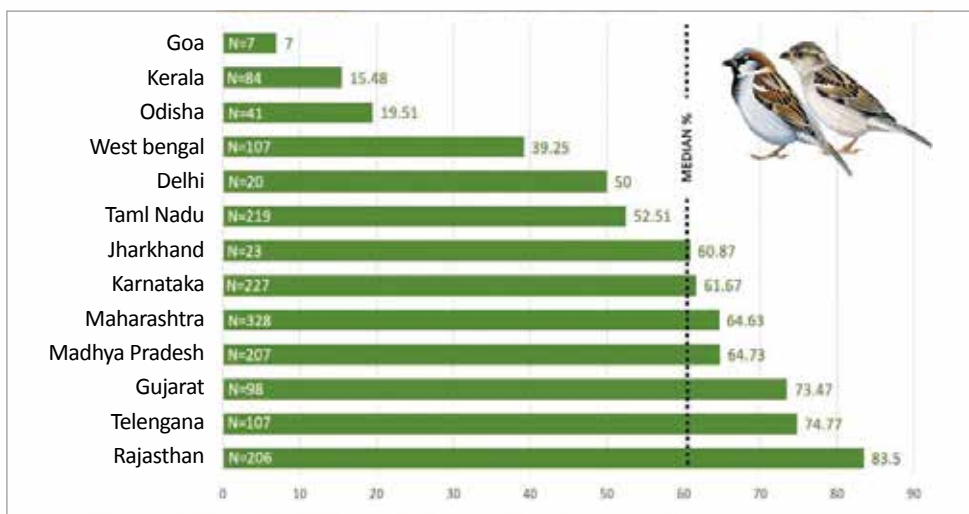
at full strength, putting in place all of the government-recommended (COVID-19) safety precautions.

3. Grant-in-aid released to Institutions/organisations Including NGOS.

S. No.	Name of Organisation	Purpose	Total Amount Released	Status of third-party evaluation	Remarks
1.	Sálim Ali Centre for Ornithology and Natural History (SACON), Coimbatore	Grant-in-Aid-Salary	1st instalment; Rs. 302 Lakhs received on 01/10/2021)	NA	2nd instalment to be received
		Grant-in-aid-General;	1st instalment; Rs. 226 Lakhs received on 01/10/2021	NA	2nd instalment to be received.

Status of House Sparrow, across various states in India: The Graph represents Relative occurrence (%) of House Sparrow, expressed

as proportion of total sampling grids (N) surveyed in each state in which the sparrow was detected.





SACON with the financial support of MoEFCC is in the process of developing a conservation plan for Black-bellied Tern.



Andaman Edible-nest Swiftlet(a), endemic to Andaman Nicobar Islands. An urban colony(b) in Port Blair that showed a rapid increase in population after required modifications of the ex-situ habitat. (c) The edible nest of the species made of its saliva.



Indian Pitta, a summer visitor, breeds in the Sal forests of Jhilmil Jheel IBA and Conservation Reserve, Uttarakhand.



SACON with the financial support of Karnataka Forest Department is assessing the current distribution range, ecology and habitat selection of Great Indian Bustard in Bellary district, Karnataka.





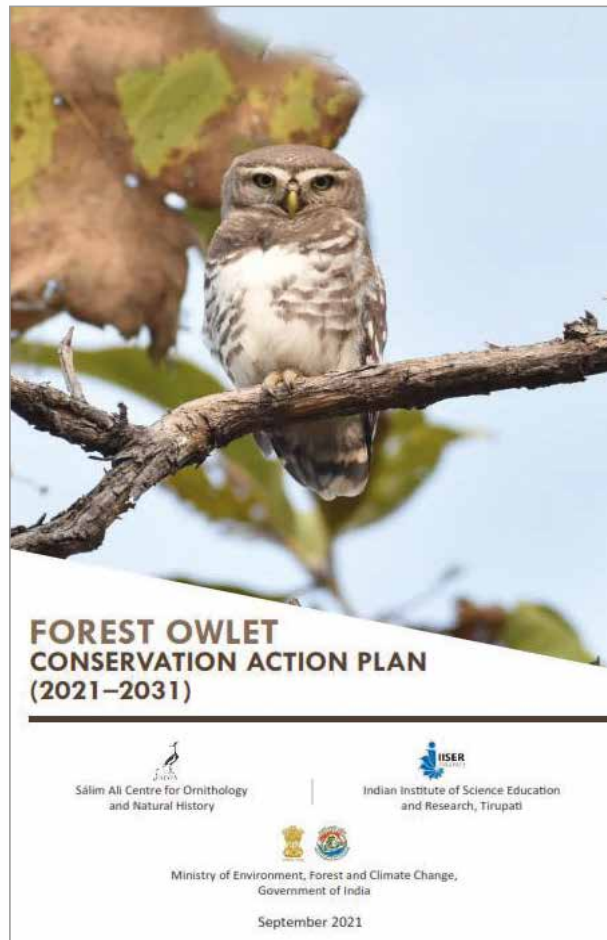
Airports Authority of India signed an MoU with SACON for long term collaborative studies and technical support for mitigation of Bird and wildlife hazards in airports. Some birds hit by aircrafts in airports being presently studied. (a) River Tern, (b) Black-winged Kite, (c) Red-wattled Lapwing, (d) Bat, (e) Whiskered Tern.



State-of-the-art analytical facility at the National Centre for Avian Ecotoxicology, SACON for assessing the ill effects of environmental contaminants on birds.



SACON in collaboration with IISER Tirupati and with the financial support of MoEFCC has come up with the Forest Owlet Conservation Action Plan (2021–2031).





CHAPTER
09

Environmental Information





9.1 Economic Division

Economic Division in the Ministry is responsible for the following areas of work:

1. Implementation of the Environmental Information System (ENVIS) Scheme, which serves as a single-stop web-enabled repository of comprehensive environmental information with collection, collation, storage, retrieval and dissemination through a nationwide network of ENVIS Hubs (hosted by the Environment/ Forest Department of State Governments/ UT Administrations) and ENVIS Resource Partners (RPs) (hosted by environment related governmental and non-governmental organizations/ institutes of professional excellence).
2. The Nodal Division in the Ministry for all the matters referred by the Department of Economic Affairs including Notes for Cabinet/ Cabinet Committees/ Committee of Secretaries and matters having a bearing on internal and external economic management in the Ministry and reforms in the environment and forest sectors.
3. Nodal Division to monitor implementation of specific announcements in the Union Budget concerning Ministry of Environment, Forest & Climate Change.
4. Coordination of inputs/ material for the Economic Survey to the Department of Economic Affairs.
5. Nodal Division to deal with references received from M/o Commerce & Industry relating to Trade & Environment including Cabinet/ Cabinet Committee/ Committee of Secretaries matters.
6. Coordination of Ministry's position on trade-related matters referred by other Ministries, including Regional/ Bilateral/ Multilateral Trade Agreements on environmental, ecology, wildlife and forestry issues; Trade Policy Review of India by WTO [bilateral investment agreements/ investment protection agreements/ international negotiations, etc.]
7. Coordination of matters related to relevant areas considered/reviewed by National Committee on Trade Facilitation (NCTF) headed by the Cabinet Secretary, wherein Secretary, EF&CC is a member.
8. Nodal for matters related to DBT including coordination with the DBT Mission, Cabinet Secretariat to on-board schemes of the Ministry on DBT Bharat portal.
9. Examination of the representations received from various stakeholders on GST Rates in consultation with Divisions concerned and taking up the same with GST Council.

Important activities undertaken:

- Prepared comments on various themes of trade and environment of WTO and forwarded to Department of Commerce.
- Prepared comments on India-UAE Comprehensive Economic Partnership Agreement (CEPA) and sent to Department of Commerce.
- Drafted and finalized comments on trade and environment for India-US Trade Policy Forum 2021, of Department of Commerce.
- Prepared material for Economic Survey 2021-22 and forwarded to Department of Economic Affairs (DEA).





- Monthly Progress Reports on Budget Para sent to DEA.
- Reported Monthly Progress and Annual Progress reports on achievements of DBT schemes to DBT Mission, Cabinet Secretariat.

Name of the Scheme/ Programme and its objectives:

- Environmental Information System (ENVIS), a Central Sector Scheme is being implemented through a network of 60 ENVIS Hubs and RPs, of which, 26 Hubs dealing with “State of the Environment and Related Issues” are hosted by the respective State Government/ UT Administration and 34 RPs are hosted by environment-related governmental and non- governmental organizations/ institutes of professional excellence, with varied thematic mandates pertaining to environment, forests, climate change, pollution abatement, health/ hygiene, etc. The primary mandate of the Scheme to collect and disseminate information relating to a variety of themes associated with Environment, Forest, Wildlife and Climate Change sectors has been expanded after the termination of the XII Five Year Plan period in 2016-17

to include skilling in ‘green’ sectors. Focal Point of ENVIS is located in the Ministry and assists the Economic Division in coordinating the activities of all the ENVIS network partners.

Progress/Achievements both cumulative and for the reference period

- **Green Skill Development Programme (GSDP)** launched in June, 2017 on pilot basis to skill youth in environment, forest and wildlife sectors and enabling them to be gainfully employed or self-employed. The programme was expanded to an all-India level with 43 Courses offered in 2018-19. During 2019-20, 140 training programmes were conducted at 46 locations throughout the Country covering diverse fields and 2,655 youth joined the ‘Green Skilled Workforce’. During 2020-21, 48 training programmes were conducted at 28 locations throughout the Country covering diverse fields and 960 youth joined the ‘Green Skilled Workforce’. The training involves almost 70% skilling in the form of practical training and around 30% theory component. A total of 115 GSDP training proposals have been received for FY 2021-22 from various ENVIS Hubs and RPs.



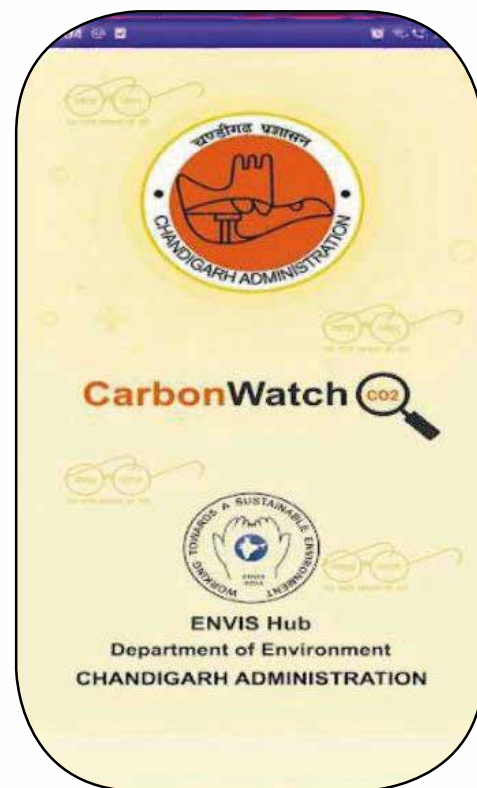
Hon'ble Minister Forest (Sikkim), Shri Karma Loday Bhutia inaugurated the Green Skill Development Programme (GSDP) for 2021-22 session in Sikkim ENVIS Hub at Forest and Environment Department, Gangtok.





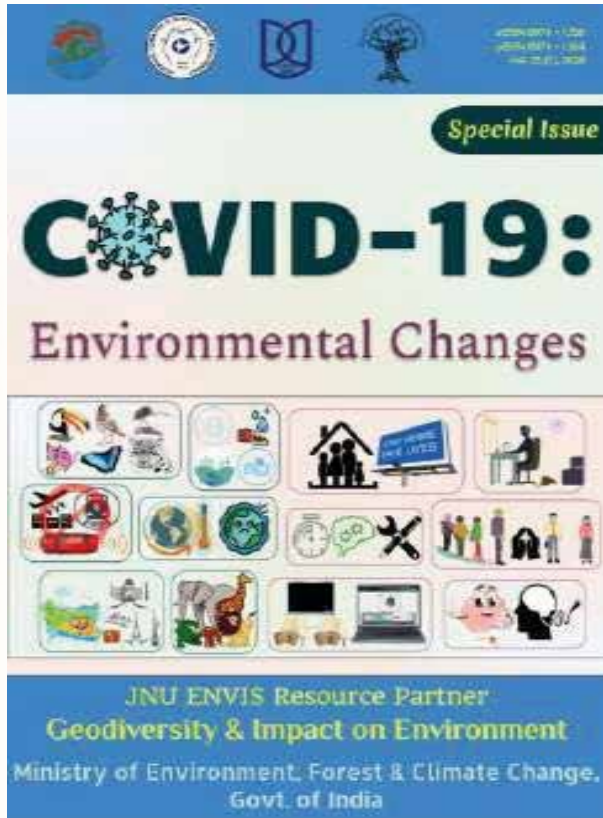
Hon'ble Chief Minister, and other dignitaries appreciated the efforts of ENVIS Secretariat and MoEF&CC, Government of India for the GSDP courses and training materials on green skilling published by the ENVIS GBPNiHE, Almora

- Information and Knowledge Products of ENVIS:** ENVIS regularly brings out value-added information products relating to Environment, Forest, Wildlife and Climate Change which include theme-based newsletters, special publications, e-newsletters, thematic bulletins, technical reports, mobile apps, directories of information at State/ regional/ National level, bibliography, information products developed on parks and sanctuaries, thematic maps, flora and fauna species distribution maps, etc. During the year, ENVIS Network printed, published and uploaded more than 1,412 knowledge products including newsletters, books, theme based special publications, e-books, e-bulletins, booklets, environment calendars, brochures, pamphlets, DVDs, CDs, Mobile apps, etc.



ENVIS Hub at Department of Environment - Chandigarh released Mobile Application i.e., "CarbonWatch" which automatically calculates the carbon footprint of the individual.





A special issue of e-publication on COVID-19 prepared by ENVIS RP at JNU, New Delhi

On the occasion of World Environment Day, various online programmes such as Webinars, Green Pledge, Slogan Writing, Environment Quiz, Debate Competition, Film Shows on Environment Conservation, etc., were organized by ENVIS Hubs and RPs, across the Country. The ENVIS Hubs/ RPs also conducted various online outreach activities as part of celebration of important events/ days viz. Aazadi ka Amrit Mahotsav, Ek Bharat Shreshtha Bharat, World Environment Day, World Ozone Day, World Wildlife Week, Van Mahotsav, World Sparrow Day, World Wetland Day, World Forest Day, International Tiger Day, International Day for Biological Diversity, etc.



A special publication "Beyond COVID - 19 Stay Safe at Office" published by ENVIS RP at NIOH, Ahmedabad.



'Azadi ka Amrit Mahotsav' Iconic week was celebrated from 4th to 10th October, 2021 by ENVIS Resource Partner and Hubs on the theme 'Avoid the Use of Single Use Plastics'





- ENVIS Hubs and RPs were actively involved in the promotion of Swachh Bharat Abhiyaan in their respective areas. They had undertaken various activities during this period - cleanliness and sensitization drives, planting tree saplings, collection of garbage, litter and trash, administering Green Pledge, etc. ENVIS Focal Point and its partners together responded to more than 98,000 queries till December 22, 2021 on various subject-areas of environment and its associated fields and provided substantive information to users as far as possible.
- A significant increase has been witnessed in the number of visitors to the ENVIS websites during the year. The total number of visitors on the websites of ENVIS Hubs/RPs witnessed about 3.25 crore hits, as on 31 Dec 2021.
- **Review of ENVIS Hubs/RPs:** A series of Video Conferencing (VC) conducted with ENVIS Hubs and RPs coordinated by Deputy Director, MoEF&CC on 18th August, 2021. Agenda of the VC was: (i) ENVIS Activities for 2021-22 in the light of emerging challenges due to COVID Pandemic, (ii) GSDP Proposals for 2021-22 and Road Map in view of the COVID Pandemic, (iii) Status of data updation in the Indian State Basic Environmental Information Database (ISBEID) Portal, (iv) Issues in collection of data/ information from line Departments of State Governments, (v) Status of EAT entries in PFMS Portal and (vi) Suggestions/ feedback for ENVIS Scheme.

Visits to ENVIS Hubs/RPs: Review meeting with ENVIS RP at WWF, New Delhi was conducted under the Chairmanship of Shri Arun Kumar, Sr. Economic Advisor, in which officials of MoEF&CC participated.



Review visit of ENVIS RP at WWF, New Delhi by Sr. Economic Advisor, MoEF&CC.

Physical visits were undertaken to ENVIS RPs at NBRI and IWS from 29th-30th October, 2021 in Lucknow, Uttar Pradesh and to ENVIS RPs at GCPC, NIOH, CERC and ENVIS Hub at GEC

from 24-26th November, 2021 in the State of Gujarat for physical verification, assessment and monitoring of ENVIS Centres.





3. Grants-in-aid released to Institutions/ organizations including NGOs (as on December 22, 2021)

The details of Grants-in-Aid released for

mandated activities of ENVIS Cell in the Ministry and ENVIS Hubs/ RPs during F.Y. 2021-22 (as on 22.12.2021) to various organizations, are as follows:

Sl. No.	Name of Organisation	Purpose	Total Amount Released (in ₹)
1	Asian Development Research Institute (ADRI), Patna	Recurring Grant for F.Y. 2021-22	21,47,709.00
2	Department of Environment & Forests – Arunachal Pradesh	Recurring and GSDP Grant for F.Y. 2021-22	67,03,783.00
3	Assam Science, Technology and Environmental Council (ASTEC), Guwahati	Recurring and GSDP Grant for F.Y. 2021-22	96,14,017.00
4	Amrita Vishwa Vidyapeetham (AVV), Coimbatore	Recurring and GSDP Grant for F.Y. 2021-22	45,19,076.00
5	Bombay Natural History Society (BNHS), Mumbai	Recurring Grant for F.Y. 2021-22	5,36,927.00
6	Botanical Survey of India (BSI), Kolkata	Recurring Grant for F.Y. 2021-22	19,72,017.00
7	Centre of Advance Study in Marine Biology (CASMB), Parangipettai	Recurring Grant for F.Y. 2021-22	5,36,927.00
8	Central Arid Zone Research Institute (CAZRI), Jodhpur	Recurring Grant for F.Y. 2021-22	16,79,745.00
9	Consumer Education and Research Centre (CERC), Ahmedabad	Recurring and GSDP Grant for F.Y. 2021-22	46,77,332.00
10	Department of Environment - Chandigarh	Recurring Grant for F.Y. 2021-22	4,93,004.00
11	Chhattisgarh Environment Conservation Board (CECB), Raipur	Recurring Grant for F.Y. 2021-22	5,36,927.00
12	CPR Environmental Education Centre (CPREEC), Chennai	Recurring and GSDP Grant for F.Y. 2021-22	56,45,709.00
13	Department of Environmental Science, University of Kalyani (DESKU), Nadia	Recurring Grant for F.Y. 2021-22	21,47,709.00
14	Department of Zoology - University of Madras (DzUM), Chennai	Recurring Grant for F.Y. 2021-22	21,47,709.00





Sl. No.	Name of Organisation	Purpose	Total Amount Released (in ₹)
15	Environment Management & Policy Research Institute (EMPRI), Bengaluru	Recurring Grant for F.Y. 2021-22	36,32,709.00
16	Environment Protection Training and Research Institute (EPTRI), Hyderabad	Recurring and GSDP Grant for F.Y. 2021-22	10,73,854.00
17	Forest Research Institute (FRI), Dehradun	Recurring Grant for F.Y. 2021-22	5,36,927.00
18	G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD), Almora	Recurring and GSDP Grant for F.Y. 2021-22	38,97,709.00
19	Gujarat Cleaner Production Centre (GCPC), Gandhinagar	Recurring and GSDP Grant for F.Y. 2021-22	41,14,709.00
20	Gujarat Ecology Commission (GEC), Gandhinagar	Recurring Grant for F.Y. 2021-22	16,10,782.00
21	Directorate of Environment & Climate Change Department (DoE&CCD), Haryana	Recurring and GSDP Grant for F.Y. 2021-22	22,27,248.00
22	Himachal Pradesh Council for Science Technology & Environment (HIMCOSTE), Shimla	Recurring and GSDP Grant for F.Y. 2021-22	41,07,709.00
23	Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore	Recurring and GSDP Grant for F.Y. 2021-22	80,39,709.00
24	Indian institute of Chemical Technology (IICT), Hyderabad	Recurring Grant for F.Y. 2021-22	21,47,709.00
25	International Institute of Health and Hygiene (IIHH), Delhi	Recurring Grant for F.Y. 2021-22	21,47,709.00
26	Indian Institute of Sciences (IISc), Bengaluru	Recurring Grant for F.Y. 2021-22	5,36,927.00
27	IIT-Indian School of Mines (ISM), Dhanbad	Recurring Grant for F.Y. 2021-22	9,86,008.00
28	Indian Institute of Tropical Meteorology (IITM), Pune	Recurring Grant for F.Y. 2021-22	5,20,506.00
29	Institute for Ocean Management (IOM), Chennai	Recurring Grant for F.Y. 2021-22	3,02,238.00
30	Institute for Wildlife Sciences, University of Lucknow, Lucknow	Recurring Grant for F.Y. 2021-22	4,68,269.00
31	Department of Ecology, Environment and Remote Sensing, State Government of J&K	Recurring Grant for F.Y. 2021-22	3,52,934.00





Sl. No.	Name of Organisation	Purpose	Total Amount Released (in ₹)
32	Forests & Environment Department, Govt. of Jharkhand	Recurring Grant for F.Y. 2021-22	19,72,017.00
33	School of Environmental Science, Jawaharlal Nehru University (JNU), New Delhi	Recurring and GSDP Grant for F.Y. 2021-22	49,39,927.00
34	Kerala State Council for Science, Technology and Environment (KSCSTE), Thiruvananthapuram	Recurring and GSDP Grant for F.Y. 2021-22	74,51,709.00
35	Department of Environment & Forests (DoE&F), Kavaratti, Lakshadweep	Recurring Grant for F.Y. 2021-22	5,45,434.00
36	Environment Department, Govt. of Maharashtra	Recurring Grant for F.Y. 2021-22	5,00,958.00
37	Directorate of Environment & Climate Change, Govt. of Manipur, Imphal	Recurring Grant for F.Y. 2021-22	16,48,282.00
38	Mizoram Pollution Control Board (MPCB), Aizawl	Recurring and GSDP Grant for F.Y. 2021-22	44,24,282.00
39	Nagaland Pollution Control Board (NPCB), Dimapur	Recurring and GSDP Grant for F.Y. 2021-22	39,67,709.00
40	National Botanical Research Institute (NBRI), Lucknow	Recurring Grant for F.Y. 2021-22	21,47,709.00
41	National Institute of Occupational Health (NIOH), Ahmedabad	Recurring Grant for F.Y. 2021-22	4,42,309.00
42	Centre for Environmental Studies (CES), Forest & Environment Department, Government of Odisha	Recurring Grant for F.Y. 2021-22	5,36,927.00
43	Puducherry Pollution Control Committee (PPCC), Puducherry	Recurring Grant for F.Y. 2021-22	21,17,217.00
44	Punjab State Council for Science and Technology (PSCST), Chandigarh	Recurring Grant for F.Y. 2021-22	5,22,325.00
45	Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore	Recurring Grant for F.Y. 2021-22	9,86,008.00
46	Forests, Environment & Wildlife Management Department, Sikkim, Gangtok	Recurring and GSDP Grant for F.Y. 2021-22	1,80,64,069.00
47	State Council of Science and Technology Sikkim (SCSTS), Gangtok	Recurring and GSDP Grant for F.Y. 2021-22	27,32,935.00
48	School of Planning and Architecture (SPA), New Delhi	Recurring Grant for F.Y. 2021-22	21,47,709.00





Sl. No.	Name of Organisation	Purpose	Total Amount Released (in ₹)
49	Department of Environment, Govt. of Tamil Nadu	Recurring and GSDP Grant for F.Y. 2021-22	20,13,854.00
50	Thiagarajar College of Engineering (TCE), Madurai	Recurring and GSDP Grant for F.Y. 2021-22	35,03,300.00
51	The Energy Resources Institute (TERI), New Delhi	Recurring Grant for F.Y. 2021-22	28,42,155.00
52	Tripura State Pollution Control Board (TSPCB), Agartala	Recurring Grant for F.Y. 2021-22	21,97,709.00
53	Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), Dehradun	Recurring Grant for F.Y. 2021-22	14,11,736.00
54	Wildlife Institute of India (WII), Dehradun	Recurring and GSDP Grant for F.Y. 2021-22	55,73,709.00
55	World Wide Fund for Nature-India (WWF), New Delhi	Recurring Grant for F.Y. 2021-22	21,47,709.00
56	Zoological Survey of India (ZSI), Kolkata	Recurring and GSDP Grant for F.Y. 2021-22	64,48,217.00

9.2 Statistics Division

Statistics Division in the Ministry of Environment, Forest and Climate Change is responsible for environmental statistics and inputs for ecological indicators.

Statistics Division of the Ministry undertakes the following tasks:

- i. To liaise with all divisions of MoEF&CC and, where necessary, its subordinate offices and autonomous institutions to strengthen the process of collection, validation processing and interpretation of statistical data.
- ii. Coordinating for the preparation of the

State of Environment Report both at the National and State levels.

- iii. Coordinates with the Ministry of Statistics and Programme Implementation (MoSPI) to provide technical inputs on development of Official Statistics in line with Framework of Development in Environmental Statistics (FDES). It also supports MoSPI for publication of 'EnviStats' I and II, both publications on Environment Statistics with the second one focusing on environmental accounting. Statistics Division coordinates with the Divisions within MoEF&CC to provide inputs on behalf of the Ministry for the publication.





- iv. It functions as the nodal division as regards Sustainable Development Goals (SDGs) related coordination in MoEF&CC including SDG Global indicator development and data flow.
 - v. It is also responsible for coordination as regards developments in Natural Capital Accounting and the SEEA (System of Environmental Economic Accounting) and Ecosystem Accounting within MoEF&CC with MoSPI and with other Ministries and UN.
 - vi. Represent the Ministry in UNEP's consultations on Global Environment Outlook (GEO).
 - vii. DDG(S) has been designated head of Data Strategy Unit responsible for the work of Data Governance Quality Index initiated by Development Monitoring and Evaluation Office (DMEO) of NITI Aayog for ranking the ministries on the levels of digitization for the data of the Ministry on the behest of PMO. The Division coordinates with other divisions to get the information to fill the questionnaires for different schemes of the ministry and for the ministry on the whole which is used by NITI Aayog for assessment of the Ministry on three key pillars of data preparedness for DGQI viz. Data Systems, Data Strategy and Data Driven Outcomes.
 - viii. It is required to undertake other environment statistics related matters and surveys including data components of assigned Global Indices.
- I. Activities undertaken in respect of Environmental Statistics:**
- a. The State of Environment Report (SoER) aims to provide concrete guidance for environmental action planning, policy setting and resource allocation for the coming decades, based on a sound integrated analysis of the state and trends of the environment. It also clearly selects key issues and set priorities from the range of environmental concerns that the State is facing. It is envisaged that the SoER for each State/UT will be published with a periodicity of two years followed by a national SoER. The modified template for the preparation of the State of Environment Report 2020 after the meeting of apex committee was finalized and sent to all States/ UTs along with modified guidelines with a request to undertake the preparation of the Report. The work for States/ UTs Punjab, Uttarakhand, Chandigarh and Tamil Nadu has been initiated in 2021.
 - b. The work of National SoER has been started and is would be completed in 2022.
 - c. Annual Report of the Ministry for the year 2020-21 was compiled and submitted to the Parliament.
 - d. The Annual publication on Environment Statistics is published by MoSPI. The revamped publication EnViStats-Vol.I2021 incorporating various data on Environment and Climate Statistics has been compiled and published by MoS&PI in March, 2021. Further, the EnViStats-Vol.II2021 regarding Environmental Accounts was also released





by MoSPI in September, 2021. The Ministry supported MoSPI in compilation of the various environment related data for the two publications.

- e. Rendered advice to other Divisions on statistical matters and providing interpretations of statistical data and implementation of statistical components of various Conventions and Agreements. For instance, the Division analysed SDG indicators in connection with their alignment for developing the Post 2020 Biodiversity indicator framework.
- f. Similarly, in order to include Recorded Forest Area (RFA) into the World Database for Protected Areas (WDPA), the Division is working along with FSI (SU Division) and CS-III (Biodiversity Division) towards streamlining the data from all states and UTs and providing suggestions to the FSI as well as State Forest Departments to take the RFA data compliant with WDPA standards. The inclusion of RFA data in the WDPA is also useful for the Environmental Performance Index (EPI) which uses data from the WDPA to compute parameters based on the Protected Areas of India.

II.A. Coordination regarding Implementation of Sustainable Development Goals, SDGs in the Ministry

MoEF&CC is implementing SDGs relevant to the Ministry and is in particular responsible for SDG Goals 12, 13 and 15. SDG Coordination Unit under Statistics Division coordinates the implementation

of SDGs and related frameworks in the Ministry. The role of SDG Coordination unit is as follows:

- Overall coordination of SDG implementation in the Ministry.
- Coordination of metadata, baseline data and data flow with Divisions.
- Working on the data gaps and suggesting alternate methodology for computation of various indicators for SDGs.
- Coordination with NITI Aayog, MoSPI and Custodian Agencies of SDG Global Indicators.
- Presenting Ministry's consolidated proposals in High Level Committee of MoSPI for SDG indicator refinement.
- Capacity Development in respect of SDG implementation in the Ministry.
- Technical support for metadata and refinement of indicators.
- Publication of Ministry's SDG reports.

II.B Activities undertaken in respect of SDG Coordination:

- a. Coordinated with the Divisions of the Ministry in planning the implementation of the SDG targets. Specifically, efforts were made with respect to SDG 6 i.e., "Ensure availability and sustainable management of water and sanitation for all" through meetings with CPCB. In this regard, the meta-data was sent to MoSPI for refinement of the indicator, SDG 6.3.2: Proportion of water bodies with good Ambient Water Quality. This indicator after





refinement is more aligned to the global indicator framework.

- b. SDG Implementation Plan for environment related SDGs was conceptualized and given shape with the help of all the concerned Divisions. SDG Implementation Report is at the verge of completion for SDG Goals 13 “Take urgent action to combat climate change and its impact” and 15 “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”.
- c. Time series data with regard to MoEF&CC indicators was submitted for the SDG progress report to MoSPI which was released on June 29, 2021. Inputs were given to adopt SDG Global Indices 15.8.1 (Invasive alien species), 15.9.1 (Mainstreaming biodiversity values into policy and accounts) and 15.6.1 (Framing access and benefit sharing in qualitative terms) in National Indicator framework.

- d. Public accounts committee of Parliament has mandated the specification of interim targets as milestones for years 2023, 2025, 2027 prior to 2030 to monitor if the country is actually progressing towards achieving relevant SDGs. The work of setting of milestone for SDG indicators has been started and milestones for SDG 6.3.1 and SDG 6.3.2 (Ambient Water Quality) have been communicated to MoSPI after obtaining from CPCB, HSM and MoHUA.
- e. The data for SDG India Index Cities for the North East and forthcoming SDG India Index 4.0 was discussed with NITI Aayog and CPCB and then sent to NITI Aayog.

III. Activities pertaining to Environmental Accounting:

The Division has initiated the work of accounts for Mountain ecosystem in collaboration with GBPNiHE and Forestry Divisions of MoEF&CC. A committee is also constituted for the representation from relevant stakeholders.



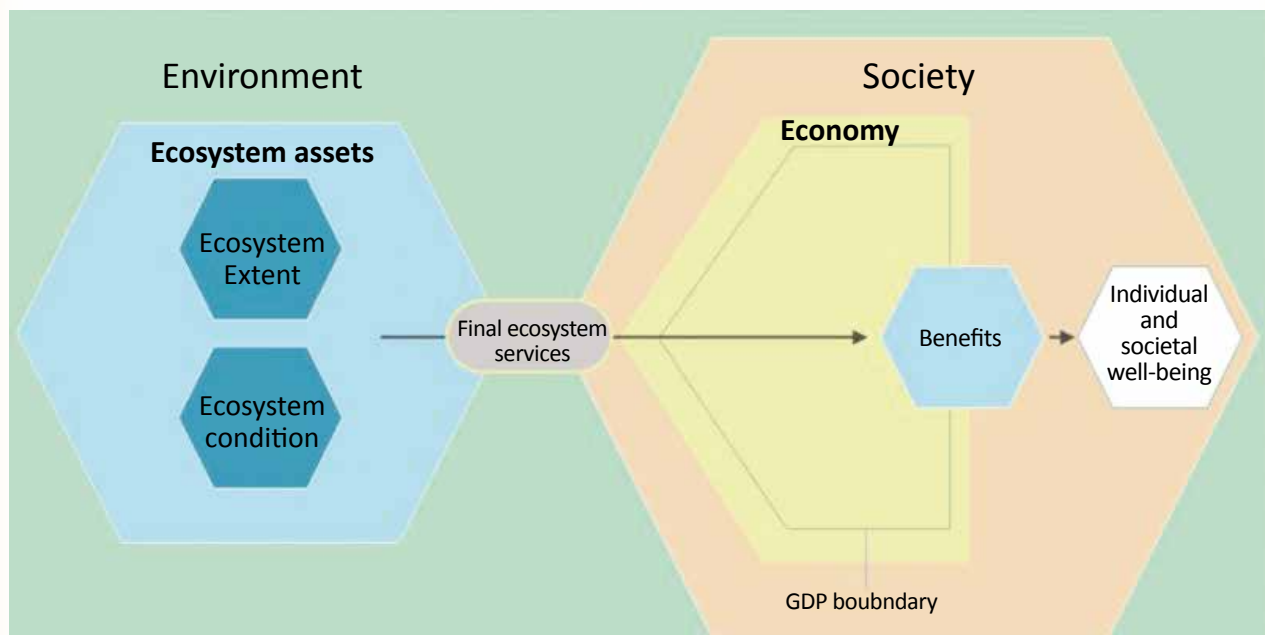


Fig: Application of the SEEA (System of Environmental-Ecosystem Accounting) framework for valuating Mountain Ecosystem Accounting.

IV. Global Indices for Reform and Growth Dashboard (GIRG) related Work of EPI and CCPI

In reference to the ongoing activities under the directions of Cabinet Secretariat and NITI Aayog on various global indices

in the Government of India, Ministry of Environment, Forest and Climate Change has been designated as the nodal Ministry for Environment Performance Index (EPI) and Climate Change Performance Index (CCPI).

Components of EPI (Environmental Performance Index)

Policy Objective	Issue Category	TLA	Wt.	Indicator	TLA	Wt.
Environmental Health HLT (40%)	Air Quality	AIR	50%	PM _{2.5} Exposure	PMD	55%
				Household Solid Fuels	HAD	40%
				Ozone Exposure	OZD	5%
	Sanitation & Drinking Water	H ₂ O	40%	Unsafe Sanitation	USD	40%
				Unsafe Drinking Water	UWD	60%
	Heavy Metals	HMT	5%	Lead Exposure	PBD	100%
	Waste Management	WMG	5%	Controlled Solid Waste	MSW	100%





Policy Objective	Issue Category	TLA	Wt.	Indicator	TLA	Wt.
Ecosystem Vitality ECO (60%)	Biodiversity & Habitat	BDH	25%	Terrestrial Biome Protection (national)	TBN	20%
				Terrestrial Biome Protection (global)	TBG	20%
				Marine Protected Areas	MPA	20%
				Protected Areas Representativeness Index	PAR	10%
				Species Habitat Index	SHI	10%
				Species Protection Index	SPI	10%
				Biodiversity Habitat Index	BHV	10%
	Ecosystem Services	ECS	10%	Tree Cover Loss	TCL	90%
				Grassland Loss	GRL	5%
				Wetland Loss	WTL	5%
	Fisheries	FSH	10%	Fish Stock Status	FSS	35%
				Marine Trophic Index	RMS	35%
				Fish Caught by Trawling	FGT	30%
Climate Change	CCH	40%	CO ₂ Growth Rate	CDA	55%	
			CO ₄ Growth Rate	CHA	15%	
			F-gas Growth Rate	FGA	10%	
			N ₂ O Growth Rate	NDA	5%	
			Black Carbon Growth Rate	BCA	5%	
			CO ₂ from Land Cover	LCB	2.5%	
			GHG Intensity Trend	GIB	5%	
			GHG Per Capita	GHP	2.5%	
Pollution Emissions	APE	5%	SO ₂ Growth Rate	SDA	50%	
			NO ₂ Growth Rate	NXA	50%	
Agriculture	AGR	5%	Sustainable Nitrogen Management Index	SNM	100%	
Water Resources	WRS	5%	Waster water Treatment	WWT	100%	

Fig: Table showing global indicators as per the Technical Appendix of EPI – 2020



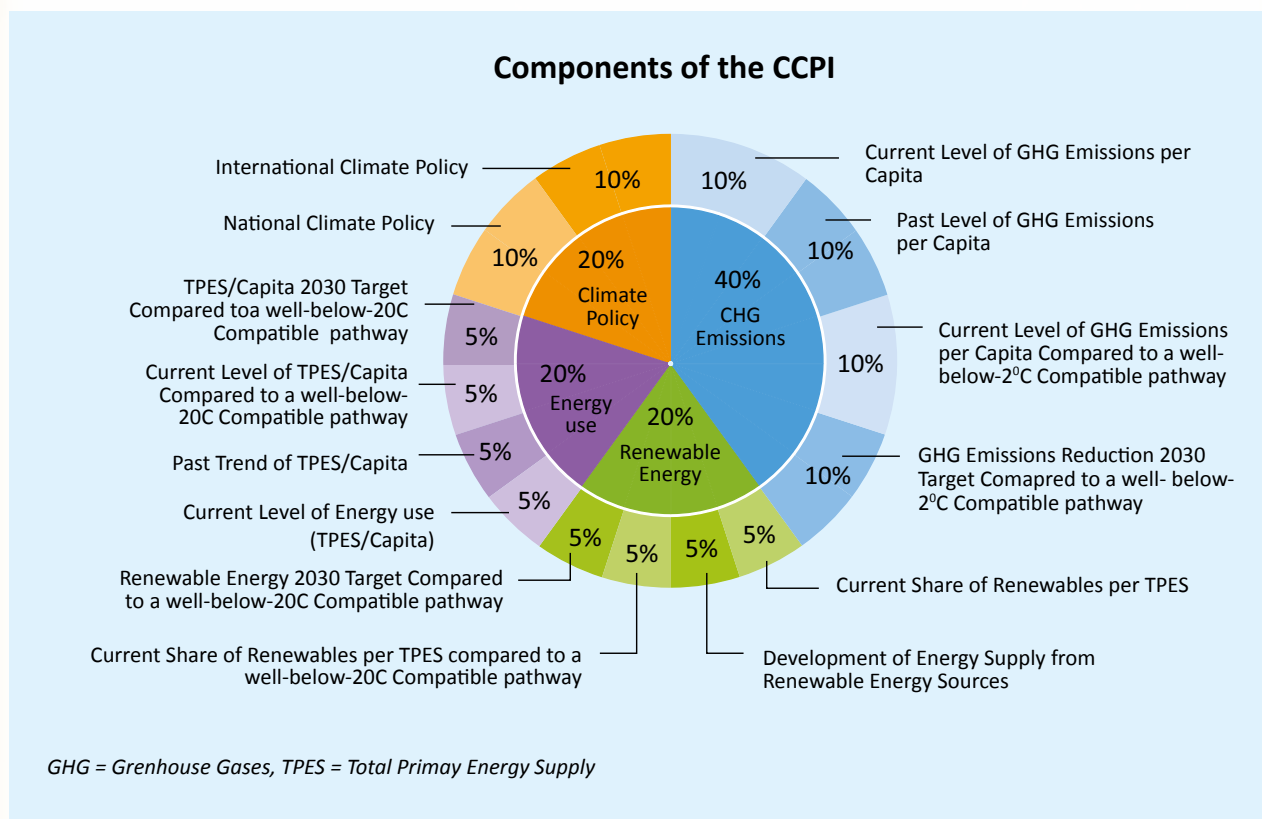


Fig: Components of the CCPI: Fourteen indicators (outer circle) in four categories (inner circle)

In this regard, a dashboard has been prepared for the monitoring exercise of global indices. DDG (Stats.) has been nominated as the Nodal Officer for EPI and CCPI. Accordingly, the Division coordinated with the relevant Divisions of the Ministry and other line ministries to obtain information pertaining to the various parameters comprising the indices. The division has mapped 27 India Index indicators to 32 global indicators of EPI in co-ordination with data source Divisions and line Ministries and information for around 19 indicators has been shared with NITI Aayog. The CCPI India Index indicators are tentatively identified and are under the process of finalization in co-ordination with the NATCOM Cell of MoEF&CC.

V. Data Governance Quality Index

DGQI is formulated by DMEO for ranking the ministries on the basis of level digitization, security, quality and sound use of data generated and handled under Central Sector Schemes, Centrally Sponsored Schemes and Non-Scheme Interventions. A dashboard is prepared with 14 pre populated schemes of ministry on which the scores will be shown for ministries on the basis of self-filled questionnaire and action plan. The questionnaire comprises of three pillars for which inputs were submitted under two parts of the Questionnaire i.e. Part A (Ministry level) and Part B (scheme level) as shown below:





DATA GOVERNANCE QUALITY INDEX

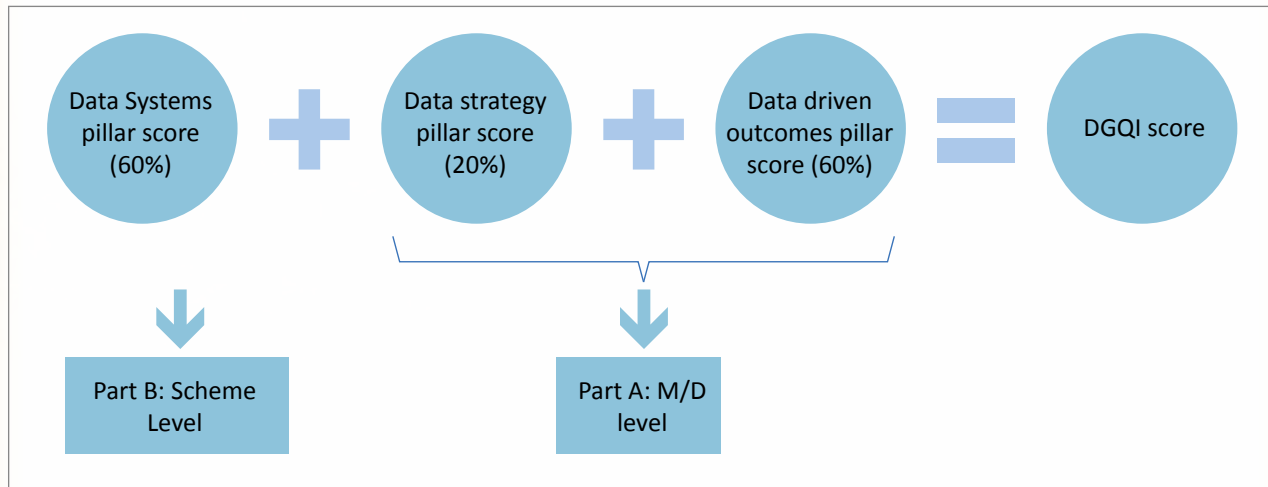


Fig: Scoring composition under DGQI

As per DMEO stipulation, the Data Strategy Unit comprising the Monitoring (DMED), IT and Analytics (NIC and IT) and Statistics units in coordination with other divisions of ministries has submitted the filled in questionnaire for 14 CS/ CSS schemes and 7 Non-Scheme Interventions of the Ministry for the DGQI dashboard of DMEO. The DSU has coordinated with Divisions implementing the schemes to prepare an action plan for making the Ministry’s data systems more digitized, efficeint and programmed to have meaningful insights from the data generation and processing functions.

9.3 Non-Governmental Organization Cell

1. A Non-Governmental Organisation (NGO) Cell has been set up in the Ministry to handle various policy matters relating to the NGOs working in diverse fields of environment. The basic functions of the Cell are:

- Liaison with the NITI Aayog and other Government Ministries in respect of various guidelines/ directions concerning NGOs.
2. As per directions of NITI Aayog an IT Software for end-to-end processing of applications for sanction/ release of grants/ financial assistance to NGOs has been developed for providing linkage of the portal to NITI Aayog’s NGO-Darpan Portal to bring transparency in the affairs of disbursement of funds to NGOs.
 3. Further as per direction received from NITI Aayog and their proposed Darpan 2.0 version, NIC has been requested to provide some additional features in this portal to ensure that NGOs who are participating in CS/ CSS Schemes, and taking grants, are spending the grants for the purpose for which the grant was given. GIS or other appropriate technologies should be used





in this portal to ensure that grant should not be taken by NGO's from more than one source for the same work.

4. Further the portal shall have added features to check milestones for each scheme, so provided by different PDs, and

mandatory linkage with PFMS to have/ capture information about the payment(s) made till the last point/ beneficiary.

5. The proposal for NGO Portal is being modified by taking into account the milestones of fund disbursing schemes.





CHAPTER

10

Legislation and Institutional Support





10.1 Policy and Law Division

Brief Introduction and Objective- The Policy and Law (P&L) Division deals with the administration/ establishment matters of the NGT; framing of NGT Recruitment Rules/ Amendments in the NGT Act and NGT Recruitment Rules; coordination with the Ministry of Law & Justice and handling of court cases in the Supreme Court of India, various High Courts and NGTs

The P&L Division handles the administrative issues of NGT while the ESZ and CP Divisions are administrative-in-charge of Dahanu Taluka Environment Protection Authority and Loss of Ecology Authority, respectively.

The Division is allocated funds under the Budget Head “National Green Tribunal” and the budget under this is further allocated to –

- National Green Tribunal;
- Grants-in-Aid to Loss of Ecology Authority, Chennai, and
- Grants-in-Aid to Dahanu Taluka Environment Protection Authority, Ahmedabad.

10.2 National Green Tribunal (NGT):

The National Green Tribunal (NGT) was set up on 18th October, 2010 under the NGT Act, 2010, for the purpose of effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto.

The Tribunal has five places of sitting i.e., the Principal Bench at New Delhi and Zonal Benches at Pune, Kolkata, Bhopal and Chennai.

Hon’ble Mr. Justice Adarsh Kumar Goel, a sitting Judge of the Supreme Court of India was appointed as Chairperson, NGT w.e.f. 06.07.2018. At present, there are five (05) Judicial Members in the NGT and a total of five (05) posts for Judicial Members are lying vacant in the Tribunal. At present, there are four (04) Expert Members in the NGT and a total of six (06) posts for Expert Members are lying vacant in the Tribunal.

An advertisement for the vacant posts of Expert Members, NGT was published in the National Dailies on 24.11.2020. The applications received were processed and the recommendations of the Search-cum-Selection Committee were forwarded to the Appointments Committee of the Cabinet (ACC) for consideration on 30.09.2021. The Ministry has received the approval of the ACC on 28.12.2021 for three (03) candidates. The appointment letters to the 03 candidates approved by the ACC have been issued.

An advertisement for filling up of five (05) vacant posts of Judicial Members in the NGT was published in the National Dailies on 06.10.2021. The Ministry has received the nomination of the Chairperson for Search-Cum-Selection-Committee (SCSC) from the Hon’ble Chief Justice of India. The processing of applications by SCSC is underway.

Legal Monitoring Cell (LMC)- A Legal Monitoring Cell set up in the Policy & Law Division monitors the progress of court cases and also acts as an effective coordinator with various Divisions of the Ministry regarding court cases. The total no. of cases in which the Ministry is a Party, as on 30.12.2021, are 2,219 in matters pending before the Supreme Court of India, High Courts, National Green Tribunal





(all Benches), Central Administrative Tribunal, etc.

Eco-labelling Scheme

The Ecomark Scheme was launched by the MoEF&CC in 1991 vide G.S.R. 85(E) dated 21.02.1991. It is an important tool for the consumers to pursue sustainable consumption patterns as well as for the industry to implement an environment-friendly processes or production methods. The logo for the Ecomark scheme “An Earthen Pot” symbolizes that the product which carries it does the least damage to the environment.

The 18 member Steering Committee headed by Secretary (EF&CC) was constituted vide Order No. 23(1)/91-PL dated 06.03.1991. The composition of the Steering Committee was substituted twice by Resolution dated 25.04.2013 and 19.12.2016.

A Technical Committee was set up in the Central Pollution Control Board (CPCB) chaired by Chairman (CPCB) vide Ministry’s Order dated 06.03.1991 to identify the specific products to be selected and the individual criteria to be adopted. The Technical Committee was reconstituted vide Ministry’s order dated 17.01.2017. Ecomark Scheme is administered by BIS under the BIS Act, 1986 with support of the CPCB to assess and certify the products. The products are required to adhere to compulsory quality standards specified by the BIS, as a pre-requisite to Eco-labelling.

Mechanism of the Scheme: There are three stages leading to the award of the Ecomark.

Steering Committee (MoEF&CC):

- Decides the product categories
- Formulates the strategies for promotion, future development and improvement of

the Scheme.

- Notifies the criteria in the Gazette of India

Technical Committee (CPCB):

- Identifies the specific product
- Determines the individual criteria for the Ecomark
- Recommends to the Steering Committee for notification

Administration:

BIS implements the Scheme.

Role of the BIS:

- Translates notified criteria into Indian Standards;
- Assess and certify the product for award of the Ecomark;
- Review suspend or cancel a licence, for the use of the Ecomark;
- Mark inspections, and take such samples for analysis of any material or substances as may be necessary to see whether any article or product in relation to which the Ecomark has been used, conforms to the contract or whether the Ecomark is improperly used in relation to any article or process with or without a licence;
- BIS grants licences under the Ecomark Scheme and awards the Ecomark to products that conform to additional requirements specified in the Indian Standards.

Under this Scheme, the Government of India has notified the final criteria for 17 product categories (1992-2018) like Soaps and Detergents; Paper; Food Items; Lubricating oils; Packaging materials/ Package; Architectural Paints and Powder Coatings; Batteries; Electrical and electronic goods; Food Additives; Wood Substitutes; Cosmetics;





Aerosols and Propellants; Plastic Products; Textiles; Fire-extinguisher; Leather; and Coir & Coir Products. The 17 product categories have further 332 standards. There are 52 functional Ecomark licenses. Ecomark products also carry the ISI Mark (except for leather & textile, for which there are exclusive eco criteria).

A fresh proposal was submitted to the Chairman, CPCB requesting to constitute a Technical Sub-committee for the development of Ecomark criteria for products made out of Construction and Demolition (C&D) Waste on 13.08.2020. The Technical Sub-committee was constituted by Technical Committee (CPCB) on 25.11.2020.

To move forward the Ecomark Scheme, to decide the products to be taken up for labelling as environment friendly and to formulate the strategies for the promotion and future development of the Scheme, the Division has been working with the UN-PAGE work package on Ecolabelling, in coordination with IC Division on strengthening the overall framework for Eco labelling in India, including assessment framework, institutional structure and refining the existing eco-label program for identified consumer products.

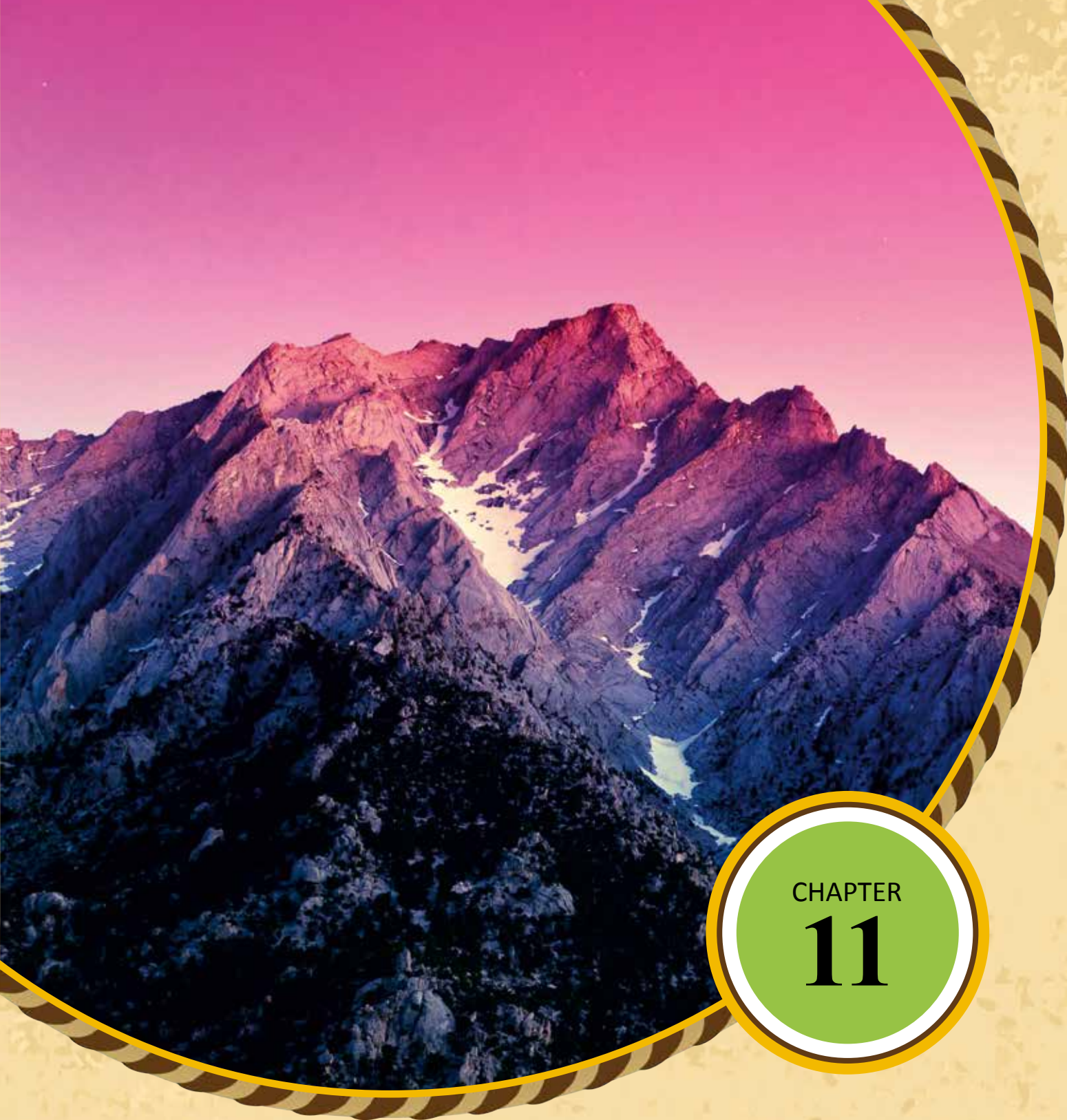
Review of various Acts/ Legislations implemented by the MoEF&CC- A review of the various Acts/ Legislations is being undertaken across Ministries/ Departments concerned and is being monitored by the Cabinet Secretariat, to give an impetus to investments by introducing structural reforms, wherever necessary.

The review of the Acts implemented by the MoEF&CC is being undertaken in order to assess and identify gaps and redundancies in light of modern-day environmental challenges and to suggest mechanism for better monitoring, compliance and enforcement of these Acts. The P&L Division had carried out the process of awarding the study to review the Acts in a transparent manner, by inviting expression of interest from reputed consulting agencies. The proposals received from the interested agencies were technically and financially evaluated and thereafter, the agency M/s J. Sagar Associates (JSA) has been awarded the study. Meetings/ interactions are being held on regular basis by the Working Group and Sub-Groups in the MoEF&CC for assistance and providing inputs to M/s JSA.

Budget Allocation of the Scheme during the F.Y. 2021-22:

BE 2021-22	Total Budget Allocation 43.00 Crores (Revenue) 61.00 Crores (Capital) to NGT Under Major Works	MoEFCC 18,55,70,000	NGT 23,44,30,000	Grants-in-Aid (General) to LoEA and DTEPA 1,00,00,000
RE 2021-22	Total Budget Allocation 44.00 Crores (Revenue) 0.01 Crores (Capital) to NGT under Major Works	MoEFCC 17,58,70,000	NGT 20,24,70,000	Grants-in-Aid (General) to LoEA and DTEPA 1,00,00,000





CHAPTER

11

Climate Change





11.1 Climate Change

Brief introduction, objectives and functions of the Division:

Climate change is a global challenge and requires collective global action to avert and minimize the impacts of the climate change. The Government of India is committed to address challenges from climate change and making significant contributions to global climate actions.

The National Action Plan on Climate Change (NAPCC) provides an overarching policy framework for climate actions in the country and outlines a number of steps towards achievement of India's climate change related objectives of adaptation and mitigation. It comprises, inter alia, of eight national missions on climate change in specific areas of solar energy, enhanced energy efficiency, water, agriculture, Himalayan eco-system, sustainable habitat, green India and strategic knowledge on climate change. These Missions are institutionalized and implemented by their respective nodal Ministries. Out of these, five mission focus on adaptation in sectors like agriculture, water, sustainable Habitat, Himalayan Ecosystem, forestry and sustainable agriculture. States and Union Territories (UTs) are being supported in respect of their respective State Action Plans on Climate Change (SAPCC). Prepared in line with the strategy outlined in the NAPCC to address State specific actions, these SAPCCs, inter-alia indicates regional climate vulnerability and state level actionable strategies for mitigation and adaptation.

In addition, Government has launched many schemes and programs to scale up India's action on adaptation, and to support projects that builds climate resilience in the priority areas identified under the missions of NAPCC and SAPCCs. Appropriate measures are being taken under these schemes and programs across many sectors including water, agriculture, forest, energy and enterprise, sustainable mobility and housing, waste management, circular economy and resource efficiency, etc.

International efforts to address climate change are guided by the United Nations Framework Convention on Climate Change (UNFCCC) and its two instruments, namely the Paris Agreement and the Kyoto Protocol. India is party to UNFCCC and it's both the instruments.

The Ministry of Environment, Forest and Climate Change (MoEFCC) is designated as the nodal Ministry for coordinating on the above mentioned India's domestic as well international actions through its Climate Change Division. The Division through its NATCOM Cell is also responsible for undertaking specific studies and submit National Communications (NATCOMs) and the Biennial Update Reports (BURS) to the United Nations Framework Convention on Climate Change (UNFCCC).

Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021 including celebrations for Azaadi ka Amrit Mahotsava

Progress/Achievements both cumulative and for the reference period including innovations.

During the year 2021, the Government took





various steps to intensify India’s efforts to address the challenge of climate change. Some of the key achievements of the year 2021 have been highlighted in the following sub-sections.

The Hon’ble Prime Minister of India, at the 26th session of the United Nations Framework Convention on Climate Change (COP 26) held in Glasgow, United Kingdom, expressed to intensify India’s efforts to address the challenge of climate change by presenting to the world five nectar elements (Panchamrit) of climate action by India. One of these

elements is to achieve net zero emissions by 2070 which presents vision for our long-term low greenhouse gas emission development strategies.

These Panchamrit are being seen as an unprecedented contribution of India to climate action. Many nations in the world, multilateral institutions, experts, think tanks, and global media, among others, have applauded the five nectar elements (Panchamrit) of India’s climate action.



(Photo: Hon’ble Prime Minister Shri Narendra Modi introduces India’s Panchamrit at COP 26 in Glasgow, United Kingdom.)

He also emphasized the need for climate justice and climate friendly lifestyles to safeguard future generations and the planet from the impacts of climate change. While highlight the role of sustainable lifestyles in addressing the challenges of climate change, he called for one-word mass movement i.e. ‘Lifestyle For Environment (LIFE)’. He called for coming together with collective participation, to take Lifestyle For Environment (LIFE) forward as a campaign and a mass movement of Environmental Conscious Life Style in a manner that revolutionize key economic sectors. He stated “What is needed today is Mindful and Deliberate Utilization, instead of Mindless

and Destructive Consumption. India emerged on the world stage as a voice of developing countries and leading international initiatives to drive process of building an environmentally sustainable world.

The year 2021 was also a critical year for climate negotiations as the 26th session of Conference of Parties (COP 26) to UNFCCC was convened in Glasgow City of Scotland in the United Kingdom from 31st October to 13th November 2021. An inter-ministerial delegation led by Hon’ble Minister for Environment, Forest and Climate Change represented India at COP-26. The participating countries concluded the work on the Paris Rule Book and the road has





now been laid for fully operationalizing the implementation phase of the Paris Agreement. India successfully articulated its positions

and interests in the decisions adopted by all countries at COP-26.



(Photo: Hon'ble Union Minister for EFCC Shri Bhupender Yadav participating at COP 26, Glasgow, United Kingdom.)

India submitted its 3rd Biennial Update Report (BUR) to UNFCCC in February, 2021. At COP 26, India made a presentation on 3rd BUR under the Facilitative Sharing of Views (FSV) process. Through this, India showcased, to the global community, the key achievements under its domestic climate action, including the achievement of 24% reduction in emission intensity of its Gross Domestic Product over the period of 2005-2016. The clarifications sought by participating countries were adequately responded to during the session.

India, towards its obligations under the Paris Agreement, has submitted its Nationally Determined Contribution (NDC) comprising of eight contributions for 2021-2030. The three quantitative contributions are: (i) to reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level, (ii) to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of

technology and low cost international finance, (iii) to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030. The other targets pertain to sustainable lifestyles; climate friendly growth path; climate change adaptation; mobilisation of climate change finance; capacity building and technology. In this context, India's current share of non-fossil sources based installed capacity of electricity generation become more than 40% in November, 2021. Installed capacity of solar energy in India has increased by more than 18 times from 2.63 GW in March 2014 to 48.56 GW in November 2021.

The work related to revision of eight missions under NAPCC, except National Mission on Sustainable Habitat (NMSH), National Water Mission (NWM) was concluded in the Ministry. The Government also initiated work related to inclusion of two new missions under NAPCC i.e. Mission on Sustainable Transport and





the National Coastal Mission. Also, India has announced National Hydrogen Mission on 15th August 2021.

Green Climate Fund (GCF) is the operating entity of the financial mechanism of the UNFCCC. It aims to deliver a 50:50 balance between mitigation and adaptation allocations in its portfolio. So far, four (04) projects have been approved to India with USD 314.82 million of GCF funding. The total value of these four (04) projects is 1491.07 million USD to address both adaptation measures and mitigation action.

The Clean Development Mechanism (CDM) has been a flagship programme addressing climate change mitigation and simultaneously giving an opportunity to developing countries in meeting their sustainable development objectives. Government of India has constituted the National CDM Authority (NCDMA) with Secretary, Environment, Forest and Climate Change as the Chairman. As on 20 December, 2021, 1686 out of total 7849 projects registered by the CDM Executive Board are from India, which is the second highest in the world. Certified Emission Reductions (CERs) issued to Indian projects is 265 million (12.4%) of the total 2131 million CERs issued.

Carbon-neutral development of Ladakh is a holistic vision of development that also takes into account climate change and its impacts. All sectoral ministries of the central government are working in association with the UT and thereby contributing to the development of carbon-neutral Ladakh as their joint endeavour. A draft Vision document embodying robust greenhouse gas inventory, corresponding

mitigation measures and unique ecology of Ladakh has been readied by MoEF&CC.

Government has launched the “India Climate Change Knowledge Portal” to address the climate change issues. The web portal link is <https://www.cckpindia.nic.in/>. The portal contains information regarding, inter alia, India’s climate profile, National policy framework, Nationally Determined Contributions (NDCs), mitigation and adaptation actions, etc. The main objective of the Portal is to disseminate information among citizens about the Government’s steps to combat climate change.

Continuing committees/commissions-their work during the year and present position

Ministry has constituted inter-ministerial Apex Committee for Implementation of Paris Agreement (AIPA) vide notification dated 27th November, 2020. The AIPA in the Ministry met twice; first on 24th March 2021 and thereafter on 30th November 2021, in order to generate a coordinated response on India’s climate action. The meetings of the Executive Committee on Climate Change were also held to take stock of missions under the NAPCC.

Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation-action taken.

India and the U.S. have launched the “Climate Action and Finance Mobilization Dialogue (CAFMD)” on 13th September 2021. The CAFMD is one of the two tracks of the India-U.S. Climate and Clean Energy Agenda 2030 partnership launched at the Leaders’ Summit on Climate





in April 2021, by the Prime Minister of India and President of United States. The Dialogue will strengthen India-US bilateral cooperation on climate and environment and will help in mobilizing finance to speed the clean energy

transition and to demonstrate how the world can align swift climate action with inclusive and resilient economic development, taking into account national circumstances and sustainable development priorities.



(Photo: Launch of CAFMD under India-US Climate and Clean Energy Agenda 2030 Partnership)

India and UK has partnered a number of global climate initiatives namely the International Solar Alliance, Coalition Disaster Resilient Infrastructure (CDRI), leadership Group for Industry Transition (LeadIT Group), Call for Action on Adaptation and Resilience, and Mission Innovation.

At the first Quad Leader's Summit held on 12 March 2021, Quad Leaders announced the setting up of a Quad Climate Working Group to strengthen climate actions globally on mitigation, adaptation, resilience, technology,

capacity-building, and climate finance. India is one of the member countries of the Quad Climate Working Group. The Quad Climate Working Group has organized its work according to three core themes, 1) Climate Ambition, 2) Clean Energy Innovation and Deployment, 3) Adaptation, Resilience and Preparedness.

India hosted the 30th BASIC (Brazil, South Africa, India and China) Ministerial meeting on 7- 8 April, 2021 and released BASIC Ministerial declaration on climate change.





(Photo: 30th BASIC Ministerial Meeting on Climate Change organised virtually on April 7 and April 8, 2021 was hosted by India)

MEAs, Agreement with countries, international organizations, compliance.

Same as (f) above.

List of major publications brought out- brief purpose of each, wherever necessary.

At United Nations Climate Change Conference (COP-26) held in Glasgow, United Kingdom, a book titled “The Climate Climb: India’s strategy, actions and achievements” was shared with global community.

This book has been conceptualised to share the strategic approach, urgency, and scale at which India is tackling global warming and its consequences. It highlights India’s tremendous and steadfast commitment in tackling climate change and its ramifications. The book is organised with a focus on our overarching initiatives as well as actions and achievements in key sectors. The key sectors include energy

and enterprise, sustainable mobility, waste and circular economy and water, forests and agriculture. The impact of climate change on each of them and the multiple national as well as international level programs that India has initiated to address challenges in these sectors have been presented. It provides a glimpse of what we have undertaken and achieved as part of our overall sustainable development strategy.

2. Name of the Scheme/Programme and its objectives: Input, Output and Outcome variables of the program

Climate Change Action Plan : The objective of the plan to advance India’s development and climate change targets through effective implementation of eight Missions under **National Action Plan on Climate Change (NAPCC).**





National Adaptation Fund - The objective of the programme is to provide financial assistance to the States / UTs as Grants-in-aid for increasing resilience and adaptive capacity of vulnerable areas and ecosystems against climate change impacts as well as livelihood and source of income of vulnerable people in targeted areas.

a. Progress/Achievements both cumulative and for the reference period.

Under Climate Change Action Plan (CCAP), two Research programmes viz. National Carbonaceous Aerosols Programme (NCAP) a multi-institutional programme being implemented by a consortium of 17 institutions led by IIT Bombay and Long Term Ecological Observatories (LTEO) which required All India Coordination are under implementation.

Under National Adaptation Fund for Climate Change (NAFCC), 30 projects in 27 States/ Union Territories have been approved so far. In the mean while, one project titled 'Scaling-up Resilient Agriculture Practices towards Climate Smart Villages' in Haryana has been closed and the remaining 29 are in various stages of implementation.

Both the projects have undergone Third Party Evaluation done by independent agency and recommended for continuation for another five years from 2021-2022 to 2025-2026 based on the performances.

3. Grant-in-aid released to Institutions/ organisations including NGOs.

The Government is implementing the National Adaptation Fund for Climate Change (NAFCC). Under NAFCC, 30 projects in 27 States/UTs have been sanctioned for adaptation in agriculture,

water, forestry, etc. Presently, 29 projects are under implementation due to closure of project titled 'Scaling-up Resilient Agriculture Practices towards Climate Smart Villages' in Haryana. The actions under these projects were further strengthened by providing due finance to the eligible States and UTs. The Government is also implementing the Climate Change Action Plan (CCAP).

11.2 Ozone Layer Protection

The stratospheric ozone layer is present from 10 to 50 kms above the Earth's surface. The stratospheric ozone layer acts as a shield and protects us from harmful ultraviolet-B (UV-B) radiation from the sun. Ozone Depleting Substances (ODSs) such as Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Halon, Carbon Tetrachloride (CTC), Methyl Bromide, Bromofluoromethane (BFM) etc. depletes the ozone layer. Depletion of Stratospheric Ozone Layer has the potential to cause skin cancer, eye cataract, suppress body's immune system, decrease crop yield etc., which led to the adoption of the Vienna Convention for the Protection of the Ozone Layer in 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987. The Montreal Protocol has been recognized as the most successful international environmental treaty in history enjoying universal ratification from all the 198 United Nations Member countries and has led to phase out of 98 % of ODSs globally.

The MoEF&CC has set up the Ozone Cell as a National Ozone Unit (NOU) to render necessary services for effective and timely





implementation of the provisions of the Montreal Protocol and its ODSs phase-out program in India. The Ministry has constituted an Empowered Steering Committee (ESC) under the Chairpersonship of the Secretary (EF&CC) for overall implementation of the provisions of the Montreal Protocol in the country.

In order to comply with the requirements of the Montreal Protocol, the Ministry had brought out comprehensive Ozone Depleting Substances (Regulation and Control) Rules, 2000 under the Environment (Protection) Act, 1986 for phasing out various ODSs. The ODS Rules have been amended in 2001, 2003, 2004, 2005, 2007, 2014 and 2019, to implement ODS phase-out activities in the country.

Celebrations for Azaadi ka Amrit Mahotsava (AKAM)

On the occasion of Azadi ka Amrit Mahotsav week celebrated from 4th to 8th October, 2021 by the MoEF&CC, the Ozone Cell, has shared the awareness material including videos, manual, games for school children relating to ozone layer protection to various stakeholders including industry, industry associations, Environmental Information System (ENVIS) centres throughout the country, implementing agencies, Pollution Control Board etc.

Ratification of Kigali Amendment to the Montreal Protocol for phase down of Hydrofluorocarbons (HFCs) by India

The 28th Meeting of the Parties (MOP) to the Montreal Protocol on 15th October 2016 in Kigali, Rwanda, agreed to phase down Hydrofluorocarbons (HFCs) and approved a

timeline for their gradual reduction by 80-85 per cent by the late 2040s. This agreement for phase down of HFCs is called the Kigali Amendment to the Montreal Protocol. As per the Kigali Amendment, to the Montreal Protocol, India will complete its phase down of HFCs in 4 steps from 2032 onwards with cumulative reduction of 85% of production and consumption of HFCs by 2047.

The Union Cabinet in its meeting held on 18th August 2021 approved the proposal of the Ministry of Environment, Forest and Climate Change (MoEF&CC) for Ratification of Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer for phase-down of HFCs by India. It was also decided that a National strategy for phase down of HFCs will be developed by 2023 after required consultation with all the industry stakeholders.

Pursuant to the Cabinet decision, the instrument of Ratification was deposited by the Ministry of External Affairs (MEA) on 27th September 2021, which shall be the date of Ratification by India and the Kigali Amendment will enter into force for India on 27th December 2021 (90th day of the deposit of the ratification instrument with the depositary).

A Proposal seeking funding from the MLF for the Implementation of enabling activities for phase down of HFCs under the Kigali Amendment to the Montreal Protocol has been submitted through UNEP as the implementing agency, to the MLF Secretariat for placing before the 88th meeting of the Ex-Com of the MLF held in November 2021. The proposal includes the following components:





- I. Development of a national strategy including policy framework for the implementation of the Kigali Amendment.
- II. Establishing a framework for Implementing licensing, quota system and reporting obligations.
- III. Outreach and awareness raising.

India Cooling Action Plan (ICAP)

India is the first country in world to develop a Cooling Action Plan, which addresses cooling requirement across sectors and lists out actions which can help reduce the cooling demand. The ICAP aims to reduce both direct and indirect emissions. The thrust of the ICAP is to look for synergies in actions for securing both environmental and socio-economic benefits. The ICAP has been appreciated internationally as an important policy initiative which has the potential to provide socio-economic and environmental benefits related to reduced refrigerant use, climate change mitigation and Sustainable Development Goals. Many countries are now involved in development of cooling action plans keeping in view the significant environmental benefits and the fulfilment of Sustainable Development Goals.

Towards operationalizing the recommendations, thematic working groups have been constituted which includes Space Cooling in Buildings for developing an action plan for implementing the recommendations through mapping available, anticipating technology options for promoting energy efficiency and reducing cooling demand along with technical and economic viability,

identifying interventions required for synergizing with on-going programmes and schemes of the Government of India including identifying the required policy and regulatory interventions.

The thematic group on space cooling in buildings, has come out with a list of action points, to be implemented by various agencies in it's 6 meetings. The action points have been identified after mapping of the recommendations given in the ICAP with the on-going government programmes/schemes handled by different ministries/departments/agencies of the Government.



The publication on the Action points for implementation of the recommendations for Space Cooling in Buildings was launched on the World Ozone Day held on 16th September, 2021 and widely disseminated.

Implementation of Hydrochlorofluorocarbons (HCFC) Phase-out Management Plan (HPMP) Stage II

The HCFC Phase out Management Plan (HPMP) Stage-II project for India has been approved by the Executive Committee (Ex-Com) of





the Multilateral Fund (MLF) during its 77th meeting held in December 2016. The HPMP Stage-II would address phase-out of HCFCs in various sub-sectors of foam manufacturing, Refrigeration and Air Conditioning (RAC) manufacturing and RAC servicing sector.

Under HPMP Stage-II project, 160 enterprises including large number of Micro, Small and Medium Enterprises (MSMEs) have participated for technology conversion from HCFC-141b to non- ODS and low-Global Warming Potential (GWP) technologies in foam sector. Similarly, 4 enterprises in RAC manufacturing sector have been participating for conversion from HCFC-22 to HFC-32 technology.

A separate notification S. O. No. 4724 (E) dated 31st December, 2019, amending the Ozone Depleting Substances (Regulation and Control) Rules, 2000, was published in the Gazette of India inter alia prohibiting the issuance of import license for HCFC-141b from 1st January, 2020. HCFC 141 b is one of the most potent chemical involved in stratospheric ozone depletion after the CFCs.

In addition to the amendment to the Ozone Depleting Substances (Regulation and Control)

Rules during 2019, the DGFT, Ministry of Commerce and Industry amended the import policy to ban the import of HCFC 141b in the country.

In a significant first, amongst the Article 5 parties (developing countries) under the Montreal Protocol, India has been able to achieve the complete phase out of HCFC 141 b in the foam manufacturing sector, as part of implementation of HPMP Stage II.

In the foam manufacturing sector, 133 out of the 160 participating enterprises have completed the technology conversion activities and have shifted to non HCFC and low GWP alternatives. In the RAC manufacturing sector, 3 enterprises have completed the technology conversion activities and have shifted to Hydrofluorocarbon (HFC)-32 technology.

HCFC Reductions through HPMP Stage-II

The required level of reduction in HCFCs consumption for the year 2020 as per the target under the Protocol and the allowable consumption of HCFCs for India from 2017 to 2023, as per the approved HPMP-II is given in table below:

S. No.	Particulars	2016	2017	2018	2019	2020	2021	2022	2023
1	Montreal Protocol Reduction Schedule (ODPtons)	1447.38	1447.38	1447.38	1447.38	1045.33	1045.33	1045.33	1045.33
		90% of baseline	90% of baseline	90% of baseline	90% of baseline	65% of baseline	65% of baseline	65% of baseline	65% of baseline





S. No.	Particulars	2016	2017	2018	2019	2020	2021	2022	2023
2	Maximum allowable consumption as per HPMP-II (ODP tons)	1447.38 90% of baseline	1447.38 90% of baseline	1433.63 89.15% of baseline	1103.85 68.64% of baseline	832.32 51.75% of baseline	799.76 49.73% of baseline	698.82 43.45% of baseline	643.28 40% of baseline
3	Reductions Required (ODP ton)	—	—	13.75	329.78	271.53	32.50	100.94	55.54

In line with the accelerated phase out schedule of the Montreal Protocol for HCFCs, against the target of 35% reduction in the production and consumption of HCFCs from the baseline, India has successfully achieved the reduction in the consumption and production of HCFCs by 44% from the baseline.

The production and consumption of HCFCs for the controlled uses for the year 2020 were very much lower than compliance target under the Montreal Protocol. Hence, the country was in compliance with respect to the obligation under the Montreal Protocol.

Enabling Activities under HPMP Stage-II

Ozone Cell, MoEF&CC, in association with the UN Environment (UNEP) has been implementing the enabling components (Capacity Building and Awareness creation) of HPMP Stage-II. The following activities have been undertaken as part of the enabling activities under HPMP Stage-II.

a. Energy Efficiency in RAC Service Sector Practices

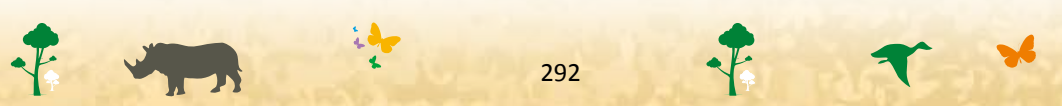
Ozone Cell, MoEF&CC in association with Energy Efficiency Services Limited (EESL) is

implementing the activities related to energy efficiency in Refrigeration and Air-conditioning (RAC) Service sector. The activities includes development, publishing and dissemination of awareness material on linkage of energy efficiency and servicing practices for RAC products to promote energy efficiency impacts of RAC products amongst the end-users and service technicians.



b. Studies on key issues relating to Montreal Protocol implementation

Following study reports have been published and released on 16th September 2021 on the World Ozone Day and were widely disseminated:





I. Application of non-ODS and low-Global Warming Potential (GWP) alternatives in Cold Chain Sector in India by M/s Pricewaterhouse Coopers Ltd.

II. Public Procurement Policies for RAC Equipment Using Non-ODS based refrigerants by The Energy and Resources Institute (TERI).



Release of awareness materials / publications by Shri Ashwini Kumar Choubey, Hon'ble Minister of State for Environment, Forest and Climate Change on the occasion of the World Ozone Day held on 16th September, 2021 at New Delhi, India (virtually)

- The following studies are in progress:
 - I. Service sector enterprises/ technicians in RAC sector by NTPC School of Business.
 - II. Simulation study being conducted by Indian institute of Technology (IIT),

Delhi for development of national standards for low-GWP Refrigerants by Bureau of Indian Standard (BIS).

Preparation of HPMP Stage-III

The proposal for funding request for preparation of HPMP Stage-III has been submitted to the





Multilateral Fund (MLF) for placing before the Ex-Com during its 87th meeting held in June 2021. The Ex-Com of the MLF in its 87th meeting approved the project preparation funding of US\$450,000 plus implementing agency support costs for preparation of Stage-III of HPMP for India.

To oversee the preparation of HPMP Stage-III, a Committee under the Chairmanship of Joint Secretary (Ozone Cell) MoEF&CC comprising members from the nodal line Ministries/ departments has been constituted.

CAPACITY BUILDING

Under the capacity building program the following activities are being undertaken by Ozone Cell, MoEF&CC in close cooperation with the various Ministries/ Departments:

Upskilling air-conditioner service technicians under Pradhan Mantri Kaushal Vikas Yojana

The Ozone Cell, MoEF&CC had developed a project jointly with the Electronic Sector Skill Council of India (ESSCI) for upskilling and certifying 100,000 RAC service technicians under the Skill India Mission - Pradhan Mantri Kaushal Vikas Yojana (PMKVY) of Ministry of Skill development. The up-skilling and certification of technicians under PMKVY will have twin benefits of significant environmental benefits and a positive influence on the livelihoods of technicians.

Thirty eight thousand eight hundred eighty six Service Technicians have been up-skilled and certified under phase I and II as part of Memorandum of Understanding (MoU) between the Ministries of Environment, Forest and Climate Change and Skill Development and Entrepreneurship.

- **Competency Enhancement of System Houses and Micro, Small and Medium enterprises in foam manufacturing sector**

A MoA has been signed between the Central Institute of Plastics Engineering & Technology (CIPET) and the Ozone Cell, MoEF&CC to develop Competency Enhancement framework and facilities for System Houses and foam manufacturing enterprises especially MSMEs participating in HPMP Stage-II. The agreement between CIPET and Ozone Cell, MoEF&CC shall facilitate the smooth and sustainable phase-out of HCFC-141b in the foam manufacturing sector of the country by 1.1.2020.

A Technical Assistance facility has been established and operationalized in 2020 at Laboratory for Advanced Research in Polymeric Materials (LARPM) CIPET, Bhubaneswar for providing training and testing facilities to System Houses and foam manufacturing enterprises covered under HPMP stage II. The technical assistance facility at CIPET would assist in (i) customizing trials, (ii) evaluation, testing, (iii) modification/validation of non-HCFC formulations for applications, and (iv) technical resources and training center. CIPET has been continuously assisting enterprises for stabilizing alternative technologies. The assisted enterprises have been able to move toward adoption of alternatives at commercial scale.

A total of 5 stakeholder workshops have been organized by CIPET on “Alternative Technologies to HCFC-141b in Foam Manufacturing Sector”. The main objective





of the workshop was to make aware the foam manufacturing enterprises about the HCFC free alternative technologies and

the process of technology conversion. This also included hands-on training session for enterprises.



High Pressure PU Foam Processing Unit with Moulds established at Laboratory for Advanced Research in Polymeric Materials (LARPM) CIPET, Bhubaneswar

Capacity Building of Enforcement Department/Agencies

Under the enabling component of HPMP Stage-II, activities relating to the policy and enforcement component are being implemented in association with the National Academy of Customs Indirect Taxes and Narcotics (NACIN), the apex institute of Government of India for capacity building by imparting training in the field of indirect taxes, drug laws and environment protection, through a Memorandum of Agreement (MoA) between the PMU, Ozone Cell and NACIN. As part of the implementation, online refresher course was held on 2nd February, 2021 for trainers trained under HPMP Stage-I, to enable

trainers for taking session in future as trainers under HPMP Stage-II.

Supervisory Officers Workshop were held on 23rd to 24th March, 2021 at NACIN Hyderabad and 26th to 27th August, 2021 at NACIN, Delhi including practical hands-on-session on identification of Refrigerants. The training programme includes sensitizing field customs formations regarding prohibition of its import of HCFC-141b in the country and towards enforcing import ban on HCFC-141b starting from 1.1.2020, a special module was introduced in customs trainings. A Country handbook on the national regulations for Monitoring and controlling production and use of ODSs in India was updated by NACIN in consultation with Ozone Cell, MoEF&CC.





AWARENESS CREATION AND CONSULTATION ACTIVITIES/ MEETINGS

The following activities have been undertaken for awareness creation to ensure that the industries and public at large are aware about the ill effects of ozone depletion, and undertake necessary ODS phase- out activities and support the policies to protect the ozone layer:

- i. Publication of 23rd edition of booklet Titled " The Montreal Protocol : India's Success Story" which apart from the evolution of Montreal Protocol gives the various initiatives taken by the Government of India to fulfill the obligation of the Montreal Protocol.
 - ii. Under enabling component of HPMP Stage-II, awareness material comprising the following was designed, developed and disseminated to service technicians throughout the country through the training programmes organized by GIZ:
 - 18,000 Posters on "Good Service Practices for Room Air-Conditioners" and "Copper Tube operations" as part of Good Service Practices.
 - 30,000 flyers containing information on how to become an environmental-friendly service technician.
 - 20,000 multi-color stickers on Good Service Practices for Room Air-Conditioners for awareness generation for RAC dealer's consumers.
 - 700 copies of pocket handbook "Quick guide" on good servicing practices on handling flammable refrigerants.
- A booklet on Good Servicing Practices for energy efficient operation of Room Air-conditioners was developed and released on 16th September, 2021 during the World Ozone Day.
 - iii. Short video film on phasing out of Ozone Depleting Substance in India highlighting India's achievement in phasing out of HCFC-141b completely from the foam sector in India.
 - iv. School Poster making competition was organized to raise awareness among children.
 - v. Ozone Cell has made available awareness creation material to the public on its website. Instructional training videos for RAC service technicians in 6 different languages have been made.
 - vi. Ozone Cell has set up YouTube channel, Facebook and Twitter pages for awareness creation on ozone layer.
 - vii. Separate QR codes have been generated for the instructional videos for wider dissemination through print medium.
 - viii. Pamphlets and information material was brought out and disseminated.
 - ix. In a large exercise to provide contemporary update relevant material related to Refrigeration and air-conditioning servicing the publications brought out by Ozone Cell were sent to Government run Industrial





- Training Institutes (ITIs) across the country which have RAC trade vocational training.
- x. Central Pollution Control Board (CPCB), State Pollution Control Board's (SPCB's) and other State Government departments are being regularly updated/ informed about the ODS phase-out programme being implemented in the country.
 - xi. Meeting of the Standing Committee on Monitoring was held under the Chairmanship Chairman, Central Pollution Control Board (CPCB), in which the Article 7 and Country Program Progress Report (CPPR) data were recommended for approval.
 - xii. To oversee the implementation of HPMP Stage II meeting of the Project Steering Committee were convened with UNDP, UNEP and GIZ which is the lead implementing agencies for HPMP Stage II.
 - xiii. Meetings of Production Quota was held for distribution of production quota of HCFC 22 for non-feedstock applications.
 - xiv. Several consultative meetings were organized on a regular basis for interaction with industry, Government departments etc., on issues relating to Montreal Protocol Implementation.
 - xv. Meeting was held with the officials of Electronics Skill Sector Council of India on the Project for upskilling and certifying 100,000 RAC service technicians under the Skill India Mission.
 - xvi. Training, workshops were organized across the country for RAC servicing technicians by GIZ, Government of Germany as part of the activities in the RAC Servicing Sector.
 - xvii. Under enabling component of HPMP Stage-II ten workshops for RAC dealers and other relevant Stakeholders via Video conference were held in collaboration with EESL.
 - xviii. Several meetings of thematic workings on India Cooling Action Plan (ICAP) were held for implementing the recommendations of ICAP.
 - xix. Four meetings of the Working Group of the Standing Committee on Monitoring were held to discuss applications related to use/ manufacture of Ozone Depleting Substances (ODSs) for feedstock uses, inter alia including qualifying process as feedstock use.
 - xx. A knowledge sharing session with the key domestic and international Air-conditioning (AC) manufacturers in the country through virtual mode was under the Chairmanship of Additional Secretary, MoEF&CC.
 - xxi. The Indian delegation actively participated in the Montreal Protocol meeting during the year 2021:
 - a. 86th Intersessional Approval Process meeting of the Ex-Com of the MLF held from 8th to 12th March, 2021.
 - b. 4th Extraordinary Meeting of the Parties to the Montreal Protocol on





Substances that Deplete the Ozone Layer held on 21st May, 2021.

- c. 87th meeting of the Ex-Com of the MLF was held from 15th June 2021 to 2nd July, 2021.
- d. 43rd meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer held from 12th to 16th July, 2021.
- e. Combined 12th meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer (part II) and 33rd Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer held from 23rd to 29th October, 2021.
- f. 88th meeting of the Ex-Com of the MLF

was held from 15th to 19th November, 2021.

Activities related to the implementation of ODS Rules, 2000 and its amendments and Montreal Protocol

Activities related to the implementation of ODS Rules, 2000 and its amendments were carried out inter alia including registration, Regulation of export/import, issuance of production quota, monitoring and reporting.

The statutory reporting under the Montreal Protocol under Article 7 has been completed and the Country Program Progress Report (CPPR) submitted to the Secretariat of the Multilateral Fund for the implementation of the Montreal Protocol. The compiled data submitted under Article 7 and Country Programme Progress Report (CPPR) for the year 2020 is as follows:

ODS	Production* (MT)	Export** (MT)	Import*** (MT)	Feedstock* (MT)	Consumption as per definition#
					ODS (MT)
CFC-11	0.000	0.000	0.000	0.000	0.000
CFC-12	0.000	0.000	0.000	0.000	0.000
CFC-113 ¹	0.000	0.000	0.332	0.332	0.000
Total	0.000	0.000	0.332	0.332	0.000
CTC1	22985.686	0.000	2700.00	22985.686	0.000
Total	22985.686	0.000	2700.00	22985.686	0.000
Halon -1211 ²	0.000	0.000	3.5002	0.000	0.000
Halon -1301 ^{1&2}	201.047 ¹	201.289 ^a	3.9602	201.047 ^b	0.000
Halon -2402 ²	0.000	0.000	0.000	0.000	0.000





ODS	Production* (MT)	Export** (MT)	Import*** (MT)	Feedstock* (MT)	Consumption as per definition#
					ODS (MT)
Total	201.0471	201.289^a	7.4602	201.047^b	0.000
Methyl Bromide ³	4129.043	2024.950	0.000	0.000	2104.093
Total	4129.043	2024.950	0.000	0.000	2104.093
HCFC-22	64012.590	19408.697 ^c	0.000	39199.703 ^d	5404.19
HCFC-123	0.000	0.000	12.993	0.000	12.993
HCFC-142b ¹	0.000	0.000	1360	1360	0.000
HCFC-141b	0.000	0.000	0.000	0.000	0.000
HCFC-133A ¹	0.000	0.000	108	108	0.000
HCFC-225 ca/cb ¹	0.000	0.000	2.987	2.987	0.000
Total	64012.590	19408.697^c	1483.98	40670.69	5417.183
Bromofluoro- methane ¹	0.3941	0.3941 (Producer)	0.964	0.3941 (exported)	0.000
Total	0.3941	0.3941	0.964	0.3941	0.000

1 For feedstock

2 Recycled/ Recovered halon

3 for Pre-shipment & Quarantine

a Total Export of Halon-1301 is 201.289 MT out of which 200 MT exported for feedstock and 1.289 MT exported for recycled/recovered

b Total production for feedstock of Halon-1301 is 201.047 out of which 200 MT exported for feedstock, 0.242 MT destroyed and 0.805 MT is used within the country for feedstock

c Including 179.550 MT exported to Japan for feedstock

d Total production for feedstock of HCFC-22 is 39379.253 MT out of which 179.550 MT exported and 39199.703 MT is used within the country for feedstock

Sources

* Producers

** Producer/Consumer/Directorate General of Commercial Intelligence and Statistics

*** Directorate General of Commercial Intelligence and Statistics

As per the definition under the Montreal Protocol Consumption for controlled use= Production (for controlled use)+ Import(for controlled use)-Export (for controlled use)





11.3 Desertification Cell

Introduction

Desertification Cell plans, coordinates and collaborates activities for restoration of degraded land and for the achievement of Land Degradation Neutrality (LDN) in India.

The Division is-

- The focal point addressing the issues pertaining to the United Nations Convention to Combat Desertification (UNCCD), which was ratified by India on 17th December 1996
- Co-ordination division for National State Environment Report for information pertaining to land Degradation Status.
- Co-ordination division for SDG 15.3 (By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world) in the Ministry

Functions

- a. To work in co-ordination with the Climate Change, Bio-diversity and Forestry wing of this Ministry for ensuring sustainable land management;
- b. Strengthen India's position on different issues related to UNCCD by participating in COP, inter-governmental working group meetings, G-20 meetings, scientific conferences and other important events organised by the UNCCD Secretariat.
- c. Coordination with UNCCD for reporting the status of desertification and land degradation (DLD) every four years;

- d. Monitoring of the status of desertification/land degradation in the country by way of mapping, survey, calculation and assessment of the drivers of degradation using Earth observation satellites in co-ordination with Space Application Centre (SAC), Ahmedabad;
- e. Compilation, assembling and analysis of data of schemes on Restoration of degraded land in co-ordination with National Afforestation and Eco-development Board, Green India Mission, CAMPA, NMHS, Bio-diversity divisions of this Ministry and other line Ministries/Departments.

Important Activities during the reference period (i.e. 1/1/2021-31/12/2021):

- Celebrated the Drought and Desertification Day on 17th June 2021 with the theme "Restore. Land. Recovery."
- Verification of the assembled the data in respect of the schemes executed by the line Ministries and various divisions of this Ministry pertaining to land restoration.
- Finalization of DPR of Centre of Excellence in India at the Indian Council for Forest Research and Education (ICFRE) Dehradun, an initiative for enhanced South-South Cooperation that aims to share India's experiences with cost-effective and sustainable land management strategies;
- Acquiring the role of the National Executing Agency for the GEF- UNDP- project Sustainable management and restoration of degraded landscapes for achieving Land Degradation Neutrality (LDN) in India";





Progress/Achievements both cumulative and for the reference period including innovations etc.

- Space Application Centre released the Desertification and Land Degradation Atlas for the time frame 2018-19 on the occasion of 17th June 2021, Drought and Desertification Day.
- Award of the work of development of “Integrated Management System for tracking land restoration Efforts of Govt of India “ to SAC (ISRO), Ahmadabad;
- Terms of References for preparation of DPR for “Restoration of degraded land in the Aravalli zone” has been finalized and ICFRE has been asked to take necessary action for selecting an agency for preparation of DPR in this regard.
- The commitment of “Restoration of degraded land” has been made a major programme from the Ministry for the PMO’s Prayas Portal. Accordingly, data from NAEB for the Twenty Point Programme (TPP) has been assembled which covers all the afforestation programme carried out by all the Ministries/State Government on public and forest lands. The assembled data clearly depicts that an area of approximately 10.5 million hectares has been restored from 2015 till March 2021.

Continuing committees/commissions-their work during the year and present position:

- Nodal heads for the 14 schemes have been identified for the inter-Ministerial Committee, constituted under the chairmanship of Additional Secretary of Desertification Cell to review the progress

on the Land Degradation Neutrality and restoration of 26 million hectares of degraded land (21 million hectares of Bonn Challenge and additional commitment of 5 million hectares).

Important Conferences organized in India or international conferences-nature of participation, subjects discussed, implementation-action taken.

- Hon’ble Prime Minister, Shri Narendra Modi graced the High level Dialogue on desertification, land degradation and drought of United Nations General Assembly, held on 14th June 2021 and his recorded video message on the initiatives taken by India on Land Degradation was played during the event.
- Smt B.V. Uma Devi, Additional Secretary chaired the COP Bureau Meetings as the COP president held on 8th April 2021, 28th June 2021 and 30th November 2021.
- The nineteenth session of Committee for the Review of the Implementation of the Convention (CRIC 19) was attended by the team of Desertification Cell led by Smt B.V. Uma Devi, Additional Secretary and Shri Jigmet Takpa, Joint Secretary, National Focal Point-UNCCD from 15th to 19th March 2021. The CRIC 19 reviewed:
 - The effective implementation of the Convention at national, subregional and regional levels including updates on the voluntary land degradation neutrality target setting process,
 - operationalization of the Land Degradation Neutrality Fund and





implementation of the Drought Initiative.

- interim report of the Intergovernmental Working Group on effective policy and implementation measures for addressing drought under the UNCCD .

Challenges in work due to Covid-19 and the response of the division:

- The Desertification Cell was on full swing even in serious pandemic situation. Works have not been suffered as such. Due to the pandemic situation all the meetings were held on virtual mode.

S. No.	Name of Organisation	Purpose	Total amount released	Status of third party evaluation	Remarks
	International Institute for Applied Systems Analysis (IIASA) Schlossplatz 1, A-2361, Laxenburg, Austria	Study for developing an integrated model for analyzing linkages between India's water, land and energy policies and the Sustainable Development Goals	9.05 lakhs		





CHAPTER
12

International Cooperation





12.1 International Cooperation

International Co-operation (IC) Division within the Ministry coordinates matters related to international environmental cooperation (both Bilateral as well as Multilateral).

- **Multilateral:** Under multilateral, we coordinate with UNEP, GEF, the World Bank (WB) and regional bodies like Economic & Social Commission for Asia & Pacific (ESCAP), Brazil-Russia-India-China-South Africa (BRICS); South Asian Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Programme (SACEP), Association of South-East Asian Nations (ASEAN), Asian Development Bank (ADB), European Union (EU).
- **Bilateral:** Nodal Division for bilateral (country-to-country) cooperation in the field of environment. The Ministry has entered into 28 Agreements / MoUs with various countries like Australia, Austria, Bangladesh, Bhutan, Brazil, Canada, China, Cyprus, Denmark, Egypt, Finland, France, Israel, Japan, Mauritius, Morocco, Netherlands, Russian Federation, Sweden, Switzerland, Turkmenistan, USA, Vietnam, etc. on various environmental issues of mutual benefits. Most of these MoUs/agreements are operated through the Joint Working Groups (JWGs) thus, providing an opportunity for dialogue and to work with the international community.
- **Nodal Activities:** IC Division is the Nodal Division for
 - a) Matters related to Ministry of External Affairs;
 - b) International Union for Conservation of Nature (IUCN)

Important multilateral activities:

- i. **United Nations Environment Programme (United Nations Environment Programme (UNEP):** India is a Member of UNEP and provides annual financial contribution of USD 100,000 to UNEP Environment Fund. The Ministry is a member of the UNEP's International Resource Panel (IRP) Steering Committee.
- ii. **Shanghai Cooperation Organization (SCO):** The Shanghai Cooperation Organization (SCO) is a multilateral organization, established on 15 June 2001 in Shanghai, China, initially by 6 countries viz: China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan. Amongst other things, it aims to promote their effective cooperation in environmental protection. India officially joined SCO as full-fledged member at the historic summit in Astana on 9 June 2017. Shanghai Cooperation Organization has the status of Observer at the United Nations General Assembly.
- iii. **South Asia Cooperative Environment Programme (SACEP):** The South Asia Cooperative Environment Programme (SACEP) was set up in 1982 with headquarters in Colombo, Sri Lanka. India is a founder member of SACEP. Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka are the members of this programme. It aims to promote Regional Cooperation in South Asia in the field of environment,





both natural and human, in the context of sustainable development and on issues of economic and social development. The Governing Council of the SACEP consists of Environment Ministers of all 8 Member countries.

iv. **International Union for Conservation of Nature and Natural Resources (IUCN):**

International Union for Conservation of Nature and Natural Resources (IUCN), established in 1948, plays leading role in conservation of the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. India became a member of IUCN in 1969. This Ministry is nodal for IUCN and supports IUCN in achieving goals of conservation of nature, natural resources and biodiversity.

v. **The Global Environment Facility (GEF)**

India: India is a founder member of the Global Environment Facility (GEF). Set up in 1991, GEF is the designated multilateral funding mechanism of 183 countries to provide incremental finance for addressing global environmental benefits that are also identified as national priorities. The Ministry of Environment, Forest and Climate Change is India's GEF Operational Focal Point (OFP) responsible for all in country coordination. The Department of Economic Affairs (DEA) is India's GEF Political Focal Point. India is both a donor and recipient of GEF grants. The GEF mandate is decided as per the guidance provided by the Conference of the Parties of the multilateral environmental conventions namely Convention on

Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention to Combat Desertification (UNCCD), Stockholm Convention on Persistent Organic Pollutants (PoPs) and Minamata Convention on Mercury. Currently, we are in GEF-7 Cycle (2018- 2022), projects are being designed and implemented in all focal areas viz., Climate Change, Land Degradation, Biodiversity, International Waters and Chemical & Wastes. Under GEF, allocation made in three focal areas of Climate Change, Biodiversity and Land Degradation is categorised as STAR (System for Transparent Allocation of Resources) Allocation while allocation made in International Waters and Chemical & Wastes is categorised as Non-STAR allocation.

Important multilateral activities held during 2021-22:

(a) UNEA:

The fifth meeting of the United Nations Environment Assembly [UNEA-5] was held on 22-23 February 2021. The meeting was preceded by Meeting of the Open-Ended Committee of Permanent Representatives (OECPR), which was held on 15-19 February 2021. Due to COVID-19, these meetings were held on online platform and they were adjourned at the end, to be resumed for in-person meeting in February 2022. Dr. Virander Kumar Paul, High Commissioner & PR to UNEP & UN-Habitat led the Delegation of India. The OECPR meeting was attended by 16 Officials and the UNEA meeting





was attended by 5 Officials including officials from HC, Nairobi. Dr. Virander Paul delivered the Country Statement at the UNEA Assembly on 23.2.2021. A video message from Hon'ble Minister of Forest Environment and Climate Change, Shri Prakash Javadekar was also shared with UNEA.

(b) 10th Meeting of Indo-EU Joint Working Groups on Environment:

The 10th meeting of India – European Union Joint Working Group (JWG) on Environment was held online on 28th April 2021. The discussions were co-chaired by Mr. Naresh Pal Gangwar, Joint Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC) and Mr. Luca Perez, Deputy Head of Unit, international bilateral and regional environmental cooperation, European Commission's Directorate-General (DG) for Environment.

The following issues, among others, were discussed during the meeting:

- i. Resource Efficiency & Circular Economy:
- ii. Air quality and pollution, a resilient and toxic-free environment
- iii. Biodiversity

(c) G20 Meetings:

The 3rd G20 Environment Deputies Meeting (EDM) working group meeting on green and blue finance was held from May 28-29, 2021 through virtual platform. The meeting was chaired by Italy (host country). The main objective for the working group meeting was to discuss the crucial role

of finance and role of the 3rd EDM, blue finance and green finance principles, steps to increase the financial flow from the public and private sector. A brief discussion on the Nature-based Solutions as a means to address climate change and biodiversity was discussed by various countries. Issues related to Marine Plastic Litter, land degradation, driving financial flows towards sustainable food systems were also discussed. During the drafting session, countries gave their comments on – Nature Solutions for climate and biodiversity, Leader's Pledge for Nature, UNESCO International Environment Expert Network, Land and ecosystem restoration, sustainable water management.

- (d)** The G20 Environment Ministers Meeting was held under the presidency of Italy on 22.07.2021 at Naples, Italy, with many countries joining the meeting in-person in Naples, Italy, and few countries, joined the meeting online. India joined the meeting through video conferencing. The Indian delegation was led by Shri Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change

(e) GEF Meeting:

During the year, two GEF South Asia Constituency Meetings and two GEF Council Meetings were held in the month of June and December respectively. The meetings were participated by the officials of MoEF&CC, the GEF Secretariat, Shri Rajesh Khullar, South Asia Constituency Representative and World Bank Executive Director for India, Bangladesh, Bhutan, and





Sri Lanka. During the year, six (6) projects have been endorsed by this Ministry for the utilization of the balance GEF STAR Allocation. In addition, planning meetings for 8th replenishment cycle also began during the year.

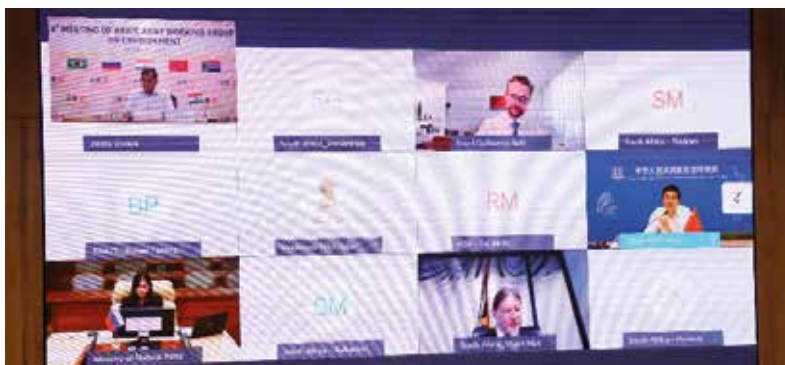
(f) The Shanghai Cooperative Organization:

The Second Session of Heads of Environmental Ministries and Departments of the SCO Member States held at Dushanbe, capital of Tajikistan, wherein the Indian delegation was led by Shri R.P.Gupta, Secretary of Ministry of Environment, Forest and Climate Change on 29.07.2021 at Godavari Conference Hall through virtual mode. In the Meeting, Secretary stated that India attaches great importance to its engagement with the SCO member countries. He stressed the need for strengthening collective efforts for a sustainable and inclusive recovery

and strong international cooperation to tackle the interdependent challenges of climate change, biodiversity loss and environmental degradation.

(g) 6th BRICS Joint Working Group meeting:

The 6th BRICS Joint Working Group meeting on Environment was held virtually at Sushma Swaraj Bhawan, New Delhi on 26.08.2021 under the chairmanship of India. The Joint Working Group meeting was chaired by Secretary, EF&CC and participated by Representatives/Head of Environment Ministries from the BRCS nations. All BRICS nations highlighted multilateralism, mutual respect and partnership in environmental sustainability initiatives as a common thread across all nations. Discussions were also held on the Draft of the New Delhi Joint Statement by the BRICS Ministers.





(h) 7th BRICS Environment Ministers' meeting:

The 7th BRICS Environment Ministerial Meeting, 2021 was held under the Presidency of India on 27th August 2021 virtually at Sushma Swaraj Bhawan, New Delhi, and was participated by the Environment Ministers from the BRICS nations. The meeting was preceded by the BRICS Joint Working Group Virtual meeting on 26th August 2021. Chairing the Meeting, Shri Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change underlined the importance of global collective action, further research and study for combatting the Covid-19 pandemic. Referring to the recent IPCC report, he stressed the need for taking collective global concrete actions against global environmental and climate challenges,

but guided by equity, national priorities and circumstances, and the principles of CBDR-RC. Shri Yadav also mentioned the importance of Resource Efficiency and Circular Economy, Conservation of Wildlife and Marine Species or biodiversity, and concrete actions taken by India on climate change and biodiversity. BRICS Countries being hotspots for biodiversity can tell the world how we have been conserving such megadiversity since time immemorial, and can also play a very significant role in combatting the Covid-19 pandemic.

In the Meeting, the Environment Ministers adopted the 7th BRICS Environment Ministers' Statement, which is also aimed at furthering the spirit of Cooperation for Continuity, Consolidation and Consensus in Environment among the BRICS Nations.





Important bilateral activities held during 2021-22:

A. India-France bilateral cooperation on Environment

i) Third Meeting of Indo-France Joint Working Groups (JWG) on Environment

The 3rd Meeting of the Indo-French JWG meeting was held on 18-19 January 2021 in virtual mode. The meeting discussed issues of Climate Change, Global Biodiversity, Management of Protected Areas, Air Quality, and the Indo-French Year on the Environment. Both sides agreed for cooperation and exchanges for the upcoming international conventions: COP26 in Glasgow; IUCN World Congress in Marseille and COP 15 CBD in Kunming.

ii) Launch of the Indo-French Year of Environment

The Indo-French Year of the Environment was launched on 28th January 2021 by Shri Prakash Javadekar, Hon'ble Minister of Environment, Forest & Climate Change and Ms. Barbara Pompili, the French Minister for Ecological Transition at Indira

Paryavaran Bhawan, New Delhi. The basic objective is to strengthen Indo-French cooperation in sustainable development, increase the effectiveness of actions in favour of global environment protection and give them greater visibility.

The Indo-French Year of the Environment over the period 2021-2022 would be based on five main themes: environmental protection, climate change, biodiversity conservation, sustainable urban development, and the development of renewable energies and energy efficiency. Indo-French Year of Environment is a calendar of events (in the field of environment) that both sides shall organize during the year 2021-22. The following events have been organized and/or are planned under the Indo-French Year on Environment 2021-22:

- i. 15th session of the JWG on Sustainable Urban Development held virtually on 02-03 March 2021
- ii. Meeting of Steering Committee held virtually on 06.04.2021





- iii. Panel discussion on the topic “ Towards COP-26 on Climate: France and India-Custodians of the Paris Spirit” during the visit of H.E. Mr. Jean-Yves Le Drian, French Foreign Minister held at French Embassy, New Delhi on 14.04.2021
- iv. Webinar on “Reducing Cooling Demand through Sustainable Building Design and Integrating Efficient Cooling Technologies” held on 22.04.2021
- v. Webinar on Impact of Climate Change held on 05.06.2021
- vi. Webinar on “Coastal and Marine Biodiversity Conservation and Marine Protected Areas” held on 08.06.2021
- vii. Webinar Seminar on Air Pollution Management held on 29.06.2021
- viii. Webinar on Building Social Resilience through Reliable Cold Chain Infrastructure held on 06.10.2021
- ix. Webinar on Low-Carbon Hydrogen Investment Opportunities In India held on 20.10.2021
- x. Seminar / Webinar on Plastics (tbc)
- xi. Smart Cities Days (tbc)
- xii. Conference on “24*7 water supply design & management” and capacity building to ULBs (tbc)



(iii) Meeting with Ms. Barbara Pompili, Hon'ble Minister for Ecological Transition, France

Prior to the launch of the Indo-French Year of Environment, a meeting was held between Shri Prakash Javadekar, Hon'ble Minister of Environment, Forest & Climate

Change and Ms. Barbara Pompili, Hon'ble Minister for Ecological Transition, France on 28th January 2021. In the Meeting, they deliberated mainly on contemporary issues relating to climate change, biodiversity, blue economy, etc.





iv) Meeting with Mr. Philippe Orliange, Executive Director for Asia & Middle East, French Development Agency (AFD)

A meeting was held between Mr. R.P. Gupta, Secretary, EF&CC and Mr. Philippe Orliange, Executive Director for Asia & Middle East, AFD on 28th September 2021 at Indira Paryavaran Bhavan, New Delhi. The objective of the meeting was to discuss (i) AFD's ongoing projects in India in the field of environment, forest and climate change, (ii) identify future areas of cooperation; (iii) to develop a robust strategy for 2022-2023; (iv) to underline AFD's commitment to climate financing and biodiversity, including forest conservation, air quality, solid waste management and sustainable blue economy.

B. Memorandum of Understanding (MoU) between the Ministry of Environment, Forest & Climate Change, India and the National Environment Commission, Bhutan:

An MoU on cooperation in the areas of Environment was signed between India and Bhutan on 18th June 2021. The MoU was signed virtually by Shri Prakash Javadekar, Hon'ble Minister of Environment, Forest and Climate Change, Information & Broadcasting and Heavy Industries & Public Enterprises from the Indian side and Lyonpo Dr. Tandi Dorji, Hon'ble Minister of Foreign Affairs and Chairperson of the National Environment Commission from the Bhutanese side.

The MoU is a platform to further enhance Indian and Bhutanese partnership and support, exchange best practices in areas like prevention of Air Pollution, Waste Management, Chemical Management, Climate Change, etc. It also provides the possibility to have joint projects in areas of mutual interest. Subsequent to the signing of the MoU, the Indian Joint Working Group on Environment has been constituted and shared with the Bhutan side.





C. 1st India–Japan High-Level Policy Dialogue

The 1st India–Japan High-Level Policy Dialogue was held virtually on 7th September 2021 and co-chaired by Mr. Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change and Mr. KOIZUMI Shinjiro, Minister of the Environment of Japan, and discussed issues on Air Pollution, Sustainable Technologies and Transports, Climate Change, Marine Litter, Fluorocarbons, COP 26, etc.

In the meeting, Mr. Bhupender Yadav acknowledged the importance of Indo-Japan bilateral cooperation on the environment and appreciated efforts made by Japan in bringing new technologies to India. He also highlighted the achievements made by India in tackling climate change under the leadership of our Hon'ble Prime Minister.

Mr. KOIZUMI Shinjiro, Minister of the Environment of Japan mentioned that both countries can strengthen bilateral cooperation through the Joint Credit Mechanism (JCM), CDRI and may also explore collaboration in areas endorsed by

the G20, especially on climate, environment and energy. Both sides agreed to further strengthen the bilateral cooperation on the environment, and also to take forward the discussion on JCM.

D. 1st meeting of India-Switzerland Joint Working Group on Environment

The 1st meeting of the India-Switzerland Joint Working Group on Environment was held on 22 September 2021. This first meeting of the Joint Working Group has been an important milestone towards the overall objective of the implementation of the MoU, namely strengthening of mutual beneficial cooperation between India and Switzerland on climate change and the environment. The meeting deliberated upon the mutual understanding of key roles and responsibilities of various stakeholders followed by an update on SDC activities in Climate Change and the Environment in India. There were further discussions on how SDC support can align with and/or contribute to the policy /programmatic landscape of relevant Ministries and Departments.





E. India-Germany bilateral cooperation on Environment

i) Meeting with Mr Norbert Barthle and Dr. Maria Flachsbarth, Parliamentary State Secretariates, German Federal Ministry for Economic Cooperation and Development (BMZ)

A meeting was held between Mr. Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change and Mr. Norbert Barthle and Dr. Maria Flachsbarth, Parliamentary State Secretariats, German Federal

Ministry for Economic Cooperation and Development (BMZ) on 9th September 2021 at Indira Paryavaran Bhawan, New Delhi. Both sides discussed a wide range of environmental issues covering the following areas such as climate change, water scarcity, marine & air pollution and circular economy. Both sides stressed the importance of information exchange in bilateral programmes keeping climate and SDG indicators in focus-Agro-Ecology, Solar Partnership Insuresilience.



ii) India- Germany Sector Dialogue

A virtual sector dialogue between India and Germany was convened on



15th September 2021 with Ms. Richa Sharma, Additional Secretary, MoEFCC, and Mr. Philipp Knill, Head of Division for





Development Policy Issues with Asia/South Asia (BMZ) as the Chairperson. The German Government (BMZ and BMU) organized this sector dialogue to discuss MoEFCC's overall perspective and priorities for cooperation under the ambit of Indo-German Cooperation.

F. Meeting with H. E. Dan Jorgensen, Minister for Climate, Energy, and Utilities, Denmark

A meeting was held between Mr.

Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change and Mr. Dan Jorgensen, Hon'ble Minister for Climate, Energy and Utilities, Denmark on 09th September 2021 to discuss general bilateral cooperation between India and Denmark in the areas of environment and climate change. Both the Ministers discussed the Joint Action Plan to take forward the Green Strategic Partnership in the environment sector.





G. Meeting with H.E. Mr. Klas Molin, Ambassador of Sweden to India on

A meeting was held between Sh. R.P. Gupta, Secretary, EF&CC and H.E. Mr. Klas Molin, Ambassador of Sweden to India on 28th July 2021 through video conferencing to discuss collaborative bilateral cooperation issues including the International Solar Alliance (ISA), the Leadership Group for Industry Transition (LeadIT), Nordic Summit, COP 26 (UNFCCC), COP 15 (CBD), and global marine litter issues.

12.2 Externally Aided Projects

Externally Aided Projects Division of the Ministry deals with Forestry related Externally Aided Projects in coordination with the State Governments donor agencies, other line ministries in the Government of India such as Ministry of Finance, Ministry of Home Affairs,

NITI Aayog, etc. It provides technical inputs on projects submitted by State Governments for financial assistance from donor agencies. At present externally aided forestry projects are under implementation in the country are funded by JICA, French Development Agency, KFW and GIZ.

The broad objectives of these forestry projects are increasing forest cover, conservation of biodiversity, rehabilitation of degraded forest areas, soil and moisture conservation measures, Capacity building of forest officials and other stakeholders, creation of livelihood opportunities for forest fringe villagers and other measures for sustainable management of forests.

At present 12 externally aided forestry Projects are dealt by this division which are under implementation in the country.

Table: List of Ongoing projects are as follows:

S. No.	Name of the Project	Name of the State	Project Duration	Doner Agency
1.	West Bengal Forestry and Biodiversity Conservation Project	West Bengal	2012-13 to 2020-21	JICA
2.	Rajasthan Forestry and Biodiversity Project (Phase-II)	Rajasthan	2011-12 to 2020-21	JICA
3.	Tamil Nadu Biodiversity Conservation and Greening Project	Tamil Nadu	2011-12 to 2020-21	JICA
4.	Sikkim Biodiversity Conservation and Forest Management Project	Sikkim	2010-11 to 2020-21	JICA
5.	Odisha Forestry Sector Development Project Phase-II	Odisha	2017-18 to 2026-27	JICA
6.	Uttarakhand Forest Resource Management Project	Uttarakhand	2014-15 to 2023-24	JICA





S. No.	Name of the Project	Name of the State	Project Duration	Doner Agency
7.	Japanese Technical Cooperation Project for Natural Disaster Management in Forest Areas of Uttarakhand.	Uttarakhand	2016-17 to 2020-21	JICA
8.	Himachal Pradesh Forest Ecosystem Management & Livelihood	Himachal Pradesh	2018-19 to 2027-28	JICA
9.	Nagaland Forest Management Project	Nagaland	2017-18 to 2026-27	JICA
10.	Sustainable Forest and Catchment Management in Tripura	Tripura	2018-19 to 2027-28	JICA
11.	Assam Project on Forest and Biodiversity Conservation Phase II	Assam	2019-20 to 2024-25	French Development agency (AFD)
12.	Himachal Pradesh Forest Eco-systems Climate Proofing Projects	Himachal Pradesh	2016-17 to 2020-21	KfW

e. Continuing committees/commissions- their work during the year and present position

A project Steering Committee under the Chairmanship of DGF&SS to oversee the implementation of the project on Sustainable Management of Forest ecosystem Services in the Western Himalayas and monitor its progress in the

two project partner States viz Uttarakhand and Himachal Pradesh.

f. Challenges in work due to COVID-19 and the response of the Division.

In the current year, the work of the Division was managed for almost two months by working from home by the Staff under the guidance of the officers of the Division.





CHAPTER

13

Administration and Civil Construction





13.1 Administration

Brief Introduction and objectives:

A. There are three sections in Administration viz. P-I, P-II and P-III. Section-wise brief description is given hereunder:

P I Section

- Cadre Management of Scientific posts of the Ministry and 19 Integrated Regional Offices, creation of scientific posts of Ministry. Establishment/service matters of all Scientific posts of the Ministry (Main) viz. appointment, promotion, work allocation, court cases, leave cases and retirement benefits (only of those posted in Ministry Main). Disciplinary proceedings of Group 'A' 'B' and 'C' officials of Ministry other than IFS officers under Central Staffing Scheme of the Ministry;
- Cadre management of Technical posts of the Ministry viz. creation, appointment, promotion, work allocation, establishment/service matters, Recruitment Rules, court cases, retirement benefits and leave cases (only of those posted in Ministry Main);
- Cadre management of Canteen staff of the Ministry viz. creation, appointment, promotion, establishment/service matters Recruitment Rules, leave cases, retirement benefits, court cases, etc.;
- Maintenance of ACRs/APARs of Group 'A' 'B' and 'C' officials of MoEF&CC other than IFS officers of the Ministry;
- Processing of LTC, GPF, House Building Advance, Computer Advances of all personnel of the Ministry;

- Issue of Foreign Deputation Orders in respect of Environment Wing of the Ministry;
- Processing of medical advance and reimbursement cases of Scientific, Technical and Canteen staff;
- Recruitment & Framing of Recruitment Rules of technical posts of the Ministry;
- Processing and finalization of complaints, suspension cases and disciplinary proceedings having administrative angle;
- Internship Scheme of Ministry of Environment, Forest and Climate Change; and
- Review of services under FR 56(j).

P II Section

- Cadre management of CSSS/CSS/CSCS, Central Staffing Scheme, IES and ISS officers posted in MoEF&CC;
- Establishment/service matters of Secretariat Group 'A', 'B' & 'C' posts (except officers working on the strength of IFS and NAEB) viz. appointment, review cases, leave cases, retirement and retirement benefits, medical claims, tuition fee reimbursement, leave encashment, children education allowance, court cases, etc.;
- Recruitment & Framing of Recruitment Rules of non-technical ex-cadre posts of the Ministry (E&F) Wing;
- Training Programme of AIS and all Secretariat officers;
- Matters relating to Minister's staff;
- Outsourcing (deployment and policy matters);





- Election Work;
- Work Allocation among all officers/staff other than Scientific/Technical officers; and
- Nodal Division of MoEF&CC of eHRMS.

P III Section

- Recruitment of Group 'A' Scientists in the Ministry, including regional and attached/subordinate offices;
- Review/assessment of Group 'A' Scientists in the Ministry including regional and attached/subordinate offices for promotion under Flexible Complementing Scheme;
- Framing/Amendment of Recruitment Rules relating to Ministry of Environment, Forest and Climate Change, Group 'A' Scientific Posts; and
- Policy matters of Group 'A' Scientific Posts in connection with Flexible Complementing Scheme.

B) Activities undertaken during the reference period (i.e. 01.01.2021 to 31.12.2021):

During the period, the major activities undertaken by Administration division are as under: -

- Promotion of 23 Scientists to the next higher grade under Flexible Complementing Scheme.
- Promotion of 1 Research Officer (Environment) Grade I to the post of Scientist B.
- Recruitment of 09 Scientists in various grades on direct recruitment basis.
- Recruitment of 01 Research Assistant

(Environment) on direct recruitment basis.

- Recruitment of 01 Library and Information Assistant on deputation basis.
- Promotion of 02 Research Officers (Environment) Grade-II to Research Officer (Environment) Gr-I.
- Promotion of 06 Research Assistants (Environment) to the post of Research Officer (Environment) Grade-II.
- Promotion of 01 Technical Assistant (WL) to Technical Officer (WL).
- Requisition for recruitment of 08 Research Assistants (Environment) sent to SSC.
- Monitoring and timely disposal of RTI applications and PG portal cases received during the period.
- Timely processing of retirement benefits.

Promotion

Total 31 cases were considered for promotion of Scientists of the Ministry including its subordinate offices under Flexible Complementing Scheme during the year 01.01.2021 to 31.12.2021. Details are as under: -

- 02 cases of promotion from the grade of Scientist 'F' to Scientist 'G' were considered, out of which one was promoted, and the DPRC in respect of the other Scientist from Grade 'F' to Grade 'G' is yet to be held.
- 01 case of promotion from the grade of Scientist 'E' to Scientist 'F' was considered and the promotion was recommended.
- 17 cases of promotion from the grade of Scientist 'D' to Scientist 'E' were





considered, out of which 15 promotions were recommended.

- 09 cases of promotion from the grade of Scientist 'C' to Scientist 'D' were considered, out of which 08 promotions were recommended.
- 01 case of promotion from the grade of Scientist 'B' to Scientist 'C' was considered and the promotion was recommended.
- 01 case of promotion from Research Officer to the grade of Scientist 'B' was considered and the promotion was recommended.

Recruitment:

34 vacancies of Scientists in the Ministry including its subordinate offices were advertised and out of these 34 vacancies, the following 13 vacancies have been filled up while the remaining 21 vacancies are under process for being filled up: -

- 01 Post of Scientist 'G' (Director - ZSI)
- 02 Posts of Scientist 'D'
- 05 Posts of Scientist 'C'
- 05 Posts of Scientist 'B'

13.2 Indian Forest Service (IFS) Cadre Management

Mandate

- Ministry of Environment Forest & Climate Change is the Cadre Controlling Authority for the Indian Forest Service (one of the three All India Service).
- IFS division deals with all cadre Management related matters.
- The total authorized cadre strength of the Indian Forest Service as on 1st

January, 2021 is '3191' (three thousand one hundred ninety-one) which includes '2224' Direct Recruits and '967' Promotion posts. The Total Senior Duty Posts (SDP) in the Indian Forest Service are 1960 and remaining under various reserves. Besides serving the 31 Forest Departments in the States and Union Territories managing the country's natural resources, a large number of the IFS officers are in various Ministries and institutions both in the State and at the Centre.

Activities:

- Determination of vacancies and framing of rules for Direct Recruitment through Union Public Service Commission and allocation of cadres to IFS probationers.
- Determination of vacancies for induction of State Forest Service Officers by promotion in to Indian Forest Service, Coordination of Selection Committee Meetings, Notification of Select List and year of allotment to officers inducted in Indian Forest Service.
- Review of cadre and revision in the composition and strength of IFS in various cadres.
- Selection/appointment of IFS officers to various posts under Central Staffing Scheme of the Ministry and cadre clearance for appointment to various autonomous bodies including Indian Council of Forestry Research & Education, Dehradun, Indian Institute of Forests Management, Bhopal and Wildlife Institute of India, Dehradun etc.





- Facilitation of Selection / Appointment of IFS officers against the Central Staffing Scheme of Department of Personnel & Training (DoP&T).
- Finalization of various service matters like inter-cadre transfers, Inter cadre deputation, Cadre clearance for placements/training and post-retirement benefits to the officers.
- Management of AGMUT cadre including promotions, transfers, postings and other service matters.
- Publication of Civil List of IFS Officers.
- Confirmation of IFS officers in Service.

Achievements

- Vacancies for induction of State Forest Service officers into Indian Forest Service have been determined in respect of few cadres during the year 2021.
- Cadre review of Indian Forest Service in respect of States of Himachal Pradesh, Madhya Pradesh, Bihar and Chhattisgarh has been proposed which is under consideration in DOP&T.
- Smart Performance Appraisal Report Recording Online Window (SPARROW) implementation for online filing of PAR in respect of IFS Officers has been generated.
- Up-to-date Civil List of IFS officers as on 01.01.2021 is available on the website of this Ministry at <http://www.ifs.nic.in>. The website also has updated information pertaining to the vacancy/deputation (under CSS-MoEF) circulars, training programme circulars and Rules and Regulations concerning IFS. Further, website also has Performance Appraisal Report (PAR) availability status of IFS officers which can be accessed by concerned officer. Each and every members of the Service have been provided facility to have Unique Email account through NIC on this site and members of Service have been provided facility to update data relating to their posting details online for periodical upgradation.

- The re-structuring of the Content Management Based IFS Website (<http://www.ifs.nic.in>) has been completed.
- 38 IFS officers selected at various levels under the Central Staffing Scheme of the Ministry and 28 IFS officers were empaneled/appointed at various level under the Central Staffing Scheme of Department of personnel & Training.
- Around 28 Court Cases pending in Various Courts across the Country were disposed off.
- A total of 149 RTI application and 178 CPGRAM applications were disposed off during year 2021.

13.3 Vigilance Division

- The Vigilance Division interacts with Central Bureau of Investigation (CBI) in various matters and facilitates CBI for obtaining information/documents from various Divisions of the Ministry.
- Handling of vigilance complaints regarding misconduct of Officers and officials (including all IFS officers) under MoEF&CC received from the General





- Public/Organisations/Central Vigilance Commission (CVC/CVC portal)/PMO's office etc. During the period 01.01.2021 to 31.12.2021, 298 complaints were received from CVC/CVC portal and directly in the Ministry and examined and 306 complaints were closed/filed including old ones.
- Conducting and appointing of Inquiry Officer (I.O.) and Presenting Officer (P.O.) for Preliminary Information and Inquiry.
 - Identification of Sensitive Posts and to ensure periodical rotation of staff holding such sensitive posts. Administration Division is regularly asked to carry out rotation of staff holding sensitive posts.
 - Disciplinary proceedings (involving vigilance angle) against all retired Officers and officials under the MoEF&CC including all IFS officers.
 - Disciplinary proceedings (involving vigilance angle) against all IFS officers of AGMUT Cadre and other Officers and officials under the MoEF&CC. 2 (Two) disciplinary proceeding cases were disposed of during the period.
 - Examination and Processing of cases of imposition of major penalties of dismissal/ compulsory removal etc. (involving vigilance angle) on IFS officers referred to by State Governments.
 - Appeals (including appeals against suspension)/Review preferred by officers/ officials under the MoEF&CC including all IFS officers.
 - All Court cases having vigilance angle.
 - Sanction of Prosecution including those under the Prevention of Corruption Act (PC Act), 1988 against IFS Officers and Officers/ officials serving/retired from service under the MoEF&CC.
 - Receipt and Scrutiny of Annual Immovable Property Returns (AIPRs) of All Officers and officials (including IFS officers) of MoEF&CC.
 - According clearance from vigilance angle in respect of officers and officials of the Ministry. 884 vigilance clearance were accorded during the period.
 - Permission/Intimation of Movable/ Immovable property under Conduct Rules, 1964 and All India Service (Conduct) Rules, 1968.
 - Preventive Measures to check corruption.
 - Organizing Vigilance Awareness Week as per CVC directions.
 - This year Vigilance Awareness Week was observed in the Ministry from 26th October to 1st November, 2021 and Hon'ble MoS, EF&CC administered the pledge on 26.10.2021, Group Quiz Competition held on 29.10.2021 and 01.11.2021 and workshop on "Preventive Vigilance" was held on 28.10.2021 in the Ministry. Winners of the Essay and Group Quiz Competition were awarded Letter of Appreciation and given cash prize through e-payment.
 - During "Swachhta Campaign" from 2nd October to 1st November 2021, 626 files have been weeded out as per Record Retention Schedule under Category 'C'.





13.4 Parliament Section

The Parliament Division in the Ministry is responsible for co-ordination of all parliament matters related to the Ministry of Environment, Forest and Climate Change (MoEF&CC).

I. Parliamentary Questions:

During the year 2021-22, at the end of the Winter Session on 23rd December, 2021, a total of 855 Parliament Questions were answered by the Ministry pertaining to various aspects of Environment Forest and Climate Change. 474 questions were replied in the Lok Sabha, out of which 40 were starred and the rest 434 un-starred. A total of 381 questions were replied in the Rajya Sabha, out of which 43 were starred and 338 were un-starred.

The questions covered a wide range of issues with which this Ministry is concerned with and prominent among them were the questions relating to Forest Conservation, Wildlife Management, Climate Change, Pollution, Environment Impact Assessment, Waste Management, Environmental Conservation, Freshwater and Marine Conservation, Biosafety, Environmental Education, Medicinal Plants and Disaster Management etc.

Graphical representation of the Parliament Questions replied by the Ministry during 2021-22 both in Lok Sabha and Rajya Sabha in various Sessions are given in Fig- (A) and Fig- (B) respectively.

1. Lok Sabha

Type	Budget	Monsoon	Winter	Grand Total
Starred	21	10	9	40
Unstarred	185	132	117	434
Total	206	142	126	474

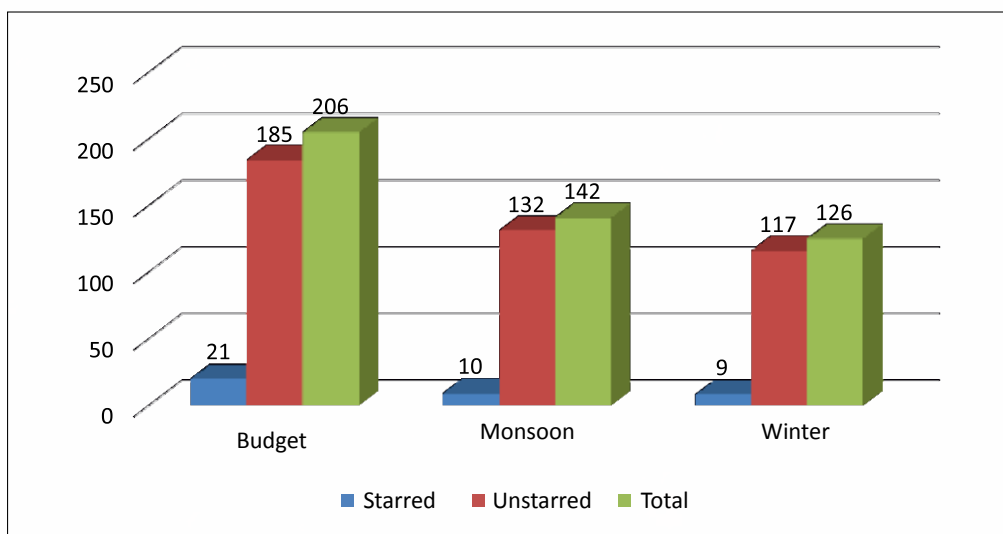


Fig. (A) Number of questions replied by the MoEF&CC in all sessions of Lok Sabha during 2021-2022





2. Rajya Sabha

Type	Budget	Monsoon	Winter	Grand Total
Starred	20	13	10	43
Unstarred	117	112	109	338
Total	137	125	119	381

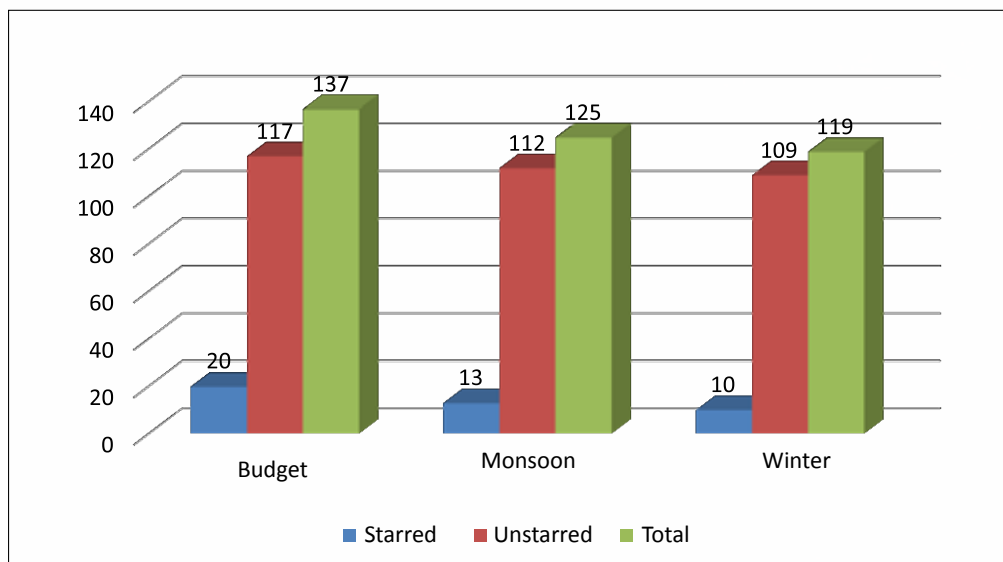


Fig. (B) Number of questions replied by the MoEF&CC in all sessions of Rajya Sabha during 2021-2022

II. Consultative Committee Meetings:

Further the Parliament Section of the Ministry, during the year 2021-22, also coordinated three meetings of the Department related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change and Two meetings of Consultative Committee of the Ministry.

The following were the subjects that the Department Related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change, discussed are:

1. 'Contaminated and Hazardous Sites in

the Country, their public health impacts and remedial action'.

2. Demands for Grants (2021-22),
3. 'Statewise analysis of Campa Funds'.

The subject matter of two Consultative Committee are as under: -

1. Promotion of Eco Tourism
2. National clean Air Programme

In addition of the above, other meetings relating to Committee on Subordinate Legislation, Public Accounts Committee, Estimate Committee, Committee on Petition and Committee on Government Assurances etc. were also co-ordinated by the Parliamentary Unit of the MoEF&CC.





13.5 Information Technology

a. Brief introduction, objectives and functions of the Division

Government working is based on intensive knowledge and information sharing. Effective communication and sound Information and Communication Technology (ICT) go hand in hand. For speedy implementation and monitoring of various programmes / schemes and to make most of ICT to secure efficiency in working, Ministry has embarked up on a comprehensive exercise to implement various e-Governance activities / projects.

b. Important activities undertaken during the reference period (i.e. 1/1/2021-31/12/2021 including celebrations for Azaadi ka Amrit Mahotsava

- Implemented eOffice in all Regional Offices and Wildlife Institute of India.
- VPN Access provided all authorized eOffice user in the Ministry and its attached / sub-ordinate offices.
- During COVID 19 pandemic, all meetings are organised through Video Conferencing (VC) including EAC meetings.
- Creation of Meeting IDs and moderated Video Conferencing System using MS Team, VideoWeb, etc.
- Created email IDs in @gov.in domain for all the users of eOffice.

c. Progress/Achievements both cumulative and for the reference period including innovations.

- Continued the implementation of

e-Office in the Ministry under Digital India Programme (collected details of officers and staff, registered 1538 Users in eOffice portal, Posting and Promotion, Role Post, Setting of Workflow, Updation of Leave Balance details, Provided Training, updation in Notice Board).

- Provided training for Reskilling/ upskilling of the existing support Staff under the Increasing Efficiency in Decision making in Government' programme and also provided training on eOffice to 127 officials of various IROs and 150 Users of Wildlife Institute of India (WII), Dehradun.
- Continued the Management of Online Stationary Request Management System for submitting the request for stationary.
- Continued the Management of Smart Performance Appraisal Report Recording Online Window (SPARROW) for online submission of APAR of IAS, IES, ISS, IPS, CSS & CSSS Officers.
- Continued the Management of Smart Performance Appraisal Report Recording Online Window for submission of APAR of Scientists in the Ministry.
- IT infrastructure of the Ministry was strengthened.
- Examination of all Examination of all policy issues pertaining to Information Technology.





Online Consent Management & Monitoring System:

Online Consent Management & Monitoring System (OCMMS) developed for State Pollution Control Boards (SPCBs) / Pollution Control Committees (PCCs) to automate the existing workflow which allows the industries for the online submission of application for Consent to Establish (CTE) / Consent to Operate (CTO), authorization for various categories of Industries / Institutions / Hotels / Hospitals. This system helps the officials of SPCB for online processing of industries application for CTE/CTO, Authorization as well as monitoring of various activities of SPCBs/PCCs.

Online Consent Management & Monitoring System (OCMMS) has been implemented in 26 States/UTs viz. Arunachal Pradesh, Andhra Pradesh, Bihar, Chhattisgarh, Chandigarh, Daman & Diu, Haryana, Jharkhand, Jammu & Kashmir, Kerala, Meghalaya, Odisha, Punjab, Puducherry, Telangana, Tripura, Tamil Nadu, Uttar Pradesh, Sikkim, Delhi, Goa, Himachal Pradesh, Assam, Uttarakhand, West Bengal and Andaman & Nicobar. The OCMMS is integrated with DIPP / State Government Single Window System for Twelve (13) States viz. Andhra Pradesh, Chhattisgarh, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Odisha, Tamil Nadu, Telangana, Punjab, Uttarakhand and Himachal Pradesh. The mobile version of OCMMS is implemented in Eight (10) States viz. Andhra Pradesh, Bihar, Delhi, Haryana, Jharkhand, Kerala, Punjab, Tamil Nadu, Chhattisgarh and Himachal Pradesh the same are made available under Play Store. The mobile app for Public Grievance System has been developed for the 5 State of Bihar,

Chandigarh, Delhi, Jharkhand and Punjab.

PARIVESH:

In pursuant to the spirit of 'Digital India' initiated by Shri Narendra Modi, Hon'ble Prime Minister of India and capturing the essence of Minimum Government and Maximum Governance, a Single-Window Integrated Environmental Management System named PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single window Hub) has been launched by Ministry in August 2018.

Based on the concept of web architecture, a workflow based application has been rolled out for online submission, monitoring and management of proposals submitted by Project Proponents to the Ministry of Environment, Forest and Climate Change (MOEFCC), Government of India as well as to the State Level Environmental Impact Assessment Authorities (SEIAA) to seek various types of clearances (e.g. Environment, Forest, Wildlife and Coastal Regulation Zone Clearances) from Central, State and district-level authorities. It automates the entire process of submitting the application and tracking the status of such proposals at each stage of the processing. This system has been designed, developed and hosted on cloud environment by NIC, New Delhi.

This web-based application is unique amongst all such portals of regulatory agencies. This initiative will bring the Ministry closer to the industry and citizens alike. After the introduction of e-communication in the first phase, this is the second phase of reforms towards e-Governance in its real spirit.





Objectives of PARIVESH:

- Enhance efficiency, transparency, and accountability in the Environment, Forest, Wildlife and CRZ clearance processes.
- Sound and informed decision-making
- Enhance responsiveness through workflows automation
- Real time information about the status of applications with alerts at each of the stages through SMS and email
- Efficient and expeditious processing and decision-making leading to reduction in turnaround time
- Standardization in processing and decision-making across the states / UTs
- Enhance ease and convenience of citizens and businesses in accessing information and services
- Real-time monitoring and adherence to timelines for verification
- User-friendly and environmentally sustainable application processes
- Improve environmental monitoring and compliances
- Leading to the era of Mobile Governance with maximum transparency

Benefits:

a. For Project Proponent/User Agency:

- Single registration using NSDL PAN services and single sign-in for all types of clearances (i.e. Environment, Forest, Wildlife and CRZ)
- KYC Authentication for Existing proponent

- Unique-id for all types of clearances required for a particular project
- Single Window interface for the proponent to submit applications for getting all types of clearances (i.e. Environment, Forests, Wildlife and CRZ clearances)
- Helps the user to apply, view, track, interact and respond to the queries whenever he wants and wherever he is through web-based system. No physical interaction with the officers
- Facility to download the e-signed approval letter
- Supplemented by mobile app "PARIVESH" for Android and iOS based smart phones. The status of the application, replies to queries, agenda & minutes of meetings, approval letters can also be accessed/ downloaded anytime on a smart phone through this App
- Dashboard for accessing various analytical reports including charts/ graphs indicating pendency of information, time taken by processing authorities at each level, etc.
- SMS and email alerts at all levels of application processing
- Facility for uploading the compliance reports for clearances. Facility for uploading of geo-tagged images on GIS maps
- Alerts through SMS and emails in case of non-compliances. This will help ensuring timely compliance of clearance conditions





- Improved public image through improved environmental compliances

b. For Processing Authorities:

- A Single Window System for Central, State and District level clearances
- Auto generation of agenda (based on first come first served principle), minutes of the meetings and online generation of approval letters through digital signatures/e-Sign by competent authorities resulting in ease and uniformity in processing of clearance applications
- Accessing of information about the pendency and timeline fulfilments of various applications under consideration
- Online submission and monitoring of compliance reports including geo-tagged images of the site by regulatory body / inspecting officers even through the Mobile App for enhanced compliance monitoring
- Integration with single window clearance systems launched by DIPP and various other state governments
- Processing of files through mobile app will facilitate for expeditious decision-making
- Geographic Information System (GIS) interface for the Appraisal Committee, to help them in analyzing the proposal efficiently
- Dashboard for providing various analytical reports. Help in self-assessment and improved performance

- Efficient and real time review of pendency by higher authorities with facility to review the performance of the processing officers
- Automatic alerts (via SMS and emails) at important stages to the concerned officers, committee members and higher authorities to check the delays, if any
- Automatic alerts in case of non-compliances for clearance conditions – would result into enhanced compliance leading to sustainable development
- Improved public image – from merely a regulator to more of a facilitator

c. For Citizens:

- Enhance ease and convenience of citizens and businesses in accessing information and services
- Availability of details of each project in public domain
- Access to various technical and impact assessment reports, approval letters, etc. through web portal as well as through mobile app
- Timeline for each stage is available in the public domain to bring in transparency and accountability in the system
- Data base sharing will facilitate in research and development activities
- Improved compliance, better environmental quality
- Integration with Green Skill Development Programme-search engine for Green jobs





Modules of PARIVESH:

- Online Registration of Proponent/User Agency
- Workflow / file processing and approval management
- E-File Noting
- Alerts & Notification (SMS and email)
- GIS based Appraisal and Geo-tagging
- Compliance Monitoring for project proponents and regulatory authorities
- Analytical Reports
- Online Agenda Management
- Online Minutes of Meeting
- Query Module for Essential/Additional Details Sought (EDS/ADS)
- Generation of Approval letters for TOR/EC/FC/Wildlife/CRZ clearances
- Dashboard for project proponents, processing authorities and citizens
- E-Green skilled jobs
- Audit Trail
- FAQ

Android and iOS based Mobile Application

“PARIVESH”: The web portal is supplemented by Android and iOS based mobile application named “PARIVESH” to facilitate the user Agencies/Project Proponents to easily track and view the current status of their proposals, reply the queries of processing authorities, accessing the agenda and minutes of the appraisal meetings as well as accessing to the clearance letters, etc. at their palm.

This app also helps in compliance monitoring by the processing authorities, which can be done by uploading geo-tagged images of the

location of the project which would help in appraisal process.

13.6 Right to Information (RTI) Cell:

- As per the RTI-MIS portal, the MoEF&CC has received 3019 RTI applications and 242 RTI appeals under RTI Act, 2005 during the year 2021 (01.01.2021 to 07.12.2020)
- The Ministry has 83 CPIO's and 67 FAA's to dispose of the above RTI's.
- Both online and offline applications/appeals that are received in the Ministry as well as in the designated counter at MoEF&CC, IPB, New Delhi are regularly updated and up-linked and forwarded to the respective CPIO/FAA based on the subject matter.
- 26 CIC appeals were disposed and orders were implemented in the Ministry by the respective Divisions.
- The Central Public Information Officers (CPIOs) and First Appellate Authorities (FAAs) have been designated for effective implementation of the RTI Act, 2005. The notifications designating CPIOs/FAAs are revised periodically as and when there are changes in the allocation of work among CPIOs/FAAs. All the Subordinate offices/Institutions/Autonomous bodies were requested to periodically revise the Notification for CPIOs/FAAs.
- Directions from the Central Information Commission (CIC) and the Nodal Ministry/ Department – DoPT are also circulated to the CPIOs/FAAs for guidance to implement the RTI Act.





- Periodical reports are also sent regularly to DoPT and Central Information Commission.

13.7 General Administration (GA) Section

The General Administration (GA) Division of the Ministry is entrusted with the responsibility of providing logistics and support services to senior officers and staff for discharging their duties and smooth functioning of the Office. It includes procurement and supply of stationery, maintaining stores, disposal of obsolete materials, equipments, support services to the officials of the Ministry including provision of transport, communication and general upkeep etc. the Ministry is housed in a green building at Jor Bagh Road, New Delhi which is a green building. It has the unique distinction of getting LEED India Platinum & GRIHA-5 Star Green Building ratings.

Important activities undertaken during the reference during the period (i.e. 01.01.2021 – 31.12.2021)

- Cleanliness of the premises of Indira Paryavaran Bhawan during Swachhta Abhiyan.
- Arranged Vaccination for COVID-19 for the employees of the Ministry

Progress/Achievements

- Appx. 1100 files were reviewed and 650 file were weeded out.
- All obsolete articles/E-west items were weeded out in the month of November, 2021
- Total nine(9) tonnes paper was disposed in special cleaning drive campaign.
- Approximate 2000 sq. ft. total storage

space was made free in cleaning drive campaign.

- NDMC Awarded IPB, MoEF&CC second position under “Swachh Bharat Abhiyan” in best clean office category.
- Migration of land line phones of IPB from copper wire to FTTH
- Kitchen work of IPB completed through CPWD and handed over to M/s Bikano for functional run.

Challenges in work due to COVID – 19 and the response of the Division:

The General Administration (GA) Division has faced lot of challenges due to spreading of COVID-19. GA Division responded and made its best efforts as precautionary measures to contain the spread of COVID-19 as per instructions issued by Ministry of Health & Family Welfare, Ministry of Home Affairs and Department of Personnel and Training, as detailed below:

- Provided automated sanitiser dispenser on every wing of every floor of Indira Paryavaran Bhawan of this Ministry
- Provided sanitizer and Masks to the Officers and employees of the Ministry
- Complete indoor disinfection of I.P. Bhawan on alternate days basis till date
- Arranged Covishield Vaccination for Covid-19 for all the officers/officials of this Ministry.
- Arranged vehicles for the officers/ employees of this Ministry who had to attend office during the Lockdown period.
- Arranged VCs/virtual meetings of Hon’ble





MEF/Hon'ble MOS, EF&CC during the lock down period.

13.8 Public Grievance Cell

- The Public Grievance Cell has been functioning in the Ministry of Environment, Forest and Climate Change to attend to the complaints from general public regarding various issues like environment, wildlife, forestry and other environmental matters.
- **Shri Jigmet Takpa, Joint Secretary** is the Nodal Public Grievance Officer for General Public Grievance & COVID-19 related cases.
- **Smt. Rita Khanna, Scientist 'G' is the Nodal Appellate Authority** for appeal raised against disposed Public Grievance of the Ministry.
- During the period **1st January, 2021 to 3rd December, 2021**, the PG Cell had received only **3982 and 130** Grievances brought forward from last year total Grievances are **4112** (including COVID-19 cases), out of these **4008** grievances are General nature and **104** grievances are related to **COVID-19**.
- During the period, **3936** grievances (including COVID-19 related grievances) have been disposed and only **176** grievances are pending for disposal. As on date, no COVID-19 related grievance is pending in the Ministry.
- During the Period, **197** Appeal has been received in the Ministry out of these **180** Appeal have been disposed off and only **17** Appeals are pending for disposal.
- The rate of disposal of Grievances and Appeals received is **100% (approx.)**.

Efforts are being continued by the PG Cell to raise the disposal rate to 100% by issuing periodic reminders to the Divisions/ Sections concerned for early disposal of pending grievances, and to strive towards Zero pendency of grievances.

- Weekly review meetings are being conducted regularly by both Hon'ble Minister and Secretary, EFCC for the importance of redressal of all Public Grievances, COVID-19 related case and Appeals raised against disposed grievances received in the Ministry to achieve 100% disposal of all Public Grievance, COVID-19 related cases and Appeal well within the stipulated time frame.

13.9 Implementation of Official Language Policy

Sustained efforts were made to ensure proper compliance of the Official Language Policy of the Union as enshrined in the Constitution of India, the Official Languages Act, 1963 (As amended, 1967), the Official Language Rules, 1976 (as amended 1987, 2007 & 2011), the Annual Programme and orders issued by the Govt. of India from time to time. All documents coming under the purview of Sec 3(3) of the O.L. Act, such as General Orders, notifications, Press Communiques/Releases, Resolutions, Rules Official Papers laid before a House or both the Houses of Parliament etc. were translated, typewritten, vetted and thereafter got issued bilingually in Hindi and English. The letters received in Hindi and representations/appeals signed in Hindi were replied to in Hindi ensuring 100% compliance of Rule 5 and Rule 7 (2) of the O.L. Rules.





Activities undertaken (01.01.2021 to 31.12.2021) :

- Meeting of Official Language Implementation Committee – Due to Covid-19 only three quarterly meetings of Official Language Implementation Committee were organized under the chairmanship of Scientist 'G' (O.L. Incharge) wherein position of implementation of Official Language Policy in the Divisions/ Sections of the Ministry as well as the subordinate offices located in Delhi-NCR region were reviewed. The remaining one meeting will be adjusted with following year Quarterly OLIC Meetings.
- Hindi Workshops- Hindi workshops were organised for the officers and staff to enable them to carry out their day to day work in Hindi. In these Hindi workshops, the personnel were imparted training on typing in Unicode to Hindi for working in Hindi as well as informing them about the official language policy and related orders.
- Inspections- To review the implementation status of the Official Language Policy of the Union and to meet the targets set out in the Annual Program issued by the Department of Official Language, Ministry of Home Affairs, the Director (Official language) or other officials of the Ministry inspected 05 attached/subordinate offices under the administrative control of the Ministry of Environment, Forest and Climate Change.
- Medini Award Scheme - To promote writing of books originally in hindi on environment issues 'Medini Award Scheme' was reintroduced in April, 2018 by the Ministry.

Under the scheme implemented for the year 2021, all the books received for the Award were studied and evaluated by the Evaluation Committee constituted under the chairmanship of Additional Secretary, Ministry of Environment, Forest and Climate Change. A sub-committee of subject experts was constituted by the Committee. By whom the books received are being checked according to the prescribed parameters. It is expected that under this scheme, Prizes will be awarded in this financial year.

- Publication of Paryavaran Magazine– Publication work of 70th edition of Ministry's Hindi magazine 'Paryavaran', is in final stage.
- Hindi Maah– This year Hindi Maah was organized in the Ministry from 01.09.2021 to 30.09.2021. During this period, 06 Hindi competitions were organized with the objective of increasing the progressive use of official language Hindi. Employees of the Ministry, NAEB and CCU actively participated in these competitions. Prize distribution and closing ceremony was organized on 30th September, 2021 under the chairmanship of Hon'ble Minister of State for Environment, Forest and Climate Change. A Kavya Goshti was also organized during this ceremony. Award winning officers and employees were given citations by the Hon'ble Minister.

13.10 Civil Construction Unit

The Government of India decided that every major scientific department with substantial annual civil work budget should have a civil





engineering unit of its own for expeditious implementation of works connected with plan schemes. Accordingly, Civil Engineering Wing (now Civil Construction Unit) was created in March, 1987 in the then Ministry of Environment and Forests (now MoEF&CC). CCU headed by Chief Engineer is a division under the administrative control of the MoEF&CC. The main roles of CCU are:

- i. Planning of works including preparation of estimates in house and vetting of estimates prepared by other PWOs.
- ii. To construct major works in house or get these constructed through other PWOs.
- iii. Technical Advisor in the construction works of the Ministry.

The provisions of CPWD Code / Works Manual apply to such works. All proposals relating to policy matters of CCU are submitted to the Secretary, MoEF&CC.

Functions of the Division: The CCU is engaged

in execution of various Civil & Electrical works of the MoEF&CC, its attached, subordinate and autonomous offices. These include works of BSI, FSI, ZSI, DFE, NMNH, IGNFA, ICFRE, NZP, IIFM, GBPIHED, IPIRTI, CPCB, WII and CZA. Most of the construction works where CCU has its own set up are executed by CCU. However, construction works at other locations are got executed through CPWD. The co-ordination and budget management of works executed by CPWD is being done by CCU. The maintenance works of NZP, Delhi are also handled by the CCU.

Challenges in works due to COVID-19:

COVID-19 pandemic has affected the availability of manpower and material which has impacted the progress of infrastructure works. The executing agencies are being pursued to follow proper COVID protocol and ensure wellbeing of the manpower to achieve the required progress.

Activities Undertaken:

A. Work in Progress:

S. No.	Name of Work	Sanctioned Amount (Rs. in Lakhs)	% Progress	Target Date of Completion
1	Construction of Regional Museum of Natural History, Gangtok.	5759	87%	31.12.2022
2	Construction of National Museum and State of Art Auditorium for EBRC, ZSI, Gopalpur.	1108	60%	31.03.2022
3	Construction of residential quarters for CASFOS, Burnihat.	1143	98%	31.12.2021
4	Construction of staff quarters at RMNH, Sawai Madhopur.	274	50%	31.03.2022
5	Construction of visiting scientist hostel for ZSI, Port Blair.	271	40%	30.06.2022
6	Construction of Addl. building for lab cum training center for ZSI, Chennai.	686	1%	31.12.2022
7	Construction of Ganga Aqualife Knowledge Management Centre, WII, Dehradun.	542	30%	31.08.2022





S. No.	Name of Work	Sanctioned Amount (Rs. in Lakhs)	% Progress	Target Date of Completion
8	Renovation work in for 3D visualization and Analytical lab in the GBPNIHED, Almora	244	60%	30.04.2022
9	Construction of residential quarters at AZRC, Jodhpur	520	1%	16.08.2022
10	Construction of boundary wall for CASFOS at Burnihat, Assam.	437	5%	31.12.2022
11	Construction of CC Road with retaining wall at CASFOS, Burnihat, Assam.	390	15%	30.06.2022
12	Renovation of existing trainees hostel for CASFOS, Burnihat, Assam.	315	5%	31.12.2022

B. Work under Planning

S. No.	Name of Work	Sanctioned Amount (In Lakhs)
1	Consultancy services for redevelopment of BGIR, Noida.	500
2	Construction of Residential Quarters, Hostels, Auditorium and Administrative Block, GBPNIHED Srinagar, Uttarakhand.	4464
3	Construction of Multipurpose hall for IGNFA, Dehradun	531
4	Construction of residential quarters for Regional Office of MoEF&CC, Dehradun.	817

C. Work Completed

S. No.	Name of Work	Sanctioned Amount (In Lakhs)
1	Providing CCTV surveillance system at NZP Mathura Road.	520
2	Construction of All Weather Swimming Pool for IGNFA, Dehradun.	1500



Swimming Pool, IGNFA, Dehradun



CCTV, NZP, New Delhi





CHAPTER

14

Development Monitoring & Evaluation, Budget and Accounts





14.1 Development Monitoring & Evaluation

The Development, Monitoring and Evaluation Division (DMED) have a mandate associated with the Development, Monitoring, and Evaluation Office (DMEO) in NITI Aayog. It also functions towards convergence of efforts through Government Funded Programmes to achieve Sustainable Development Goals (SDGs) and Nationally Determined Contributions (NDCs).

II. Mandate:

The work of DMED is detailed as under:

- i. To carry out monitoring and impact Evaluation of the Ministry's funded programmes.
- ii. To focus on outcomes and take them into account during appraisal for continuation of the ongoing schemes.
- iii. To constitute Evaluation Monitoring Committee (EMC).
- iv. Coordination with NITI Aayog.
- v. Nodal Division for coordination with Ministry of Panchayatiraj(MoPR).

III. Progress in the FY 2021-22:

- i. NITI Aayog in collaboration with respective Ministry/Department has been preparing Output-Outcome Monitoring Framework (OOMF) for all CS/CSS schemes, with a view to bring focus on outcomes in addition to output and same has also been institutionalized through its incorporation

in Union Budget, since financial year 2019-20.

- ii. To facilitate the monitoring of progress of all Schemes, NITI Aayog had developed a dashboard and its online access had been given to all Ministries/Departments in May,2018 to regularly update the progress against the targets.
- iii. DMED coordinates with Scheme/ Programme Divisions to ensure that the progress report of quarterly targets for FY2021-22 in respect of schemes under OOMF are sent to NITI Aayog. The quarterly break-up of targets in respect of schemes is being coordinated with Schemes/ Programme Divisions for uploading the quarter-wise progress on the OOMF dashboard of NITI Aayog.
- iv. DMED has collected information from Scheme/Programme Divisions for preparation of OOMF for FY 2022-23. The compiled OOMF 2022-23 has been prepared in respect of MoEFCC and sent to NITI Aayog.

14.2 Budget and Accounts

Budget Division is entrusted with the planning and coordination of all Schemes and Non-schemes of the Ministry. It functions as the nodal Division for issues and matters related to Ministry of Finance (Department of Economic Affairs' Budget Division and the Department of Expenditure). The work handled in the Division covers preparation, monitoring and





review of the Ministry's Annual Plans and the tasks associated with the Union Budget of the Ministry. The responsibility of monitoring of the progress in utilization of allocated funds released for implementation of various Schemes is also assigned to the Division. The work of the Budget Division is detailed as under:

- Preparation of Statement of Budget Estimates (SBE), Revised Estimates (RE), Supplementary and Re-appropriation proposals
- Preparation of Detailed Demands for Grants (DDG)
- Preparation of Saving Note

- Coordination with Department-related Parliamentary Standing Committee
- Compliance of Cash Management (MEP/QEP)
- Monitoring of Expenditure
- Allocation of funds under Advances to Government Servants

Annual Plan 2021-22

The Ministry has been allocated an outlay of Rs 2869.93 crore in the Budget Estimates (BE) for the Financial Year 2021-22.

The financial outlays and expenditure during 2021-22 is given in the following table:

Umbrella Scheme-wise Allocation (2021-22)

(Rs in crore)

S. No.	Name of the Scheme	BE 2021-22	AE 2021-22 (upto 25.01.2022)
1	Environmental Knowledge and Capacity Building (CS)	70.00	62.40
2	Environment Protection, Management and Sustainable Development (CS)	136.00	73.57
3	National Coastal Management Programme (CS)	200.00	14.87
4	Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation (CS)	117.13	53.13
5	Control of Pollution	470.00	239.71
6	National Mission for a Green India (CSS)	290.00	221.79
7	Integrated Development of Wildlife Habitats (CSS)	414.00	259.26
8	Conservation of Natural Resources and Ecosystems (CSS)	62.00	16.67
Total		1759.13	941.42

CS-Central Sector Scheme
CSS-Centrally Sponsored Scheme





Umbrella Non Scheme-wise Allocation (2021-22)

(Rs in crore)

S. No.	Name of the Scheme	BE 2021-22	AE 2021-22 (upto 25.01.2022)
1	Secretariat	147.82	114.57
2	Attached/ Subordinate offices	486.48	329.82
3	Assistance to Autonomous Bodies	305.50	240.06
4	Statutory & Regulatory Bodies	160.50	113.52
5	Others Bodies	10.50	5.28
Total		1110.80	803.25
Grand Total (Scheme + Non Scheme)		2869.93	1744.67

List of pending C&AG Paras (up to 8th December, 2021)

SL. No.	Report No. & Year	Para No.	Brief Subject
1	21 of 2012-13	1-7	Report on Compensatory Afforestation in India
2	27 of 2014	6.3	Wasteful expenditure on hiring of office accommodation
3	39 of 2016	Entire Report	Environment and Sustainable Development
4	6 of 2020	7.1	Additional expenditure on electricity charges consumed for residential purpose.(NZP)

Office of Chief Controller of Accounts: The role of this Office is to advise and assist the Ministry on matters relating to Budget, Expenditure Management, Accounting, Establishment

Matters and Personal claims of the employees. The Accounting Organization in the Ministry under Chief Controller of Accounts includes the Principal Accounts Office, 02 Pay and Accounts





Offices (PAOs) and 75 Drawing and Disbursing Offices (DDOs).

The Principal Accounts Office (Pr.AO) is entrusted with the responsibility of maintaining accounts of the Ministry, monitoring expenditure to ensure adherence to Monthly/Quarterly Expenditure Plan, conducting Internal Audit and Scheme Audit, and monitoring of assets and liabilities.

The Internal Audit Wing (IAW) conducts Internal Audit of PAOs, DDOs, Autonomous Bodies, and performance audit of schemes of the Ministry. In FY 2020-21, due to difficulty in conduct of physical audit posed by the COVID-19 pandemic and lockdown, 7 regular audits, 1 special audit, and 1 scheme audit was conducted raising 21 paras involving non-recovery/over-payment/infructuous/irregular/non-accounting of payments of more than Rs. 28 crores. To overcome this challenge, this Office initiated preparatory activities for conduct of e-audit through analysis of reports generated from Public Financial Management System (PFMS).

The PAO is responsible for processing payments while ensuring adherence to budgetary and expenditure ceilings and norms of financial propriety. It is also responsible for ensuring just-in-time release of funds digitally through PFMS to all beneficiaries/vendors/agencies, while ensuring that no idle money remains parked with grantee bodies. PFMS has also been implemented in all CDDOs of

the Ministry. Further, online collection of non-tax receipts through Non-Tax Receipts Portal (NTRP) has eliminated delay and digitized the receipts. Details of digital transactions made during 2020-21 are as under:

Total Payment/receipt transactions (no.)	79,222
Digital payment/receipt transactions (no.)	76,154

Pension processing has been digitized through linkage of online Pension Sanction and Payment Tracking System- BHAVISHYA with PFMS. This has facilitated the retiring employee to fill the forms online and the Administrative Authority to process the online claim and communicate to PAO for issuance of Pension Payment Order (PPO).

Employee Information System (EIS) has been successfully implemented in NCDDOs/CDDOs under the Ministry for processing personnel payments.

GPF module of PFMS has been successfully implemented in the Ministry which has made it convenient to monitor GPF account by subscriber themselves.

The roll-out of Expenditure, Advance & Transfer (EAT) module for implementing agencies receiving Grants-in-aid, has enabled better monitoring of unspent balances and outstanding UCs.

State/UT share of more than Rs. 52,000 Cr. of CAMPA fund have been transferred to





respective State/UT Government accounts till date.

During the COVID-19 pandemic and lockdown, Pay and Accounts Offices, being an essential service, worked daily to ensure that all payments were disbursed timely.

In order to minimize the risk posed by physical papers/files, and to enable Work from Home, relaxations made by Controller General of Accounts, Ministry of Finance, in the Receipt & Payment Rules, 1983, were followed by this office.





Annexures to the Report





List of pending C& AG Paras (up to 8th December, 2021)

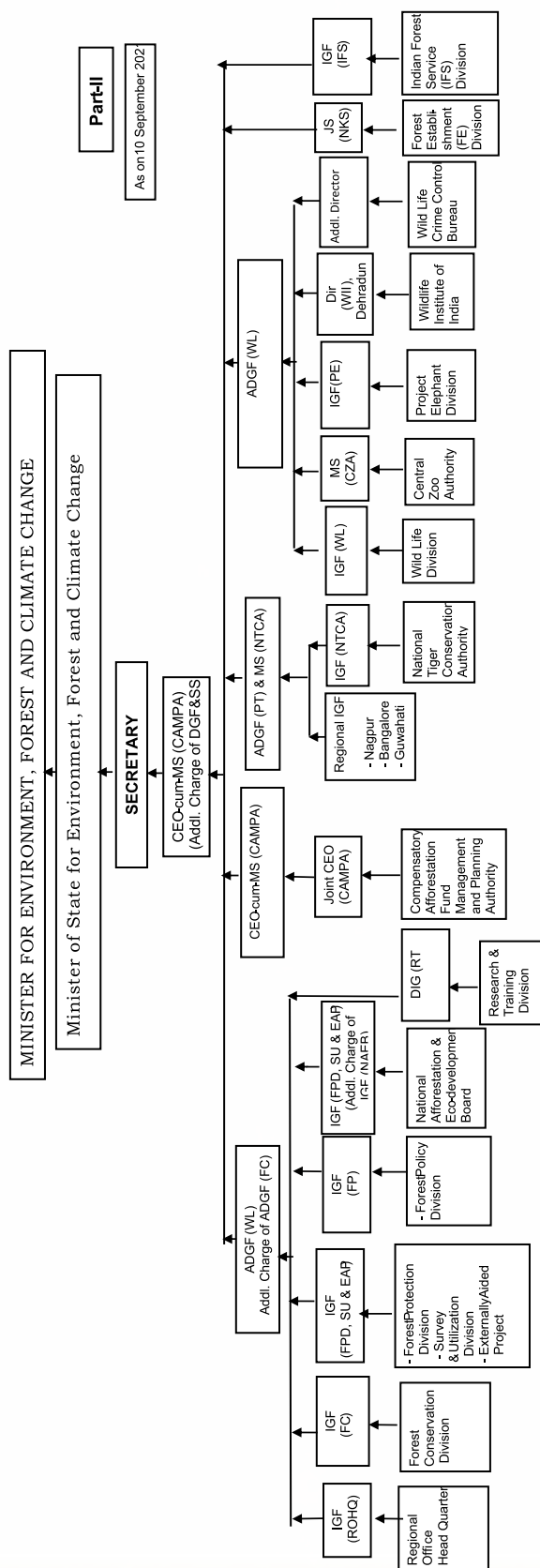
SL. No.	Report No. &Year	Para No.	Brief Subject
1	21 of 2012-13	1-7	Report on compensatory Afforestation in India
2	27 of 2014	6.3	Wasteful Expenditure on hiring of office accommodation
3	39 of 2016	Entire Report	Environment and Sustainable Development
4	6 of 2020	7.1	Additional Expenditure on electricity charges consumed for residential purposes. (NZP)





Annexure-III

ORGANISATIONAL STRUCTURE OF MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (DIVISIONS UNDER FOREST & WILDLIFE WINGS)





Annexure-IV

RAMSAR SITES OF INDIA (as on 16th December 2021)

	State/UT		Wetland	Date of Designation	Co-ordinates	Area (hectares)
1	Andhra Pradesh	1	Kolleru Lake	19-08-2002	16°37'N 081°12'E	90100
2	Assam	2	Deepor Beel	19-08-2002	26°07'N 091°39'E	4000
3	Bihar	3	Kabartal Wetland	21-07-2020	25°37'N 086°08'E	2620
4	Gujarat	4	Nalsarovar	24-09-2012	22°46'N 072°02'E	12000
		5	Wadhvana Wetland	05-04-2021	22°10'N 73°29'E	630
		6	Thol Lake Wildlife Sanctuary	05-04-2021	23°08'N 72°24'E	699
		7	Renuka Wetland	08-11-2005	31°37'N 077°27'E	20
5	Haryana	7	Sultanpur National Park	25-05-2021	28°27'N 76°53'E	143
		8	Bhindawas Wildlife Sanctuary	25-05-2021	28°32'N 76°33'E	412
6	Himachal Pradesh	9	Chandertal Wetland	08-11-2005	32°28'N 077°36'E	49
		10	Pong Dam Lake	19-08-2002	32°01'N 076°04'E	15662
		11	Renuka Wetland	08-11-2005	31°37'N 077°27'E	20
7	Jammu and Kashmir	12	Hokera Wetland	08-11-2005	34°04'N 074°42'E	1375
		13	Surinsar-Mansar Lakes	08-11-2005	32°45'N 075°12'E	350
		14	Wular Lake	23-03-1990	34°16'N 074°33'E	18900
8	Kerala	15	Asthamudi Wetland	19-08-2002	08°57'N 076°34'E	6140
		16	Sasthamkotta Lake	19-08-2002	09°01'N 076°37'E	373
		17	VembanadKol Wetland	19-08-2002	09°49'N 076°45'E	151250
9	Ladakh	18	Tso Kar Wetland Complex	17-11-2020	33°17'N 78°00'E	9,577
		19	Tsomoriri Lake	19-08-2002	32°54'N 078°18'E	12000
10	Madhya Pradesh	20	Bhoj Wetlands	19-08-2002	23°13'N 077°19'E	3201
11	Maharashtra	21	Lonar Lake	22-07-2020	19°58'N 076°30'E	427
		22	Nandur Madhameshwar	21-06-2019	20°01'N 074°06'E	1437
12	Manipur	23	Loktak Lake (MR)	23-03-1990	24°25'N 093°49'E	26600
13	Odisha	24	Bhitarkanika Mangroves	19-08-2002	20°39'N 086°54'E	65000
		25	Chilka Lake	01-10-1981	19°42'N 085°21'E	116500





	State/UT		Wetland	Date of Designation	Co-ordinates	Area (hectares)
14	Punjab	26	Beas Conservation Reserve	26-09-2019	31°23'N 075°11'E	6429
		27	Harike Lake	23-03-1990	31°13'N 075°12'E	4100
		28	Kanjli Lake	22-01-2002	31°25'N 075°22'E	183
		29	Keshopur - Miani Community Reserve	26-09-2019	32°05'N 075°23'E	344
		30	Nangal Wildlife Sanctuary	26-09-2019	31°23'N 076°22'E	116
		31	Ropar Lake	22-01-2002	31°01'N 076°30'E	1365
15	Rajasthan	32	Keoladeo Ghana National Park (MR)	1-10-1981	27°13'N 077°31'E	2873
		33	Sambhar Lake	23-03-1990	27°00'N 075°00'E	24000
16	Tamil Nadu	34	Point Calimere Wildlife and Bird Sanctuary	19-08-2002	10°19'N 079°37'E	38500
17	Tripura	35	Rudrasagar Lake	08-11-2005	23°28'N 091°16'E	240
18	Uttar Pradesh	36	Nawabganj Bird Sanctuary	19-09-2019	26°36'N 080°39'E	225
		37	Parvati Arga Bird Sanctuary	02-12-2019	26°56'N 082°09'E	722
		38	Saman Bird Sanctuary	02-12-2019	27°00'N 079°10'E	526
		39	Samaspur Bird Sanctuary	03-10-2019	25°59'N 081°23'E	799
		40	Sandi Bird Sanctuary	26-09-2019	27°18'N 079°58'E	309
		41	Sarsai NawarJheel	19-09-2019	°58'N 079°15'E	161
		42	Sur Sarovar	21-08-2020	27°15'N 077°50'E	431
		43	Upper Ganga River	08-11-2005	28°33'N 078°12'E	26590
		44	Haiderpur Wetland	08-04-2021	29°24'N 78°00'E	6908
19	Uttarakhand	45	Asan Conservation Reserve	21-07-2020	30°26'N 077°40'E	444
20	West Bengal	46	East Calcutta Wetlands	19-08-2002	22°27'N 088°27'E	12500
		47	Sunderbans Wetland	30-01-2019	21°46'N 088°42'E	423000
20 States & UTs		47 Ramsar Sites			Total Area = 10,90,230 hectares	

MR: Montreux Record





INDIRA PARYAVARAN BHAWAN





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