



सत्यमेव जयते

Annual Report 2020-21



Government of India

Ministry of Environment, Forest and Climate Change





ANNUAL REPORT 2020-21



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



CONTENTS

Sl. No.	Chapter	Page No.
	Abbreviations	v
	Role and Mandate of the Ministry	vii
1	Natural Resources Survey and Exploration	
1.1	Zoological Survey of India	2
1.2	Botanical Survey of India	7
1.3	Survey and Utilization	13
2	Conservation	
2.1	Biodiversity Conservation	28
2.2	Conservation and Management of Mangroves & Coral Reefs	36
2.3	Biosphere Reserves	39
2.4	Biosafety	40
2.5	All India Coordinated Project on Capacity Building in Taxonomy	42
2.6	Assistance to Botanical Garden	44
2.7	Forest Conservation	45
2.8	Compensatory Afforestation Fund Management and Planning Authority	49
2.9	Forest Establishment	52
2.10	Forest Policy	54
2.11	Forest Protection	56
2.12	Wildlife Conservation	57
2.13	Wildlife Crime Control Bureau	64
2.14	Central Zoo Authority	75
2.15	Project Elephant	80
2.16	Project Tiger/National Tiger Conservation Authority	84
2.17	National Plan for Conservation of Aquatic Eco-system	85
3	Environmental Impact Assessment	
3.1	Environmental Impact Assessment	90
3.2	Coastal Regulation Zone	94
3.3	Society of Integrated Coastal Management	96



4	Abatement of Pollution	
4.1	Control of Pollution	104
4.2	Central Pollution Control Board	110
4.3	Hazardous Substances Management	123
4.4	Development & Promotion of Clean Technology and Waste Management Strategies	129
5	Regeneration and Eco-development	
5.1	National Afforestation and Eco-development Board	132
5.2	National Mission for a Green India	139
6	Research	
6.1	Research in Environment	144
6.2	Eco-sensitive Zone	145
6.3	National Natural Resource Management System	151
6.4	G.B. Pant National Institute of Himalayan Environment and Sustainable Development	152
6.5	National Mission on Himalayan Studies	160
6.6	Forestry Research	165
6.7	Wildlife Institute of India	202
7	Education and Awareness	
7.1	Environment Education, Awareness and Training	210
7.2	Swachh aur Swastha Bharat Cell	215
7.3	Media Cell	219
7.4	National Museum of Natural History	221
8	Centre of Excellence	225
9	Environmental Information	
9.1	Economic Division	234
9.2	Statistics Division	244
9.3	SDG Co-ordination Unit	244
9.4	Non-Governmental Organization Cell	247
10	Legislation and Institutional Support	
10.1	Policy and Law	250
10.2	National Green Tribunal	250



11	Climate Change	
11.1	Climate Change	254
11.2	Ozone Layer Protection	261
11.3	United Nations Convention to Combat Desertification	268
12	International Cooperation	
12.1	International Cooperation	272
12.2	Externally Aided Projects	280
13	Administration and Civil Construction	
13.1	Administration	284
13.2	Indian Forest Service Cadre Management	286
13.3	Vigilance Division	287
13.4	Parliament Section	288
13.5	Information Technology and e-Governance	290
13.6	Right to Information Cell	295
13.7	General Administration Section	295
13.8	Public Grievance Cell	296
13.9	Implementation of Official Language Policy	296
13.10	Civil Construction Unit	297
14	Development Monitoring & Evaluation, Budget and Accounts	
14.1	Development Monitoring & Evaluation Division	300
14.2	Budget and Accounts	301
15	Annexure	
Annexure-I	List of pending C&AG Paras	305
Annexure-II	Organization Structure (Environment Sector)	306
Annexure-III	Organization Structure (Forestry & Wildlife Sector)	307
Annexure-IV	List of Wetlands of International Importance in India under Ramsar Convention	308



Abbreviations

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



Ministry of Environment, Forest and Climate Change



SOER	: State of Environment Report	UNEP	: United Nations Environment Programme
STP	: Sewage Treatment Plants	WCCB	: Wildlife Crime Control Bureau
TOF	: Trees Outside Forest	WGEEP	: Western Ghat Ecology Expert Panel
UNCCD	: United Nations Convention to Combat Desertification	WHC	: World Heritage Conservation
UNDP	: United Nations Development Programme	WII	: Wildlife Institute of India
		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 jalvaayu 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 (ZSI)

The Zoological Survey of India (ZSI) is a premier research organization functioning under the Union Ministry of Environment, Forest and Climate Change. ZSI has been actively involved since its inception in 1916, in the survey, exploration and research leading to the expansion of our knowledge on the immensely rich faunal diversity of our country. 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

- Taxonomic studies of all faunal components collected.
- Periodic review of the Status of Threatened and Endemic species.
- Preparation of Red Data Book,.
- Bioecological studies on selected important communities/species.
- Preparation of databases for the recorded species of the country.
- Maintenance & Development of National Zoological Collections.
- Faunal Identification, Advisory services and Library Services.
- Publication of results including Fauna of India and Fauna of States.
- Training, Capacity Building and Human Resource Development for the above

Secondary objectives

- Maintenance and Development of Museum at Headquarters and Regional Centres.

- Development of ENVIS and CITES Centers.
- Research Fellowship, Associateship and Emeritus Scientist Programmes.
- Collaborative research programmes on Biodiversity with other Organizations.
- GIS and Remote Sensing studies for animal diversity as well as for selected threatened species.
- Chromosomal Mapping and DNA finger printing.



Pachliopta hector Linnaeus, 1758



Oriental Darter, Anhinga melanogaster (Pennant, 1769)

Activities undertaken

- **Faunal Surveys:** 70 surveys have been completed during the period: 18 surveys were conducted in different Protected Areas; 10 were conducted in States and Union Territories; 27 in different



ecosystems; 3 status surveys of endangered species, 8 surveys for Taxonomic studies were undertaken and four x other studies and 4 surveys were undertaken for ecological studies.

- **Species Identification:** 6777 species belonging to different faunal groups from Protozoa to Mammalia have been identified.
- **New Discoveries:** 118 new species described comprising 5 new species of Nematoda, 13 Hymenoptera, 4 Coleoptera, 15 Hemiptera, 7 Orthoptera, 18 Lepidoptera, 11 Trichoptera, 5 Collembola, 6 Arachnida, 4 Crustacea, 14 Pisces, 4 Amphibia, 6 Reptiles and one species each under Ephemeroptera, Thysanoptera, Odonata and Echinodermata.
- **Publications:** 385 publications include 19 Books, 75 papers in SCI journals, 101 chapters in Books and 190 papers in peer reviewed National and International journals. Four issues of Records ZSI journal with 69 articles were also published.
- **Digital Sequence Information (DSI) on Indian Fauna:** To resolve the taxonomic queries as well as barcoding of the new and RET species, 879 DNA barcodes of 201 species have been submitted on BOLD and GenBank. It comprises 266 barcodes of Mammals, 2 for Birds, 147 for Reptiles, 135 for Fishes, 2 for Amphibia, 98 for Lepidoptera, 92 for Thysanoptera, 19 for Araneae, 27 for Crustacea and 91 barcodes for Zooplankton.
- **Training and Extensions:** Outreach

activities in the form of workshop trainings and seminars were provided to more than 200 students and researchers. Outreach activities continued despite the Covid pandemic and more than 40 webinars were conducted to disseminate knowledge on various topics pertaining to biodiversity conservation.

- **Identification and advisory services:** 3349 specimens were received for providing identification from 79 Institutes /colleges. They were identified belonging to 524 species.
- **Wildlife Forensics and Crime Control:** 348 specimens of confiscated wildlife material received from 15 departments have been identified.

Some interesting and significant studies undertaken:

- Mapping the biological corridors of threatened vertebrates using Landscape genetics approach.
- Metagenomics in conservation of charismatic species.
- **Pangolin forensics:** ZSI has taken initiative and developed methodologies to confirm the species identity, enumerate numbers and assign seizures to their geographical origin to better understand the poaching pressure and threats for the survival of pangolin species across the distribution.
- **Evolution of SARS-CoV-2 into several mutants and their differential spread:** Scientists of ZSI undertook analysis of corona virus genomes and demonstrated



the introduction of early wave of corona virus into India from Italy, China and Iran.

- **Forest fire impacts on fauna:** A pilot study is under implementation to document the impacts of forest fire on fauna in North-Eastern State of Mizoram.



Acanthurus leucosternon Bennett, 1833

Progress/Achievements

- **Species Identifications:** So far, about 102161 species of animals have been documented. During the reference period a total of 6777 species have been identified by the scientists of ZSI Headquarters and Regional Centers.
- **Publications:** Altogether 1,550 documents (Books and monographs) and 10,500 scientific papers have been published by ZSI till 2016; of which, over 170 documents and 2300 scientific papers have been published during the last five years. During the reference period, 385 publications have been completed.
- **Digital Sequence Information (DSI) of important Taxa:** ZSI is enriching the information on DNA barcodes and solving many taxonomic queries and generated

- **Geo-spatial studies:** The ZSI has implemented a number of geo-spatial modelling studies including the mapping of biological corridors, landscape change analysis, climate change risk modelling for several studies of Himalayan as well as other areas.



Antilope cervicapra Pallas 1766

5054 barcodes. During the reference period 879 DNA barcodes have been submitted to BOLD/GenBank.

- **New Discoveries:** 5054 new species have been described by the scientists of ZSI since its inception. Another 118 new species have been described during the reference period.
- **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, Sundarbans West Bengal., Gulf of Kutch and Sindhudurg, Maharashtra for the last five years.
- **International Participation:** ZSI scientists have actively participated in several international meetings, symposia etc.



which includes 13th International Coral Reef Symposium at Honolulu, Regional Joint Preparatory Meetings for CITES and CBD Meetings of COP, IUCN-World Conservation Congress 2016, 17th Conference of Parties to the CITES, COP-22-UNCCC, COP-13 & CoP-MoP-2 on CBD, 29th Meeting of the Animals Committee under CITES, Indian Scientific Expedition to Arctic, IPBES expert group meeting, 30th meeting of the Animals Committee (AC30) of the CITES and Arctic Expedition, 8th International Barcode of Life Conference, 18th meeting of the Conference of the Parties to CITES (CoP18) and 2019 International Symposium on Galliformes.

- This year's participation include IUCN Shark Specialist Group, Deep-Sea Red List Workshop at Vancouver, Canada, ICRI/GCRMN Regional Workshop for South Asia Sea Region (SASR) and 4th Annual Meeting in Conservation Genetics - from Genomes to Application.
- **Training and Extension:** Outreach activities in the form of workshop trainings and seminars were provided to more than 200 students and researchers during the reference period. Outreach activities continued despite the Covid pandemic and more than 40 webinars were conducted to disseminate the knowledge on various topics as mentioned below:

Workshop Trainings/Seminar

- Orientation Workshop on Methodology for Collection, Preservation and Curation of Zoological Specimens for Biodiversity Studies,

- National Workshop on Taxonomic Identification of Indian Bees
- Hands-on Training Workshop on Animal Taxonomy
- Bio-Rock using Electricity
- Faunal Diversity of Indian Trans Himalayan landscape

Webinars

- Beetle (Insecta: Coleoptera) Diversity of India
- Ozone for life: 35 years of ozone layer protection
- International Day for the Conservation of the Mangrove Ecosystem
- In perpetual Darkness: The Amazing World of cave Animals
- Island Biodiversity, Conservation and Management
- Faunal Diversity of Central India
- Taxonomy and its Applications: Learn from the Experts
- Faunal Diversity of Higher vertebrates of Arunachal Pradesh
- Aquatic Faunal Diversity of Arunachal Pradesh-An wobbly appraisal
- Collection, Preservation and Identification of Marine Fauna
- Taxonomy and Biodiversity
- Fauna of Western Ghats: Spiders & Vespid wasps
- Faunal Resources of the Great Indian Desert



- Grassland Ecosystem of Arid Zone of India - A Faunal Diversity Perspective
- Freshwater Fish Diversity in India
- Aquatic Entomofaunal Diversity in India
- Webinar series on Unique Marine Fauna
- COVID-19 and its link with Environment and its Biodiversity
- Impact of Climate Change on Pollinators of High Altitudes of North-West Himalaya
- Meet the Expert webinar Series
- Different Dimensions of House Sparrow Conservation
- Conservation of Cetacean Fauna in India
- Wetlands of Gangetic Plains: Status and Conservation Challenges
- Faunal Diversity of India
- **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 for 3349 specimens belonging to 524 species to 79 Institutions/ colleges.
- **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 for wildlife crime are attended as and when received. This year 348 animals /animal parts of confiscated Wildlife were received for providing identification from 15 departments and were attended.

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.



Shri Babul Supriyo, Hon'ble MoS, MoEFCC released "Animal Discoveries 2019: New Species and New Records on 9th October, 2020 at Acharya Jagadish Chandra Bose, Howrah, Kolkata.



Important Conferences organized in India or international conferences.

- Orientation Workshop on Methodology for Collection, Preservation and Curation of Zoological Specimens for Biodiversity Studies.
- National Workshop on Taxonomic Identification of Indian Bees.
- Hands-on Training Workshop on Animal Taxonomy.
- Bio-Rock using Electricity.
- Faunal Diversity of Indian Trans Himalayan landscape.

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. Apart from this, ZSI has also signed MOU with six Universities/Institutes, namely,

- Ravenshaw University, Cuttack, Odisha
- Indian Council of Forestry Research and Education (ICFRE) Dehradun
- Kumaun University, Nainital
- Himachal Pradesh University, Summer Hill, Shimla
- Vellore Institute of Technology, Tamil Nadu
- Entomology Research Institute, Loyola College, Chennai

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

- Fauna of Haryana

- Fauna of Kerala
- Memoirs of the Zoological Survey of India
- Hand Book: Thrips of economic Importance in India-An Identification Guide
- Handbook on the Grunts and Sweetlips (Family: Haemulidae) of India
- Biodiversity Profile of East Kolkata Wetlands
- Skinks of India
- Pictorial Guide to Brackish water ornamental fishes of Odisha
- Faunal Diversity of Kachchh Biosphere Reserve, Gujarat (Vertebrates)
- Fauna of Narmada Tapi Estuaries, Gujarat
- Faunal Diversity of Bhoj Wetland Bhopal, Madhya Pradesh.
- In addition, 385 publications completed this year including 75 papers in SCI journals, 101 chapters in Books and 190 papers in National and international journals.

Challenges in work due to COVID-19

Surveys: All the surveys could not be completed due to lockdown and not getting entry permits

Laboratory works: Continuity of the Lab work was hampered due to lockdown and maintenance of roster (50% attendance of supporting staff).

1.2 Botanical Survey of India (BSI)

Botanical Survey of India (BSI) established on 13th February 1890, is the apex research organization under the Ministry of Environment Forest and Climate Change, Govt. of India, carrying out the taxonomic/floristic studies



on wild plant resources of the country with an objective to explore the plant resources of the country. Presently, BSI has 11 regional centers with its headquarters at Kolkata and actively engaged in inventorying the floral resources of wide array of ecosystems from coastal sea to high mountain ranges of Himalayas covering all the state and union territories.

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 (ethno-botany) 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, Musea and Herbaria.
- 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.

Activities undertaken

- During the reference period, BSI discovered 23 plant species new to science, 10 plant species as new additions to Indian Flora and rediscovered 2 plant species after a century (Appendix I).
- As per the prime mandate, BSI undertakes research in plant taxonomy through extensive field Surveys, Exploration and Documentation of Floral resources of the country. BSI documented total number of 20413 taxa of angiosperms belonging to 269 families and 2868 genera; 82 taxa of Gymnosperms, 1307 taxa of Pteridophytes, 15447 taxa of Fungi, 7434 taxa of Algae, 2786 taxa of Bryophytes, 2917 taxa of Lichens towards the complete inventory of floral resources of the country. This also include the entire Himalaya with 10,289 taxa, belonging to 2256 genera and 238 families, endemic vascular plants with 4395 taxa, Islands with 2436 species, north-eastern states with more than 7500 species. Fragile ecosystems such as cold deserts contribute 1615 taxa while hot deserts, 682 taxa. The survey has also documented more than 4425 algal species,



1232 cyanobacteria, 865 macro algae and 2777 diatoms. Besides 1671 legumes, 1256 orchids have also documented from different phyto-geographical regions of India. BSI has documented and published flora of 28 states and 3 UTs in 49 volumes. Floristic survey of 114 protected area including national park and biosphere reserves have also been completed.

- BSI published 110 research papers and 12 books.
- BSI has digitized 1,68,492 herbarium specimens including 17,874 type specimens. Besides about 340 publications of BSI have already been digitized. About 15,000 samples of Textile designs, Natural dyes & Botanical illustrations; about 1.2 lakhs of archival documents, manuscripts correspondences and Watt's Ledger, economic Herbarium Specimens have already been digitized. Besides, about 10,000 records of flowering plants (monocots and dicots) have been completed towards the completion of plant checklist database of India.
- **Ethnobotanical and Neutraceutical studies:** BSI documented traditional knowledge of tribals of Odisha, parts of Gujarat and Bihar states. With its dedicated group of scientists, BSI targets to complete the documentation traditional botanical knowledge pertaining to Tharu and Bhoja tribe of Uttarakhand, India. Besides, BSI has also carried out neutraceutical studies on 40 wild edible plants of north east India.
- **Ex situ conservation of RET species:** BSI

maintains a network of Experimental Botanic gardens at its different regional centres actively involved in the conservation of endemic and threatened plants. BSI is also targeting 1,00,000 seedlings of rare, endemic and threatened species, indigenous species etc. through In vitro micro propagation.

- **DNA barcoding, molecular approach and Scanned Electronic microscopic studies:** With the advancement in the field of plant taxonomic research, BSI has also started studies dealing with chromosomal studies of plants. Data on more than 140 DNA barcoding have been completed. Similarly, BSI has also studied 7640 scanned electronic microscope (SEM) images belonging to 862 taxa.
- **Capacity Building Programmes through Training and Extension services:** BSI is also actively involved in promoting research in Plant Taxonomy in the country. BSI regularly organises Capacity Building Training Programmes, Green Skill Development Programme (GSDP) AJCBIBG Post-doctoral programme and AICOPTAX Scheme.

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

The following committees are functioning in BSI:

- Research Advisory Monitoring Committee (RAMC)
- Scientific Reports Evaluation Committee
- Grievance Redressal Committee
- RTI Redressal Committee



- Sexual Harassment Committee
- SC/ST Reservation Committee
- Media and Website Cell

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

- **International Symposium and Training courses organised:** BSI, on the occasion of its 130th Foundation Day, organised two days **International Symposium on Plant Taxonomy & Ethnobotany (ISPTE)** from 13-14 February 2020 which witnessed the considerable presence of around 500 researchers from 33 Universities, 15 Institutions and 56 Colleges from various parts of India and 10 subject experts from abroad. In the symposium, a series of lectures on Plant Taxonomy & Ethnobotany were organised and 130 oral presentations and 134 poster presentations were delivered.
- On this auspicious occasion, Dr. A.A. Mao, Director, BSI honoured Dr. S.K. Jain, Former Director, BSI with the Lifetime Achievement Award for his immense and valuable contribution in the field of Taxonomy and Ethnobotany.
- **4th Botanical Nomenclature Course:** BSI organized 4th Botanical Nomenclature Course from 27th - 31st January, 2020 at BSI, Eastern Regional Centre, Shillong, Meghalaya. Dr. K.N. Gandhi, Senior Nomenclatural Registrar and Nomenclature Expert, Harvard University Herbaria, USA served as Resource person in the above

Botanical Nomenclature Course. The course was attended by 83 participants from across the country. The course was mainly to train the young botanists and taxonomists in the field of plant taxonomy and nomenclature as per the recent ICN code.

- BSI in collaboration with the University of Calcutta organised an International conference on Algae, Fungi and Plants: Systematics to Applications, held at the University of Calcutta from 18 to 20 January, 2020.
- BSI in collaboration with the North Orissa University, Baripada, Odisha organised a national seminar from 22 to 23 January, 2020.

List of major publications

BSI has so far published about 340 titles of books, 62 volumes of its official Journal "Nelumbo" (containing more than 2500 scientific paper), 3 volume of flora of India Checklist, 4 volumes of Algae of India checklist, 2 volumes of Lichens of India, one volume of Macro lichens of Sikkim, Hornworts of India -An Annotated checklist, Checklist of the Gymnosperms etc. BSI has also published 29 fascicles on various plant families and plants groups. Besides, towards completion of Flora of India project, BSI has already published 10 volumes (including 2 introductory Vols.) of Flora of India and 8 Vols. (i.e. 11,17, 18,19,20,21,22 and 30) are completed and in review stage for publication. Moreover, BSI will switchover to digital printing by next year and by 2022 at least 15 titles will be published as



e-books. In addition to these, 13 volumes of Plant Discoveries: New genera, new species and new records has also been published by BSI.

During the reporting period (1.1.2020 to Oct. 2020), BSI has published 111 research papers and 12 books, 3 periodicals (Plant Discoveries 2019, Nelumbo and Vanaspati Vani)

Challenges in work due to COVID-19: 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, 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. Innovative Ideas: Staff of AJC Bose Indian Botanic Garden, Howrah came up with an innovative idea of making sanitizer dispensers from garden's very own bamboo culms that were damaged due to Amphan super-cyclone. This indigenously built eco-friendly Sanitizer Dispenser has gained much popularity among the staff during the prevailing situation of pandemic COVID-19 where hand sanitization is must for maintaining hygiene and more than dozen such dispensers are distributed in the different establishments of Botanical Survey of India in Kolkata & Howrah region.

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	BSI	ABG Scheme	9,80,000.00		Monitored by MoEF&CC
2	BSI	AICOPTAX	5,68,050.00		Monitored by MoEF&CC

Other Important activities: The new regional centre of BSI i.e. High Altitude Western Himalayan Regional Centre (HAWHRC) was inaugurated by Shri C.K. Mishra, the Hon'ble Secretary, MoEF&CC, Govt. of India on 26th Feb. 2020 at Solan (H.P.).

On the occasion of World Regional Rose Convention, Director, BSI and Ms. Henrienne de Briey, President, World Federation of Rose Societies inaugurated the 'Rosarium', having 248 varieties in 16 colours and spreading over 26000 sq.ft. in AJCB Indian Botanic Garden, Howrah on 12th January, 2020.



Appendix I

Novel plant species discovered by BSI:

- Plant species new to science: 23
- *Impatiens sashinborthakurii* (Balsaminaceae)
- *Stereochilus arunachalensis* (Orchidaceae)
- *Spathoglottis arunachalensis* (Orchidaceae)
- *Didymocarpus bhutanicus* (Gesneriaceae)
- *Arnebia ladakhensis* (Boraginaceae)
- *Iseilemakunhikannanii* (Poaceae)
- *Eugenia bolampattiana* (Myrtaceae)
- *Dendrophthoe gamblei* (Loranthaceae)
- *Dipcadioimbatorensis* (Asparagaceae),
- *Eugenia sphaerocarpa* (Myrtaceae),
- *Memecylon nervosum* (Myrtaceae)
- *Ceropegia khasiana* (Apocynaceae)
- *Eugenia bolampattiana* (Myrtaceae)
- *Aloe trinervis* (Asphodelaceae)
- *Pedicularis raghvendrae* (Orobanchaceae)
- *Luisiadi glipurensis* (Orchidaceae)
- *Luisia jarawana* (Orchidaceae)
- *Russula lakhampalii* (Russulaceae)
- *Russula indocatillus* (Russulaceae)
- *Dendrophthoe gamblei* (Loranthaceae)

- *Rivina andamanensis* (Petiveriaceae)
- *Dillenia tirupatiensis* (Dilleniaceae)

Plant species new to Indian Flora: 10

- *Paramignyas scandens*
- *Bulbostylis maritime*
- *Spermacoceo cymoides*
- *Cheilolejeune abirmensis*
- *Cheilolejeune aintertexta*
- *Cheilolejeune audarii*
- *Lejeunea anisophylla*
- *Lopholejeune sikkimensis* var. *sikkimensis*
- *Lophocolea heterophylla*
- *Metzgeria raoii*

Plant species rediscovered from India after long gap: 2 plants

- *Psydrax ficiformis* (Rubiaceae), an endangered tree, was recollected after a century from the Kodaikanal WLS, Tamil Nadu.
- *Epilobium trichophyllum* (Onagraceae), a rare and endemic plant, was recollected after a gap of 157 years from the Sikkim Himalaya.



Tupistra Nutans Wall ex Lindl



Polygonatum oppositifolium (Wall.) Royle



Rhododendron arboretum



Inside view of newly constructed nursery at BSI, AZRC, Jodhpur



Rhododendron arboretum



Inside view of newly constructed nursery at BSI, AZRC, Jodhpur



Hemidesmus indicus (L) R. Br. Ex Schult

1.3 Survey & Utilization

The Survey & Utilization Division deals with matters related to Forest Survey of India (FSI) (except Establishment matters), Trade Policy, sandalwood & Red Sanders related matters,

regulation of export & import of forest produce as per the Export and Import (EXIM) policy, State Forest Development Corporations, all matters relating to Andaman and Nicobar Islands Forest Plantation Development Corporation



Limited, International Organizations International Tropical Timber Organization (ITTO), International Network for Bamboo & Rattan (INBAR), Minor Forest Produce, forestry trade tariff and related issues for Bilateral/Multilateral Trade Negotiations, Wood Based Industries, Bamboo Cell.

Forest Survey of India: Forest Survey of India (FSI), a premier national organization is a subordinate office of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India. FSI is responsible for Remote Sensing and Field Inventory based assessment and monitoring of the forest resources of the country on regular basis. In addition, it is also engaged in imparting training to the State & UT Forest Department personnel, and research & 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 its report in 1976, the National Commission on Agriculture (NCA) recommended for the creation of a National Forest Survey Organization for a regular, periodic and comprehensive forest resources survey of the country leading to creation of FSI. After a critical 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 has its headquarters at Dehradun and four zonal offices are located at Shimla (Northern zone), Kolkata (Eastern zone), Nagpur (Central zone) and Bangalore (Southern zone). A sub-centre of Eastern zone has been established and made operational in Burnihat, Guwahati. FSI is headed by a Director General who is assisted by two Joint Directors at the headquarters, looking after the Forest Geoinformatics, Forest Inventory and Training Division. The Joint Directors are supported by Deputy Directors, Assistant Directors and other technical staff and ministerial staff. Each zonal office is headed by a Regional Director supported by Senior Deputy Directors, technical, ministerial and other field staff. The headquarters as well as the zonal offices work in close coordination to carry out various activities of FSI.

The activities at the headquarters includes biennial forest cover assessment, generation of forest cover and forest type maps, design methodology for national forest inventory, data processing, producing India State of Forest Reports, reports on specific projects, conducting training, coordination and monitoring the activities of zonal offices. On the other hand, activities of zonal offices concentrate mainly on field inventory along with forest cover mapping work of some States/UTs.

Objectives of FSI:

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



forest areas and develop database on forest tree resources.

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

Major activities for FSI include:

- Biennial assessment of Forest Cover using remote sensing technology
- Inventory of Forest areas
- Inventory of Trees Outside Forests (Rural & Urban)
- Inventory data processing
- Methodology Design
- Training and Extension
- Projects and Consultancies
- Work on the activities and programmes directed by the Ministry and Hon'ble Courts

Forest Cover Mapping & Tree Cover: Forest Survey of India (FSI) is involved in wall to wall forest cover assessment of the country on

biennial basis by interpretation of satellite data on a two-year cycle and publish the information in the 'India State of Forest Report'. So far, 16 cycles of forest cover assessment have been completed from 1987 to 2019. The results of 16th cycle FCM were published in ISFR 2019, which was released in December, 2019. In addition to forest cover mapping, assessment of tree cover of the country is also being carried out using the Trees Outside Forests (TOF) inventory data. As per ISFR, 2019, there is an increase of 3,976 km² in the forest cover and 1,212 sq km² in tree cover of the country as compared to the ISFR 2017. The forest cover mapping for 17th cycle was initiated in the month of March 2020 and currently the interpretation work is in progress.

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 (IRSS) have been procured from NRSC, Hyderabad. Fully ortho-rectified satellite data is being used for Forest Cover mapping, which improves the positional accuracy of the data.

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:

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

A dedicated team of technical personnel under FGD is carrying out the exercise. So far, two expert consultations on the remapping of the forest types of India has been carried out one each in 2018 and 2019. Currently the work is in the completion stage and will be released shortly.

Forest Fires

Near Real Time Monitoring of Forest Fires: FSI has been alerting State Forest Departments of forest fire locations detected by the MODIS (Moderate Resolution Imaging Spectroradiometer) 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 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:

- Improved Custom Filter which boosted its accuracy level
- Large Forest Fire monitoring programme based on SNPP-VIRS to automatically identify and track large forest fires
- Map Server based Geoportal-Van Agni (open source) to view dynamic display of alerts along with other thematic layers
- Web Map Service available for integration with State Forest Departments Geoportal
- Customized alerts for 20 states at Beat level and 2 states at Range level
- Integration with visualization WMS, Map links in SMS
- Improved feedback system (via SMS and nodal officer page)
- Improved Nodal officer page

Large Forest Fire Monitoring: FSI 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 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 1,08,000 registered users across the country.

Table-1.1 Forest Fire Alerts Dissemination

Sensor	(Jan 2018 – June 2018)	(Nov. 2018 - June 2019)	(Nov. 2019 - June 2020)
MODIS	37,059	29,547	22,447
SNPP-VIIRS	2,58,480	2,10,286	1,24,473

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.

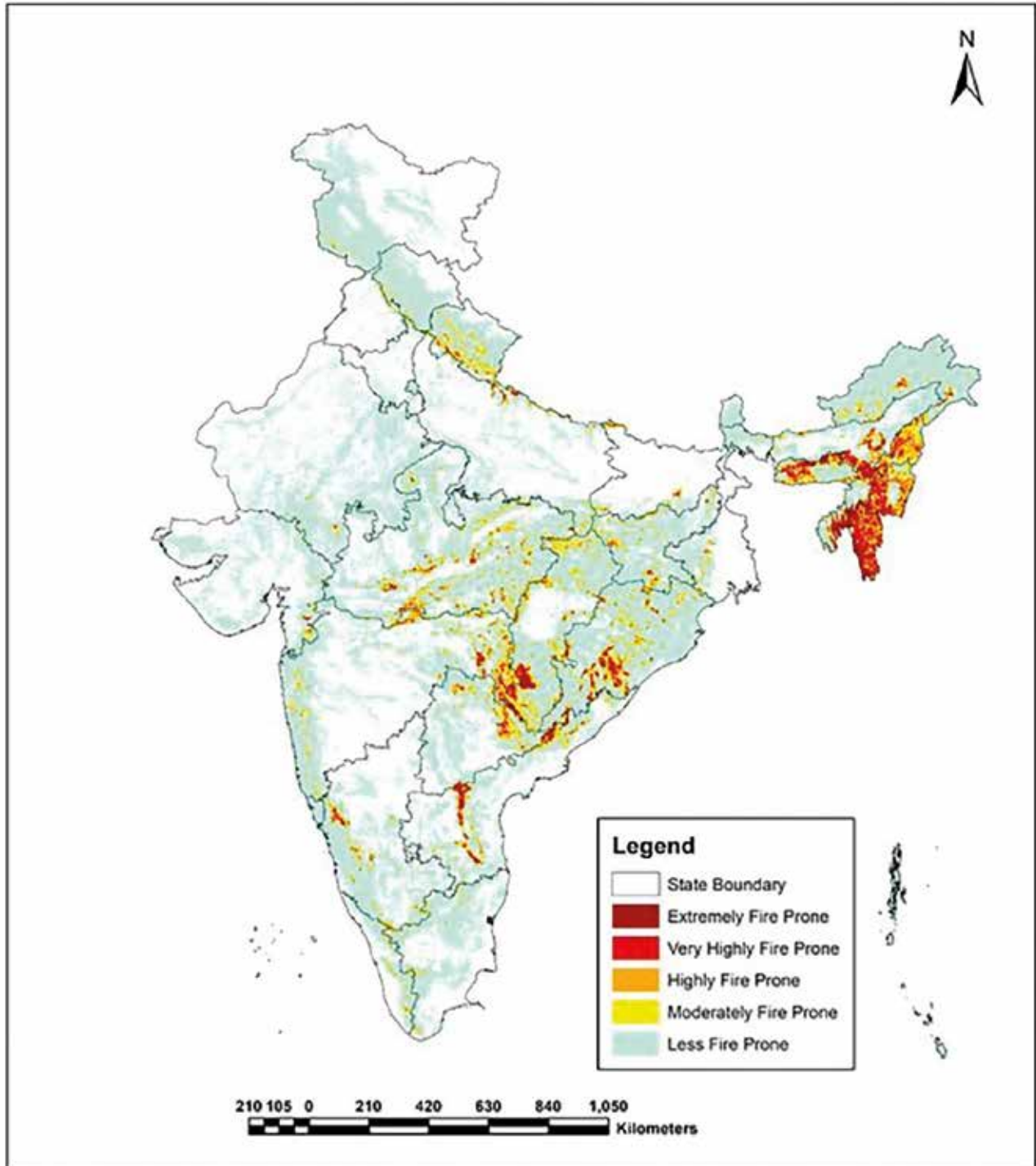
Study on identification of fire prone forest areas based on GIS analysis of archived information: FSI has carried out a

study based on spatial analysis of forest fire points detected by FSI in the last 13 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 fires. Map showing forest area in different classes of fire proneness can be an effective management tool for controlling forest fires. Such map can be used for optimally utilizing scarce resources available for controlling forest fires in fire season. Increased vigil in highly fire prone forest areas may effectively prevent forest fires. Considering usefulness of mapping fire prone forest areas, analysis of the detected forest fire points in GIS framework along with a grid coverage of 5 km x 5 km and latest forest cover has been done for whole country.



Identification of Fire prone Forest Area





Highlights of the study

- Nearly 10% 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 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.

Webinar on Forest Fire Monitoring: A webinar on “Forest Fire Monitoring for Conservation and Sustainable Management of Forest in India” was organized by Forest Survey of India (FSI) in association with IUCN on 29th September, 2020. It focused on the national perspective, policies, overview of forest fire detections during 2019-2020 and technology solutions offered by FSI. About 120 participants attended the webinar including senior forest officials of MoEF&CC, FSI, ICFRE, IUCN, SFDs and other institutions. Different aspects of Forest Fire prevention, monitoring & management were deliberated in detail of the webinar.

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 institutions 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.

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 State Forest Departments, 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 State Forest Departments (SFDs) using CAF (CAMP) funds. Monitoring of activities is carried out under following categories:

- Compensatory Afforestation Land (CA Land)
- Diverted Land (DL)
- Other Plantation Work (OPW)
- Plantation Work (PW)
- Assets

A total of 1,37,381 polygons pertaining to 28 states have been checked by FSI through this portal till October 2020. 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 land use/land cover of the Little Andaman and Great Nicobar Islands: NITI Aayog, an apex planning body of the Govt of India, entrusted FSI with the task of carrying out a special study for the Little Andaman and Great Nicobar Islands with the specific objective of mapping of land use land cover of the Islands on large scale (1:5,000) using Very High Resolution Satellite Data for Development Planning with emphasis on Forest Conservation. An approach using a geospatial database of all existing land use types including forests, habitations, degraded lands and mangroves has been made. Further, ecologically sensitive areas from the point of view of conservation have also been assessed using the DSS Tools of the MoEF&CC to further strengthen the remote sensing based analysis. The results of the study will enable the policy planners and implementers in undertaking planning in a sustainable manner, considering the environmental fragility of the island and the developmental needs of the area. The project has been completed and report submitted to NITI Aayog.

Mapping of Rubber plantation and Water bodies and Assessment of Bamboo Resources of Tripura: On request of Tripura SFD, FSI has initiated this project for the State. Mapping of Rubber plantation and Water bodies is being carried out employing Remote Sensing Techniques with LISS IV data (5.8 mtr.

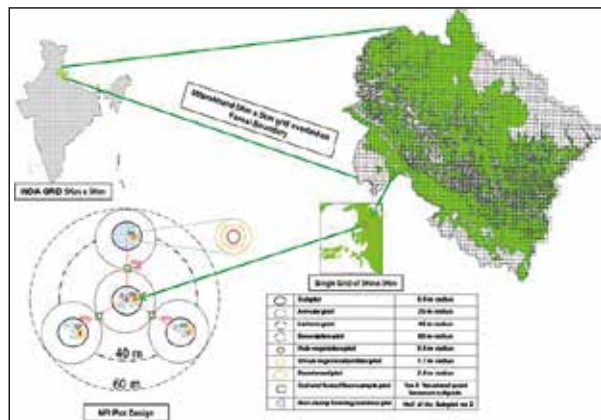
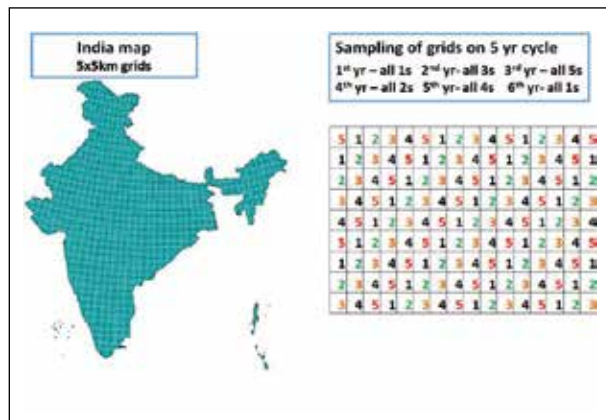


Resolution). The Mapping is on a scale of 1:12,500 and the minimum mapping unit is 0.06 ha. Assessment of Bamboo Resources will be carried out using field sampling techniques. Tripura SFD will collect the field data regarding bamboo and further analysis will be done by FSI. Work is initiated in the month of March of 2020 after signing of MoU between FSI and Tripura SFD in the month of February. The project is expected to be completed in March 2021.

Forest & TOF Inventory

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 on 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. 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 a robust NFI design was felt to be necessary.



Modernization of National Forest Inventory: FSI redesigned the National Forest Inventory (NFI) programme from district based approach to grid based approach. Under the new design, 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.

FSI has also taken steps to modernize the National Forest Inventory by switching over from manual data collection in prescribed formats designed for NFI followed by data entry of to PDA based data collection and entry which is transmitted in real time to the Zonal & Central Servers for analysis. For this purpose a State of the Art Command Centre has been established at the headquarters



this year. An online application for monitoring and data analysis in near real time is under development. This system will help reducing the time and manpower and improve the efficiency of the work.

A total of about 2,500 grids have been inventoried in forest areas and nearly 5,000 grids have been inventoried in TOF area. Due to COVID-2019, the progress of field inventory works in forest and TOF was affected adversely. The Data entry works of Forest Inventory (FI) 2,200 grids and TOF (R & U) 5,000 grids data have been completed.

Dependence of inhabitants of Forest Fringe Villages (FFVs) on forests for fuelwood, fodder, small timber and bamboo: FSI has made an attempt to estimate the dependence of people in forest fringe villages in the country. A methodology has been developed for carrying out the study. About 1,100 villages with 30 households in each village is selected for the survey for collection of data on fuelwood, fodder and small timber. The field works, data entry and data processing works has been completed. The abstract of the results has been published in the ISFR 2019. The state wise detailed final report for the study has been completed. The publication of final report is under preparation.

Inventory of TOF in Rajasthan: The project on Inventory of Trees Out-side Forests (TOF) in Rajasthan has been taken up by FSI on the request of Rajasthan Forest Department. The field work of the project has been carried out by the Rajasthan Forest Department. The field work and data entry work has been completed. The data processing work of some districts

completed and for rest of the districts is under progress as some information is required from Rajasthan Forest Department.

JICA Project: On the request of West Bengal forest department, FSI has taken a project for conducting a base line survey in collaboration with 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 are to improve forest ecosystem and conserve biodiversity by undertaking afforestation, regeneration and wildlife management activities through Joint Forest Management approach. The fieldwork and data entry of the project has been completed. The data processing has been completed for all the districts under JICA. Report writing work is under Progress.

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 is complete and draft report has been submitted.

Estimation of Above Ground Biomass (AGB) using SAR data: FSI in collaboration with Space Application Centre (SAC), Ahmedabad



and National Remote Sensing Centre (NRSC) Hyderabad are working for preparation of Above Ground Biomass (AGB) map of pan India using SAR data. In this regard, AGB of Assam State has been generated. The Forest inventory data has been used for training and validation of AGB map with Global 25 m resolution Phased Array Type L-band Synthetic Aperture Radar (PALSAR) mosaic. India has

been divided into twelve zones on the basis of distribution of field inventory data and physiographic zones. On the basis of these divisions, analysis for estimation of AGB maps has been carried out for the State of Andhra Pradesh, Assam, Chhattisgarh, Goa, Karnataka, Madhya Pradesh, Maharashtra, Odisha and Telangana (illustrated in Fig. 1).

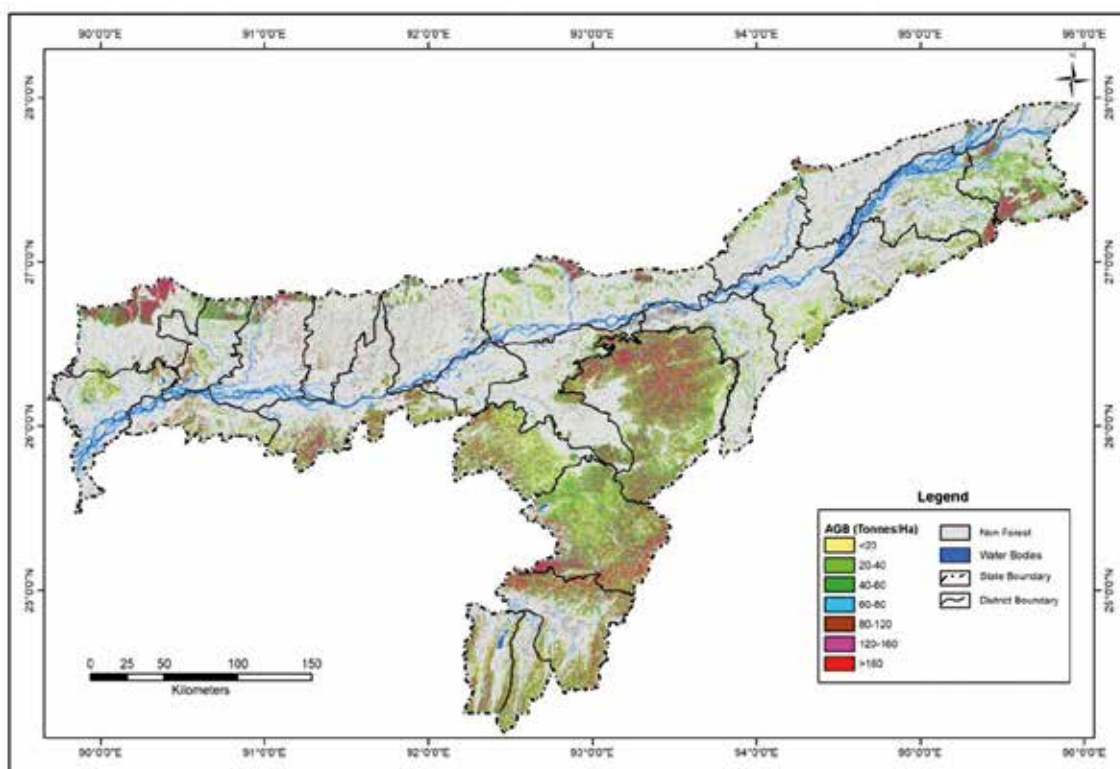


Fig. : Above Ground Biomass map of Assam

The study shows acceptable correlation between the SAR data & the forest inventory data and the overall accuracy of all the State/UTs are within the permissible limits.

Training of Forestry Personnel

Regular Training Courses as per Training Calendar 2020-2021: FSI imparts training to forestry personnel working at various levels

in State Forest Departments to sensitize them with the latest advancements in the application of Remote Sensing & GIS for preparation of Working Plans, Forest Carbon Assessment, GPS Applications in Forest Survey and Demarcation, Application of GIS in Forest Resources Management, Applications of Drones etc. Due to COVID-19 Pandemic the regular Training



Programmes of FSI were hampered severely and the following courses have been conducted

virtually during the period between April, 2020 and October, 2020.

S. No.	Theme	Dates	Total Participants
1.	DSS e-Green watch & Forest Fire	27.08.2020	30
2.	Forest Carbon Assessment	13.10.2020 to 15.10.2020	16

The following online Webinars on activities of FSI were organized for visitors (RFOs and other SFD Personnel) from April, 2020- October, 2020.

Extension Activities:

S. No.	Name of organization	Total Participants	Date
1.	CASFOS, Burnihat	32	01.04.2020
2.	Kundal Academy of Development, Maharashtra	25	06.10.2020
3.	Kundal Academy of Development, Maharashtra	40	16.10.2020

Forest Survey of India also conducted a half day webinar on 24th September 2020 for the officers of India Military Academy, Dehradun on "Management and Surveying of Green Forest Cover". Dr. Subhash Ashutosh, DG, FSI inaugurated the webinar & gave an overview of the training Programme. Technical presentations on Mapping of forest cover and Forest Fire Monitoring were also made by the officers of FSI in the webinar.

Webinar on e-Green Watch: FSI organized a one day webinar (training workshop) on e-green watch on 18th September 2020. About 200 officials from Jharkhand, Jammu and Kashmir and Tripura Forest Departments participated in the webinar. Dr. Subhash Ashutosh, Director General, FSI inaugurated the webinar and gave an overview of the training programme and its importance. In the technical sessions uploading the polygons and other information on e-Green watch portal, monitoring of works

uploaded in the e green watch by FSI, common errors and mistakes done during uploading of the polygons etc were explained by Shri. Sunil Jain, Senior Technical Director NIC and the officials of FSI. The webinar was for six hours duration and was highly interactive and problems of field officers were addressed in a comprehensive manner. FSI proposes to organize similar webinars for other group of states also in the coming months.

Export & Import of forestry products and tariff structure of forestry items

The SU Division deals with 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 issues NOC for grant of license for export of sandalwood, red sanders and other wood products for applications received through



Directorate General of Foreign Trade, New Delhi.

Regulation of Wood Based Industries in the country: The SU Division issued the Wood Based Industries (Establishment and Regulation) Guidelines, 2016 vide Gazette Notification dated 11th November, 2016 in compliance of the order of the 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 Guidelines were subsequently amended as per the comments received from State/UT Forest Department and concerned stakeholders. The amended guidelines were published in the Gazette of India on 11th September, 2017. The Guidelines were amended again in 22nd February, 2019 to include wood based charcoal industries in the definition of wood based industries. The Guidelines have been issued to all SFDs in the country.

State Forest Development Corporations: SU Division deals with matters relating to State Forest Development Corporations. The Ministry has shares in the State Forest Development Corporations of Andhra Pradesh, Gujarat, Chhattisgarh, Madhya Pradesh, Bihar, Kerala, Tripura, Meghalaya and West Bengal.

Andaman & Nicobar Islands Forest and Plantation Development Corporation Ltd.: Andaman & Nicobar Islands Forest & Plantation Development Corporation Limited (ANIFPDCL), Port Blair is the only Central Public Sector Enterprise 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. As the Corporation was loss making, it has been decided to close it down. The Cabinet Committee on Economic Affairs has approved the closure. The Ministry is implementing the closure plan of the Corporation.

Bamboo related matters: 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.

International Tropical Timber Organization (ITTO): India is a member of ITTO, an intergovernmental organization that promotes conservation of tropical forest resources and their sustainable management, use and trade. 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 organization, which has its headquarters in Yokohama, Japan, currently has 74 members, divided into two groups – Producers and Consumers. India is in the group of Producer countries. ITTO's membership represents 90% of world trade in tropical timber and 80% of the world's tropical forests.

International Network for Bamboo and Rattan (INBAR): INBAR is an intergovernmental organization dedicated to improving the social, economic, and environmental benefits



Ministry of Environment, Forest and Climate Change



of bamboo and rattan. It plays an important role in finding and demonstrating innovative ways of using bamboo and rattan to protect environment and biodiversity, alleviate poverty and facilitate fairer pro-poor trade. INBAR

connects a global network of partners from 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.



CHAPTER

02

Conservation



2.1 Biodiversity Conservation

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

- Convention on Biological Diversity (CBD).
- Nagoya Protocol on Access and Benefit Sharing (ABS).
- National Biodiversity Action Plan (NBAP) and National Biodiversity Targets (NBTs).
- National Reports to CBD.
- Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).
- Domestic measures, namely, Biological Diversity Act 2002 and National Biodiversity Authority (NBA).
- Projects related to above issues

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 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 11 May 2011, and ratified it on 9 October 2012. The Nagoya Protocol on ABS entered into force on 12 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 is implemented through a three-tier institutional mechanism: NBA, State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs). NBA is a statutory body that performs facilitative, regulatory and advisory functions for the Government on biodiversity related issues.

Activities undertaken

Convention on Biological Diversity:

In exercise of the powers conferred by subsection (1) of Section 39 of the Biological Diversity Act, 2002, read with sections 6 and 12 of Notification S.O. 1911(E), dated 8th November, 2006, and in continuation of this Ministry's Orders dated 28th August, 2008, 12th September, 2012, 8th July 2013 and 21st January 2020, the Ministry of Environment,



Forest & Climate Change, Government of India designated National Centre of Veterinary Type Cultures (NCVTC), National Research Centre on Equines (NRCE), Hisar as a repository under the Act to keep safe custody of voucher specimens of microorganisms pertaining to veterinary sciences and Bombay Natural History Society (BNHS) for the safe custody of marine, fresh water and terrestrial fauna only.

An Indian delegation attended the Second Open Ended Working Group Meeting on the Post 2020 Global Biodiversity Framework held in Rome, Italy from 21st February to 2nd March 2020.

The Ministry celebrated the “International Day on Biological Diversity 2020” on 22 May 2020. The theme for this year’s celebrations was “Our solutions are in nature”. During the event, the Hon’ble Minister Shri Prakash Javadekar launched a Biodiversity Samrakshan Internship Programme along with a teaching module on the theme of biodiversity for the Diksha portal of Ministry of Human Resource Development. The NBA also launched a webinar series in collaboration with UNDP to create awareness on BD Act, Rules, ABS mechanism and its related issues.

After expiry of the term of the non-official members on 20 March 2020, the Central Government appointed the five new non-official members to the National Biodiversity Authority for a period of three years from the date of publication of the notification, and for that purpose amended the Notification No. S.O. 1351 (E) dated 7 April 2016, and subsequent Notification No.S.O.897 (E) dated

21 March 2017 on and from the date of this notification.

A Sub-regional Virtual Consultation on Post-2020 Global Biodiversity Framework was held on 4-5 August, 2020. The Convention on Biological Diversity (CBD) will adopt a post-2020 global biodiversity framework as a stepping-stone towards the 2050 Vision of “Living in harmony with nature”. Considering this as a good opportunity to demonstrate India’s leadership by securing an ambitious agreement for 2030 that can act as a stepping stone towards the 2050 Vision of “Living in harmony with nature” and also contribute towards the SDGs, the consultation was organised to prepare India’s national contributions.

6th Asia protected areas partnership (APAP) Technical Workshop was held virtually on 13 August, 2020 to facilitate improved conservation outcomes for protected areas in Asia, in accordance with the Sendai Charter and in support of national and regional efforts to implement the Strategic Plan for Biodiversity.

A special virtual session for Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) 24 and Subsidiary Body for Implementation 3 (SBI) was held from 15-18 September 2020 maintaining the momentum ahead of the UN Biodiversity Summit and towards COP -15 now likely to be held in 2021. Both the sessions were represented by an Indian delegation.

A ministerial roundtable-“Biodiversity Beyond 2020: Building a Shared Future for All Life on Earth” was held on 24th September 2020, convened by the Hon’ble Minister of Ecology



and Environment, the People's Republic of China. The summit was attended by the Hon'ble Minister Shri Prakash Javadekar.

The United Nations, on the side-line of the UN General Assembly session organised the "Bio-diversity Summit" on 30th September 2020 under the theme "Urgent action on biodiversity for sustainable development". The summit was attended by the Hon'ble Minister Shri Prakash Javadekar. The Summit highlighted the crisis facing humanity from the degradation of biodiversity and the urgent need to accelerate action on biodiversity for sustainable development.

An Indian delegation participated in the Second extraordinary meeting of the CoP to CBD, First extraordinary meeting of the CoP –MoP to the Cartagena Protocol on Biosafety and First extraordinary meeting of the CoP-MoP to the Nagoya Protocol on ABS from 16th to 19th November 2020 on a virtual mode.

The Fourth meeting of the IPBES capacity-building forum was held from 7-8 December 2020. The objective of this meeting was to establish a National and (Sub) Regional platforms and networks, on how these platforms and networks can engage with, contribute to and benefit from the work of IPBES and on efforts supporting such platforms and networks. An Indian delegation participated in the meeting.

Dr Sujit Kumar Bajpayee, Joint Secretary and National Focal Point to the CBD was nominated as a member to the Committee on Conflicts Interest of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem

Services (IPBES) on 16th November 2020 for a period of three years.

India hosted the 13th Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) from 17th to 22nd February, 2020 at Gandhinagar in Gujarat. The theme of CMS COP-13 was 'Migratory species connect the planet and we welcome them home'. The division participated and provided support as a member of Executive Committee for the successful organization of the conference.

A meeting was organized in between MoEFCC and Mr. Serge Segura, Ambassador of France for the Oceans visiting India on 4th February 2020 at MoEFCC, New Delhi to take forward the biodiversity as an agenda and possible areas of cooperation between two countries in the field of biodiversity. This meeting was a follow up exercise to Indo- French Joint Working Group meeting held in November 2019 held at MoEFCC, New Delhi.

The division has successfully guided interns being selected by the Ministry through its internship programme for young students to provide them necessary training related to governments policy and programme and work culture.

Biological Diversity Act, 2002 and NBA: During the period, six meetings of the Authority were held where decisions were taken on draft ABS regulations, draft amendments to BD Act and Rules, and on important regulatory, policy and legal issues.

During the period, 779 applications were received by the NBA, of which draft agreements



were sent to 532 applicants for execution. Out of these, 150 applicants have executed agreements with NBA.

NBA has received a sum of Rs.4,15,24,321 as benefit sharing component during 2020-2021.

Sharing of Benefits to Benefit Claimers: As part of sharing the benefits with the benefit claimers, the NBA has shared sum of Rs.31.55 crores with Andhra Pradesh forest department to conserve and protect Red Sanders in the natural habitat. The amount was also to be used for training and capacity building of forest staff and community; community oriented economic activities and establishing national level institute in Tirupati.

NBA has shared a sum of Rs.11.25 crores to Andhra Pradesh SBB to constitute BMCs and documentation of PBRs in the adjacent villages of the Red sander growing area.

In order to promote the conservation efforts, the NBA has sanctioned 6 projects to the tune of Rs.2 crores to various institutes like Institute of Forest Genetics and Tree Breeding, Institute of Wood Science and Technology and Indian Institute of Chemical Biology for undertaking research on Red Sanders like development of drug molecules, skin care products, population diversity using latest technologies.

NBA through Telangana SBB has shared a sum of Rs.24 lakhs to 11 BMCs of Medak, Warangal, Kareem Nagar districts for utilizing the money to undertake conservation of biological resources and socio-economic development in the respective village. Similarly, a sum of Rs.1.5 lakh has been given to a BMC located in Karnataka.

Expert Committee on ABS:The 59th Meeting of the Expert Committee on ABS was held on 5th and 6th March 2020 to evaluate the request of the applicants and submitted recommendations to Authority for consideration and decision. The committee evaluated 286 applications.

Monitoring Patent Applications: NBA secretariat has initiated monitoring of patent applications that are being published by the Indian Patent Office (IPO) every month so that the patent office as well as the applicants can be informed well in advance of the inventions that would potentially fall under the purview of Section 6 of the BD Act and would require obtaining a prior approval of NBA.

The monitoring process is carried out for the relevant divisions of Biotechnology, Agrochemicals, Traditional Knowledge -Biotechnology, Microbiology, Biochemistry, Food and Pharmaceuticals.

2580 applications were scrutinized between January 2020 and November, 2020, following which requisite communications were sent to the IPO in 150 cases, informing them that these invention would fall under the purview of Section 6 of the BD Act and that the NBA's approval would be necessary.

The IPO has also published these letters on their website in order to make the applicants aware of the requirement so that the applicants can approach NBA in a timely manner, before the patent could be granted.

Committee to examine ABS guidelines, BD Act, BD Rules: An Expert Committee was constituted to examine the Biological Diversity



Rules 2004; BD Act; User Country measures under Nagoya Protocol on ABS; Development of Sector Specific Standard Operating Procedures (SOPs) on ABS; incorporating comments of stakeholders in the draft Regulations on ABS, 2019; and Suggesting measures for streamlining various approvals granted by the NBA and SBBs.

EC on Digital Sequence Information (DSI): The Expert Committee on DSI was constituted on 18 April 2020 to deal with matters related to DSI like coining an appropriate terminology, define scope of the term, challenges faced pertaining to traceability, etc.

Expert Committee on Agro Biodiversity: The Expert Committee on Agro-biodiversity met on 27 August 2020 to deliberate on ways and means to mainstream biodiversity concerns in the agriculture sector and to ensure conservation, sustainable use and fair and equitable sharing arising out of use of biological resources

Working Group for developing methodology for assessing ABS potential: The working group met on 14th October, 2020 to deliberate on the methodological issues pertaining to assessment of ABS potential for the country.

Monitoring Committee for overseeing the quality of PBRs by evolving a suitable mechanism: Four Meetings of PBRs Monitoring Committee were held during the year 2020 to discuss the feasibility and options for carrying out the tasks assigned to the PBR Monitoring Committee.

Expert Group for building criteria and guidelines for identifying Other Effective

Area based Conservation Measures (OECMs):

An expert group was constituted on 8 June 2020 to determine the criteria and guidelines necessary for determination and identification of OECMs in order to achieve Aichi Target 11 of the CBD. The expert group met on four occasions through video-conferencing in 2020.

Following the finalization of the criteria and guidelines, a Working Group for OECMs was constituted by MoEFCC on 5 October 2020 for the identification, monitoring, mapping, etc. of such OECMs. The first meeting of this Working Group was held on 15 October 2020.

UT Biodiversity Council: The NBA had delegated its power and functions to the Union Territories facilitating the process of establishing Union Territory Biodiversity Councils. So far, 5 Union Territories have established the Biodiversity Councils (Jammu & Kashmir, Ladakh, Chandigarh, Andaman & Nicobar Islands and Lakshadweep).

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, 66,819 BMCs and prepared 2, 06, 707 PBRs.

NBA has initiated the process for preparation of an Electronic Dashboard for all the SBBs and UT Biodiversity Councils for maintaining the updated database on the BMCs established



and PBRs prepared all over the country.

So far, two compliance reports and one interim report have been submitted to Hon'ble NGT.

The NBA has issued an advisory to all the States for constituting a state level PBR Monitoring Committee in line with the existing national committees to expedite the quality assessment of the PBRs documented at various levels.

Advisory on Biodiversity Heritage Sites(BHS):

Advisory has been issued to the State Governments for notifying BHS for bringing relevant areas within the ambit of the BD Act and allowing effective involvement of community in co-management of areas of biodiversity importance.

Projects: The NBA and ASEAN Centre for Biodiversity implemented a Cooperation project named 'Capacity building towards implementing the Nagoya Protocol on ABS, the City Biodiversity Index and Strategic Plan on Biodiversity'. The project was approved by the ASEAN Secretariat with a cost of USD 993,333 for two years (2018-2020).

During the Project Implementation Period of 2018-2020, Eight Regional Capacity Building Workshops were organized in India (2), Philippines (4), Singapore (1) and Vietnam (1); wherein, experience and expertise on specific thematic concerns were shared between India and the ASEAN Member States.

The project participants included more than 400 representatives from the NBA, the Ministry of Environment, Forest and Climate Change of India, the ASEAN Member States, especially members of the ASEAN Working Group on Nature Conservation and Biodiversity, the

ASEAN Secretariat, the CBD Secretariat, as well as partners International/ Regional/National organizations both from India and AMS working on conservation and academia.

National Mission on Biodiversity and Human Well-being (NMBHWB):

Under the Prime Minister's Science, Technology, Innovation Advisory Council, a 5year National Mission on Biodiversity and Human Well-being (NMHWB) shall be implemented. In partnership with a large number of scientific institutions and civil society organisations, a detailed project report of NMHWB was submitted. The NMHWB is designed inter-alia to promote the science of sustainability for achieving the Sustainable Development Goals (SDGs) by adopting inclusive and innovative approaches for Biodiversity Conservation.

Sectoral Group of Secretaries-3 on resource has listed constitution of BMCs and preparation of PBRs in all local bodies in the country as two Key Performing Indicators (KPIs) under the "Enabler of Sustainable Business" Goal. The Division is on track of accomplishing these two KPIs well within the set time line of Financial Year 2024.

Fastracking of approvals for COVID-19

research: In response to COVID-19 pandemic outbreak there was an urgent need to accelerate the development of diagnostics, vaccines, novel therapeutics and re-purposing of drugs for this novel corona virus. The NBA on 3rd April, 2020 took a decision to fastrack the process of obtaining approval for conducting research on biological resources occurring in India or knowledge associated thereto.



Extension of time limit for executing agreement for granting approval by NBA during the “Lockdown Period”: In response to COVID-19 pandemic, NBA on 3rd April, 2020 decided that the “Lockdown Period” was not counted for determining the time period for executing agreements with the National Biodiversity Authority. All applications which are under process for granting approvals stand to benefit from this decision.

Progress/Achievements

Internationally Recognised 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= Clearing House website for generating IRCC. As on date, 1359 IRCCs have been generated, of which, 618 IRCCs were generated during the reporting period.

Listing Threatened Species: The Section 38 of the BD Act, empowers the Central Government in consultation with the concerned State Governments to notify the species of plants and animals which are on the verge of extinction or likely to become extinct in the near future as threatened species with a view to prohibit or regulate collection thereof for any purpose

and take appropriate steps to rehabilitate and preserve those species. So far 18 States and 2 Union Territories namely, Assam, Bihar, Goa, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Orissa, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal, Andaman and Nicobar Islands and Diu and Dam islands have notified threatened species enlisting a total of 159 plants and 175 animal species.

Notifying Biological Resources as Normally Traded as Commodities: The Section 40 the BD Act, empowers the Central Government to notify (in official gazette) to exempt, any item including biological resources from the provisions of the Act, as normally traded as commodities (NTACs) in consultation with the NBA. MoEFCC vide S.O.1352(E) dated 7th April, 2016 and S.O. 3533(E) dated 7th November, 2017 notified a total of 421 (385+36) species/ biological resources as normally traded commodities u/s 40 of the BD Act, to be exempted from the purview of the Act, when traded as commodities.

Training workshop on IT ABS: A Training cum Workshop on IT Access and Benefit Sharing (ABS) Monitoring Tool was organized by the NBA, from 19th – 24th January 2020 at Chennai under the NBA-GIZ Partnership Project on ABS to showcase its functions and utility towards monitoring of bio-resources and implementation of ABS mechanism.

Updating of data to World Database on Protected Areas: Division has initiated a process and achieved success in submitting the data related to protected areas to the World



Database on Protected Areas in line with Aichi Target 11 for 10 States and 3 UTs. Process of submitting the data for rest of the state sand UTs is in process.

Continuing committees/ commissions:

Authority Meetings

- 55th Authority meeting was held on 12 March 2020 at Indus Hall, MoEFCC, New Delhi;
- 56th Authority meeting was held on 23 & 30th June 2020 through video conferencing;
- 57th Authority meeting was held on 7 July 2020 through video conferencing;
- 58th Authority meeting was held on 17 July 2020 through video conferencing;
- 59th Authority meeting was held on 7 August 2020 through video conferencing
- 60th Authority meeting was held on 28 August 2020 through video conferencing.

PBR Monitoring Committee Meetings: The meetings of the PBR Monitoring Committee were held on 5th February and 5-6th March 2020. The committee members had undertaken appraisal visits to the States. A quality monitoring framework for assessment of the PBRs was developed by the committees. PBR Monitoring committees met twice on 3rd June and 22nd October 2020 in virtual mode.

Expert Committee on Identification, Management and Monitoring of BHS: An expert committee has been constituted for identification, management and monitoring of BHS. The 1st meeting of the Committee was held on 06th November 2020.

Working Groups to address the concerns of various stakeholders: In pursuance to the

decision taken in the meeting of the Secretaries held on 6th August 2020 to discuss the revisions in Biological Diversity Act, 2002, Biological Diversity Rules 2004 and ABS Guidelines 2014, it has been decided to constitute a Working Group (WG) for addressing the issues / gaps in the proposed amendments to the said legal instruments. So far five meetings of the Working Group has been convened to address the issues and possible amendments in Access and Benefit Sharing Guidelines, 2020 and BD Act, 2002 and its Rules, 2004.

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

A Training cum Workshop on IT Access and Benefit Sharing (ABS) Monitoring Tool was organized by the NBA, from 19th – 24th January 2020 at Chennai under the NBA-GIZ Partnership Project on ABS to showcase its functions and utility towards monitoring of bio-resources and implementation of ABS mechanism.

List of major publications: Three video films were released by National Biodiversity Authority on its 17th Foundation Day on 1st October, 2020. The video films have been prepared under a NBA-GIZ project and are as follows:

- Simply Explained: Biological Diversity Act, 2002
- Simply Explained: Biodiversity Management Committee
- Simply Explained: People's Biodiversity Registers



Challenges in work due to COVID – 19: In response to COVID-19 pandemic, the Division transitioned all its work on e-office platform thereby avoiding any disruption to the on-going activities.

The challenges on account of the pandemic COVID-19 affected regular meetings of the division/NBA and field level operations for the committee members and BMCs. However, all the review and committee meetings have been conducted online in virtual mode to allow the regular flow of work.

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 structures (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 and 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.

2.2 Conservation and Management of Mangroves & Coral Reefs

Ministry of Environment, Forest and Climate Change (MoEF&CC) is implementing a Central Sector Scheme (CSS) on conservation and management of Mangroves and Coral Reefs in Coastal States/ UTs of India. Under the Scheme, 38 mangroves and 4 coral reef sites have been identified for on-ground intervention. List of identified sites is at annexure-I. During the financial year 2020-21, the Ministry is providing financial support in the ratio 60:40 to the Forest Departments of the Coastal States/ UTs Govts on first come first serve basis.



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 State/UTs Government have been approved.

Progress/Achievement

- 12 MAPs have been approved under the scheme.
- Increase of 54 sq. km of mangrove cover in the country in the year 2019 in comparison to year of the 2017 assessment by FSI Report titled 'India State of Forest Report (2019).

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 Organization	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



Annexure I

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
10. East Godavari	
11. Krishna	
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
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). Out of 18 Biosphere Reserves, 11 Biosphere Reserves have been included in the World Network of Biosphere Reserves of UNESCO and two others are under active consideration by 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 have been released to the 5

BRs till date 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.

- Third party evaluation of the Scheme has been undertaken by NITI Aayog, and report to this effect has been furnished to MoEF&CC. The recommendation in the NITI Aayog report is under examination for needful action.

Progress / Achievements.

- Seven Management Action Plans (MAP) have been approved by the Ministry for carrying out various management activities in the 7 BRs.
- Rs.13 Crores as BE 2020-21 has been allocated for 18 BRs. Proposals from 15 BRs have been received in the Division. Grant-in-aid to 5 BRs has been released till date.
- Proposal of the Panna Biosphere Reserve has been submitted to the UNESCO's headquarter for consideration under the World's Network of Biosphere Reserve for Inclusion of Panna Biosphere Reserve in World Network of Biosphere Reserves.

Promulgation of new Acts/ Rules.: Scheme is strengthening the implementation of various environment Act/ Guidelines/ Rules viz. Wildlife (Protection) Act, 1972, Environment (Protection) Act 1986, Forest (Conservation) Act 1980 etc. Besides, the scheme is reinforcing the commitments as envisaged under various International conventions which include UNCCC, UNCCD and UNCBD.



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

S. N.	Name of Organisation	Purpose	Total amount released (Rs. In Lakhs)	Remarks
1	Nokrek, Meghalaya	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.	155.5300	
2	DehangDibang, Arunachal Pradesh		85.0400	
3	Similipal, Odisha		212.8242	
4	Khangcehndzonga, Sikkim		137.214	
5	DibruSaikhowa, Assam		92.770	
	Total		683.3782	

2.4 Biosafety

The subject dealt with in the CS-III (Biosafety) Division includes activities related to Cartagena Protocol on Biosafety (CPB) to the Convention on Biological Diversity (CBD) and Nagoya Kuala Lumpur Supplementary Protocol on Liability and Redress (NKLSPRL), and the Genetic Engineering Appraisal Committee (GEAC).

- CPB to CBD is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003. Nine meetings of the Conference of the Parties serving as the meeting of the Parties to the Protocol (COP-MOP) have been held so far. In order to facilitate exchange of scientific, technical environmental and legal information on living modified organisms (LMOs), India has established a Biosafety

Clearing House (BCH), which assists Parties to the Protocol to implement its provisions and to facilitate sharing of information on, and experience with, LMOs.

- NKLSPRL aims to contribute to conservation and sustainable use of biodiversity by providing international rules and procedures in the field of liability and redress relating to living modified organisms. The Supplementary Protocol requires that response measures are taken in the event of damage resulting from living modified organisms, or where there is sufficient likelihood that damage will result if timely response measures are not taken. The Supplementary Protocol was adopted on 15 October 2010 at the CoP-MoP-5 held in Nagoya, Japan, and entered into force on 5 March 2018 as a supplementary agreement to CPB after six years of intense negotiations. India has made significant positive contributions in finalisation of the Supplementary Protocol, which is considered as a milestone achievement in



multilateral environmental negotiations.

- GEAC functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC) for approval of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle. The Committee is responsible for approval of proposals relating to release of genetically engineered organisms and products into the environment including experimental field trials. It was established as per Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/ Genetically Engineered Organisms or Cells notified in 1989 under the Environmental (Protection) Act, 1986.
- Phase-III PIF on GoI-UNEP project on “Mainstreaming of Biosafety and Institutional Capacity Building to strengthen effective implementation of Cartagena Protocol on Biosafety” has been recommended for funding under GEF-7 cycle.

Activities undertaken

- The GEAC was reconstituted on 28.5.2018, after completion of tenure of previous Committee. The 139th, 140th and 141st GEAC meetings were held on 19th May, 2020, 28th July, 2020 and 24th November, 2020 respectively.
- Support to Preparation of the Fourth National Biosafety Reports to the Cartagena Protocol on Biosafety – ASIA-PACIFIC, GRULAC, CENTRAL AND EASTERN EUROPE

REGIONS from GEF Trust Fund under GEF-7 cycle.

Progress/Achievements

- Developed and operationalized new GEAC Website with features for receiving applications in online mode (www.geacindia.gov.in)
- Fourth National Report on the implementation of the Cartagena Protocol on Biosafety was submitted.
- Nominated experts to participate in the online Ad Hoc Technical Expert Group on Socio-Economic Considerations (Article 26 of the Cartagena Protocol on Biosafety).
- Organized two workshops in cooperation with KBCH and the UN Environment Programme (UNEP) from February 4-7, 2020 on the “Engagement workshop for the development of the Post-2020 Regional Biosafety Project and Asia Regional Biosafety Clearing House (BCH) Training Workshop”.

Continuing committees/commissions:

- The new GEAC was reconstituted on 28.5.2018 for three years.

List of publications

- Electronic version Fourth National Report on the implementation of the Cartagena Protocol on Biosafety is available on <https://beta.bch.cbd.int/reports>.

Challenges in work due to COVID-19: GEAC meetings were switched to virtual mode in view of coronavirus pandemic. As of now three virtual meetings have been organized within seven months.

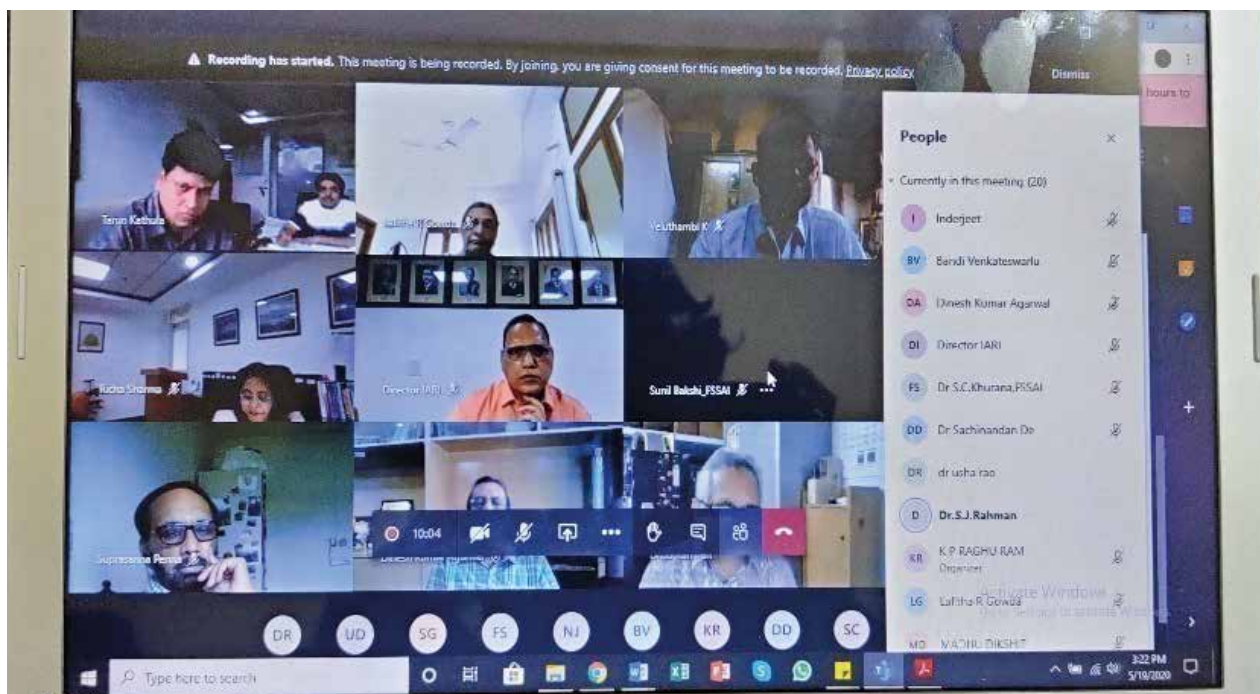


Photo: 139th Meeting of the GEAC held on 24th May, 2020

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

Mission of the Proposal: Enhancement of country's capabilities for inventorizing, monitoring, conserving and utilizing biodiversity as well as for 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



also 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 been significantly enriched and huge information on diversity and distribution of various components of biodiversity have been collected and disseminated.

- In view of inadequate number of taxonomist in the country, the AICOPTAX programme will enhance country's capabilities for inventorizing, monitoring, conserving, and utilizing biodiversity as well as for establishing leadership in the field of taxonomy at regional and global level by awarding projects to various research institutes.

Activities undertaken

- 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

- Under the AICOPTAX, 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. The present Scheme is under Umbrella Scheme of Research and Development for Conservation & Development of RE Division.

List of major publications:

- However, under the AICOPTAX, a number of research papers, books and book chapters are being published by the various principal investigators of the grantee Institutions.

Challenges in work due to COVID-19

- Delay occurred for 3rd party independent evaluation of the progress of the AICOPTAX programme for continuation of it from 2020-21 and onwards;
- Delay in release of the financial support due to late receipt of the Utilization Certificate, progress report etc. of the ongoing projects;

- Delay in organization of the Subject Expert Committee' meetings for initial scrutiny of the research proposals;
- Delay in organization of the Steering Committee meeting(s) for final decision on the research proposals.

Response of the Division:

- All pending research proposals will be placed before the SEC and further Steering Committee for taking final decision;
- The Processing Division is in a position to short out all the shortcomings and utilize the allocated funds i.e. ₹2.80 crore during the CFY 2020-21.
- Progress/Achievements both cumulative and for the reference period.

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

S. No	Name of Organization	Purpose	Total Amount Released	Status of third-party evaluation	Remarks
1	CMFRI, Kochi	Taxonomic research	₹4,36,226/-	Under process	On finalization of the 3rd party evaluation, total allocated funds will be utilized.

2.6 Assistance to Botanic Garden (ABG)

This scheme was initiated in 1992 to augment facilities for ex-situ conservation of Rare, Endangered, Threatened (RET) and Endemic

plants. The objectives of the scheme were 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 of the aforementioned plants; Reintroduction and rehabilitation of such plants in their natural habitats in collaboration with State Forest Department on project basis.

Activities undertaken:

Onetime financial assistance is provided to identified Botanic Gardens and centre of Ex-situ Conservation for improvement of their infrastructural facilities to facilitate ex-situ conservation of rare endangered, threatened endemic plants. Under the scheme, 347 projects cum Botanical Gardens have been supported /established. Various organizations maintain botanic gardens and Centre of ex-situ Conservation which include 18 Lead Botanic Gardens. This is gradually helping in facilitating ex-situ Conservation of rare endemic plants.

Progress/Achievements:

During the year 2020-21 upto December 2020, under the scheme, 18 proposals were received from various institutions, of which 9 proposals received sanctions while the remaining 9 proposals have been shortlisted for disbursing grants. One new Botanic Garden as established at Sikkim University at Gangtok, Sikkim. Expert Group Meeting of Assistance to Botanic Garden scheme conducted and about 18 new Botanic Garden were discussed. Inspection of 18 Botanic Gardens conducted. 165 Threatened plant species conserved in 18 Botanic Gardens as per the target species approved by Expert Group on ABG.

2.7 Forest Conservation

- Rehabilitation, Prayagraj
- Forest Research Centre for Livelihood Extension, Agartala
- Forest Research Centre for Coastal Eco-System, Visakhapatnam

Main activities of the Forest Conservation (FC) Division Implementation of FC Act, 1980:

Forest Conservation Division implements the provisions of Forest Conservation Act, 1980. The Forest (Conservation) Act, 1980 came into force with effect from October 25, 1980. Under the provisions of this Act, prior approval of the Central Government is essential for diversion of forest land for the non-forestry purposes.

Diversion of Forest land for Non-Forestry purposes:

- The Act has succeeded in controlling the indiscriminate use of forest land for non-forestry purposes.
- Diversion of forest land is allowed mostly to meet the developmental needs for Drinking water projects, Irrigation projects, Transmission lines, Railway
- Lines, Roads, Power projects, Défense related projects, Mining etc.
- Prior to 1980, the rate of diversion of forest land for non-forestry purposes was about 1.43 lakh ha. per annum. After this Act came into force, the rate of diversion of forest land has come down to about 16800 ha. per annum.



- While according Forest clearance to the developmental projects, necessary conditions and safety measures are stipulated to minimise the damage to the Environment and Forest during the construction of the project.
- In order to mitigate the ill effects of diversion of forest areas for non-forestry purposes, the following measures are taken up:
 - Compensatory Afforestation (CA).
 - Catchment Area Treatment (CAT)
 - Wildlife Habitat Improvement
 - Implementation of Rehabilitation & Resettlement.
 - Levy of Net Present Value(NPV)
 - Monitoring of above activities.

Achievements:

Introduction of PARIVESH portal for single Window Clearance: Ministry 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 application can also be submitted online. The ministry is taking steps to upgrade and further improve the portal to make it more users friendly.

Timely disposal of the FC Proposals: The proposals for the diversion of forest land received from various States/UTs are properly scrutinized. The complete proposals are then placed before Forest Advisory Committee (FAC) at Ministry or before the Regional Empowered Committee (REC) of the concerned Integrated Regional Offices of Ministry, which meets at least once every month. Proposals complete in all respects are placed before FAC or REC meetings, as the case may be and are disposed of. Now-a-days, it takes less than two months time for disposal of a complete proposal.

For the purpose of transparency, streamlining and for the fast 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.

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.

Statement Showing Total Area Diverted (state wise and category wise) for Forest Land under FC Act, 1980 is enclosed.



Statement Showing Total Area Diverted (State Wise) for Forest Land Under FC ACT, 1980							
Category:AllCategories				During the Period: 01/01/2020 to31/12/2020			
S. No.	STATE / UT	In-Principle		Approved		Grand Total	
		No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)
1	Andaman and Nicobar	0	0.00	0	0.00	0	0.00
2	Andhra Pradesh	15	823.28	3	12.16	18	835.44
3	Arunachal Pradesh	8	302.95	1	4577.84	9	4880.79
4	Assam	1	20.72	2	948.55	3	969.27
5	Bihar	94	201.26	41	282.91	135	484.17
6	Chandigarh	3	0.07	0	0.00	3	0.07
7	Chhattisgarh	10	178.93	4	209.10	14	388.03
8	Dadar & Nagar Haveli	6	7.95	7	8.43	13	16.38
9	Daman and Diu	1	2.43	0	0.00	1	2.43
10	Delhi	2	24.49	0	0.00	2	24.49
11	Goa	4	29.08	1	69.41	5	98.49
12	Gujarat	309	1346.30	496	2978.48	805	4324.79
13	Haryana	197	428.26	365	368.51	562	796.77
14	Himachal Pradesh	83	296.95	78	383.81	161	680.76
15	Jammu and Kashmir	6	53.10	1	1.20	7	54.30
16	Jharkhand	8	356.33	14	289.32	22	645.65
17	Karnataka	29	153.02	19	451.63	48	604.65
18	Kerala	25	22.62	2	0.74	27	23.36
19	Lakshadweep	0	0.00	0	0.00	0	0.00
20	Madhya Pradesh	54	1180.13	188	6492.36	242	7672.49
21	Maharashtra	19	118.13	4	132.59	23	250.72
22	Manipur	0	0.00	0	0.00	0	0.00
23	Meghalaya	1	16.11	2	0.03	3	16.14
24	Mizoram	4	17.94	0	0.00	4	17.94



S. No.	STATE / UT	In-Principle		Approved		Grand Total	
		No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)
25	Nagaland	0	0.00	0	0.00	0	0.00
26	Orissa	26	408.33	27	1481.37	53	1889.70
27	Pondicherry	0	0.00	0	0.00	0	0.00
28	Punjab	77	363.25	184	351.90	261	715.16
29	Rajasthan	38	400.06	41	126.95	79	527.01
30	Sikkim	28	87.93	0	0.00	28	87.93
31	Tamil Nadu	10	273.65	5	14.84	15	288.49
32	Telangana	35	486.86	16	110.44	51	597.30
33	Tripura	18	51.78	12	208.96	30	260.74
34	Uttar Pradesh	107	992.49	161	651.88	268	1644.37
35	Uttarakhand	278	1037.88	113	1000.54	391	2038.42
36	West Bengal	4	16.68	3	18.41	7	35.09
Total		1500	9698.98	1790	21172.35	3290	30871.33

Statement Showing Total Area Diverted (Category Wise) For Forest Land Under FC ACT, 1980

Category: All States

During the Period: 01/01/2020 to 31/12/2020

S. No.	CATEGORY	In-Principle		Approved		Grand Total	
		No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)
1	Approach Access	165	8.80	430	26.18	595	34.98
2	Canal	2	25.93	1	2.32	3	28.25
3	Defence	19	316.81	5	2615.20	24	2932.01
4	Dispensary/ Hospital	1	0.85	1	0.25	2	1.10
5	Drinking Water	70	672.84	64	92.49	134	765.33
6	Forest Village Conversion	1	12.00	2	198.00	3	210.00
7	Hydel	12	657.03	8	5162.43	20	5819.46
8	Industry	4	3.68	2	15.62	6	19.31



S. No.	CATEGORY	In-Principle		Approved		Grand Total	
		No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)	No. of Cases	Total Land Diverted (Ha.)
9	Irrigation	16	737.48	26	1522.31	42	2259.79
10	Mining	25	1273.82	21	1925.32	46	3199.14
11	Optical Fibre Cable	107	95.43	120	117.18	227	212.61
12	Others	340	680.56	483	1394.24	823	2074.80
13	Pipeline	56	86.95	104	71.11	160	158.06
14	Quarrying	0	0.00	2	7.28	2	7.28
15	Railway	35	603.38	27	1106.99	62	1710.37
16	Rehabilitation	2	24.93	0	0.00	2	24.93
17	Road	518	3250.82	375	5372.48	893	8623.30
18	School	5	4.04	5	0.20	10	4.24
19	Solar Power	0	0.00	2	0.01	2	0.01
20	Sub Station	7	4.85	8	51.31	15	56.16
21	Transmission Line	102	1172.68	96	1481.57	198	2654.25
22	Village Electricity	13	66.10	7	9.55	20	75.65
23	Wind Power	0	0.00	1	0.30	1	0.30
Total		1500	9698.98	1790	21172.35	3290	30871.33

2.8 Compensatory Afforestation Fund Management and Planning Authority (CAMPA)

The “National Compensatory Afforestation Fund Management and Planning Authority(National Authority)” has come 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 of 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, a Monitoring Group and an administrative support mechanism. One of the functions of the National Authority is to manage and utilise the “National Compensatory Afforestation Fund (National Fund)”, which has been created at the National level under the public account of India, for the purpose of the CAF Act, 2016. The other fund created at the State/UT level is known as “State Compensatory Afforestation Fund (Name of the State)” under the public accounts of respective States/UTs. As per the Act, the compensatory levies, which are



collected against approvals under the Forest (Conservation) Act, 1980 and/or under section 18, 26A or 35 of the Wildlife (Protection) Act, 1972) are to be deposited into the public accounts of the respective States and 10% of the amount, so deposited, is to be transferred to the National Fund annually. These funds are available to the National Authority and respective State Authorities through budgetary process. Even after the formation of the National Authority and State Authorities, the user agencies are crediting compensatory levies into state specific bank accounts maintained by the Ad-hoc CAMPA (now the National Authority) as a well-defined payment mechanism integrated with PARIVESH portal of the MoEF&CC for online remittance of the levies by the user agencies to the State Fund, is required to be established. This mechanism

should be capable of generating secure online receipts of the levies through the portal and produce other requisite information/statements for the grant of Stage-II approval (final approval) under the Forest (Conservation) Act, 1980 by the MoEF&CC. This mechanism is under finalisation. Thus, till 31.12.2020 funds amounting to Rs 62,070 crore were transferred from these 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. In addition, funds to the tune of Rs. 48,477 crore has been disbursed from the National fund to 31 States till 31.12.2020, who have created their public accounts and reconciled project wise and component wise amount with the National Authority. The state-wise information is given in Table-I.

Table-I

Disbursement of Fund from National Fund to Respective State Funds on 29.08.2019

Sr No.	Name of State	Funds transferred (in crore Rs)
1	Andhra Pradesh	1734.81
2	Arunachal Pradesh	1588.72
3	Assam	560.81
4	Bihar	522.95
5	Chhattisgarh	5791.70
6	Goa	238.16
7	Gujarat	1484.60
8	Haryana	1282.65
9	Himachal Pradesh	1660.72
10	Jharkhand	4158.02
11	Karnataka	1350.37
12	Kerala	81.59

Sr No.	Name of State	Funds transferred (in crore Rs)
13	Madhya Pradesh	5196.69
14	Maharashtra	3844.24
15	Manipur	309.76
16	Meghalaya	163.31
17	Mizoram	212.98
18	Odisha	5933.98
19	Punjab	1040.84
20	Rajasthan	1748.26
21	Sikkim	392.36
22	Tamil Nadu	113.42
23	Telangana	3110.38
24	Tripura	183.65



Sr No.	Name of State	Funds transferred (in crore Rs)
25	Uttar Pradesh	1819.63
26	Uttarakhand	2675.09
27	West Bengal	236.48
28	Chandigarh	11.38

As a part of the Atmanirbhar Bharat Package announced by Hon'ble Prime Minister of India on May 12, 2020 the Executive Committee of the National Authority held four meetings in the calendar year from May 2020 to

Sr No.	Name of State	Funds transferred (in crore Rs)
29	Jammu & Kashmir	764.54
30	Andaman & Nicobar	16.41
31	Ladakh	249.27
GRAND TOTAL		48,477.77

August 2020 and approved Annual Plan of Operations(APOs) of 30 State CAMPAs for the year 2020-21 under section 15(1)(i) of the CAF Act. This has resulted in generation of around 4.2 crore person days of employment.

Table-II

Annual Plan of Operations of State Authorities approved for 2020-21

Sr No.	Name of State/ UT	Total approved Amount of APOs for 2020-21(in Rs Crore)
(i)	(ii)	(iii)
1.	Andhra Pradesh	330.82
2.	Assam	88.34
3.	Bihar	239.48
4.	Chandigarh	2.26
5.	Chhattisgarh	963.24
6.	Delhi	19.55
7.	Goa	32.69
8.	Gujarat	240.69
9.	Haryana	204.15
10.	Himachal Pradesh	158.39
11.	Jammu & Kashmir (UT)	184.83
12.	Jharkhand	378.56
13.	Karnataka	173.67
14.	Kerala	15.8
15.	Madhya Pradesh	860.96

Sr No.	Name of State/ UT	Total approved Amount of APOs for 2020-21(in Rs Crore)
(i)	(ii)	(iii)
16.	Maharashtra	534.33
17.	Manipur	27.79
18.	Meghalaya	33.97
19.	Mizoram	32.66
20.	Odisha	773.39
21.	Punjab	177.85
22.	Rajasthan	215.64
23.	Sikkim	66.9
24.	Tamil Nadu	66.63
25.	Telangana	483.78
26.	Tripura	21.51
27.	UT of Andaman & Nicobar Islands	2.13
28.	Uttar Pradesh	439.01
29.	Uttarakhand	225.09
30.	West Bengal	74.00
Total		7,068.11



Hon'ble Minister for Environment, Forest and Climate Change convened another meeting of State Forest Ministers on 17.08.2022 and requested Hon'ble Forest Ministers of the States to ensure the use of State CAMPA funds primarily for afforestation and related activities as the sole purpose of collecting the compensatory levies and the spirit of the Compensatory Afforestation Fund (CAF) Act 2016 is to make up for the loss of trees, forest land, wildlife and ecological services on account of diversion of forest land for non-forestry purposes. He impressed upon them to take necessary steps in this regard so that CAMPA funds are not used as substitute to normal State budget for the forestry and wildlife sector.

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 Office; Indira Gandhi National Forest Academy (IGNFA); Directorate of Forest Education (DFE) and State Forest Colleges. Wildlife Crime Control Bureau (WCCB) and National Zoological Park (NZP).

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 are the organization 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:

- 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 Deptt. 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.

Activities undertaken

- RRs for various Group A, Group B and Group C posts of FSI, DFE and NZP are under process.
- One post of AD(OL) in FSI and one post of A.O. in NZP were revived.



- Eight post of Assistant Director and one post of AD (Statistics) were filled by promotion in FSI.
- RRs for the post of Assistant Conservator of Forest and Forest Ranger, UT of Lakshadweep are under process.
- Two post of Assistant Director in WCCB were filled up by Deputation.
- Constituted Search-cum-Selection Committee for selection of candidates for the posts of Group A level 14 and above in ICFRE post post of Deputy Director General (Extension), Deputy Director (Administration) and Director, IFGTB, Coimbatore.
- As on 31.12.2020 FE Section has dealt with 92 RTI Requests 9 RTI Appeal 20 Public Grievances and 6 VIP/MP references.

2.10 Forest Policy

Forest Policy Division of Ministry of Environment, Forest and Climate Change (MoEF&CC) deals with the National Forest Policy, 1988, Indian Forest Act, 1927 and its amendments including policy matters and legislative matters of other Ministries and State Governments related to forests. The Division is the National Focal Division for the 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 and Centre for International Forestry Research (CIFOR) and International Poplar Commission of FAO. The Division is mandated to deal with technical aspects of NDC related forestry targets and

implementation of REDD+ programme in the country at national level. The Division is also the nodal division for coordinating bilateral agreement between India and USAID on the Forest PLUS program.

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.

Activities undertaken:

- Forest Policy Division organized two meetings of the informal Group of Ministers to discuss the proposed National Forest Policy. Draft National Forest Policy, 2020 was finalized. The same is under consideration for adoption.
- Draft Guidelines for Public Participation in Afforestation of Degraded Forests, afforestation/ tree plantation on non-forest Government lands and incentivizing farmers for tree plantation on agricultural waste land are under preparation.
- National Transit Pass System (NTPS)- A National Portal on Pan India Transit System for timber, bamboo and other forest produce has been launched for piloting in two states viz. Madhya Pradesh and Telangana. The Chief Ministers of all States including Administrators of Union Territories have been requested to accept the transit passes generated through NTPS and do away with the requirement of in-lieu passes at State borders. Necessary data feed is being carried out in consultation with all States/ UTs to roll out the NTPS system at Pan India basis at the earliest.



- “International Day of Forests 2020” was celebrated on 21st March 2020 to raise awareness on importance of forests. This year’s theme is “Forests and Biodiversity”. Various schools and college competitions like painting, essay, debate etc have been organised to raise awareness about forest and its biodiversity.
- The Ministry in consultation with ICFRE has prepared a draft Safeguard Information System for implementation(SIS) of REDD+ Activities in the country. States/ UTs were requested to establish State REDD+ Cells for implementation of REDD+ in the States. So far, 7 states have already created the REDD+ Cell.
- Forest Policy Division has actively coordinated with Ministry of Tribal Affairs on all the 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.
- Forest Policy Division processed various Bills and offered comments/ concurrence/ NOC for further action. These are:
 - The Jammu and Kashmir Reorganization Act, 2019-Adaptation of State Laws in UT of Ladakh
 - The Jammu and Kashmir Reorganization Act, 2019-Adaptation of Central Laws in UT of Ladakh
- Government of Tripura proposal regarding “Amendment of Guidelines for extraction of trees from non-forest areas”
- Proposal of Andaman and Nicobar Islands regarding “Promulgation of the Andaman and Nicobar Island-Felling and Transit of Tree Species on Non-Forest Land Regulation, 2020”.
- Neighbourhood First Policy: Forest Policy Division processed the matter related to Neighbourhood First Policy received from the Ministry of External Affairs. A D.O. letter dated 28.08.2020 was issued to MEA giving details of possible action on identified suitable partnerships with selected neighbouring countries in the field of forestry and wildlife.
- The fifteenth session of the United Nations Forum on Forests (UNFF15) was originally scheduled to be held from 4-8 May 2020 at UN Headquarters in New York. However, due to the significant impacts of the COVID-19 pandemic, UNFF15 was not held. Despite these unprecedented circumstances, the UNFF15 resolution was adopted through a three-month long intensive consultative process through numerous virtual consultations. Forest Policy Division participated in these virtual meetings.
- Forest Policy Division has provided inputs to International Cooperation Division on the matter related to G-20, India-France Cooperation, India-Germany, India-Russia etc.



2.11 Forest Protection

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

Activities undertaken

- Sensitization and preparatory workshop of all the divisions and associated institutions and organizations of MoEFCC on preparation of disaster management plan has been organized in coordination with the National Institute of Disaster Management on 5th November 2020.

Progress/Achievements

- During the current financial year (2020-21) under FPM Scheme, an amount of Rs.33 Crores has been allocated and out of this, expenditure of Rs.28.35 Crore has been incurred which is nearly 86.00 % as on 23.12.2020.
- The 2nd meeting of Central Monitoring Committee on Forest Fire was held on 15.10.2020 under the chairmanship of Secretary, MoEFCC through video conferencing.

Continuing committees/commissions-their work

A Central Monitoring Committee has been constituted in 2019 under the Chairmanship of Secretary EF&CC to monitor the implementation of the National Action Plan on Forest Fire. The 2nd meeting of Central Monitoring Committee on Forest Fire was held on 15.10.2020 under the chairmanship of Secretary, MoEF&CC through video conferencing.

Forest Fire Prevention and Management: The scheme supports the efforts of States Governments and UT Administrations in prevention and control of forest fire by providing financial assistance for various forest fire prevention and management measures.

Long Term Objectives

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



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

Short Term Objectives

- To carry out effective awareness campaign for prevention of forest fire.
- To effectively prevent and control forest fires by improving the traditional practices and employing available modern methods.
- 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.
- To encourage community participation in prevention and control of forest fire.
- To develop and strengthen Forestry Infrastructure of the States and UTs that is required for effective prevention and management of Forest fire.

Progress/Achievements:

During the current year 2020-21 (from 01.04.2020 to 27.11.2020), an amount of Rs 23.55 Crore has been sanctioned under the FPM scheme to various States and UTs.

2.12 Wildlife Conservation

The Wildlife Division of the Ministry of

Environment, Forest and Climate Change, Government of India is the nodal Division which deals with the policy, legal and finances for the conservation of wildlife in the Country. The Division 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, 1792. The Division also provides technical support to the State/ UT Governments for conservation of wildlife and their habitats through the Centrally Sponsored Scheme - Development of Wildlife Habitats (CSS-DWH).

Activities undertaken

- Hosting of 13th Conference of Parties to the Convention on Migratory Species
- Enhancement of Protected Area Network in the Country
- Effective decision making in development related projects
- Declaration of Eco-Sensitive Zones
- Initiation of Project Lion and Project Dolphin
- Advisory on Exotic animals
- Artificial conservation breeding of Great Indian Bustard (GIB)
- Celebration of World Rhino Day, 2020
- Action Plan for Vulture Conservation in India (2020-2025)
- Release of a documentary on Dr. Salim Ali, Ornithologist
- Marine Mammal Stranding Management Policy
- Indo-German Development Cooperation



Project on “Human Wildlife Conflict Mitigation in India

- Securing livelihoods, conservation, sustainable use and restoration of high range Himalayan
- Ecosystems (SECURE Himalaya) Project
- Financial assistance for Recovery programme of critically Endangered Species under Centrally Sponsored Scheme- Development of Wildlife Habitat

Progress/Achievements

Hosting of 13th Conference of Parties to the Convention on Migratory Species: The Government of India successfully hosted the 13th Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP13), during 17th-22nd February, 2020 at Gandhinagar, Gujarat which was attended by representatives from several countries besides Heads of various biodiversity related Inter-Governmental Organizations. A “Gandhinagar Declaration”

was adopted during the COP which envisages “Connectivity” amongst landscapes, habitats, amongst the various conventions and also between the people and ecosystems for ensuring better conservation of migratory species across the globe.

The hosting of the COP has enabled India to prove as a true global leader. The CMS COP Presidency for the next three years will usher India in playing a very important role in Marine conservation including conservation of marine species. India would also be playing a leadership role and would be the nerve centre for conservation of migratory birds along the Central Asian Flyway (CAF) by establishing a common platform for institutionalizing the migratory bird conservation along the CAF. The CMS COP Presidency would enable India to enhance its cooperation with CMS countries for conservation of migratory species and also in developing linkage with Non CMS countries under SAARC (Nepal, Bhutan), ASEAN and EAS countries.





Enhancement of Protected Area Network in the Country: Protected areas are a proven instrument for conservation of biodiversity and can strengthen the resilience of ecosystems and landscapes to climate change and also provide safety through their genetic resources and ecosystem services. India has over 20% of the total geographical area under managed forests and thus under effective nature conservation, thereby exceeding the 17% Aichi target 11. The number of Protected Areas in the country, which stood at 771 in the year 2018 have risen to 903 PAs at present, which are spread in an area of 165012.59 sq.km. This accounts for 5.02% of the country's total geographic area. With more impetus on people's participation in conservation and people based conservation initiatives in the Country, there has been a substantial increase in establishment of Community Reserves. The numbers of Community Reserves in the country has increased from 46 in the year 2018 to 163 at present.



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 three (03) meetings of the Standing Committee of NBWL were convened through Video Conferencing in the year 2020.

Declaration of Eco-Sensitive Zones around wildlife Protected Areas minimizes the adverse impact of development projects near wildlife habitats. During the year 2020, forty seven (47) numbers of Eco-Sensitive Zones have been notified.

Initiation of Project Lion and Project Dolphin: Hon'ble Prime Minister of India, during his Independence Day speech to the nation on 15th August 2020, had announced initiation of "Project Lion" and "Project Dolphin" (both riverine and marine) for better conservation of the species and their habitats in lines of 'Project Tiger'. The Project Lion will entail habitat development, engage modern technologies in Lion management and address the issues of disease in Lion and its associated species through advanced world class research and veterinary care. The project will also address Human-wildlife conflict and will be inclusive involving local communities living in the vicinity of Lion landscape and will also provide livelihood opportunities through activities such as eco-tourism, promotion of local art and handicrafts, home stays etc.



The Project Dolphin will involve conservation of Dolphins (both riverine and marine) and the aquatic habitat through use of modern technology specially in enumeration and anti-poaching activities. The project will engage the fishermen and other river/ ocean dependent population and will strive for improving the livelihood of the local communities through additional economic incentives. Under the Project, awareness on conservation of dolphins and enhancement of livelihood opportunities through 'Dolphin Tourism' are key components. The conservation of Dolphin will also envisage activities which will also help in the mitigation of pollution in rivers and in the oceans.



Advisory on Exotic animals: In India, several species are listed in the Wild Life (protection) Act, 1972 and are protected. However, exotic species are imported to India and bred in captivity without proper registration.

Considering this, the Ministry had issued an Advisory in June, 2020 for Voluntary Disclosure of Exotic Live Species, with the objectives of creating a unified information system of the stock of exotic live species at the State/Central level through voluntary disclosure and the use of that database towards controlling and management of zoonotic diseases, and for facilitating better management of the species and providing guidance to their holders for their proper care and well-being. The entire registration process has been made through a hassle free online system for the benefit of the importers and owners of exotic live animals as well as for the concerned authorities. This effort of the Ministry has also been lauded by the Hon'ble Apex Court of India. Ministry is contemplating in widening the scope of the advisory to include non - CITES listed exotic species also.'

Artificial conservation breeding of Great Indian Bustard (GIB): Under the programme 'Habitat Improvement and Conservation Breeding of Great Indian Bustard-an integrated approach', eggs of Great Indian Bustard were collected from the wild and artificially incubated and hatched at the world's first ever Conservation Breeding Centre established for artificial breeding of Great Indian Bustard at Jaisalmer, Rajasthan. Seven (07) eggs of GIB were collected and artificially incubated and hatched during March- October, 2020. A total of 16 Great Indian Bustard chicks have been artificially hatched from eggs collected from wild till date. The oldest chick is 16 months of age. The birds from the breeding centre would be released into the wild after the successful breeding of more birds in the centre.



Celebration of World Rhino Day, 2020: To emphasize the importance of conservation of Rhinoceros species and its habitats, the Ministry celebrated the World Rhino Day, 2020 on 22nd September, 2020 through virtual platform in the esteem presence of Shri Babul Supriyo, Hon'ble Minister of State for EF&CC. The senior officials of the Ministry, State Forest Departments and other organizations such as Central Zoo Authority, WWF-India, UNDP etc. also attended the programme. Deliberations on the Actions taken by Rhino bearing States on the "New Delhi Declaration" were also held during the programme.

Celebrating Wildlife Week, 2020: The Ministry celebrated Wildlife Week during the 1st week of October 2020, coinciding the birth anniversary of Mahatma Gandhi. To instill the conservation ethos amongst the general public, Hon'ble Prime Minister had delivered a message on the occasion which was widely circulated. 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 through virtual media, considering the Covid pandemic.

Action Plan for Vulture Conservation in India (2020-2025): The Ministry launched the five-year Action Plan for Vulture Conservation in India (2020-2025) in November, 2020. The Action Plan has identified priority actions for the conservation of vultures and their habitats. It also advocates prevention of misuse of veterinary non-steroidal anti-inflammatory drugs and awareness of the importance of conservation of vultures. The other important objectives of the Action Plan are to institute a system, which automatically removes a drug from veterinary use if it is found to be toxic to vultures, establishment of additional Vulture Conservation Breeding Centres (VCBCs), Vulture safe zones in every State and establishment of dedicated vulture rescue centres in the country. At present, the focus was on conservation of Gyps species of vultures, but now, the conservation breeding programmes of Red Headed Vultures and Egyptian Vultures would be also initiated. The APVC (2020-2025) will also draw expertise and advice, from the existing Regional Steering Committee (RSC) for Coordination with various countries in



South Asia which are within the distribution range of the vultures, as well as from SAVE, a consortium of NGOs and International

Conservation Organizations which are actively working towards conservation of South Asian Vultures.



To commemorate the birth anniversary of Dr. Salim Ali, Ornithologist, the Ministry also launched a documentary/short film on the life of Dr. Salim Ali on 09th November, 2020.

Indo-German Development Cooperation Project on Human Wildlife Conflict Mitigation in India: The Indo-German technical cooperation project “Human Wildlife Conflict Mitigation (HWC) in India” is supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in partnership with the Ministry of Environment, Forest and Climate Change and the State Forest Departments of Karnataka, Uttarakhand and West Bengal. The project aims at providing technical support at the National level and in Partner States for effective implementation of Human Wildlife Conflict mitigation measures. The main objective of the project is that the rural population in project areas, where agreed

guidelines and tools are applied to mitigate human wildlife conflicts, is better protected against Human Wildlife Conflict. The project takes the approach of harmonious coexistence, by ensuring that both – human and wildlife – are protected from conflicts. This approach follows the modern wildlife conservation principles to balance the needs of people with the conservation of nature.

Zero draft of National Human-Wildlife Conflict Mitigation Strategy and Action Plan has been developed with participatory process. In the year 2020, 10 workshops and meetings were organized to work towards the zero draft of HWC- NAP. Zero draft of Guidelines for human-elephant conflict mitigation and human-leopard conflict mitigation are developed, while for 8 other species in Conflict (Wild Boar,



Crocodile, Rhesus Macaque, Snakes, Sloth Bear, Gaur, Nilgai, Blackbuck) and key issues (media engagement, crowd management, medical emergencies, and occupational health and safety) under preparation. In the year 2020, more than 20 online workshops and meetings were organized to work towards the zero draft of the guidelines. A side-event on 'Community-Based Conservation: Mitigating conflicts for effective community engagement' was hosted jointly by Ministry of Environment, Forest and Climate Change, Government of India, GIZ India and Forest Departments of Karnataka, Uttarakhand, Sikkim, Ladakh, West Bengal and Arunachal Pradesh at the CMS 2020 CoP13 in Gandhinagar, Gujarat on 19 February 2020.

Securing livelihoods, conservation, sustainable use and restoration of high range Himalayan Ecosystems (SECURE Himalaya)

Project: SECURE Himalaya is a Govt. of India (MOEFCC-UNDP-GEF project (2017- 2023) being implemented in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Sikkim. SECURE Himalaya project aims to demonstrate a matrix of best practices of high range Himalayan ecosystem and snow leopard conservation for scaling up and replication in other landscapes, nationally and globally. The focal species for conservation is Snow Leopard which is among the 21 critically endangered species being protected in India.

Himal Sanrakshak – Community Volunteer Programme”, was launched by the Hon'ble Minister of State, Ministry of Environment, Forest and Climate Change, on 23- 10- 2020 on the International Snow Leopard Day. The programme is a joint initiative of the MoEF&CC

and UNDP, and aims to identify, recognize and build the capacities of dynamic youth and women towards wildlife conservation, sustainable use of biological resources, combating illegal trade in wildlife, mitigating human wildlife conflict and biodiversity governance. The programme is developing a cadre of 100 volunteers from local community in the Himalayan region (Ladakh, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh) to support the government in conservation and sustainable management of high-altitude ecosystems through participatory approaches for a period of one year.

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. Around 71% of the funds were disbursed to the States/ Union Territories under CSS-DWH till 31st December, 2020. The management and conservation efforts of the Government are discernable in the population increase of key stone species. Due to the enhanced financial allocation and concerted management efforts, most of these species have shown remarkable increase in population.

The scheme has following three components:

- Support to Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- Protection of Wildlife Outside Protected Areas
- Recovery programmes for saving 21 Critically



2.13 Wildlife Crime Control Bureau (WCCB)

India is one of the mega bio-diverse countries of the world and is a prime target of organized illegal international trade in wildlife and wildlife parts/derivatives. Wild Life (Protection) Act, 1972, is the umbrella legislation for wildlife conservation and protection in the country. The implementation of the provisions of the Act is done by States mainly through Forest & Wildlife departments and Police department. However, due to inadequate infrastructure in the States for combating organized wildlife crime and also keeping in view the inter-state and international ramification of the crimes, Wildlife Crime Control Bureau (WCCB) was constituted by Government of India under the Ministry of Environment Forests and Climate Change, as a sub – component of the ongoing Central Scheme ‘Strengthening of Wildlife Divisions and Consultancies for Special Tasks’; to complement the efforts of the State agencies and coordinate the actions of Central & State agencies in enforcement of the provisions of the Act. From the year 2017-18 the funding to the Wildlife Crime Control Bureau is being provided under the scheme of “Wildlife Crime Control Bureau”.

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

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

- 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;
- 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;
- 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;
- Assistance to concerned authorities in foreign countries and concerned international organizations to facilitate co-ordination and universal action for wildlife crime control;
- 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;
- 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:

- Collection, collation and dissemination of 191 intelligence inputs on wildlife crime and criminals to the Central / State agencies concerned for operations/joint operations/apprehension of criminals.
- Collection of wildlife crime data from 36 agencies of the States/UTs (Forest & Police Depts.) by creation of online data management system in WCCB website base.
- Wildlife Crime Enforcement under the provisions of Wild Life (Protection) Act, 1972:-
- Detection/ search/ seizures/apprehensions – 82 Wildlife Crime cases detected in Joint Operations conducted by Bureau with other State/ central Enforcement Agencies during the period.
- Assisted in Investigation of 85 offences detected by the officers of the Bureau
- Filing of many complaints in courts in cases detected by the Bureau.
- Capacity building in dealing with wildlife crimes and investigation of wildlife offences:-
 - Conducted 7 two days capacity building training courses on investigation of wildlife offences and intelligence tradecraft for 283 Police and Forest officials.
 - Conducted 81 Sensitization programmes/ workshops/online webinars for the Central and State agencies on issues related to wildlife crimes and identification of wildlife articles in which 10263 Officials participated.
 - Conducted 4 PRI Sensitization programmes and 1 online webinar for the PRI members/Villagers on issues related to wildlife crimes and protection of wildlife in which 313 PRI members participated.
 - Provided expert resource persons to various training centers and enforcement agencies for sensitization on wildlife and wildlife crime
 - 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: –

- Conducted 82 Joint operations with other agencies for prevention of wildlife crime.
- 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:-

- Participated in Interpol coordinated multi – national joint operation Thunder 2020.
- Participated in the 6th Executive Committee Meeting of SAWEN at Sri Lanka on 04-05 March 2020.



- Participated virtually in the SAWEN Focal Persons Meeting held on 27.07.20.

Sensitization and awareness campaigns on wildlife and wildlife crimes to public and other stakeholders: -

- Public education and awareness campaigns - including schools/PRI leaders/fairs/ pet markets etc.
- Sensitization programmes for other agencies and 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 85 new cases during the year. The assistance provided included providing intelligence, identification of species, case documentation, joint interrogation of accused, inputs on linkages inputs to govt. advocates and coordination with other agencies to provide expertise & expedite reports.

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 76 WLP Act, 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 202 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 2020:

WCCB received UNEP Award: Excellent work done in combating trans-boundary environmental crime by WCCB has been recognized by United Nation Environment Programme by awarding Asia Environment Enforcement Awards, 2020. The Asia Environment Enforcement Awards publicly recognize and celebrate excellence in enforcement by government officials and institutions/teams combating trans-boundary environmental crime in Asia. WCCB has been conferred this award in the Innovation category.



Asia and the Pacific Office



Reference: AP/2020-290/GOV.4/DT/gl

2 December 2020

Dear Sir/Madam,

I am very pleased to inform you that Wildlife Crime Control Bureau (WCCB) has been selected as one of the winners of the Asia Environmental Enforcement Awards. Congratulations! Your excellent work in combating transboundary environmental crime has been recognized by a panel of international experts from the United Nations and partner agencies. The purpose of the Asia Environmental Enforcement Awards (AEEA) is to publicly recognize outstanding achievements by public organizations and individuals in Asia to combat transboundary environmental crime. The list of winners of the 2020 AEEA edition is attached in Annex 1.

The awards have been determined by a review committee, comprising the United Nations Environment Programme (UNEP), the United Nations Development Programme, the United Nations Office on Drugs and Crime, the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the International Criminal Police Organization (INTERPOL), and the World Customs Organization.

An award ceremony will be held virtually in February 2021. It is my pleasure to invite you or your representative to attend the virtual ceremony. We ask that you kindly refrain from sharing your award publicly (e.g. with media or on social media accounts) until the public announcement has been made by the Awards partners at the ceremony. I would appreciate your acknowledgement to UNEP no later than 15 December 2020 by email to Ms. Saranya Rojananuangnit (rojananuangnit@un.org) with copy to Ms. Georgina Lloyd (georgina.lloyd@un.org), Regional Coordinator Environmental Law and Governance.

In addition, we are in the process of preparing video profiles of the winners which will be published in 2021. We look forward to working with you to highlight your achievements.

Please accept my sincere congratulations on this outstanding achievement!

Yours sincerely,

Dechen Tsering
Regional Director and Representative
for Asia and the Pacific

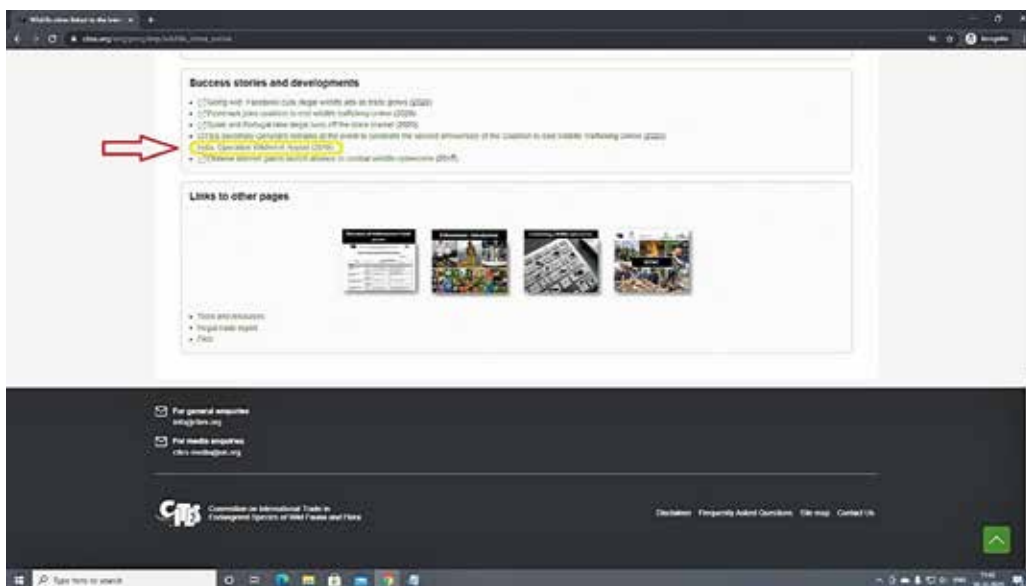
Wildlife Crime Control Bureau (WCCB)
India

CC: Smt. Tilotama Varma, Additional Director, WCCB HQ, New Delhi, addldir-wccb@gov.in



Apart from this CITES and SAWEN Secretariat appreciated WCCB efforts for smooth and successful conduct of operation WILDNET-III to check online illegal wildlife trade. CITES Secretariat specifically requested WCCB to

upload report of above enforcement operation on CITES website as success story to share with member countries. Previously CITES has also uploaded report of operation WILDNET-II conducted by WCCB in September 2019.



Detection & seizures:





Inter - Agency Coordination Meeting to discuss wildlife crime issues: One Inter-agency coordination meetings conducted till 30.11.19 by WCCB.



Sensitization / awareness programs for Central/State government agencies and stakeholders:

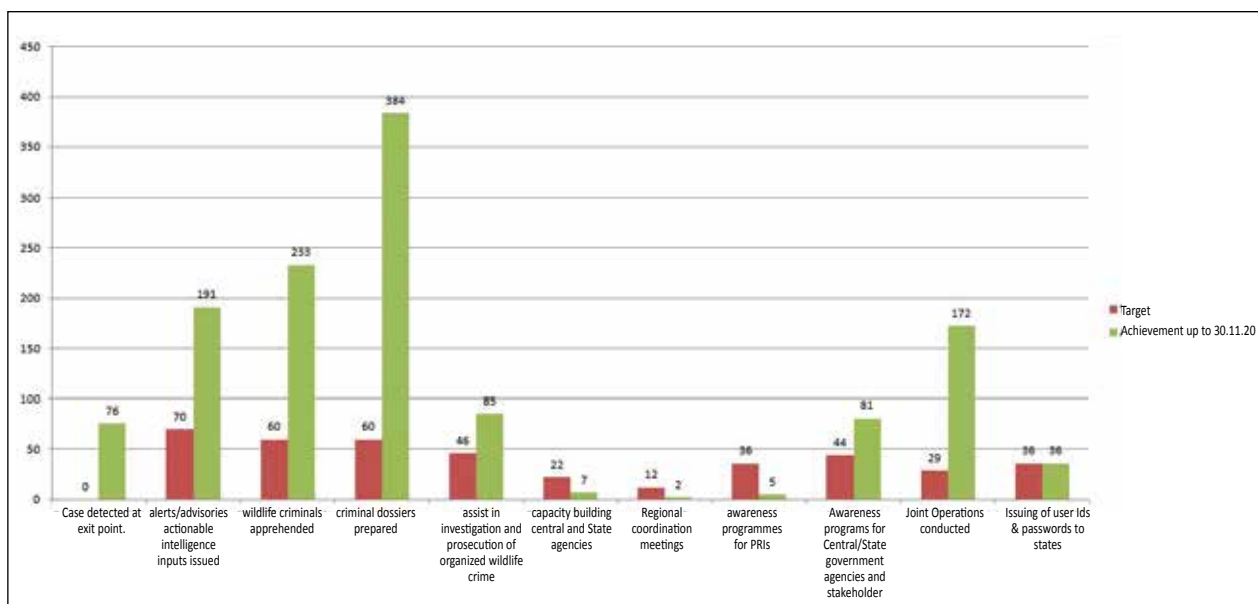




Sensitization/ awareness programme for PRI Members:



Bar Chart of Progress/Achievements made during 2020 (up to 30.11.2020)

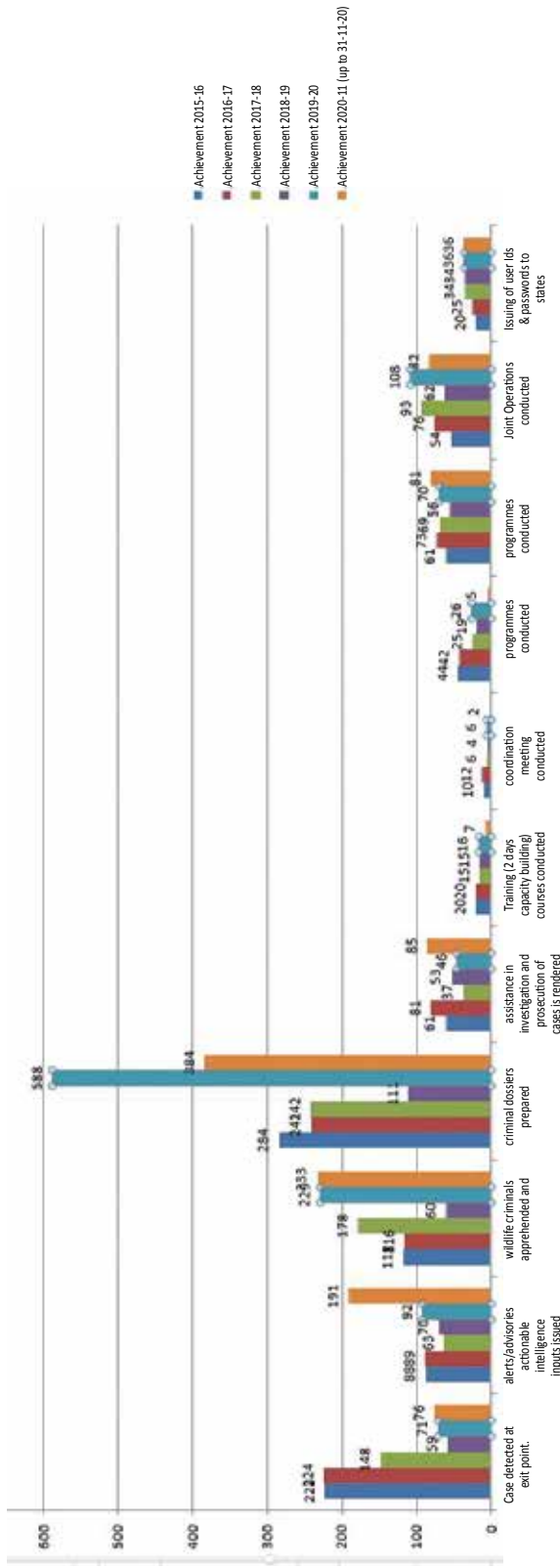


Note:

- a) No target fixed for detection at exit points as the same depend on the no of cases referred by Customs.
- b) 283 forest & police officials trained during capacity building of central & state agencies.
- c) 313 PRI members sensitized during awareness programmes for PRIs.
- d) 10263 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.
- 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.
- 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.



Special Operations conducted by WCCB:

Operation “Turtshield” (1st December 2019 to 31st January 2020): The Enforcement agencies across the country were requested to focus their attention on illegal trade in turtles/tortoises especially to focus on the interconnected web of poachers, suppliers, carriers, traders and facilitators. Specific attention was given to work on the organised inter-state and trans-border networks engaged

in illegal turtle trade. After the operation it was also requested to share good practices followed in various states with the Bureau so as to share with other state authorities to improve the investigation and intelligence gathering skills of field officials and to generate awareness among the general mass towards the menace of wildlife crime and urge the support of the people towards demand reduction.



Outcome of the operation: 18 criminal cases were registered based on intelligence collected during the operation period resulting in the seizure of 4601 Turtle/Tortoises. A total of 45 Wildlife criminals were arrested in these cases.

Operation “Wildnet-III” (1st July 2020 to 30th September 2020): The Enforcement agencies

were requested to focus their attention on the ever increasing illegal wildlife trade over internet using Social Media platforms such as Facebook, WhatsApp, twitter, Youtube etc. apart from various online classified sites and online trade portals, websites and Blogspots. The Enforcement Agencies were requested to

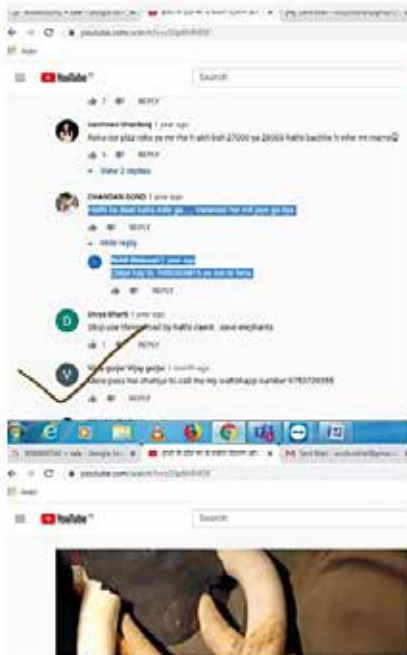


collect & collate information on various online platforms used by wildlife traders to market their illegal products and to help apprehend them by conducting joint operations in coordination with WCCB. It was also requested to generate awareness among the general mass towards the menace of online wildlife crime and urge the support of the people towards demand reduction.

Outcome of the operation: During operation, cyber patrolling with focus to detect offers of wildlife articles/products was made extensively by WCCB. From the offers posted for online trading of wildlife articles, details were extracted through available information and actionable inputs were prepared and shared with State Enforcement Agencies to take action against the offenders. Online posts for trading of wildlife articles were detected from Facebook, WhatsApp, Youtube, Amazon,

Flipkart, Ricepuller.com, and Ecraft.com. Wide range of live animals like Pangolin, Turtle/Tortoise, Crocodile, Parakeet, Civet Cat, Red Sand Boa, Owl as well as articles extracted from wild protected species like Leopard Skin, Samber Deer, Deer Antler, Ivory, Gangetic Dolphin meat, Trochus, Monitor Lizard Hemipenises, Pangolin Scales, Musk Pod, Sandalwoods were found being traded online. Based on the actionable inputs extracted from open intelligence sources and information available from offers made through online posts with respect to wildlife trade, 26 criminal cases registered resulting in the arrest of 46 offenders and seizure of leopard Skin, 4.3 Kgs Pangolin Scales, 01 Live Pangolin, 01 Crocodile, 75 Parakeets, 01 Civet Cat, 01 Deer Antler, 40 Trochus niloticus, 40 Moti Sankhs, 09 Monitor Lizard Hemipenis, 09 Star Tortoise, 01 Indian Tent Turtle, 10 Kgs of Gangetic Dolphin meat.

Leopard skin and Pangolin scales seized in Singrauli MP on 21-09-2020



Operation "turtshield -II" (1st December 2020 to 31th January 2021)- Ongoing

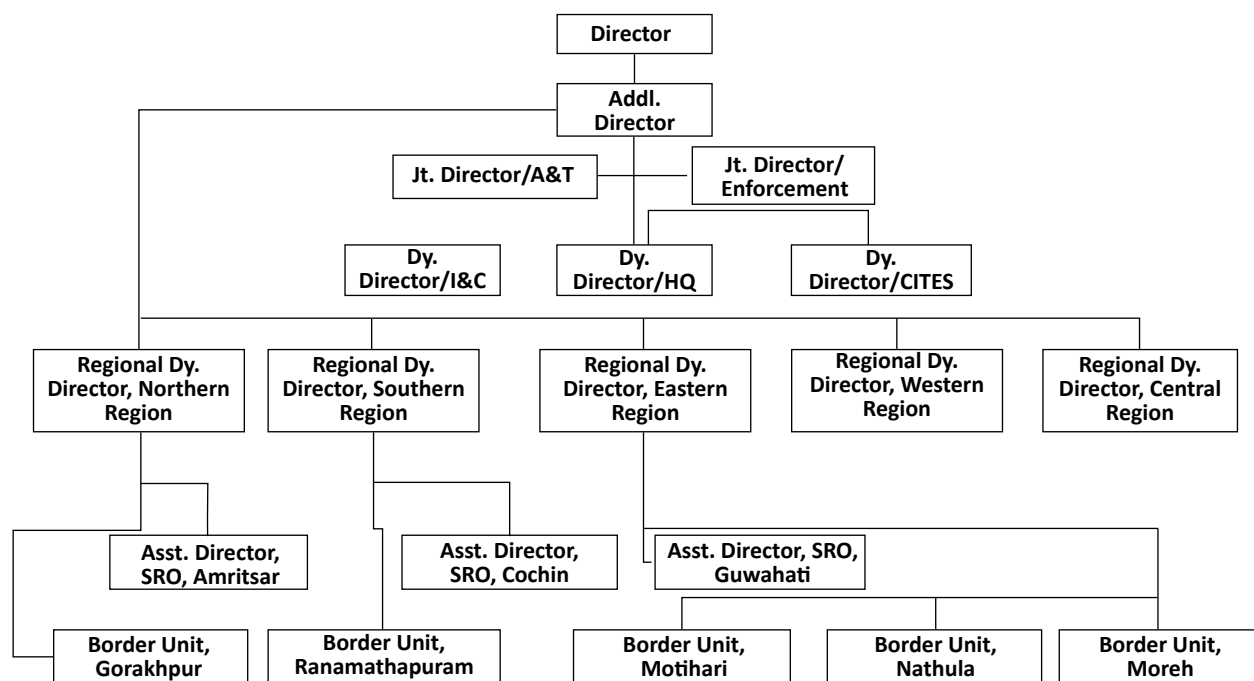


Brief details of the organization and responsibilities:

- Wildlife Crime Control Bureau
- Organizational structure of WCCB:

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, Gorakhpur & Ramanathapuram.



The Wildlife Crime Control Bureau shall exercise—

- Such powers as may be delegated to it under sub-section (1) of section 5; sub-sections (1) and (8) of section 50 and section 55 of this Act; and
- Such other powers as may be prescribed.

The Bureau also assists the Customs in inspection of consignments as per the provisions of the Wild Life Protection Act, CITES and Exim Policy. The Regional Deputy

Directors of the Bureau at Delhi, Mumbai, Kolkata and Chennai are designated as CITES Assistant Management Authorities and tasked with regulation of trade in endangered species of flora & fauna under the Convention on International Trade in Endangered Species of Fauna and Flora (CITES).

- Five regional offices at Delhi, Kolkata, Mumbai, Chennai and Jabalpur;
- Three sub-regional offices at Guwahati, Amritsar and Cochin;



- Five Border Units at Moreh, Nathula, Motihari, Gorakhpur & Ramanathapuram.

2.14 Central Zoo Authority (CZA)

The Central Zoo Authority (CZA) is a statutory body under the Ministry of Environment, Forest & Climate Change, 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 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 of 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;	Due to the Pandemic Corona Virus (Covid 19), the physical evaluation of the zoos could not be taken during the current financial year so far except for new establishment of 3 zoos.
iii.	To recognize or derecognize zoos;	The CZA granted recognition/ renewal of recognition to the 120 zoos including 3 new zoos. The recognition of 3 zoo including 1 circus has been cancelled. The CZA has also provided approval for establishment of 4 new zoos. At present there are 152 recognized zoos in the country.
iv.	To identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo;	The Central Zoo Authority has identified 74 species of indigenous fauna 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



		<p>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”.</p> <p>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>Catreuswallichii</i>), Western Tragopan (<i>Tragopan melanocephalus</i>), White-backed Vulture (<i>Gyps africanus</i>) have fared well in captivity. A total of 152 individuals of Indian Chevrotain have been released in the wild. Similarly, reintroduction attempts for Western Tragopan, Cheer Pheasant have been attempted. On 2nd oct 2020, eight hand reared 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 25 animal exchange proposals between Indian Zoos and 8 exchange proposals between Indian & Foreign Zoos.
vi.	To ensure maintenance of studbooks of endangered species of wild animals bred in captivity;	The Central Zoo Authority through Wildlife Institute of India, Dehradun has prepared and updated the studbook of 34 identified species of captive wild animals housed in Indian Zoos. The program is currently being updated using the global standards including the IUCN- Conservation Planning Specialist Group- One Plan Approach.
vii.	To identify priorities and themes with regard to display of captive animals in zoos;	CZA is assisting recognized zoos in finalization of Master Plan for long-term future development. The CZA is also reviewing the previously approved Master (Layout) Plans of Zoos and Master Plan of Zoos to ensure the more insight of CZA for better development of the Zoos.



		During the reporting period, CZA has approved the Master (Layout) Plan of 7 zoos and approved the Master Plan of 6 zoos.
viii.	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. During the reporting period and the ongoing pandemic situation, more than 11 online capacity building webinars were held with international and national experts that received excellent reviews.
ix.	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 and also provided financial assistance to 2 research project.
x.	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. 7.50 Crores during the reporting period out of which CZA has received an amount of Rs. 3.06 Crores. The same has been utilized and released to the zoos/organization for approved works.
xi.	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, 2 meetings of Administrative Committee & 4 Meetings of Expert Group on Zoo Designing, CZA to finalize the various Technical and Administrative issues.

Activities undertaken

- Timely inclusion of zoos and animal care as part of covid -essential services during lockdown.
- Zoos encouraged to take up digital tourism (e.g live animal viewing in Vandalur zoo, Alipore zoo).
- 12 National/International webinars during lockdown involving national and international experts for Indian zoos professionals including two on COVID infection in Felid species.
- Submitted proposal for setting up national referral centre for wildlife disease monitoring and prevention.
- Constituted CZA Prani Mitra Awards for recognition of exceptional contribution of Indian zoo professionals through the CZA fund. More than 100 entries received, award given under Best Zoo Director/ Curator, Zoo Vet, Biologist and animal keeper category.
- Short promotional films on zoo activities launched during Wildlife Week.



- Organized CZA-ROAR (Respect and Revive) campaign during the 66th Wildlife Week 2020- More than 253 schools from 25 states participated in the competitions and close to 2300 online entries (1846 paintings and 473 poems) were received from children under the following categories:
 - Class 3 to 5: Painting – 1190 and Poetry – 241 entries
 - Class 6 to 8: Painting – 656 and Poetry – 232 entries
- Participated in the Global Panel on COVID 19 during the 2020 virtual 75th Annual WAZA Conference (12-15 October).
- Launched Twitter handle in May 2020 and 1135 + followers and more than 500 tweets on important days marking biodiversity conservation.
- Initiated Vision Plan for the upgradation of 15 select zoos in the country to global standards, besides strengthening of CZA. Other objective to also 'twin' top Indian and foreign zoos and bring in corporate sector to invest in modernization of zoos.
- Planning massive public outreach program under 'Bharat Ka Mahotsav' for India@75 and showcasing CZA 's strengths and achievement through capacity building under the 'neighborhood first' policy.

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

- Ex-Situ Updates Vol 1 (2020).
- Ex-Situ Updates Vol 1 Issue 2 (2020).
- Ex-Situ Updates Vol 1 Issue 3 (2020).

Details – Quarterly newsletter styled for outreach to the general reader with the primary aim to create conservation awareness and outreach.



EVES-NZP (2020) Economic Valuation of Ecosystem Services of National Zoological Park, New Delhi. Central Zoo Authority in collaboration with TERI.

Details: A first study of its kind in any zoo in India, the total economic value of National Zoological Park has been assessed at 422.76 crores out of which 77% contribution comes from the recreational and cultural service. Onetime cost of services and land value provided by the zoo has been estimated at INR 55,209.45 crores.

Challenges in work due to COVID-19: Physical

movement was restricted and all zoos were closed during the pandemic induced lockdown. However, timely inclusion of zoos and animal care as part of covid -essential services helped in continuation of services that ensured maximum animal welfare. Zoos were encouraged to take up digital tourism and continue with the outreach activities through technology enablement. 12 National/ International webinars during lockdown involving national and international experts for Indian zoos professionals including two on COVID infection in Felid species.

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	3.06	To be taken up	Total Amount received has been utilized
2		Salary and Operational cost	1.40		



Orphaned male tiger being reared at Van Vihar. source: Mridul Pathak



Melanistic Leopard at Assam State Zoo . Source: ASZBG



Feeding enrichment for Mouse deer at Nehru Zoological Park, Hyderabad. source: NZP, Hyderabad



Leopard at Van Vihar Bhopal. Source : Sanjay Shukla



2.15 Project Elephant

Project Elephant (PE) was launched by the Government of India in the year 1991-92 as a Centrally Sponsored Scheme 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 C.S.S. 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 30 notified and 1 proposed Elephant Reserve in the country (Khasi Hills Elephant Reserve in Meghalaya).

Objectives:

- To conserve and protect viable population of wild elephants in their natural habitats in the country;
- To conserve and protect and, where 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 and regional and national level coordination in protecting and conserving the elephant 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

- The first meeting and field visit of Captive Elephant Healthcare and Welfare Committee (CEHWC), under the chairmanship of Inspector General of Forest, Project Elephant Division, Ministry of Environment Forest & Climate Change was held at Mudumalai Tiger Reserve, Tamil Nadu on 9th and 10th January, 2020. The Committee visited Mudumalai Elephant Camp, Bandipur Elephant camp and Wayanad Elephant camp and discussed various aspects of captive elephant management such as veterinary care, housekeeping, feeding, husbandry practices, daily routines, availability of mahouts and their skills, training schedules etc.
- National workshop on Habitat Management for elephant to mitigate Human Elephant Conflict was conducted at Wildlife Institute of India, Dehradun from 20th & 21st 2020. Forest officers from various State Forest Department attended the workshop. Important issues such as Habitat management, Impact of climate change on forests and implications on habitat management and Tools and technology to improve habitat for elephant conservation were discussed in the workshop.
- The Project Elephant Division has organized side events in CMS CoP13 at Ahmedabad on following topics from 18th to 20th February 2020 (i) Elephant Conservation beyond borders, (ii), Species conservation initiatives in India with reference to Asian elephants (iii) Panel discussion on Elephant conservation: Prospects & Challenges.
- A proposal was moved to include Asian Elephants in to Appendix I of Convention on Migratory Species (CMS) CoP 13, Accordingly, Asian Elephant *Elephas maximus* has been included in Appendix I of CMS CoP13 at Ahmedabad 2020.
- The health investigation of captive elephants at Amer Fort and Haathi Gaon, Rajasthan was conducted from 23rd to 25th July 2020 by the Committee constituted based on the Hon'ble Supreme Court vide its order dated 06.03.2020 in the Writ Petition (c) No.743 of 2014 Wildlife Rescue and Rehabilitation Center & Ors Vs Union of India & Ors. The committee's report has been filed in the Hon'ble Supreme Court.
- A Committee of Project Elephant Division visited Chhattisgarh from 21st to 26th June, 2020, where the elephants were



found dead. The Committee interacted with local people, field staff, Haathi Mitra Dal and CWLW and officers of the State Forest Department during the field visits and also in Forest Dept. HQs in Raipur. The recommendation of the committee for the death of elephants has been communicated to the Forest Department.

- The World Elephant Day is an International conservation event celebrated on 12th August every year, dedicated to spread the message of the conservation and protection of the world's elephants and its habitats. The World Elephant Day, 2020 was celebrated on 10th August 2020. Hon'ble MEF&CC and Hon'ble MoS were the Guest of Honour of the celebration.
- Hon'ble Minister EF & CC had launched a National Portal called "Surakshya" for managing Human Elephant Conflicts in the Country during World Elephant Day celebration 2020. This Portal is being piloted in the States of Chhattisgarh and Odisha.
- Hon'ble Minister EF & CC has released first edition of quarterly newsletter "TRUMPET" on 19 September 2020. The newsletter is to highlight on the various conservation regimes adopted across country by the State Forest Departments as well as institutions and organizations for conservation of elephants and its habitats.
- An International Webinar on prospects and challenges to conservation of elephants in

South Asia was conducted on 14th August, 2020 on account of World Elephant Day 2020.

- Four regional workshops for Southern, North eastern, East Central and North Western regions have been conducted for preparing National Elephant Action Plan in September 2020. Important issues, threats, challenges and the way forward to conserve elephants in the four regions have been deliberated during consultative workshops.
- A Meeting with CEA, MoP, MoR and CWLW's to review the mitigation measures to prevent the death elephants due to electrocution and trains hits through video conferencing on 11/11/2020 under the chairmanship of Addl. DGF (WL) in MoEFCC., New Delhi.
- The Protocol on Transboundary Elephant Conservation between Republic of Bangladesh and Republic of India was signed by the two countries in the India- Bangladesh virtual summit on 17th December 2020.

Progress/ Achievements:

- Elephant is placed in Appendix I of the CMS in the recently concluded CMS CoP 13 at Ahmedabad, Gujarat.
- Hon'ble Minister EF & CC had launched a National Portal for managing Human Elephant Conflicts in the Country during World Elephant Day celebration.



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).

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

- An International Webinar on prospects and challenges to conservation of elephants in South Asia was conducted on 14th August, 2020 on account of World Elephant Day 2020.

MEAs, Agreements with countries, international organization, compliance.

- The Protocol on Transboundary Elephant Conservation between Republic of Bangladesh and Republic of India was signed by the two countries in the India-Bangladesh virtual summit on 17th December 2020.

List of major publications:

- Hon'ble Minister EF & CC had released a book titled "Best Practices of Human Elephant Conflict Management in India" in the World Elephant Day celebration 2020.
- Hon'ble Minister EF & CC has released "TRUMPET" quarterly newsletter

Grand in aid released to Institutions/Organizations including NGOs:

- A sum of Rs.1.32 crore released during the year 2019-20 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 38O of the Wildlife (Protection) Act, 1972, as amended in 2006.

Activities undertaken

- The 17th and 18th meeting of NTCA was held under the Chairmanship of Hon'ble Minister, EF&CC.
- The redesigned website of NTCA was launched.
- The All India Tiger Estimation – 2018 final report was released on 28th July by

Hon'ble Minister, Environment, Forest & Climate Change.

- Celebration of Global Tiger Day – 2020.
- The Status of Leopard in India – 2018 report was released on 21st December by Hon'ble Minister of State, Environment, Forest & Climate change.
- Two Technical Committee meetings of the NTCA were held wherein deliberation on important issues and research proposals pertaining to tiger conservation were carried out.
- Interstate coordination meeting between Telangana and Maharashtra was organized.

Progress/Achievements

- The 2018 all India Tiger Estimation was awarded the Guinness World Record for being the world's largest wildlife camera trap survey involving 26,838 camera trap locations capturing 76,651 photographs of tigers.
- The fourth cycle of all India Tiger Estimation, 2018 used an Android based application (M-STriPES) to collect data from the field which made data collection more robust and analyses easier.
- The Government of India has now decided to implement the CA|TS framework across all tiger reserves for international accreditation.
- Standard Operating Procedure (SOP) to deal with stray / feral dogs in tiger reserves was laid down.

Continuing committees/commission -their work

- Committee for assessing the management



practices of Mukundra Hills Tiger Reserve vis-a-vis tiger movement ecology. - The committee has completed field visits and final report has been submitted.

- Committee for updation of NTCA guidelines and Tiger Conservation Plan guidelines. - The committee's work is ongoing.
- Committee for preparing SOP for tiger

reintroduction. - The committee's work is ongoing.

Important Conferences organized in India or international conferences-

- Orientation and training for Conservation Assured Tiger Standards (CATS) implementation in tiger reserves meeting was held.

S. No.	Name of Organization	Purpose	Total Amount Released (Rs. in crore)	Status of third party evaluation	Remarks
1	Tiger Reserves	Funds released to 50 Tiger Reserves for management of tiger reserves.	179.7	NITI Aayog has evaluated the CSS-Project Tiger through third party agency "KPMG Advisory Services Pvt Ltd"	

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 centrally sponsored scheme 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 covers various activities such as interception, diversion and treatment of

wastewater, shoreline protection, lake front development, in-situ cleaning i.e. desilting & dewatering, storm water management, bioremediation, catchment area treatment, Lake Beautification, survey & demarcation, bio fencing, fisheries development, weed control, biodiversity conservation, education and awareness creation, community participation, etc. As on 31.03.2020, financial assistance (as central share) was released to the States/UTs for conservation and management of 155 wetlands under the scheme of NPCA.

In the financial year 2020-21 funds earmarked under the NPCA scheme for conservation and management of wetlands and lakes is Rs.70 crore. A total of Rs. 21.58 crore has been released for conservation and management of five wetlands in four states and one externally



aided project during 01.01.2020 – 20.10.2020
(Annexure-1)

Two regional workshops on Conservation and Management of Wetlands for Wetlands

Managers & Stakeholders to strengthen their capacity for effective management of wetlands conducted during 01.01.2020 – 20.10.2020 are as follows:

Sl. No.	Date	Participating States	Location	Organization
1	06.01.2020-07.10.2020	Two days handholding workshop for wetland managers of Southern States	Cochin	MoEFCC and CWRDM
2	23-01-2020-24-01-2020	Two days handholding workshop for wetland managers of north eastern States	Imphal	MoEFCC and LDA

The Ministry organises National level celebration of World Wetlands Day (WWD) on 2nd February of each year in collaboration with the concerned State Governments to raise awareness among all sections of the society about values and functions of wetlands and utilization of their resources. On this occasion, various events are organized, which include panel discussions, cultural programmes, exhibitions/painting competitions/slogan contests/quiz at different levels, with the involvement of experts, policy planners, students from schools/colleges/universities and other stakeholders.

National level celebration of World Wetlands Day, 2020 was organized by MoEF&CC in collaboration with the Department of Forests, Government of Uttar Pradesh at Sur Sarovar (Keetham) wetland in Agra (UP), on 2nd February, 2020.

MoEFCC implemented 'Wetlands Rejuvenation' programme within the framework of transformative ideas of Government of India i.e. "Start work on Restoration & Rejuvenation

of at least 100 major wetlands across the country". In Phase-1 of the programme, 130 wetlands were selected in consultation with State Governments. In the 100 days' implementation period, collation of baseline information and rapid assessment of wetlands condition led to zeroing down to a list of 33 wetlands needing urgent attention. The programme was structured around a four-stage method: a) Developing baseline information; b) Rapid assessment of wetlands condition (using a report card system); c) Constitution of 'Wetlands Mitras' - stakeholder platforms to enable collaborative and participatory management; and d) Management planning, addressing the specific wetlands biodiversity and ecosystem services values and threats.

In continuation to Phase-1, the 'Wetlands Rejuvenation' programme is being scaled up to 1,000 wetlands, reaching out to all districts of the country. The lessons learnt from the phase-1 of the programme are being addressed in phase-2. Ten (10) Video Conferencing (VC) meetings have been organised during 2020 to



discuss the way forward for implementation of Phase II of the Wetlands Rejuvenation Programme. With the help of knowledge partners, Wetland Health Cards have already been prepared for about 500 wetlands.

India is a member of the 'Convention on Wetlands', signed in Ramsar, Iran in 1971, which is an intergovernmental treaty providing the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. India became a party to the Convention on 01.02.1982 and has designated 39 wetlands under the List of Wetlands of International Importance (**Annexure-2**).

13 wetland sites have been added in the years 2019 and 2020 to the list of Ramsar sites of the country. Presently, India stands first in South Asia and third in Asia in terms of the number of designated sites.

The Guidelines for Wetlands (Conservation & Management) Rules, 2017 have been issued to support the State Governments/ Union Territory (UT) Administrations in the implementation of the Rules by providing guidance on various aspects like identifying wetlands for notification under the Rules, delineating wetlands, wetland complexes and zones of influence, preparation of Brief Document, developing a list of activities to be regulated and permitted, constitution and operational matters of the Wetlands Authorities among other issues.

Education and Awareness material published:

- Booklet on newly designated 10 Ramsar sites
- Ramsar sites of India –Factsheets
- Brochure entitled "Rejuvenating wetlands' for 100 days action plan.

Annexure-1

Amount released during 1-1-2020 to 31-03-2020

S. No.	Name of Wetland	State	Amt. in Rs. lakh	Sanction No.	Date of sanction
1	Koradi	Maharashtra	50	J-22018/2/2015-NPCA-II	03.02.2020
2	Tambao	Sikkim	50	J-2201207/2019-W(CS)	14.02.2020
3	Koradi	Maharashtra	100	J-22018/2/2015-NPCA-II	03.02.2020
4	Ansupa	Odisha	51	J-22012/48/2007-CS(W) Vol.I	06.02.2020
5	Chilika lake	Odisha	49	J-22012/2/86-CS(W) Vol.V	12.03.2020
6	Koradi	Maharashtra	239.83	J-22018/2/2015-NPCA-II	16.03.2020
	Total		539.83		



Amount released during 1-4-2020 to 20-10-2020

S. No.	Name of Wetland/ Project	State/I.A.	Amt. in Rs lakh	Sanction No	Date of sanction
1	Koradi	Maharashtra	810.16	J-22018/2/2015-NPCA-II	27.04.2020
2	Ansupa	Odisha	67.728	J-22012/48/2007-CS (W)	27.05.2020
3	Yaralpat wetland	Manipur	680.67	J-22012/18/2020- CS(W)	16.09.2020
4	Integrated management of Wetland Biodiversity and Ecosystem services (IMWBES)	WISA	60.00	J-22012/78/2009-CS (W) (Pt. II)	02.06.2020
	Total		1618.60		



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 & 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 391 projects (between January 2020 to till date i.e. 8th December, 2020). The sector-wise list of environmental clearances issued to projects by the Ministry is given in the 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.

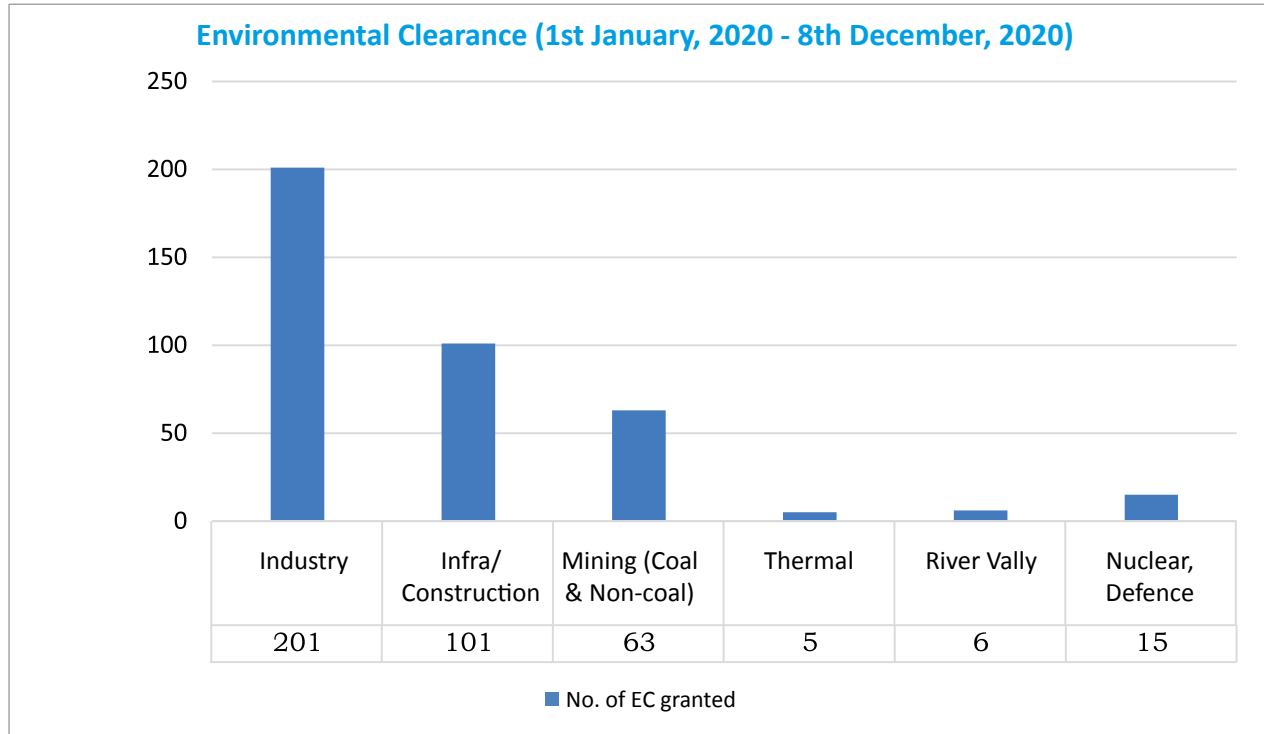


Fig.1-Environmental Clearance (January 2020 to 8 December 2020) Total- 391

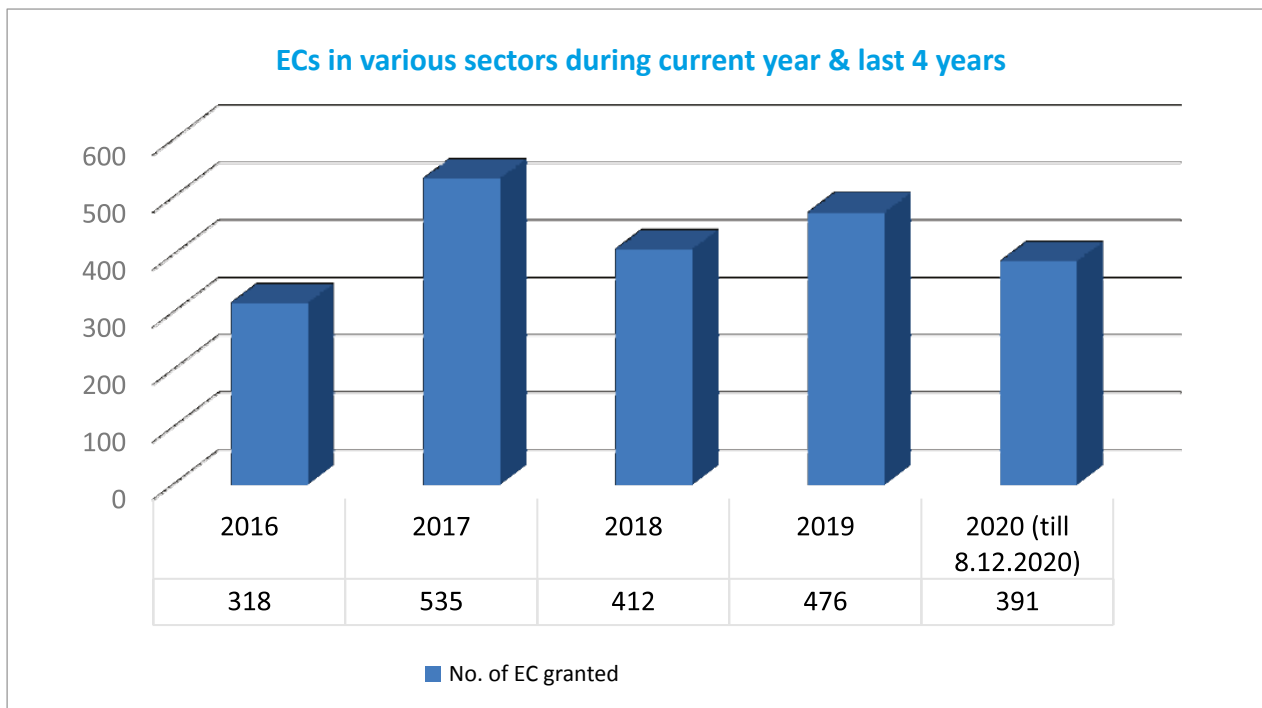


Fig. 2 –Environmental Clearance granted in various sectors during current year and last 4 years



Constitution of State Environment Impact Assessment Authorities (SEIAA): As on date the Ministry has constituted thirty one 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. Nine SEIAA/SEAC and one EACs have been constituted in 2019-20.

Implementation of Single-Window Integrated Environmental Management System: In 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 Ministry of Environment, Forest and Climate Change 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). It will facilitate 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. 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 MoEFCC 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 MoEFCC 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 visit, 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 10.11.2020, there are 173 accredited EIA Consultant Organizations.

Achievements:

- Notification S.O.236(E) dated 16th January 2020 providing a provision for expansion of projects without increase in pollution load
- Notification S.O.750(E) dated 17th February 2020 extending the validity of the notification issued vide number S.O. 345(E) dated the 17th January, 2019 which was issued for expediting production of Ethanol for its limited purpose of blending with petrol exclusively for its usage as bio-fuel, for a further period of one year
- Notification S.O.751(E) dated 17th February 2020 regarding the issuance of standard Terms of Reference.
- Notification S.O.1199(E) dated 23rd March 2020 Draft EIA notification 2020
- Notification S.O.3636(E) dated 15th October 2020 extending time till 30th March 2021 for considering API projects as category B2
- Notification S.O. 3752(E) dated 20th October 2020 extension of the tenure of SEIAAs.
- Notification S.O. 4254(E) dated 27th November 2020 for extension of validity of EC for projects stalled due to CoVID19 pandemic.

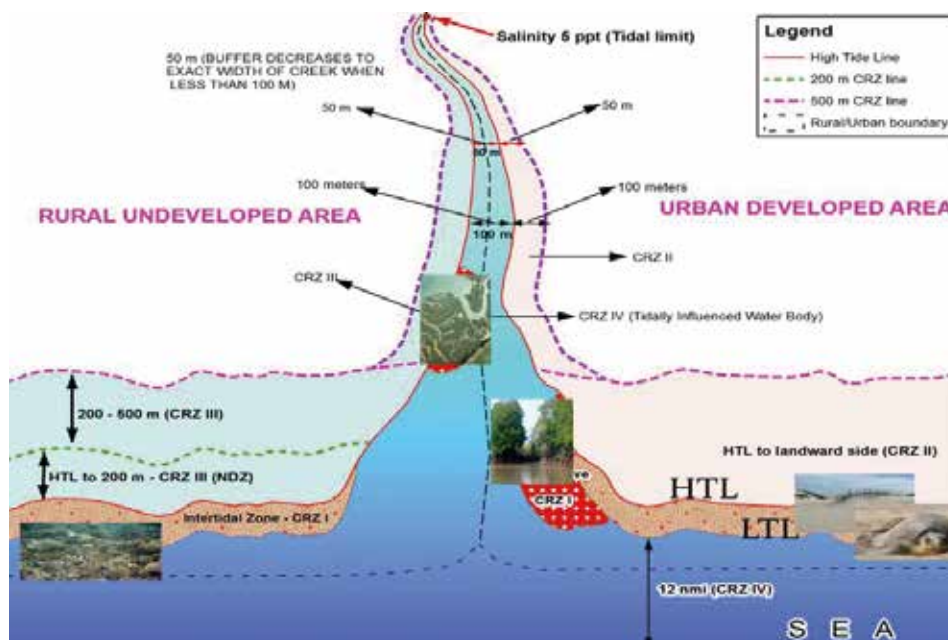


Implementing organisations along with details of responsibilities: The State Level Environment Impact Assessment Authorities (SEIAAs) have been constituted under the Environment (Protection) Act 1986 to appraise and accord environmental clearance to the projects/activities requiring prior environment 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

said 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 Ministry of Environment, Forest and Climate Change had accordingly constituted a 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.



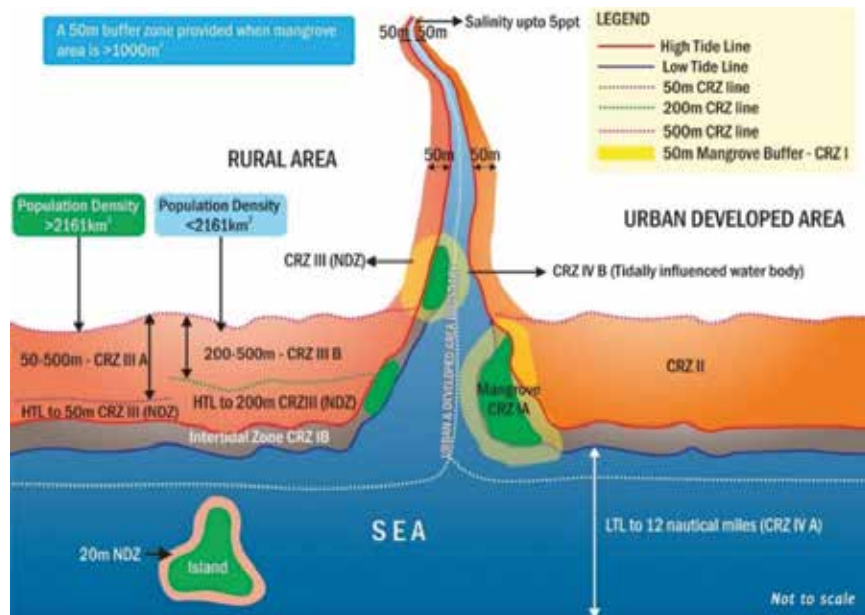
CRZ Classification as per 2011 Notification



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 are aligned and updated based on the provisions of the new notification. To this effect the Ministry of Environment, Forest and Climate Change 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 33 CRZ clearance are issued by this Ministry for various developmental activities/projects permissible in the CRZ areas.
- Notification S.O. 125(E) dated 9th January, 2020 wherein activities and facilities permitted in identified beaches for the purpose of Blue Flag Certification were provided
- Notification S.O. 1424(E) dated 1st May, 2020 wherein National Coastal Zone Management Authority for purpose of dealing policy related matters in coastal/marine areas was constituted.
- Notification S.O. 1422 (E) dated 1st May, 2020 wherein the need for restricting demarcation of HTL in Khazan Land to the bund/slucice gate, and delineation of HTL and CRZ categories in the Sundarbans Biosphere Reserve were provided.
- Notification S.O. 1422 (E) dated 1st May, 2020 wherein Andhra Pradesh Coastal Zone Management Authority was constituted
- Notification S.O. 124(E) dated 9th January, 2020 wherein Daman & Diu Coastal Zone Management Authority was constituted

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 and functions

- To support implementation of the Integrated Coastal Zone Management (ICZM) activities in India.
- To promote Research & Development (R&D) and stakeholder participation in management of the coastal and marine areas in India.
- Strategic planning, implementation and monitoring of the ICZMP Project and proposed ENCORE Project.
- To coordinate with all partner States/UTs to implement activities of ICZM Project.
- In implementation of activities identified



under national component of the ICZM Project.

- Implementation of Beach Environment & Aesthetic Management Services [BEAMS] in all 13 coastal States/UTs to conserve and protect the marine and coastal environment by installing infrastructures such as solid waste management system, grey water treatment plant, bio toilets, changing room and showers, security and surveillance systems and daily beach cleaning activity to achieve the Blue Flag Certification for the identified beaches.

Integrated Coastal Zone Management Project:

The Indian coastline is around 7,500 km which include the mainland and the islands of Lakshadweep and Andaman & Nicobar home to the unique marine and coastal ecosystems. About 25% of the Indian population living along the coast/islands of India and depends upon the coastal resources and opportunities. The vulnerability of these populations to the natural and man-made disasters arising from the sea including tsunamis is very high. Hence, the Ministry of Environment, Forests & Climate Change initiated Integrated Coastal Zone Management (ICZM) Project in India to protect and conserve the coastal and marine ecosystems and its environment through a holistic coastal management and to implement the National Environment Policy 2006, recommendations of “Final Frontier 2009”, Public Accounts Committee (2009–2010) [PAC], and CRZ Notification, 2011 and IPZ Notification, 2011 regulatory framework with public participation.

The World Bank extended financial assistance to the “Integrated Coastal Zone Management Project” (ICZM Project) which was implemented in three coastal States namely Gujarat, Odisha and West Bengal from the year 2010 for pilot investments under three thematic areas namely, conservation and protection of the coastal and marine ecological resources, pollution prevention and abatement, livelihood improvement/ security of the coastal communities etc along with preparation of ICZM Plan for a comprehensive environment management strategies for selected stretches. Total cost of the project was Rs. 1740.10 Crore and completed on 30.09.2020

ICZM Project has first time piloted ICZM approaches in India and has given satisfactory results. Based on the success of ICZM Project, SICOM has initiated preparatory work for Enhancing Coastal & Ocean Resource Efficiency [ENCORE] Project for all coastal States/UTs of the Country. The Department of Economic Affairs, Ministry of Finance has given in-principle approval for the ENCORE Project. ENCORE has approved by Expenditure Finance Committee, Hon’ble Minister of Finance, the Board of World Bank, Washington D.C. and proposal submitted to Cabinet Committee on External Affairs (CCEA) for approval.

Progress/Achievements

National Level Component:

- Beach Aesthetic & Management Service Programme (BEAMS) under ICZM Project:
- The activities relate to beach development



have been completed in Padubidri and Kasarkod (Karnataka), Kozhikode (Kerala) Rushikonda (Andhra Pradesh), Golden Beach (Odisha), Radhanagar Beach (Andaman & Nicobar Island) while works in progress in the Eden Beach (Puducherry), and Kovalam Beach (Tamil Nadu).

- Environmental education and awareness activities were organized through webinar in all identified beaches.
- SICOM awarded with Golden Peacock Innovation Management Award – 2019 by Institute of Directors (IOD). The key objective of 'Golden Peacock Award' Excellence Scheme is to build and enhance the Award winning organization's BRAND image, and boost its employee morale.
- Under BEAMS programme, out of 10 beaches where this activity was initiated, 8 (eight) beaches have been conferred with 'Blue Flag Certification'. Blue Flag certification is a globally recognized eco-label accorded by "Foundation for Environment Education in Denmark" based on 33 stringent criteria. At national level this particular activity has been hailed & applauded by international organizations such as UNEP, UNWTO, IUCN, FEE & World Bank. A virtual Blue Flag hoisting has done by Hon'ble Union Minister for Environment, Forest and Climate Change Shri Prakash Javadekar and Hon'ble Minister of State, EFCC Shri Babul Supriyo. The eight beaches are Golden (Odisha), Radhanagar (Andaman) Shivrajpur (Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka), Kappad (Kerala), Rushikonda (Andhra Pradesh).

- The Flags were also simultaneously hoisted on these beaches physically by state ministers and senior officials of the respective state and Union territories namely; Shri A.K Saseedran, Hon'ble Minister for Transport, Kerala; Shri Muttamsetti Srinivasa Rao (Avanthi) Garu, Hon'ble Minister for Tourism, Culture & Youth Advancement, Andhra Pradesh; Shri Jyoti Prakash Panigrahi, Hon'ble Minister of Tourism, Odisha; Smt Shobha Karandlaje, Member of Parliament, Udupi-Chikkamagluru, Lokasabha Constituency; Shri Harish Kumar K., Deputy Commissioner, Uttar Kannada; Shri N. K Meena, Collector, DevBhumi Dwarka; Smt Saloni Rai, Collector, Diu and Shri Suneel Anchipakka Deputy Commissioner, South Andaman. During the ceremony, Hon'ble MEF has indicated that with a prime objective to conserve the pristine coastal and marine ecosystems and to develop and deliver 100 more beaches in the next 5 years. Accordingly, SICOM has initiated preliminary work to achieve above said target in time.

State Leve Component:

ICZM Plan in West Bengal: Under ICZM Project, a comprehensive Integrated Coastal Zone Management Plan for identified stretches namely; Digha to Shankerpur and Sagar Island have completed.

Eco-Smart village programe under ICZM Project: The activities have been carried out in 112 villages of 17 clusters in identified villages



come under districts of Kachchh, Jamnagar, Morbi, Devbhumi Dwarka and Navasari. Under Eco-Smart village programme, activities have categorized under six broad areas. Under this broad area, following major activities have carried out:

- Rooftop Rain Water Harvesting Systems in 34 villages which can store total 10831 KL. water
- Constructions of check-dams (17 Nos.) to conserve the rainwater for domestic and irrigation purposes.
- Five numbers of U/G sumps constructed in four villages for storing rainwater. The total storage capacity is 245 KL.
- Total 1854 nos. solar powered street lights installed in Dwarka, Jamnagar, Morbi and Naliya clusters to conserve the conventional energy. In Dandi cluster, Solar Rooftop systems installed with the capacity of 1KW to 4KW. A solar panel as solar tree installed at Gandhi Haat in Dandi with capacity of 5KW.
- Under Green School concepts the following activities carried out:
 - CCTV and Public Address Systems and bio-toilets
 - Provided colour coded dustbins for dry and wet waste
 - Walls covered with riddles Puzzles and informative graphics for easy learning
 - Interactive display boards
 - Safety instruments including fire extinguishers
 - Rooftop Solar Systems for power supply
 - Composters installed in school campus
 - Play area developed
 - A protection wall, salinity bunds have constructed to check inflow saline water into agriculture land.
 - Cattle troughs, grass storage facility, drinking and sheds facility for cattle,
 - Dairy houses for milk collection
 - To create green space, Gandhi van created in identified villages of Jamnagar Cluster.
 - About 10700 Sq mts area covered under green space.
 - About 7500 Sq. Mtrs area have been covered under Green belt plantation in Morbi clusters.



**PHOTOGRAPHS OF ACHIEVEMENTS:
BLUE FLAG CERTIFICATION CEREMONY (BEAMS):**





Virtual hoisting of Blue Flag Beaches of India by
Shri Prakash Javadekar, Hon'ble MEF & Shri Babul Supriyo, Hon'ble MOS





ECO-SMART VILLA





CHAPTER

04

Abatement of Pollution



4.1 Control of Pollution

The concern for environmental quality has become the top most issue in the present scenario of rising population, increasing urbanization, industrial pollution, shipping, aviation and vehicular emission. To give effect to various measures and policies for pollution control, various steps have been initiated which include stringent regulations, development of environmental standards and periodical revision therein, control of vehicular, industrial, air, noise and water pollution.

The 'Control of Pollution' Division lays emphasis on pollution prevention in place of the conventional end-of-the-pipe treatment also identified as the adoption of best available and practicable technologies as the key element for pollution prevention. The focus of the various programmes and schemes of the Ministry and its associated organizations related to pollution prevention and control is, therefore, on such issues such as promotion of clean and low waste technologies, waste minimization, reuse or recycling, improvement of water quality, nationwide monitoring of air quality, environmental audit, , development of mass based standards, institutional and human resource development etc. The whole issue of pollution prevention and control is dealt with by a combination of command and control methods as well as voluntary regulations, fiscal measures, promotion of awareness, advancement of research in pollution abatement technologies etc.

Items of Work Handled in 'Control of Pollution' Division

- Industrial Pollution,

- Water, Air and Noise Pollution including Marine Pollution,
- Common Effluent Treatment Plants (CETPs)
- Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981
- Taj Trapezium Zone (TTZ)
- Recognition of private laboratories under Environment (Protection) Act, 1986
- Air pollution/Noise Pollution, Appeals under Air Act,
- Formulation and review of Environmental Standards.
- Emission Trading Scheme (ETS)
- Matters relating to Customs Duty Exemption for CNG kits.,
- Source Apportionment Studies
- Environment Health
- Comprehensive Environmental Protection Index (CEPI)
- Assistance for abatement of pollution
- Vehicular Pollution
- Administrative and financial matters of CPCB,
- Bilateral and Multilateral programs relating to 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 ongoing national-level as well as city-specific activities on air pollution mitigation.

Major Government Interventions on Air Pollution Mitigation

A High Level Task Force (HLTF) was constituted under the Chairmanship of Principal Secretary to PM for the management of air pollution in Delhi and NCR in November, 2017. The HLTF is closely monitoring implementation activities related to air pollution mitigation in Delhi and NCR. Further, regular review meetings have been held during the year with all concerned Central Government Ministries and State Governments under the chairmanship of Hon'ble Minister, EF&CC as well as Secretary, EF&CC to ensure that various measures for prevention, control and mitigation of air pollution in Delhi NCR are taken in a coordinated and effective manner.

A Comprehensive Air Plan (CAP) for Delhi NCR has been developed identifying the timelines and implementing agencies for actions delineated. The Central Government has notified a Graded Response Action Plan (GRAP) for Delhi and NCR for different levels of pollution. The nature, scope and rigor of measures to be taken is linked to levels of pollution viz. severe + or emergency, severe, very poor, moderate to poor and moderate, after due consideration by authorities

concerned. The actions are to be implemented in the entire NCR throughout the year.

For management of air pollution in Delhi and NCR, source-based approach has been adopted by the government to control air pollution which gets aggravated during winter months. Major sources contributing to air pollution are industrial emissions, vehicular emissions, road and soil dust, construction and demolition activities, biomass and garbage burning etc.

City specific action plans have been prepared and implemented in 122 non-attainment cities which were identified by CPCB based on air quality levels exceeding National Ambient Air Quality Standards (NAAQS) from 2014-2018. City action plans include actions to control vehicular emission, road dust, biomass/crop/garbage/MSW burning, construction activities, industrial emission and other city specific sources.

National Clean Air Programme

Ministry of Environment, Forest and Climate Change launched the National Clean Air Program (NCAP) in January 2019 as a national-level strategy advising the actions for reducing the levels of air pollution at city and regional levels in India. Under NCAP, 122 non-attainment cities are identified on the basis of non-conforming to National Ambient Air Quality Standards (NAAQS) for 5 consecutive years. The program is designed to support the government's target of 20-30% reduction of particulate matter concentration by 2024.

NCAP has adopted an integrated approach that focuses on various mitigation and



preventive measures to tackle the contributors to air pollution, namely thermal power plants, vehicular and industrial emissions, biomass and waste burning, Construction and Demolition waste, etc. Actions under NCAP are being executed under three major heads, which are Knowledge and Database Augmentation, Institutional Strengthening and Mitigation Actions. Actions include expansion of ambient air quality monitoring network, source apportionment studies, mechanical sweepers, composting units, construction and demolition waste management facilities, mobile enforcement units, cycling tracks, greening and paving, etc.

₹224.74 crores have been released to 90 cities and ₹111 crores have been sanctioned to 41 cities for components sanctioned under NCAP in FY 2019-20 and FY 2020-21, respectively. In addition, ₹4400 crores have been sanctioned to 42 million plus cities/ urban agglomerations for focused air quality management actions under 15th Finance Commission Grant. The first instalment of the grant amounting ₹2200 crores has been released to the 42 cities.

XV Financial Commission Grant for NCAP

The 15th Finance Commission (XV-FC) recommended a grant of Rs. 4400 Crores for FY 2020-21 for 42 million-plus population urban agglomerations/cities to augment actions for air quality improvement. Accordingly, during the budget announcement of year 2020-21, the amount Rs4,400 Crores was earmarked to 42 Million-Plus cities for improvement of Air quality. The Ministry of Environment,

Forest and Climate Change (MoEF&CC) has been appointed as the nodal ministry, in consultation with the State Governments, to develop a) city-wise and year-wise targets on ambient air quality based on annual average concentrations of PM10 and PM2.5, b) monitor and evaluate the improvement and c) recommend disbursement of grants to such cities.

2. The grant of Rs. 4,400 Crores shall be released in two equal installments. The first instalment shall be disbursed without any performance criteria and the funds may be used by the cities for air quality improvement measures. To incentivize improvement in air quality in cities, the second instalment shall be disbursed against the stipulated performance-based outcomes in terms of year on year improvement in air quality in these cities.
3. In this regard, MoEF&CC has prepared a framework for "Assessment of Performance and Outcomes for Air Quality Management in Million Plus Cities for XV-Finance Commission Grant". The framework is based on process as well as outcome. During the first two years of the program, the focus will be primarily on the development of infrastructure of ULBs. The activities, which are required to sustain the output on a longer-term and sustainable basis, will be considered as Process based activities. The year on year air quality improvement will be evaluated on the basis of four (4) parameters, a) Strengthening of Institutional Framework, b) Source-wise cause analysis of air pollution. c) Progress



of action plans and compliance of statutory guidelines and d) Quantification and evaluation of air quality improvements. Considering the importance of parameters, A, B, C and D as per the tenure of the programme, the relative weightage for four parameters A, B, C and D from year 2020-21 to 2024-25 are provided.

Promulgation of Ordinance

A Commission for Air Quality Management in National Capital Region and Adjoining Areas' has been constituted through promulgation of an ordinance, 13 of 2020 on 28-10-2020 to replace multiple Committees and to streamline public participation, inter-State cooperation, expert involvement, research and innovation so as to mitigate the issue of air pollution in National Capital Region (NCR) and Adjoining Areas. The Commission will fill the gap of an inter-sectoral, public participative, multi-state dynamic body. Dr. M.M. Kutty, Former Petroleum Secretary is the first Chairman of Commission with other 3 full-time Members and 2 Technical Members. The Commission is mandated for a coordinated approach to address the problem of Air pollution emanating from all such sources, which inter-alia include power, agriculture, transport, industry, residential and construction. The broad-based Commission 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;

Control of Pollution Scheme

Ministry has released 111 crore in 2019-20 and Rs. 26.31 crore in 2020-21 under control of Pollution Scheme for Assistance for Abatement of Pollution to 27 and 15 State Pollution Control Boards/ Pollution Control Committee (SPCBs/ PCCs), respectively, in lieu of Water Cess funds subsumed with GST for salary, establishment, laboratory development, pollution assessment, training, mass awareness and research and development. Further, Rs.42.96 crore has been released to CPCB in 2019-20 and Rs.32.20 crore in 2020-21 for installation and O&M of Monitoring Stations under NAMP, CAAQMS, NANMN and NWMP.

Assistance under 'Abatement of Pollution' scheme and on-going CETP and CT projects

- i. Ministry has released funds of Rs.3.11 crore under Grants-in-Aid as final installment to Central Pollution Control Board for establishment of Manual Ambient Air Quality Monitoring Stations for monitoring of three parameters SO₂, NO₂ & PM₁₀ in Mizoram and Jammu & Kashmir and for establishment of PM_{2.5} monitoring under the scheme "Assistance for Abatement of Pollution" in the States of Assam, Manipur, Meghalaya, Mizoram, Nagaland, Puducherry, Sikkim and Tripura.
- ii. State Pollution Control Boards of Arunachal Pradesh and Manipur have been supported with grant-in-aid for salary support to the technical staff under the scheme 'Assistance for Abatement of Pollution'.
- iii. Released Rs. 1.80 Crores to Arunachal Pradesh, Assam, Meghalaya & Tripura for



- laboratory equipment for setting up of Continuous Ambient Air Quality Stations (CAAQMS) under the scheme “Assistance for Abatement of Pollution”.
- iv. Financial Assistance of Rs. 42 Lakhs provided to SPCBs of Assam, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura for procurement of laboratory instruments / equipment under the scheme ‘Assistance for Abatement of Pollution’.
 - v. Ministry approved sanction of Rs. 15 crores towards central share for establishment of 50 MLD ongoing CETP project by Punjab Dyers Association, Tajpur – Rohan Road, Ludhiana and assistance of Rs. 2.35 crore extended to Punjab Pollution Control Board for establishment of said 50 MLD CETP.
 - vi. Ministry released Rs. 3.25 crores to PPCB for 15 MLD CETP by M/s Bahadurke Textile & Knitwear Association at Ludhiana, Punjab as third installment.
 - vii. Project Monitoring Committee was organized to review the ongoing up gradation/recycling project of 50 MLD CETP of M/s Palsana Enviro Protection Ltd. (M/s PEPL), Surat, Gujarat Ministry and based on the completion report, Ministry released final installment of Rs. 1.26 Crore to Rajasthan Pollution Control Board for said 50 MLD CETP
 - viii. 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.

- ix. Release of Grants-in-Aid of Rs. 2.25 Crores for setting up of ‘Testing and R&D Facility for firecrackers – Raw Materials, Compositions and Emissions (RACE)’ at Sivakasi and CSIR-NEERI, Nagpur

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

The successful implementation of environmental protection programmes essentially requires identifying and quantifying the pollution sources and pollutants, conducting baseline survey, laying down standards and building-up monitoring systems. Environmental laboratory requires to be provided with all necessary instruments and equipments and also expertise and capability of its staff for monitoring all parameters including water, air, noise, hazardous waste, soil, sludge etc. to meet these requirements. Under the provisions of Section 12 of Environment (Protection) Act, 1986, the Central Government recognizes Environmental Laboratories to carry out the functions entrusted to an environmental laboratory and under Section 13 of E (P) Act, 1986 the Central Government appoints Government Analyst(s) for carrying-out analysis of samples under E(P)Act, 1986. The Ministry has been recognizing Environmental Laboratories and Government Analyst(s) under E (P) Act, 1986 with the aim of increasing facilities for analysis of environmental samples.

The Guidelines for establishment and recognition of the laboratories have been revised and procedures streamlined in 2008 with emphasis on quality assurance and quality



control. These revised guidelines are available on the website of the Ministry (www.moef.nic.in). In order to recognize the laboratory, laboratories submit their application to the Ministry for consideration. These applications for recognition of laboratory are considered by an Expert Committee.

Twenty-Two (22) Private Laboratories and three (04) Government laboratories have been recommended for recognition under E (P) Act, 1986 during the year.

Environmental Health Cell

National Environmental Health Profile study was initiated by the Ministry of Environment, Forest and Climate Change aiming to make an assessment of human health impact in consequence of exposure to air pollution exposures in 20 selected cities across the country. The study covers 20 cities in 4 zones of the country i.e. North, South, East and West and is a collaborative effort of Central Pollution Control Board (CPCB)/ State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) and medical institutions. The study is initiated 19 cities (except Jaipur). CPCB/SPCBs/ PCCs generates and provides data related to spatial and temporal distribution of air pollution and medical institutions evaluate the health manifestation based on hospital based and survey based data.

Other than National Environmental Health Profile Study four ongoing projects are also being carried out.

Malé Declaration

Malé declaration is a multilateral cooperation

on Control & Prevention of Air Pollution and its Likely Transboundary Effect in South Asia. The 1998 Malé Declaration is exclusively owned by the eight participating countries. It is facilitated by the Secretariat at the Regional Resource Centre for Asia Pacific (RRCAP), Asian Institute of Technology, Thailand. The programme provides an operational platform for gathering and disseminating reliable information on regional air pollution as a basis for envisaged policy development. To facilitate the regional level core activities under Malé Declaration, the member states provide **voluntary financial aid**. India and Iran are the major financial contributors. The major activities under Malé Declaration are divided into six phases. In the current FY 2020-21 India has given financial contribution of Rs.1.70 crore for Phase V (2014-2016) and Phase VI (2017-2020) activities.

Development of Environmental Standards

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. The modified standards are placed before the 'Expert Committee (EC)' of MoEF&CC for approval. The EC of MoEF&CC comprises of representatives from industry associations, subject experts, and concerned Ministries of the industrial sectors, besides the officials of MoEF&CC and CPCB. The EC recommended standards for approval and legal vetting are published in Gazette of India. 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 39 such standards across various industries were identified for the purpose. Of these, standards for 27 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.

- Ministry is in process of finalization of notification in respect of seven (07) industries viz., Pharmaceutical Industry, Hot Mix Plants, Iron & Steel Industry, Lead Stabilizer in Polyvinyl Chloride (PVC) Pipes and Fittings, regulation on Reverse Osmosis- based Water Purification System (ROWPS) and amendment regarding Water Quality Standard for Coastal Water Marine Out falls in respect of Primary Water Quality Criteria for Class SW-III Waters and Class SW-V Water as per Environment (Protection) Act, 1986 .Action is further taken on to frame and update five (05) draft Notifications for Standards for Emissions from Diesel Locomotives, Pulp and Paper Industry, bathing water quality standards for rivers, Petroleum Coke Calcining Plants and Boiler using Industries.

4.2. Central Pollution Control Board

The Central Pollution Control Board was constituted as 'Central Board for the Prevention and Control of Water Pollution' on September 23, 1974 under the provision of the Water (Prevention & Control of Pollution) Act, 1974 and its name was amended as Central Pollution Control Board under the Water (Prevention & Control of Pollution) Amendment Act, 1988 (No. 53 of 1988). The Central Pollution Control Board (CPCB) 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. Subsequently, The Environment (Protection) Act, 1986, the umbrella Act has widened the scope of activities of the Central Board to enforce environmental protection measures through various Rules/ Regulations notified under this Act.

The CPCB has been continuously playing a key role in prevention and control of pollution in the country by generating, compiling and collating scientific data, providing scientific information, rendering technical inputs for framing National policies/ programs, training/ development of manpower and promoting awareness at different levels of stakeholders 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:

- To promote cleanliness of streams and wells in different areas of the States through prevention, control and abatement of water pollution; and,
- To improve the quality of air and to prevent, control or abate air pollution in the country.

In addition to the main functions of promoting cleanliness of streams and wells, improving the quality of air and to prevent, control or

abate air pollution, CPCB has been assigned following National Level functions:

- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air;
- Plan and cause to be executed a nation wide programme for the prevention, control or abatement of water and air pollution;
- Co ordinate the activities of the State Boards and resolve disputes among them;
- 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;
- Plan and organize training of persons engaged in programmes for prevention, control or abatement of water and air pollution;
- Organize through mass media, a comprehensive mass awareness programs on prevention, control or abatement of water and air pollution;
- Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
- Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;



- Disseminate information in respect of matters relating to water and air pollution and their prevention and control;
- 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;
- Establish or recognize laboratories to enable the Board to perform, and;
- Perform such other functions as and when prescribed by the Government of India.
- Advise the Governments of Union Territories with respect to the suitability of any premises or location for carrying on any industry which is likely to pollute a stream or well or cause air pollution;
- areas/clusters and monitoring their implementation;
- Action plans for monitoring air quality in polluted cities;
- National water quality monitoring and publishing annual water quality reports;
- National Ambient Air Quality Monitoring and publishing annual air quality reports;
- National Ambient Noise Monitoring and publishing annual noise monitoring report.
- Carrying out and sponsoring research activities relevant to Environmental protection
- Publishing materials relevant to environment protection & mass awareness.

Important Activities Undertaken

- Coordinating activities of State Pollution Control Boards/Pollution Control Committees for prevention & control of pollution;
- Development of industry specific national minimal effluent and emission standards and industry specific environmental guidelines and documents;
- Implementation of CREP Compliance of Standards for major polluting industrial sectors,
- Action plans for improvement of environment in critically polluted

Progress / Achievements for Each Scheme

i) National Water Quality Monitoring Programme

CPCB in association with the State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) is regularly monitoring water quality of aquatic resources across the country through a network of 4111 monitoring locations including 2021 locations on Rivers, 608 on Lakes/ Ponds/ Tanks, 63 Creeks/Seawater/marine water, 65 on canals, 60 on drains, 56 Sewage Treatment Plants, 5 Water Treatment Plants and 1233 wells under the National Water Quality Monitoring Programme (NWMP). The year-wise water monitoring network is shown in Fig-1.

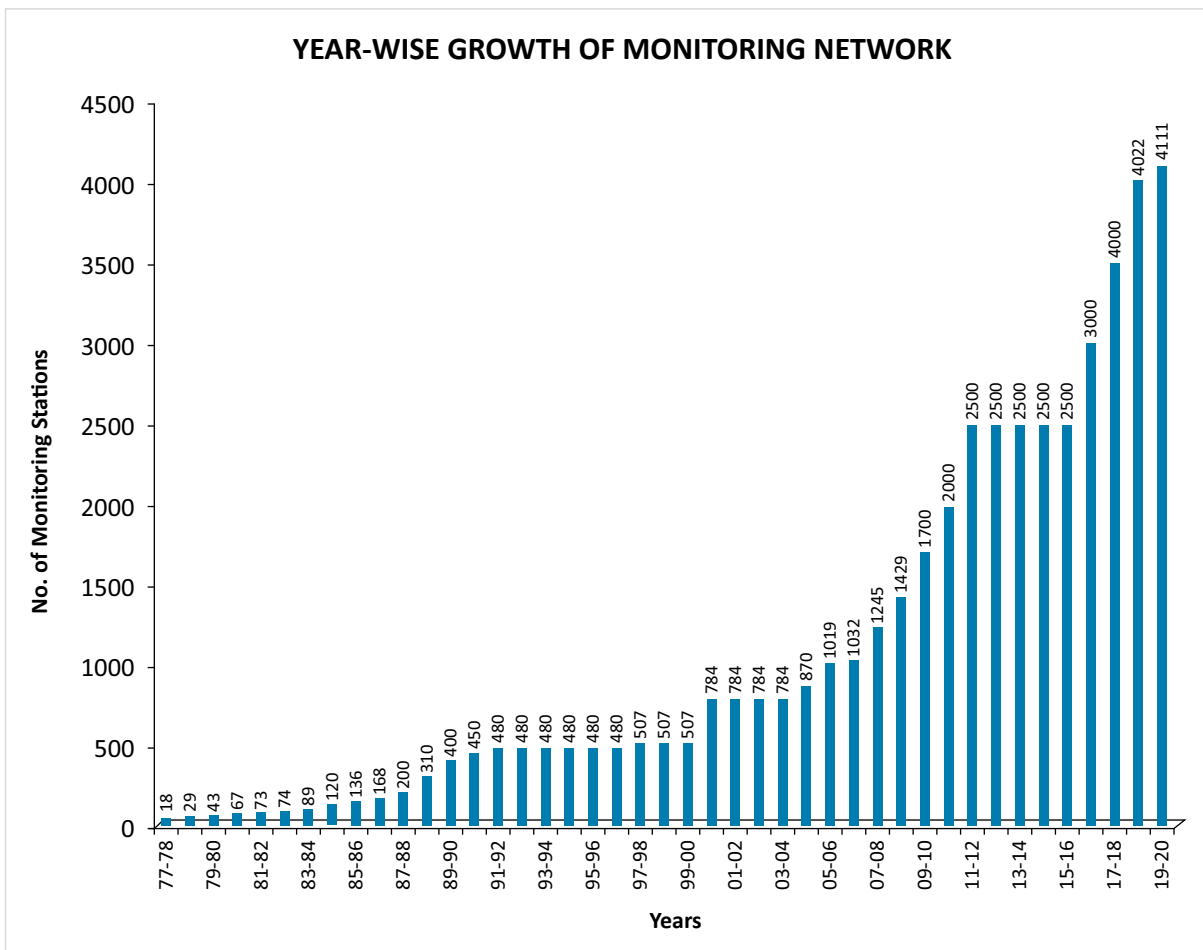


Fig 1: Year-wise Water Monitoring Network

ii) Control of Pollution in Ganga

- All the 726 Grossly Polluting Industries (GPIs) as identified in the Ganga Basin have been inspected and action taken against 611 non-complying units of GPIs.
- Inspection also conducted in 122 sugar units and other GPIs as inventorized within Hindon sub-basin

iii) National Ambient Air Quality Monitoring Programme

The Central Pollution Control Board is executing a nation-wide National Air Quality Monitoring Programme (NAMP-manual)). The growth of operating Ambient Air Quality Monitoring Stations in the country is given in Fig 2. The ambient air quality monitoring network has 804 operating stations covering 344 cities/towns in 28 States and 6 Union Territories.

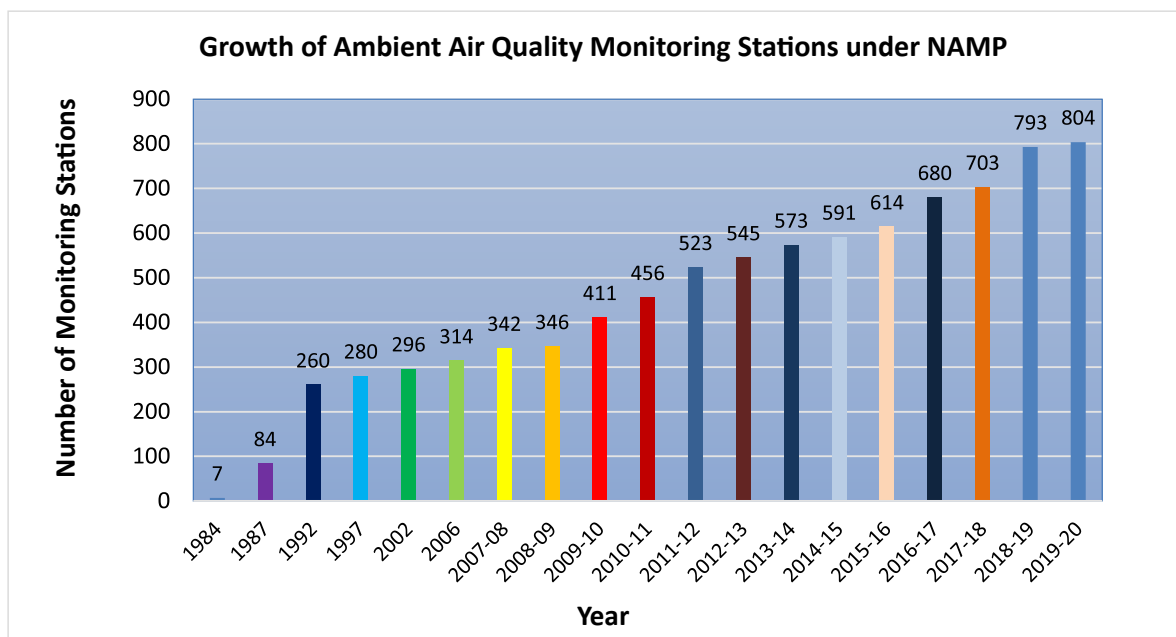


Fig 2: Ambient Air Quality Monitoring Stations under NAMP in India

Under NAMP three main pollutants viz. PM₁₀, Sulphur dioxide (SO₂) and Nitrogen dioxide (NO₂) were monitored regularly at all locations. Other notified parameters like Carbon monoxide (CO), Ammonia (NH₃), Ozone (O₃), PM_{2.5}, Benzo(a)pyrene {B(a)P}, Lead (Pb) and Nickel (Ni) are being monitored at selected locations.

The analysis of air quality data of 53 cities during 2019 with respect to SO₂ revealed that all

cities (100%) are within the National Ambient Air Quality Standard (NAAQS). As for NO₂, 10 cities (20%) namely Allahabad, Asansol, Delhi, Ghaziabad, Jamshedpur, Kanpur, Kolkata, Meerut, Patna and Pune exceeded the NAAQS. With respect to PM₁₀, 44 cities (86%) and 10 cities (43%) in the respect to PM_{2.5} exceeded the NAAQS. Annual average values of main pollutants in million plus cities are presented in Table 1.

Table 1: Air Quality in Million Plus Cities of India – 2019 under NAMP (Manual Stations)

State	S. No	City	Pollutants (µg/m ³)		
			SO ₂	NO ₂	PM ₁₀
Andhra Pradesh	1	Vijaywada	5	19	73
	2	Vishakhapatnam	8	19	77
Bihar	3	Patna	3	51	237
Chandigarh	4	Chandigarh	2	19	97
Chhatisgarh	5	Durg-Bhillainagar	7	17	79
	6	Raipur	16	30	69
Delhi	7	Delhi	5	70	199



State	S. No	City	Pollutants ($\mu\text{g}/\text{m}^3$)		
			SO ₂	NO ₂	PM ₁₀
Gujarat	8	Ahmedabad	20	25	135
	9	Rajkot	20	25	127
	10	Surat	23	27	128
	11	Vadodara	20	26	131
Haryana	12	Faridabad	-	-	-
Jammu & Kashmir	13	Srinagar	-	-	132
Jharkhand	14	Dhanbad	14	35	237
	15	Jamshedpur	38	47	138
	16	Ranchi	18	37	109
Karnataka	17	Bangalore	3	26	79
Kerala	18	Kochi	2	14	44
	19	Kollam	3	6	45
	20	Kozhikode	2	5	44
	21	Malapuram	2	15	35
	22	Thiruvananthapuram	9	16	42
	23	Thissur	3	5	38
Madhya Pradesh	24	Bhopal	8	17	161
	25	Gwalior	13	24	139
	26	Indore	9	18	77
	27	Jabalpur	7	16	84
Maharashtra	28	Aurangabad	13	36	74
	29	Mumbai	2	27	125
	30	Nagpur	10	32	101
	31	Nashik	10	22	63
	32	Pune	38	87	144
	33	Thane	20	37	128
Punjab	34	Amritsar	13	34	170
	35	Ludhiana	12	26	153
Rajasthan	36	Jaipur	7	27	141
	37	Jodhpur	7	26	240
	38	Kota	7	24	123
Tamilnadu	39	Chennai	9	18	73
	40	Coimbatore	7	18	57
	41	Madurai	13	18	79
	42	Trichy	13	18	73



State	S. No	City	Pollutants ($\mu\text{g}/\text{m}^3$)		
			SO ₂	NO ₂	PM ₁₀
Telangana	43	Hyderabad	5	37	99
Uttar Pradesh	44	Agra	5	24	180
	45	Allahabad	5	42	222
	46	Ghaziabad	14	44	231
	47	Kanpur	6	43	209
	48	Lucknow	7	31	207
	49	Meerut	9	63	213
West Bengal	50	Varanasi	7	29	125
	51	Asansol	15	44	184
	52	Kolkata	8	43	104

National Ambient Air Quality Standards: Residential, Industrial, Rural and others Areas: Annual Average for SO₂ = 50 $\mu\text{g}/\text{m}^3$, NO₂ = 40 $\mu\text{g}/\text{m}^3$, PM₁₀ = 60 $\mu\text{g}/\text{m}^3$ & PM_{2.5} = 40 $\mu\text{g}/\text{m}^3$

Ecologically sensitive area: Annual Average for SO₂ = 20 $\mu\text{g}/\text{m}^3$, NO₂ = 30 $\mu\text{g}/\text{m}^3$, PM₁₀ = 60 $\mu\text{g}/\text{m}^3$ and PM_{2.5} = 40 $\mu\text{g}/\text{m}^3$

Continuous Ambient Air Quality Monitoring Network in India

The network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) is

expanding in the country and at present, 228 CAAQM stations covering 126 cities in 20 states/UTs exist across the country, depicted in Fig 3.

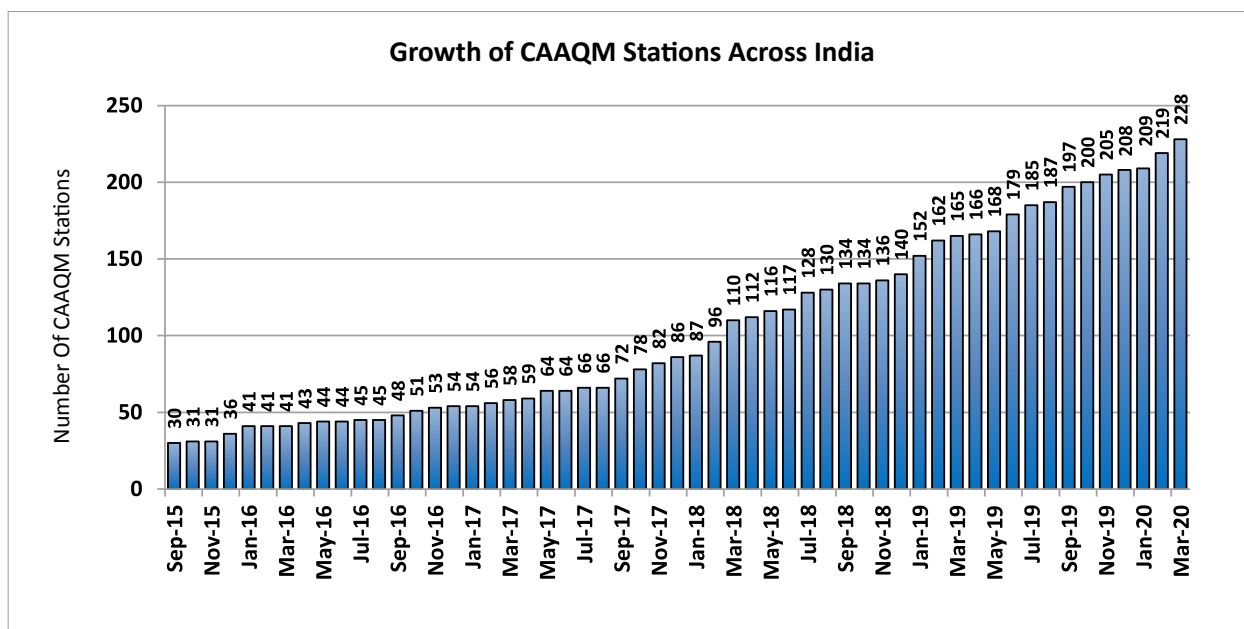


Fig 3: Growth of CAAQM Stations across India



iv) National Ambient Noise Monitoring Network

CPCB in association with State Pollution Control Boards has established National Ambient Noise Monitoring Network (NANMN) in 7 Metro-cities namely-Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow and Mumbai. A total 70 Noise monitoring stations are operational in these Metro-cities (10 Stations in each metro-city).

Following actions have been taken by CPCB in respect of Noise Pollution:

- CPCB prepared a Methodology for Formulation of Noise Mapping in India and communicated Chief Secretaries of all States / UTs vide letter dated 03.01.2020 to submit action plan focusing on following issues:
 - a) Noise level monitoring in conjunction with Police Department and initiation of remedial actions.
 - b) Police Departments of all the States/ UTs may obtain Noise monitoring devices within a period of three months.
 - c) Police Department of all the State / UTs may train their staff regarding use of such devices.
 - d) Police Department of all the State / UTs may develop robust protocol for taking appropriate action against defaulters.
 - e) CPCB issued directions to SPCBs/PCCs vide letter dated 21.06.2019 under section 18 (1) b of the Air (Prevention

and Control of Pollution) Act,1981 regarding noise mapping, identifying hot spots and mitigation plan for control of noise pollution.

v) Solid Waste Management

Status of the Solid Waste Management in all States / UTs based on the information provided by SPCBs / PCCs (year 2018-19) is given below:

Solid Waste Generation	1,52,076 TPD
Solid Waste Collection	1,49,748 TPD (98.5%)
MSW Treated	55,759 TPD
Landfilled Waste	50,161 TPD
Source Segregation initiated	24 Nos
Total Landfill Sites operational	22 Nos
Waste Processing facilities set up	2028 Nos
Waste Processing facilities operational	160 Nos
Identified Landfill Sites	1161 Nos
Operational Landfill Sites	37 Nos

The unaccounted quantity of waste is littered in streets or lands up in dumpsites. There are presently 3159 dumpsites in the country which are a major source of groundwater contamination and air pollution. The issues of dumpsites are related to fires, stability as well as depreciated aesthetics. Recently, with the intervention of Hon'ble NGT's, bio-mining which is an essential method for stabilization of waste, has been initiated in dumpsites of 11 states to minimize its adverse environmental impact.



vi) Waste Management

- Prepared technical guidelines to help stakeholders in implementing the Bio-Medical Waste Management Rules, 2016.
- CPCB has evolved Standard Operating Procedure (SOP) for processing the proposal received for utilization of hazardous waste. Fiftyfour (54) SoPs for utilization of 40 different categories of Hazardous Waste have been developed and circulated to all SPCBs/PCCs. Also co-processing of waste was promoted during this period and 1.09 Million Ton of hazardous waste has been co-processed. Presently, 39% of overall hazardous waste generated is being recycled.
- Standard Operating Procedures prepared for evaluation, processing and disposal of applications seeking EPR Authorization under E-Waste (Management) Rules, 2016 were developed and placed on the web site of CPCB.
- Guidelines for Producer Responsibility Organization (PRO) under E-Waste (Management) Rules, 2016 were prepared and CPCB has registered 35 PROs in 2019-20 and their details are available at CPCB's website.
- Guidelines for legacy waste management has been prepared and being implemented.

- Bio-remediation of legacy waste dump-sites.

vii) Plastic Waste Management

The estimated quantity of plastic waste generation in the country is approximately 33 lakh tonnes per annum during 2018-19. Plastic waste is mainly used for recycling; it is also used for co-processing in cement plants and road making. 22 states have imposed complete ban on carry bags.

However, Urban Development Departments have not set up adequate infrastructure for collection, source segregation and disposal system for plastic waste. Un-registered Plastic manufacturing / recycling units continue to be operational and these units are running in non-conforming /residential areas. Plastic carry-bags / films of thickness <math>< 50 \mu\text{m}</math> are being manufactured, stocked, sold and used in cities / towns. Besides, plastic waste is found littered in historical, religious, public places and dumping of plastic waste on drains, rivers, banks, sea beaches, etc.

viii) E-Waste Management Regulations & Status

E-Waste Management in India is regulated under the Environment Protection Act, 1986 with the objective of taking all steps required to ensure that E-waste is managed in a manner which shall protect health and environment against any adverse effects, which may result from such E-waste.



CPCB has estimated approximate E-waste generation for the financial year 2019-20 as 1014961.213 tonne and the same is based on the sales data of 1380 producers. There are 312 Authorized Dismantlers / Recyclers having total processing capacity of 7,82,080.62 tonne per annum. Based on annual reports submitted by 32 SPCBs/ PCCs, the quantity of E-Waste dismantled/ recycled in the country during Financial Year 2019-20 was 1,64,663 tonne.

ix) Evaluation of Comprehensive Environmental Pollution Index (CEPI) in 100 Polluted Industrial Areas

CPCB evaluated Comprehensive Environmental Pollution Index (CEPI) of 100 on environmental quality monitoring conducted in 2018. CEPI is a rational

number to characterize the quality of the environment at a given industrial area following the algorithm of source, pathway and receptor. Environmental Pollution Index (EPI) of air, water and land are evaluated based on presence of toxins, industrial activity, level of pollution, health statistics and adequacy of waste management facilities. Overall CEPI scores are calculated from the EPI score and if score exceeds 70 in the scale of 0-100, then the industrial cluster is categorized as 'Critically Polluted Area (CPA)' and if score 60 and above and less than 70, the industrial cluster is categorized as 'Severely Polluted Area (SPA)'. The State-wise distribution of CPAs and SPAs out of 100 PIAs assessed are provided in the following table:

Sr. No.	Name of State	Clusters with CEPI >70 (38 Critically polluted areas)	Clusters with CEPI 60-70 (31 severely polluted areas)
1.	Andhra Pradesh	--	Vijayawada
2.	Assam	Byrnihat	--
3.	Bihar	--	Hajipur
4.	Chhattisgarh	Raipur , Siltara Industrial Area	--
5.	Delhi	Najafgarh-Drain basin including Anand Parbat, Naraina, Okhla, Wazirpur	--
6.	Gujarat	Ankleshwar, Vapi, Rajkot, Surat, Vatva, Vadodara	Bhavnagar
7.	Haryana	Gurgaon, Panipat	Faridabad
8.	Himachal Pradesh	--	Baddi, Kala Amb, Parwanoo
9.	Jharkhand	--	Hazaribagh, Saraikela, Ramgarh
10.	Karnataka	Peenya, KIADB Industrial Area-Jigini	Bidar



Sr. No.	Name of State	Clusters with CEPI >70 (38 Critically polluted areas)	Clusters with CEPI 60-70 (31 severely polluted areas)
11.	Madhya Pradesh		Singrauli (MP area)
12.	Maharashtra	Chandrapur, Tarapur	Aurangabad, Nashik, Dombivali, Navi Mumbai
13.	Orissa	--	IB Valey, Paradeep
14.	Punjab	Ludhiana, Jalandhar	Batala
15.	Rajasthan	Bhiwadi, Jodhpur, Jaipur, Pali, Sanganeer Industrial Area	--
16.	Tamil Nadu	Vellore –North Arcot, Manali, Tirupur, Mettur	Coimbatore, Cuddalore, Erode, Tuticorin
17.	Telangana	Pattancheru-Bollaram	Kukatpally, Kattedan
18.	Uttar Pradesh	Gajraula Area, Ghaziabad, Kanpur, Agra, Bulandshar-Khurza, Firozabad, Moradabad, Mathura, Varanasi- Mirjapur	Aligarh, Singrauli (UP area), Meerut, Noida
19.	Uttarakhand	Udham Singh Nagar	--
20.	West Bengal	--	Bandel, Durgapur, Howrah

x) Control of Dust Emissions using Dust Suppressant

The dust suppressant (salts of calcium / magnesium and bio- additives) was done at 03 sites: Sarai Kale Khan Road (Road construction site), DDA Construction site at Narela (Building construction site) and Dilshad Garden flyover to proposed Shahid Nagar Metro Station (Road construction site) to check the control on dust emissions. Pollution levels (PM_{10} , $PM_{2.5}$ and PM_{1}) pre and post application of dust suppressant were monitored and up to 30% reduction in dust concentration was observed up to 6hrs.

xi) Pilot Study for Assessment of Reducing Particulate Air Pollution in Urban Areas by using Air Cleaning System (Smog Tower)

In compliance to order dated 13.01.2020 in WP (Civil) 13029/1985 of Hon'ble Supreme Court, installation of smog tower is under progress at AnandVihar. The objective of the Tower is to purge air and reduce air pollution in the surrounding areas.

IIT Bombay and University of Minnesota will construct the tower and is responsible for design, fabrication and execution of smog tower. NBCC (India) Ltd. is the project management consultant and will supervise works of Tata Projects Limited.



The tower, would be of downdraft type (polluted air comes in from the top of the tower and clean air comes out of the bottom) and aims to reduce $PM_{2.5}$ and PM_{10} . The tower has a land area coverage of 20m x 20m for tower base surrounded by shroud and safety area of 10m x 10m and a height of 18m. The filter system called as Novel Geometry Filtration System, which will be used in the tower, has been designed by University of Minnesota. Forty (40) fan units would be installed to provide an airflow rate of 960 m³/sec at NGFS which is expected to operate at efficiency of 90% and give a Clean Air Delivery Rate (CADR) of 864 m³/s.

xii) Real Time Source Apportionment

The study aims to provide source contribution of different sources on near real time basis by deploying online instruments for chemical speciation of Particulate Matter less than 2.5 microns, metals analysis, VOC analysis and black carbon monitoring and feeding the measured data to a receptor model (which uses Positive Matrix Factorization and Multi linear engine -2).

Under the study, contributions of organics, chlorides and sulphates were assessed. The season-wise composition of $PM_{2.5}$ at IIT Delhi was found to be as follows:

Table

Season	Organics	Sulphate	Chloride
Summer (May-July 2019)	23%	12%	1%
Post-monsoon (October-November 2019)	52%	7%	2%
Winter (December 2019- January 2020)	56%	8%	3%

Further, the contribution of primary organic aerosols (POA) and secondary organic aerosols (SOA) to organics at the sites for the three seasons was also examined. At IIT Delhi site, the SOA contribution is much higher than POA in the summer. In the post monsoon season, the contribution of POA and SOA becomes almost similar and in the winter season, POA becomes higher than SOA.

Promulgation of New Acts / Rules /Standards During 2019-20

- Standards for three industrial sectors, namely, (i) Automobile Service Station, Bus Depot or Workshop, (ii) Tanneries

(revision) and (iii) Coffee Industry notified vide G.S.R. 48 (E) dated 24.01.2020 under Environment Protection Rules, 2006.

- The draft standards were notified for public comments in respect of the industrial sectors i.e. (i) Bulk Drug and Formulation (Pharmaceutical) Industry (ii) Water quality standards for coastal water marine outfalls in respect of primary water quality criteria for class SW-III waters and class SW-V water (amendments) and (iii) standards for hot mix plants.
- The standards for Pulp and Paper Industry (revision) were presented before the Expert Committee of MoEF&CC for finalization.



- The draft emission standards for Hot Mix Plants were presented before the Expert Committee at MoEF&CC in its 18th meeting held on 9.8.2019, and after some modifications, the Committee agreed for draft notification, which were subsequently notified vide G.S.R. 16 (E), dated 08/01/2020 for inviting public comments.
- Environmental standards for Automobile Service Station / Bus depots / Workshops have been notified by MoEF&CC vide Gazette notification, G.S.R 952 (E), dated 26.12.2019, which was circulated to all SPCBs/PCCs and also uploaded in CPCB website.
- Based on three meetings including hearing of stakeholders in the last meeting held on 13.02.2020, reviewed the coal beneficiation notification; inputs were provided to MoEF&CC for amendment in the notification.
- Draft notification on Standards for Integrated Iron & Steel Plants was issued in January, 2020 through MoEF&CC.
- Proposal on revised standards for boilers w.r.t. Particulate Matter (PM) was prepared and forwarded to MoEF&CC in February, 2020. Proposal on standards for Calcine Petroleum Coke (CPC) units was prepared and forwarded to MoEF&CC in February, 2020.

Continuing Committees / Commissions - Their Work during The Year And Present Position

Environmental degradation is a matter of

serious concern. In view of emerging concerns, technical advancements and increased awareness a dedicated Expert Groups were constituted to advise environmental management efforts and provide technical expertise. As a multi-dimensional approach and to broaden technical expertise of CPCB, following nine Expert Groups have been constituted for the period from April, 2019 to March, 2021:

1. Expert Group on Health Aspects of Air Pollution
2. Expert Group on Vehicular Pollution Control
3. Expert Group on Satellite based Air Quality Monitoring System
4. Expert Group on Management of Sewage & Sewerage System
5. Expert Group on Water Quality Management
6. Expert Group on Treatment, Storage & Disposal Facilities (TSDFs) – Captive & Common
7. Expert Group on E-Waste Management
8. Expert Group on Implementation of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
9. Expert Group on Environmental Damage Assessment

The members of these Expert Groups examine, advice and assist by way of technical inputs to CPCB on concerned issues.



Important Conferences Organised in India or International Conferences

The 64th Chairmen & Member Secretary Conference was held during January 16-17, 2020 at Patna, Bihar. It provided an opportunity to showcase and discuss year round efforts of Central and State Pollution Control Boards on research & development activities, enforcement strategies, prevention, response & recovery efforts to address environmental issues.

The focus was on sharing strategies to improve enforcement of rules for effective Management of Plastic and Bio-medical Waste in the country. The discussions were also held on Industrial Pollution Control, implementation of action plans in non-attainment cities and rejuvenation of water bodies.

MEAs, Agreement with Countries, International Organisations, Compliance

A joint declaration of intent (JDI) was signed between CPCB, GIZ GMBH and the German federal environment agency, UBA for the development of BREF/COIND document for the textile industry sector covering the best available techniques adapted in the Indian context in February, 2019.

List of Major Publications Brought Out

- i) National Ambient Air Quality Status and trends 2019
- ii) River Water Quality during Lockdown Period
- iii) Ambient Air Quality during Lockdown Period
- iv) A Ready Reckoner for Personnel engaged in MSME

- v) Annual Report for Financial Year 2019-20

Challenges in Work Due to Covid-19 and Response of the Division

In pandemic situation due to COVID-19, CPCB has developed / prepared following documents:

- Guidelines for Handling, Treatment and Disposal of waste generated during treatment, diagnostics and quarantine of COVID-19.
- Electronic, Print & Social Media:
 - o Posters for online segregation and collection of Bio-medical Waste from COVID-19
 - o Do's and Don'ts during COVID-19
- User manual **Android** Mobile Application & Web Application for tracking the generation, collection, and disposal of COVID-19 Bio-Medical Waste.

4.3 Hazardous Substance Management (HSM)

The Hazardous Substances Management Division (HSMD) is the nodal point within the Ministry for management of waste, hazardous substances and chemical safety. The main objective of the Division is to promote safe management and use of hazardous substances including hazardous chemicals and hazardous wastes, in order to protect human health and the environment. The activities of the division are carried out in main thrust areas, viz., management of hazardous waste, e-Waste, solid waste, plastic waste, bio-medical waste, construction & demolition waste, batteries waste; fly ash utilization; chemical safety;



and multilateral environmental agreements pertaining to chemical waste, hazardous waste and Mercury management. Major programmes/activities are as follows:

I. Chemical and Waste Management Rules

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 23 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 multi-layered 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.
- **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.
- **Fly Ash Notification:** The Ministry of Environment, Forest and Climate Change issued the first Notification on 14th

September, 1999. This had subsequently been amended in 2003, 2009 and 2016. Fly ash notification primarily mandates Thermal Power Plants, construction industry, and mines to utilise fly ash for the purpose of manufacturing ash-based products such as cement, concrete blocks, bricks, panels or any other material or for construction of roads, embankments, dams, back filling of mine voids, mixing in external overburden dumps, soil conditioner in agriculture etc.

- **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.
- **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. As per Section 7A of the Amended Act, 1992, the 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.



II. International conventions:

The Division is also the nodal point for the following four (five) international conventions viz. Basel Convention on Control of Transboundary Movements of Hazardous Wastes and their Disposal; Rotterdam Convention on Prior Informed Consent Procedure for certain Chemicals and Pesticides in International Trade; Stockholm Convention on Persistent Organic Pollutants, Minamata Convention on Mercury, and Strategic Approach to International Chemicals Management (SAICM)

Activities undertaken

- Plastic Waste Management Rules, 2016: Guidelines for Uniform Framework on Extended Producer Responsibility was uploaded on the Ministry's website on June 23rd 2020 for seeking comments and inputs from the public till July 31, 2020.
- Battery (Management & Handling Rules, 2001): Draft Battery Waste Management Rules, 2020 were notified on the Ministry's website on February 25, 2020 for seeking comments and inputs within a period of 90 days.
- A Central Crisis Group Alert System i.e. Red Book has been brought out for coordination during disaster situations. Red book facilitates the quick information exchange during chemical emergencies. It also provides details of all relevant institutes pertaining to Chemical industrial disaster management. The Red Book is updated annually and the last updated was done in November, 2019. The Red Book is hosted on the website of MoEF&CC.
- The Cabinet approved Ministry of Environment Forest and Climate Change (MoEF&CC's) proposal to ratify seven persistent Organic Pollutants listed under the Stockholm Convention namely,
 - (i) Chlordecone,
 - (ii) Hexabromobiphenyl,
 - (iii) Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE),
 - (iv) Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial penta-BDE),
 - (v) Pentachlorobenzene,
 - (vi) Hexabromocyclododecane and
 - (vii) Hexachlorobutadiene.
- M/s E&Y has submitted a draft report on "Current State Assessment and Implementation Strategy for Construction and Demolition Waste Management".
- MoEF&CC coordinated with CPCB in development of Guidelines for Biomedical Waste Management arising out of COVID-19 patients/health care workers.
- A short film on Bio-Medical Waste Management practices has also been uploaded on MoEF&CC website for information of the General Public.
- Required coordination with Stakeholders has been made w.r.t. handling of chemical emergencies and handling of hazardous



substances specially on the wake of chemical accident at M/s LG Polymers and Ammonium Nitrate related blast of Beirut, Lebanon.

- M/s. KPMG has submitted a draft report on e-waste management.

Promulgation of new Acts/ Rules:

- The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 were amended on 9 October, 2020 to capacity build and ensure the safety and health of workers involved in generation, handling, collection, reception, treatment, transport, storage, reuse, recycling, recovery, pre-processing, utilization including co-processing and disposal of hazardous wastes.
- Solid Waste Management Rules, 2016 were amended on March 19, 2020 to include the following: (a) Application of rules shall extend to villages with population more than 3000 (b) Collection and transportation of bio-degradable, non-biodegradable and domestic hazardous waste from households including slums and informal settlements, commercial, institutional and other non-residential premises, multi-storey buildings, large commercial complexes, malls, housing complexes and the like in compartmentalized and covered vehicle to the respective processing facility.

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

- Expert Working Group to review the import and export of hazardous and other

wastes was constituted on 29 November, 2019 under the chairmanship of Chairman, Maharashtra Pollution Control Board. The group has been mandated to review the import and export policy of hazardous and other wastes such as tyres, textile, lead, oil, paper, glass, printed circuit boards, plastic waste, etc and give its recommendations to the Ministry. The group has given its report on tyres, lead, textile and plastic waste. The committee has been extended till 28 February, 2021.

- Advisory Committee was Constituted Under Section 21 of the Public Liability Insurance Act, 1991. Solid Waste Management Rules, 2016 (as amended) (i) A State Level Advisory body comprising of various members from government and line institutions was constituted to review matters related to implementation of these rules, state policy and strategy on solid waste management. (ii) A committee was notified in the rules to monitor overall implementation of SWMR, 2016 by different agencies such as MoHUA, DDWS, MoA&FW, MoP etc.
- Plastic Waste Management Rules, 2016 (as amended) (i) A State Level Monitoring Committee comprising of various members from government and line institutions was constituted for the purpose of effective monitoring of implementation of the rules.
- 3rd meeting of the Central Monitoring Committee convened under the chairmanship of Additional Secretary (MoEF&CC) for review the implementation of rules.



MEAs, Agreement with countries, international organizations, compliance.

- India attended the Twelfth meeting of the Open-ended Working Group (OEWG-12) of the Basel Convention held virtually on 1 and 3 September 2020. The OEWG is a subsidiary body of the COP.
- India attended the fourth meeting of the Expert Working Group on Review of Annexes to the Basel Convention (EWG on RA-4) online which was held online from 5 to 9 October 2020.
- The Chemical Review Committee (CRC) is a subsidiary body of the Rotterdam Convention established to review chemicals and pesticide formulations according to the criteria set out by the Convention in Annexes II and IV respectively and make recommendations to the Conference of the Parties for listing such chemicals in Annex III. India attended the sixteenth meeting of the Chemical Review Committee (CRC.16) of the Rotterdam Convention held virtually from 8 to 11 September 2020 and provided technical support.
- The Persistent Organic Pollutants Review Committee (POPRC) is a subsidiary body to the Stockholm Convention established for reviewing chemicals proposed for listing in Annexure A, Annex B, and/or Annex C. Article 8 of the Stockholm Convention entails the reviewing process of new chemicals and Annex D, Annex E and Annex F specify the information required for the review. The sixteenth meeting of

the Persistent Organic Pollutants Review Committee (POPRC.16) of the Stockholm Convention will be held virtually on 11 to 16 January 2021.

- India is a ICCM5 Bureau Member for Asia and the Pacific in SAICM. India attended the Tenth Meeting of ICCM5 Bureau Members held virtually on 17th June, 2020.

List of major publications

- Compendium of six Waste Management Rules has been printed.

Creation of Management Structure for Hazardous Substances The sub-schemes envisaged under this scheme are as under:

- SAMPATTI - 'Sustainable Management of Pre-owned Asset through Trade Initiatives': Innovative solutions for municipal solid waste segregation, handling and treatment.
- Capacity building of government agencies/ organizations/department/civil society/ institute with respect to environmentally sound management of chemicals and wastes.
- Organizing awareness program with various stakeholders for implementation of various waste and chemicals management rules.
- Innovative technologies for environmentally sound management of chemicals and wastes.
- Setting up facilities for management of biomedical waste (CBMWTF) and treatment, storage and disposal of hazardous waste (TSDF).



Progress/Achievements

- CSIR-NEERI has been engaged to assist Ministry in implementation of Stockholm convention and provide Technical inputs on various technical documents coming for deliberations under convention.
- IIT Hyderabad has been engaged to assist Ministry in implementation of Minamata convention and provide Technical inputs on various technical documents coming for deliberations under convention.
- IIT Chennai has been engaged to assist Ministry in the implementation of SAICM objectives and provide Technical inputs on various technical documents coming for deliberations under SAICM.
- NLSUI, Bangalore has been engaged to assist Ministry in implementation of legal, policy and strategic inputs for all Chemical and Waste related MEAs.
- Central Government Subsidy of Rs.90 Lakhs was awarded to Common Bio-medical Treatment Facility at Ambalamedu, Kochi, Kerala to treat bio-medical waste generated from hospitals in the District of Kochi.

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

S No.	Name of Organisation	Purpose	Total amount Released	Remarks
1.	Pt. Deen Dayal Upadhyay Smriti Sansthan	Creating awareness among various stakeholders of various waste rules.	8 lakhs Sanction No. 12/136/2018-HSM dated 6.5.2020	
2.	Chintan Environmental Research and Action Group, New Delhi	Creating awareness among various stakeholders of various waste rules.	Rs. 7,17,200/- Sanction no. 12/114/2018-HSMD dated 1.5.2020	
3.	National Productivity Council	To create awareness among various stakeholders of waste management rules	Rs. 1,10,00,000/- Sanction no. 12/113/2018-HSMD Dated 20.1.2020	

4.4 Development and Promotion of Clean Technology and Waste Minimization Strategies

Clean Technology Division 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, 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.



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 implemented by NAEB in the Government of India. Launched in 2000-02, the scheme has acquired a Pan India ambit over the last eighteen 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 comprising 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. Through Entry Point Activities under the scheme, 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. 3935.54 crore to treat an area of 22.15 lakh hectares since inception of the NAP



scheme till 22.12.2020. NAP Scheme stands merged with Green India Mission as per Order dated 30th January, 2018. However, during the year 2020-21, Rs. 39.54 crore has been released to carry out committed liabilities of plantation activities taken up during previous years under the NAP scheme. Advance work of

750 hectares has been sanctioned for new afforestation. The funds are being routed through State Governments under Central Assistance to State Plan (CASP) to State Forest Development Agencies.

- Year-wise and State-wise progress of National Afforestation Programme is given in Table No.1.

Table-5.1

**Year-wise progress of National Afforestation Programme
(From the year 2000-02 to 2020-21)**

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	221035	292.75
2007-08	272026	392.95
2008-09	173436	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	39.54

* 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

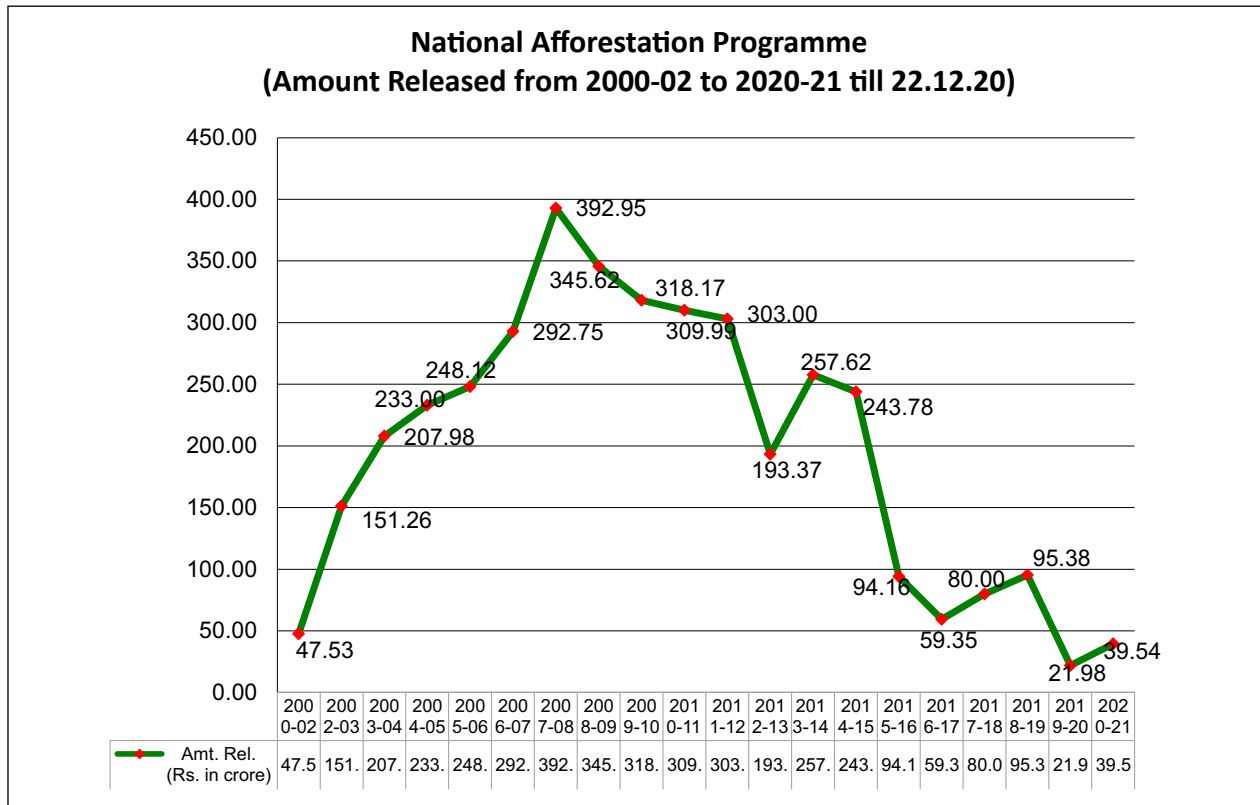


Fig.1

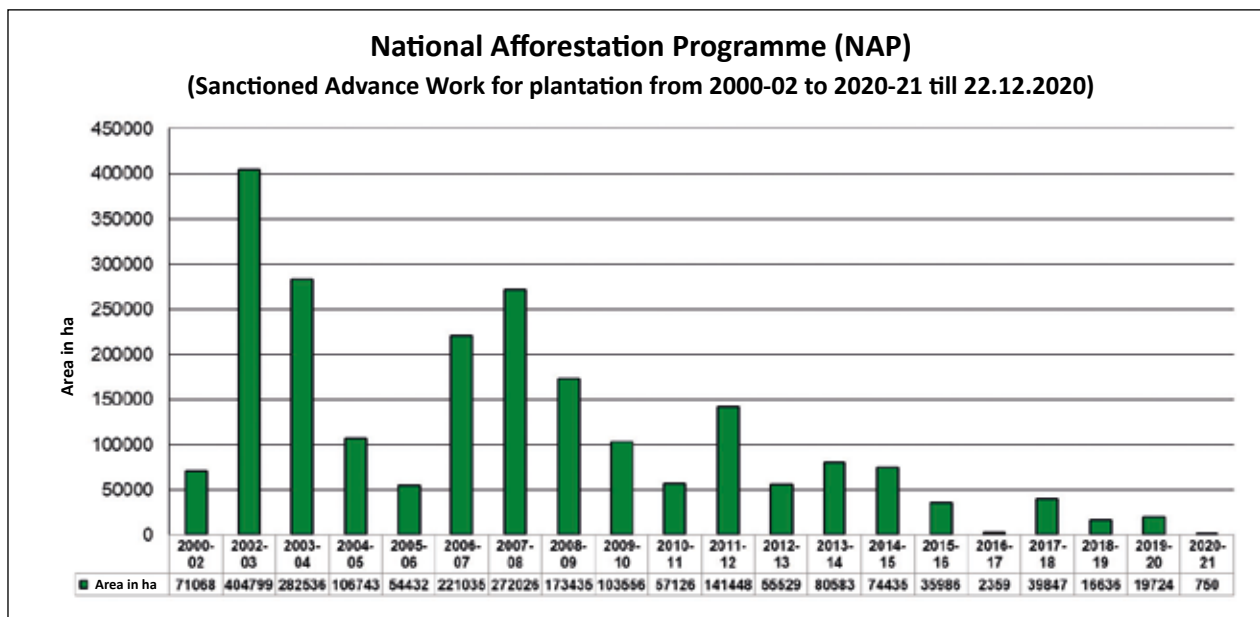


Fig.2

**(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 because of 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 2019-20 is given in Table- 5.2.

Table-5.2**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)	4.50	450
129 Inf. Bn (TA) Eco	BahuPurmandal Project, Samba (J&K)	0.54	96
130 Inf. Bn (TA) Eco	Pithoragarh (Uttarakhand)	2.67	280
134 Inf. Bn (TA) Eco	Sonitpur District (Assam)	1.21	33
135 Inf. Bn (TA) Eco	Chirang Res. Forest, Kokrajhar, (Assam)	1.29	100
TOTAL		14.22	1359

Six ETF battalions are being supported by the Ministry under the EDF Scheme in the States of Uttarakhand, Rajasthan, Jammu & Kashmir and Assam. During 2020-21, bills to the tune of

Rs.33.75 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.

Forest Ministers Conference:

“Ministry of Environment, Forest and Climate Change (MoEF&CC) is focused on enhancing forest quality and increasing tree cover for maximizing carbon stock. With a view to achieve these objectives, Ministry has taken many initiatives to bring out transformational changes in our policies and programmes and implement several schemes which includes massive tree plantation, promoting urban forestry through Nagar Van Scheme, Landscape based catchment treatment of 13 major rivers, LiDAR based survey of degraded forest areas for soil moisture conservation projects. Ministry is also going to announce implementation of School Nursery Scheme shortly” said Hon’ble Minister EF&CC Shri Prakash Javadekar during the meeting with Forest Ministers of all the States held on 17th August, 2020. Shri Babul Supriyo Hon’ble Minister of State, other officials in the Ministry, Chief Ministers of two States, Arunachal Pradesh and Goa, Deputy Chief Ministers and 24 Forest Ministers from various States participated in the meeting. During the meeting the States were apprised about various policy and programmatic initiatives and they were requested to implement various schemes and programmes launched by the Ministry, as mentioned above.

NEW INITIATIVES

Programmatic initiatives:

➤ Nagar Van Yojana

- NAEB has initiated a 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. The ‘Nagar Vans’ 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. primary objective is to protect the forest lands and create a forested area in the city or near it.

➤ 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 NAEB in the Ministry has launched a scheme called ‘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.

Study initiatives:

➤ 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 and along the entire riverscape of 13 major 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. The study has been awarded to Indian Council of Forestry Research and Education, Dehradun.

➤ **Enhanced Capacity Building of Stakeholders and State Governments on Forest Landscape Restoration and Reporting Mechanism on Bonn Challenge**

- A pilot project “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. The project aims at capacity building of States for identification and prioritization of landscape for their restoration. Project also involves compilation of data to showcase country’s achievements towards meeting our commitment of 13 m ha forest landscape restoration by 2020 under Bonn Challenge pledge. Project will be implemented in 5 states of Haryana, Karnataka, Madhya Pradesh, Maharashtra and Nagaland.

➤ **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.

➤ **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 States for 2020-21 have been finalized, and Hon'ble Minister of Environment, Forest and Climate Change vide his D.O no 4-1/2020-B1 (NAEB) dated 24.03.2020 has written to the Hon'ble Chief Ministers to take all possible measures for tree planting in excess of the target this year. Secretary, EF&CC, and DG Forest & Special Secretary have also written letters to Chief Secretaries of the States to expedite the process.

- 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)

The 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.

Activities undertaken so far during the reference period (01-4-2020-till date):

- GIM activities were started in year 2015-16 and so far, a sum of Rs. 450.406 Crores

have been released to fifteen states for undertaking the afforestation activities over an area of 166751 ha and livelihood improvement activities of forest dependent communities.

- Fund amounting to Rs.107.307 crore has been released to six states namely Chhattisgarh, Himachal Pradesh, Manipur, Odisha, Sikkim, Uttarakhand, and one UT namely Jammu & Kashmir for carrying out the afforestation activities over 31384 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 has approved the Annual Plan of Operations at a cost of Rs.83.35 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.

- 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. Further, under Ecosystem Service Improvement Project (ESIP), to combat COVID-19 pandemic, JFMC members also prepared Masks and PPE kits for distribution.

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 for the FY 2020-21 and balance work of FY 2019-20.

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

To counter the challenge posed by COVID-19,

under Green India Mission and Ecosystem Service Improvement Project (ESIP), members of JFMCs have prepared Masks and PPE kits for distribution. Various activities under Green India Mission continued smoothly by following social distancing norms and wearing masks by the members of JFMCs.



**Progress/Achievements both cumulative and for the reference period:**

- A sum of Rs.450.406 Crore has been released to 15 states from the year 2015-16 to 2020-21 for carrying out the afforestation activities over 166751 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:

Table-5.3

S. No.	Name of the State	Afforestation being taken up (in ha.)	Funds Released (Rs. in crore)
1.	Andhra Pradesh	2737	4.1675
2.	Chhattisgarh	20191	66.62667
3.	Himachal Pradesh	5480	17.085
4.	Jammu & Kashmir	5680	25.727
5.	Karnataka	1360	6.6145
6.	Kerala	12297.77	25.46633
7.	Manipur	23358	38.39164
8.	Mizoram	6766	69.95651
9.	Odisha	17080	49.57125
10.	Punjab	19643	15.5183
11.	Uttarakhand	16634.24	48.100
12.	Madhya Pradesh	4304	54.81198
13.	Maharashtra	1509.2	10.302
14.	Sikkim	11045	8.64067
15.	West Bengal	18666	9.426488
Total		166751	450.406



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 2020-21 under the Green India Mission (01.04.2020 to till date):

Table-5.4

S. No.	Name of Organization	Purpose	Total Amount Released (Rs in crore)	Status of third-party evaluation
1.	SFDA, Chhattisgarh	Advance and Maintenance Work	1.660924	Third Party evaluation of Green India Mission has been completed by NITI Aayog.
2.	SFDA, Himachal Pradesh	Advance Work	17.085	
3.	SFDA, Jammu and Kashmir	Advance Work	25.727	
4.	SFDA, Manipur	Advance and Maintenance Work	6.73635	
5.	SFDA, Odisha	Advance, Creation and Maintenance Work	26.01436	
6.	SFDA, Sikkim	Creation and Maintenance Work	27.891	
7.	SFDA, Uttarakhand	Advance, Creation and Maintenance Work	2.19287	
	Total		107.3075	



CHAPTER

06

Research



6.1 Research in Environment

The R&D Scheme is an important Decision Support System for Policy and Planning of the Ministry's programmers and activities incorporating the key objectives for addressing environmental problems and measures for conservation and protection of environment by building indigenous capacities and strengthen manpower in multi-disciplinary aspects and new and emerging areas of environment and ecology, generating information for taking policy decisions, preparedness and basis for international negotiations, supporting basic and applied research in environment, ecology and related fields, and to facilitate database management on Research projects undertaken under the Scheme on relevant thematic areas of the Ministry.

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/outcome 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,

bioremediation 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 minimisation 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.

The major thematic areas for funding are:

- i. Biodiversity Conservation
 - a. Alien and invasive species
 - b. Human-wildlife Interface



- ii. Ecosystems Conservation & Management (Mountain, Forest, Coastal, Wetlands, Pastoral, etc) and Evaluation of Ecosystem Services.
- iii. Socio-economic issues of environment and Sustainable Development.
- iv. Conservation and Management of Landscapes and Ecologically sensitive areas including issues of sustainable livelihoods.
- v. Sustainable Management of Natural Resources
- vi. Climate Change: Vulnerability & Risk Assessment, Process, Mitigation and Adaptation
- vii. Pollution prevention - Clean Technologies and Processes, Cleaner Production, 3Rs, Resource Efficiency, Waste Minimisation and Management, Environmental health, etc.
- viii. Use of remote sensing technology for inventorisation, assessment and monitoring of country's natural resources such as land, water, forests, wetlands, glaciers etc. for environmental conservation and protection.

b. Activities undertaken in 2020-2021 (as on 31.12.2020):

- i. Convening the Technical and Financial Appraisal Committee Meetings for review of Annual Progress Reports/Final Technical Reports of the R&D Project and appraisal/ approval of new R&D proposals;
- ii. Releasing next installment of Grants for ongoing R&D projects.

c. Progress/ Achievements in FY 2020-21 (as on 31.12.2020):

i.	New Proposal/applications received for funding	70
ii.	Total No of project applications appraised (new + ongoing)	105
iii.	Number of meeting of the Technical & Financial Appraisal Committee (TFAC) held during the year	07

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 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 Protected Areas is an important objective of MoEF&CC for sustainable development and for conservation of Wildlife and Biodiversity around Protected Areas. As part of Wildlife Conservation Strategy, in the year 2002 it was decided that an area around each Protected Area (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 Protected Areas (PAs)" The ecologically sensitive areas notified by the Ministry include



Dahanu Taluka, Mahabaleshwar-Panchgani, Matheran, Mount Abu, Bhagirathi, Doon Valley and Western Ghats etc.

- a) ESZ-Division provides Grants-in aid to Dahanu Taluka Environment Protection Authority, Mumbai through PL Division for protection and conservation of Dahanu Taluka.
- b) As on 27.10.2020, out of total 662 Protected Areas (PAs), 421 proposals with 573 PAs have been received in ESZ Division. The ESZ Division has published 285 Final Notifications covering 409 PAs and 114

Draft Notification covering 139 PAs since inception. The proposals for remaining PA's are at different stages of approval and publication of notification.

- c) In the year 2020, the ESZ Division has published 35 Final Notifications covering 36 PAs, 37 Draft/Re-Draft Notifications covering 42 PAs and six amendments in the final notification of ESZ/ESA/E(P) rules, 1986. The status of draft and final ESZ and amendment of Notifications issued by the Ministry in the period of 01.01.2020-27.10.2020 is as follows:

Table 6.1: Final ESZ Notifications Published in the year 2020
(1st January 2020 to 27th October 2020)

S. No.	State	Name of final Notification	Date of Publication
1.	Andhra Pradesh	Sri Penusila Wildlife Sanctuary	28.08.2020
2.		Krishna Wildlife Sanctuary	05.08.2020
3.	Arunachal Pradesh	Eagle Nest Wildlife Sanctuary (Draft Re-notified on 23.08.2019)	28.08.2020
4.	Assam	Dibru Saikhowa National Park (Draft Re-notified on 22.05.2018)	30.01.2020
5.	Himachal Pradesh	Manali Bird Sanctuary, HP (Re-notified on 06.03.2020)	12.10.2020
6.	Jammu and Kashmir	Rajparian Wildlife Sanctuary	18.06.2020
7.	Karnataka	Kudremukh National Park (Draft Re-notified on 25.10.2019)	02.07.2020
8.		Someshwara Wildlife Sanctuary (Draft Re-notified on 25.10.2019)	28.08.2020
9.		Banerghatta National Park (Draft Re-notified on 02.11.2018)	11.03.2020
10.		Adichunchanagri Peacock Sanctuary (Draft Re-notified on 11.12.2019)	07.09.2020
11.		Thimlapura Wildlife Sanctuary	08.10.2020



S. No.	State	Name of final Notification	Date of Publication
12.	Madhya Pradesh	Sailana Wildlife Sanctuary (Draft Re-notified on 20.03.2020)	08.10.2020
13.		National Chambal Sanctuary	21.02.2020
14.		Kharmor (Sardarpur) Sanctuary	28.08.2020
15.	Maharashtra	Mayureshwar Supe, Wildlife Sanctuary (Draft Re-notified on 11.12.2019)	28.08.2020
16.		Bhimashankar Wildlife Sanctuary	05.08.2020
17.		Great Indian Bustard Sanctuary	11.02.2020
18.		Naigaon Mayur Wildlife Sanctuary	07.09.2020
19.		Pranhita Wildlife Sanctuary	07.09.2020
20.		Radhanagari Wildlife Sanctuary	15.10.2020
21.		Odisha	Lakhary Wildlife Sanctuary
22.	Rajasthan	Jaisamand Wildlife Sanctuary (Draft Re-notified on 03.06.2019)	05.08.2020
23.		Kesarbagh Wildlife Sanctuary (Draft Re-notified on 19.11.2019)	28.08.2020
24.		Ramsagar Wildlife Sanctuary (Draft Re-notified on 24.12.2019)	15.10.2020
25.	Tamil Nadu	Gulf of Mannar National Park	01.01.2020
26.		Point Calimere Sanctuary (including Block B)	28.01.2020
27.		Kodaikanal Wildlife Sanctuary	28.01.2020
28.		Point Calimere Sanctuary (including Block A)	28.01.2020
29.		Oussudu Wildlife Sanctuary	21.02.2020
30.		Vellode Bird Sanctuary	22.05.2020
31.		Kanyakumari Wildlife Sanctuary (Draft Re-notified on 21.02.2020)	22.09.2020
32.	Uttar Pradesh	National Chambal Wildlife Sanctuary	12.06.2020
33.	West Bengal	Buxa Tiger Reserve	07.09.2020
34.		Ballavpur Wildlife Sanctuary	28.08.2020
35.		Mahananda Wildlife Sanctuary	22.09.2020



Table 6.2: Draft ESZ Notifications Published in the year 2020
(1st January 2020 to 27th October 2020)

S. No.	State	Name of Draft Notifications	Date of Publication
1.	Andhra Pradesh	Coringa Wildlife Sanctuary	10.01.2020
2.		NagarjunasagarSrisailam tiger Reserve Wildlife Sanctuary	11.02.2020
3.	Arunachal Pradesh	Dibang Sanctuary	22.05.2020
4.	Assam	Kane Wildlife Sanctuary	Afresh Draft Published on 12.06.2020
5.	Himachal Pradesh	Chakrashila Sanctuary	04.06.2020
6.	Himachal Pradesh	Manali Bird Sanctuary	Afresh Draft Published on 06.03.2020
7.		Kugti Wildlife Sanctuary	Afresh Draft Published on 06.03.2020
8.		Kalatop-Khajjar Wildlife Sanctuary	Afresh Draft Published on 06.03.2020
9.		Kibber Wildlife Sanctuary	Afresh Draft Published on 20.03.2020
10.		Renukaji Wildlife Sanctuary	Afresh Draft Published on 13.10.2020
11.	Jammu & Kashmir	Chail Wildlife Sanctuary	Afresh Draft Published on 15.10.2020
12.	Jammu & Kashmir	Hirapora Wildlife Sanctuay	12.06.2020
13.		Ramnagar Wildlife Sanctuary	Afresh Draft Published on 13.10.2020
14.	Karnataka	Bhadra Tiger Reserve	Afresh Draft Published on 15.06.2020
15.		Thimlapura Wildlife Sanctuary	23.04.2020
16.		Yadagalli Chinkara Wildlife Sanctuary	15.06.2020
17.	Kerala	Aralam Wildlife Sanctuary	Afresh Draft Published on 20.07.2020
18.		Malabar Wildlife Sanctuary	Afresh Draft Published on 05.08.2020
19.		Mathikettan Wildlife Sanctuary	Afresh Draft Published on 13.08.2020
20.		Idduki Wildlife Sanctuary	Afresh Draft Published on 13.08.2020
21.		Shendurney Wildlife Sanctuary	Afresh Draft Published on 24.08.2020
22.		Kottiyoor Wildlife Sanctuary	Afresh Draft Published on 24.08.2020
23.		Mangalavanam Bird Sanctuary	Afresh Draft Published on 07.09.2020
24.		Thattekkad Wildlife Sanctuary	Afresh Draft Published on 29.09.2020



S. No.	State	Name of Draft Notifications	Date of Publication
25.	Madhya Pradesh	Sailana Wildlife Sanctuary	A fresh Draft Published on 20.03.2020
26.		Kanha NP and Phen Wildlife Sanctuary	A fresh Draft Published on 24.07.2020
27.	Maharashtra	Tamhini Wildlife Sanctuary	A fresh Draft Published on 30.01.2020
28.		Chaparala Wildlife Sanctuary	15.01.2020
29.		Pranhita Wildlife Sanctuary	10.02.2020
30.		Katepurna Wildlife Sanctuary	06.03.2020
31.		Karanja Sohol Wildlife Sanctuary	12.06.2020
32.	Rajasthan	Mukundra hills tiger reserve Sanctuary	10.01.2020
33.		Kumbhalgarh Wildlife Sanctuary	18.06.2020
34.	Tamil Nadu	Kanyakumari Wildlife Sanctuary	A fresh Draft Published on 21.02.2020
35.	Tripura	Sepahijala Sanctuary include Clouded Leopard National Park	24.07.2020
36.	Uttarakhand	Nandhar Wildlife Sanctuary	A fresh Draft Published on 22.05.2020
37.	West Bengal	Gorumara National Park	04.06.2020

Table 6.3: Amendment of ESZ/ESA Notifications Published in the year 2020
(1st January 2020 to 27th October 2020)

S. No.	State	Name of Notification	Date of Publication
1.	Karnataka	Final notification amendment of Chincholi Wildlife Sanctuary	04.06.2020
2.	Rajasthan	Final notification amendment of Sajjangarh Wildlife Sanctuary	07.01.2020
3.		Final notification amendment of Keoladeo Wildlife Sanctuary	21.02.2020



S. No.	State	Name of Notification	Date of Publication
4.	Madhya Pradesh	Final notification amendment of Ghuga Fossil National Park	24.07.2020
5.	Uttarakhand	Final notification amendment of Doon Valley Eco-Sensitive Area	06.01.2020
6.	West Bengal	Final notification amendment of Ramnabagan Wildlife Sanctuary	18.06.2020
7.	All UTs/States	First amendment Environment (Protection) Rules, 1986 for increasing expiry days from 545 to 725.	18.03.2020
8.		Second amendment Environment (Protection) Rules, 1986	22.09.2020

d) The statutory provisions for declaring ESA/ESZ include- (i) Section 5 C (1) of the Wildlife Protection Act, 1972 (ii) Section 3 (2) (V) of the Environment (Protection) Act, 1986 and (iii) Section 5 (3) of the Environment (Protection) Rules, 1986. Considering the above provisions, the ESA/ESZ Notifications are published by the ESZ Division of this Ministry.

In 2011, the Wildlife Division has prepared the Guidelines for preparation of ESZ proposals to support the State Governments. The Guidelines include an indicative list of activities that are Prohibited/Regulated and Promoted. Later on 1st August, 2012, an Expert Committee was constituted with tenure of five years which was re-constituted in the year 2017 under the Chairmanship of Special Secretary /Additional Secretary of this Ministry for recommending the ESZ Proposals.

e) The current multi-disciplinary Expert Committee was re-constituted on 07.08.2017 which has tenure of 5 years from date of constitution.

The multi-disciplinary Expert Committee is for considering the ESZ proposals those completed 60 days in public domain. Members of the Expert Committee are provided details of the proposal, comments received from stakeholders and observations of the ESZ Division in advance. The deficiency in the proposals of State Government is deliberated during the meeting of the Expert Committee.

During 2020, four meetings of ESZ Expert Committee were convened. In addition, two meetings to discuss the draft Notification of the Ecologically Sensitive Areas (ESA) of the Western Ghats were convened with the State Governments.



S. No.	Name of Organization	Purpose	Total Amount Released as on 14.10.2020	Remark
1.	Dahanu Taluka Environment Protection Authority (DTEPA)	Functioning of Authority	Rs. 11,16,541.09/- (carry forward from last FY) and Rs. 14.22 lakhs is under process for release	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.25, Ministry of Environment, Forests and Climate Change during the Financial Year 2020-21 (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 G.B. Pant National Institute of Himalayan Environment & Sustainable Development

Name of the Scheme: G. B. Pant National Institute of Himalayan Environment, Kosi-Katarmal, Almora – 263 643, Uttarakhand, India.

Brief introduction, objectives and functions of the Institute:

G.B. Pant National Institute of Himalayan Environment (GBP-NIHE) was established in August 1988 by the Ministry of Environment, Forest and Climate Change, Government of India, as an autonomous Institute, with a mandate of achieving sustainable development and environmental conservation in the Indian Himalayan Region (IHR). The Institute attempts to execute its mandate through its Headquarters at Kosi-Katarmal, Almora (Uttarakhand), and five regional centers located at Mohal - Kullu (Himachal Pradesh), Srinagar-Garhwal

(Uttarakhand), Pangthang (Sikkim), Itanagar (Arunachal Pradesh), Leh (Ladakh) and the Mountain Division (housed at MoEF&CC, New Delhi). The Institute undertakes R&D activities on priority environmental problems; develops and demonstrates best practices and delivers technology packages for improved livelihood options for the people of IHR. R&D activities to achieve the mandate of the Institute are executed through four thematic centers namely: (i) Center for Land and Water Resource Management (CLWRM); (ii) Center for Socio-Economic Development (CSED); (iii) Center for Biodiversity Conservation and Management (CBCM); and (iv) Center for Environmental Assessment and Climate Change (CEA&CC), while R&D activities on regional priorities are conducted by regional centers; (i) Himachal Regional Centre (Kullu); (ii) Garhwal Regional Centre (Srinagar-Garhwal); (iii) Sikkim Regional Centre (Pangthang); (iv) North-East Regional Centre (Itanagar), and (v) Ladakh Regional Centre (Leh). The Mountain Division Regional Centre at MoEF&CC looks into mountain issues more holistically to bring in mountain perspective in plans and policies. Research, demonstration and dissemination are essential underlying elements of all R&D activities in the Institute.

Objectives:

The Institute has following three broad objectives:

- (i) To undertake in-depth research and development studies on environmental problems of the Indian Himalayan Region;



- (ii) To identify and strengthen the local knowledge of the environment and contribute towards strengthening researches of regional relevance; and
- (iii) To evolve and demonstrate suitable technology packages and delivery systems for sustainable development of the region in harmony with local perceptions.

Progress/Achievements (Physical/Financial) made during 2020-21:

(i) Center for Land and Water Resource Management (CLWRM)

- The Centre mainly looked into water resources management from the standpoint of its availability (both quantity and quality). Water sustainability mapping study of Kali watershed, which includes (i) Sarayu (2252 km²), (ii) Dhauliganga (1364 km²), (iii) Goriganga (2141 km²), (iv) Ramganga (1930 km²) and (v) Kali (2154 km²) indicated that the seasonal stream flow variability of Goriganga is higher than Saryu river. Streamflow and base flow data between Kali and Saryu rivers indicated that the Saryu has higher 'baseflow contribution of groundwater to river flow'. The water chemistry analysis indicated that both the rivers are having 'Good' water quality. The integrated index-based approach for estimating Water Scarcity indicated that albeit significantly high density of glacier fed rivers in the Saryu watershed, around 232 villages in the Saryu watershed were severely water scarce.

- Increase in the forest cover of the Kosi watershed was recorded to be 15.4% between 1999 and 2017, and significant defragmentation of forests was observed. The core forest area having size > 500 acre was found to be 368.2 km² in 2017 with respect to 201.7 km² area of 1999. Subsequently, patchy forests had decreased from 125.8 km² to 74.2 km² between 1999 and 2017. The CA model predicted a notable increase in the forest area (~15% increase) from 2017 to 2030 over the Kosi watershed within the protected forest areas under the generalized hypothesis that no statistically significant change in hydro-climatological parameters would take place to perturb the current environmental state.

- Towards strengthening the springshed management in Himachal Pradesh, inventory of springs are being prepared through extensive field surveys in the Barot & Seraj valley. All spring water is found fit for both domestic and irrigation purpose except for the pH in some of the spring water samples of Barot valley. Further, wide range of EC values of spring water indicates the multiple sources of ions such as atmospheric, geogenic and anthropogenic contamination.

(ii) Center for Socio-Economic Development (CSED)

- The Center has successfully completed the development of model village concept through technology transfer for livelihood enhancement in the Central



Himalaya. Three different villages were taken up for this purpose and 34 trainings were conducted for 222 beneficiaries, including 84 women farmers belonging to various parts of District Almora. In these trainings community mobilization and capacity building on various low-cost, environment-friendly rural technologies such as protected cultivation; poultry farming and horticulture and agro-forestry plantation was carried out. 'Model Village Development and Action Plan' were prepared for the three target villages through active participation of people and capacity building of Govt. officials. Through adoption of the improved resource management models large people earned Rs. 102850.00 by selling fish,vegetables,chicken and milk.

- The Rural Technology Complex (RTC) of the Institute is a main outlet for training and capacity building of a range of stakeholders. In order to develop farmers' skill and knowledge for sustainable income generation through natural resource management, a total of 120 persons (52% women and 29% SC) were trained on various technology packages i.e. bee keeping, making decorative items from chir pine needle and cones, bio-briquettes etc (Fig. 1). In the Pine processing unit established at RTC under the NMHS project various products i.e. file covers, folders, note pads, wedding cards and carry bags etc. (2000 nos.) were prepared using chir pine needles and supplied to various Govt. Deptts. and earned Rs. 28892.00 and also reduced the forest fire locally.



Fig. 1: Hon'ble MP Almora learning the preparation of smokeless biobriquettes from Pine needles by village women at RTC of the Institute.



(iii) Center for Biodiversity Conservation and Management (CBCM)

- Participatory approach for biodiversity conservation is one of the major thrust of this Centre. Towards mainstreaming the landscape approach for biodiversity conservation in western Himalaya, 17.5 ha degraded land of Chandak-

Unlaghat watershed (Uttarakhand) was identified and restoration activities were initiated by planting various multi-purpose species (*Cinnamomum tamala*, *Quercus leucotrichophora*, *Q. glauca*, *Morus alba*, *Pittosporum eriocarpum*, *Zanthoxylum armatum*) through participatory approaches (Fig. 2).



Fig. 2: Participatory approach for restoration of degraded land at Digtoli and Naikina villages

- Detailed assessment of medicinal and aromatic plants (MAPs) was carried out in Govind Gangotri and Darma Byans landscape in West Himalaya for promoting conservation and identification of medicinal plant conservation and development areas. A total of 4 sites in Darma-Byans, and 2 in Gangotri-Govind landscape have been identified as potential Medicinal Plants Conservation and Development Areas. Also, Access and Benefit sharing (ABS) system/agreement was established with the biodiversity management committee of two villages of Govind Gangotri landscape for selling of medicinal plants produce.
- In order to, develop the spectral profile and creation of spectral digital library for detection and monitoring of high value, rare and threatened plants, hyperspectral

technique was used for 66 plant species under 52 genera and 40 families (Pindari area) and 47 species under 43 genera and 35 families from Almora area. A spectral image library of the useful plants is being maintained.

(iv) Center for Environmental Assessment and Climate Change (CEA&CC)

- The Centre monitors various atmospheric science related aspects mainly air pollution. Studies on the gaseous air pollution in the background sites of sprawling urban environment in the North-Western Indian Himalaya indicate the variation in surface O₃, NO_x concentration and O₃ in Kullu area, while total columnar ozone at Katarmal-Almora was found increasing from March 7, 2019 to April 15, 2020 ($r = 0.00325$).



The average aerosol optical thickness at 500 nm within 30 minutes sample was 0.47 ($r = 0.003$) (Fig. 3). During forest fire

months, maximum mean concentration of particulate matter (Pm 2.5 and PM 10) increased significantly.

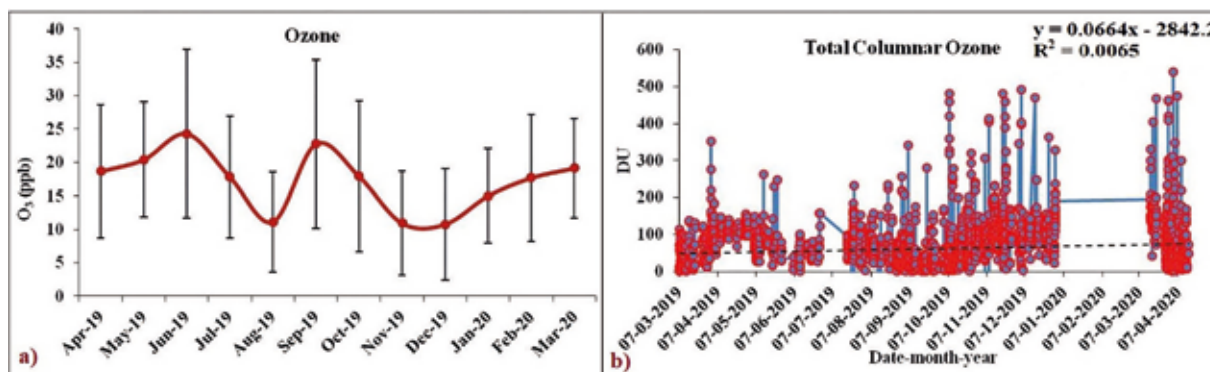


Fig. 3. (a) Monthly concentration of surface O₃ at Mohal-Kullu, Himachal Pradesh and (b) Total columnar ozone at Kosi-Katarmal, Almora, Uttarakhand

- Towards identifying the drivers of degradation for developing model mitigation plan in alpine and sub-alpine areas of Gangotri Govind and Darma Byans landscape mapping of entire forest cover in both landscapes has been done. Similarly mapping of landslide vulnerable zones has been completed in both landscapes by considering 11 thematic layers namely slope angle, elevation, rainfall, proximity to lineaments, geomorphology, lithology, vegetation cover, land use/land cover, proximity to road, proximity to drainage, soil erosion and current landslide points.

Regional Centers

(i) Himachal Regional Centre

- Community driven solid waste management in Himachal Pradesh was undertaken and successfully completed with a recommendation that the waste

generated should be looked as a resource as its reuse can give livelihood to a rag and scrap dealing community.

- Under the Department of Biotechnology supported project a Genetic Resource Center (GRC) was established for germplasm conservation of the target species, *Picrorhiza kurroa*, *Swertia chirayita*, *Rubia cordifolia*, and *Nardostachys grandiflora* at Dhoranala nursery site. Mass multiplication protocols of *S. chirayita* and *P. kurroa* were standardized. *P. kurroa* cultivation is being promoted in around 4 acre land of farmers in Kullu & Chamba districts of HP. Around 20,000 seedlings of *P. kurroa* were also distributed to medicinal plant cultivators of the state. An elite medicinal plants nursery was established at HRC for providing planting material to *S. chirayita* and *P. kurroa* to farmers (Fig. 4).



Fig. 4. Genetic resource centre of elite medicinal plants established at HRC, Kullu

- Under the Himachal Pradesh State Biodiversity Board, a total of 140 biodiversity management committees (BMCs) were sensitized for the preparation of people's biodiversity register (PBR) and initially 18 village Panchayats were selected for PBR preparation. MoU for the same was signed as technical support group with the BMCs and HPSBB, Shimla for the preparation of PBRs.

(ii) Garhwal Regional Centre

- The Center has reinvented pilgrimage potential for tourism in Garhwal Himalaya, Uttarakhand and identified some of the sites which may have the tourism potential. Towards developing it as an ecotourism hub various biological and social aspects were taken care of. Solid waste along the route of Kedarnath was quantified. Annual fuel wood consumption in lodges in the different towns of the valley was estimated. Various livelihood options were also identified and demonstrated through training and capacity building programmes.

- Towards characterization of Kidney Beans (Rajmah) from high altitude of central Himalaya for identification of climate resilient accessions, database on different accessions of Rajmah from Uttarakhand is prepared. A total of 32 accessions of Rajmah were collected and assessed for morphological characteristics following standard pattern of NBPGR. The impact of bioinoculant on the collected accessions was evaluated in the farmer's field.

(iii) Sikkim Regional Centre

- This Centre focused on the (i) development of grided biodiversity database (vegetation) of Sikkim Himalaya using grid-based inventorization, (ii) promotion of community based sustainable tourism in Khangchendzonga Landscape and linking livelihood with nature conservation, and (iii) establishment of nature learning center at the Pangthang area. The center is also implementing a transboundary project on Khangchendzonga Landscape where technical support to more than



163 beneficiaries for different livelihood improvement and conservation activities were provided. Traditional knowledge systems (TKS) of Lepcha tribe (12 households) on use of nettle plant *Girardinia diversifolia* as alternative livelihood option and conservation of TKS was documented.

- Under the National Mission on Himalayan Studies, the center has initiated development of disaster resilience action plan for Shillong and Gangtok. Initially, focus group discussions were carried out in Gangtok and Shillong municipal area wherein a total of 1175 respondents from both the cities participated.

(iv) North-East Regional Centre (NERC)

- The Centre focused on enhancing eco-cultural livelihoods in biodiversity rich areas of Arunachal Himalaya and explored alternative livelihood options for the local communities in order to reduce natural resource dependency and conserve biodiversity. The centre initiated development of eco-cultural tourism sector, agro-diversity products, strengthening access and benefit sharing through BMCs and PBRs at village level as well as other policy interventions
- Under the transboundary project a

landscape initiative for far-Eastern Himalaya was initiated with activities such as (i) various home-stays constructed in the project sites, (ii) training-cum-exposure programme, (iii) socio-economic status of the people residing in and around Namdapha National Park were documented, and (iv) baseline data on human-animal conflict was collected.

(v) Mountain Division Regional Centre

- A GIS based approach to delineate spring ecosystem boundary in Mann Dhunga village of Lohaghat block (Uttarakhand) in middle Himalayan region was developed. The spring inventory of district Champawat shows that the population is highly dependent on spring water for drinking and domestic work. The discharge at these sites would be observed from time to time to determine the pattern of flow.
- Organic farming and its status, problems and constraints was assessed in ten villages in Rudraprayag district, Uttarakhand. The input cost and the market value of the ringal-based handicrafts were assessed for promoting the rural livelihood (Fig. 5). The traditional community was also imparted technical knowledge to improve the quality of the products.





Fig 4: Promoting Ringal artisan and crafts

3) Application of R&D Outputs in Demonstration and Dissemination:

- The Institute organized various Green Skill Development programmes at HQs Kosi-Katarmal, Almora and all the Regional Centers towards building skills of diverse groups of stakeholders. These skill building programmes included, wild bee keeping & processing, bird identification and basic ornithology, training on soil, water and plant quality assessment, preparation of PBRs, vegetation assessment, herbarium techniques and statistical analysis for long-term ecological monitoring, ecotourism and livelihood enhancement, solid waste management, etc.
- Towards promoting R&D activities across IHR, the Institute through Integrated Eco-development Research Programme (IERP) supports location-specific/action-oriented projects to different Universities/Institutions/NGOs/Voluntary agencies.

During the year, a total of 23 projects were evaluated, of which 3 were recommended for financial support during 2020-21. At present 34 R&D projects are under various stages of implementation, covering 7 States (namely; Assam, Arunachal Pradesh, Meghalaya, Mizoram, Sikkim, Tripura and Uttarakhand) of the IHR.

- The ENVIS center on Himalayan Ecology, collects, collates and compiles information on various aspects of Himalayan Ecology. The collected information is being disseminated to various stakeholders/users including all the District Information Centers (operating in the Himalayan states of the country), ENVIS Centers/Nodes and other user agencies/groups through print and electronic media. The center is regularly publishing ENVIS Newsletter, ENVIS Bulletin, and State Specific Statistical Databases in the form of State at a Glance that covers the temporal trends across



important sectors related to environmental and socio-economic aspects, which helps in crucial decision-making and policy planning of the IHR states.

- The Institute is strengthening and maintaining Central Library and providing number of services such as Article Alert, Current Awareness, Selective Dissemination of Information, Reprography, Referencing, Indexing, Bibliography, Web Services (Online Journals) etc., for the development of the human resources. The library is now having 17387 books and subscribing 89 periodicals (61 Foreign and 28 Indian).

Transformative Work:

The Institute under the Transformative Work is focusing on the following four projects

(2020-25). (i) Water security in Himalaya through spring-ecosystem assessment and management, (ii) Community driven eco-smart model village development to improve livelihoods and foster ecological security in the Himalaya, (iii) Mainstreaming Himalayan biodiversity for sustainable development, and (iv) Fostering climate smart communities in the Indian Himalayan Region.

To execute these projects four cluster of villages (about 5 villages in each cluster) have been taken up across the four IHR States namely, H.P., Uttarakhand, Sikkim and A.P. The focus is to transform the life of the people of these village clusters through implementation of various R&D packages of practices devised by the Institute in the past.

5. Budget Allocation of the Scheme during 2020-21 and Progress of Expenditure (Crore)

Budget Head	Allocation	Expenditure (Upto December 31, 2020)
Revenue	14.40	13.06
Capital	2.30	0.74
Total	16.70	13.06

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

Recognizing the importance of Himalayas, National Mission on Himalayan Studies (NMHS), a Central Sector (CS) Grant-in-aid Scheme with a vision “to support the sustenance and enhancement of the ecological, natural, cultural and socio-economic capital assets and values of the Indian Himalayan Region (IHR)” was launched in the year 2015–16, and the responsibilities for its execution and implementation were entrusted with the GBPNIHESD as a Nodal Institute under the Ministry of Environment, Forest and Climate



Change (MoEFCC), New Delhi. The jurisdiction of NMHS includes all IHR states and UTs. The mission is to launch and support innovative studies and related knowledge interventions with strategy to focus on enhancing livelihoods of local communities, in line with the National Environment Policy, 2006 of the Government and the Sustainable Development Goals (SDGs). The Mission had been revamped in 2017-18 and focusing on Demand-Driven Action Research on the Thematic Areas: (i) Water Resource Management, (ii) Livelihood Options and Employment Generation, (iii) Biodiversity Conservation and Management, (iv) Skill Development and Capacity Building, (v) Infrastructure Development, (vi) Physical Connectivity, and (vii) Handling of Hazardous Substances. The mission activities have been further expanded to all 11 IHR states and 2 UTs in the year 2020-21.

Objectives

- To build a body of scientific and traditional knowledge through demand driven action research and technological innovations along with institutional strengthening & capacity building;
- To strengthen technological innovations leading to sustainable management of natural resources of Himalaya for ensuring the ecological, water, livelihood security at the local, regional and national levels;
- To create science-policy-practice connect through a network of policy makers and practitioners (individual and institutions) engaged in working solutions to problems in the thematic areas;
- To demonstrate workable/implementable/replicable solutions to the problems in the priority thematic areas.

Major Activities

- In Year 2020–21, one Steering Committee (SC) meeting was conducted through Video Conference for review, evaluation and approval of new Project Proposals received in Year 2019–20, and SC approved 15 Demand Driven Action Project Grants (i.e. 14 MG and 1 SG) and 01 State Government Project.
- Continuing the series of “NMHS Himalayan Researchers’ Consortium”, the 5th Himalayan Researchers Consortium (HRC) was organized in online webinar mode at G.B. Pant National Institute of Himalayan Environment (GBP-NIHE), Kosi-Katarmal on 30-31 July 2020. Total 13 Himalayan Researchers from 5 Himalayan Fellowship-recipient universities/ institutions presented their progress online. The comments/suggestions of the experts have been communicated to concerned fellows for further improvements of their research work.
- 4th Monitoring and Evaluation (M&E) Workshop was organized during 3–4 November 2020 through Online Webinar Mode. The workshop was convened under the supervision of eminent Monitoring, Learning and Evaluation (MLE) Panel Members and invited Subject Experts in three (3) Technical Sessions, and facilitated the monitoring, assessment and evaluation of the 29 demand-driven projects granted under NMHS.



Major Achievements

1. Demand Driven Action Projects

Water Resource Management (WRM)

- Geo Tagging of 3603 Springs databases of 05 IHR States (HP, Uttarakhand, Nagaland, AP, Sikkim) has been completed and 120 Spring Revival Models have been established in 3 IHR States viz., Himachal Pradesh, Uttarakhand and Sikkim (**Fig 1**).
- Water security of 12 villages was insured through Web of water tanks (322 Nos/10,000 liters each) in Uttarakhand.
- A prediction model on elevation dependent mean rainfall/temperature changes was tested for Uttarakhand.

Livelihood Options and Employment Generation (LOEG)

- Total 66 Community Development Plans (CDPs) have been developed in consultation with local stakeholders after preparing and digitizing 66 resource maps for all targeted villages in three pilot sites i.e., Himachal Pradesh, Uttarakhand and Sikkim.
- Total 59 small micro-enterprises were initiated on Wild edible produces, medicinal plant cultivation, cut flower, Organic farming, Eco-tourism based model etc. in J&K, Himachal Pradesh and Uttarakhand involving 31,000 beneficiaries from 177 Villages (**Fig 2**).
- Total 40 SOPs for 49 products are being developed to prepare various nutritional, cosmetic and fiber based products in Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh.

- Ten homestays have been demonstrated highlighting environmental protection and conservation of local Cultural Heritage in Uttarakhand (**Fig 3**)

Biodiversity Conservation and Management (BCM)

- Long Term Monitoring (LTM) Plots were established for monitoring floral and faunal diversity in 6 protected sites - J&K, HP, Uttarakhand, Sikkim, West Bengal and Arunachal Pradesh
- Total 11157 floral (angiosperm) and 30377 faunal databases were documented from 6 IHR States i.e., Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, West Bengal and Arunachal Pradesh.
- First time extensive databases on timberline ecosystem is being developed of three states w.r.t. Altitude, Temperature Lapse Rate (TLR), Water Relation, Soil composition, Snow fall, Vegetation sampling, Phenology and, Tree Ring Width Chronology- Jammu and Kashmir, Uttarakhand and Sikkim.
- Total 3 Spatial Risk Maps for Himalayan Brown Bear, Asiatic Black Bear & Common leopard have been developed for three IHR states i.e., Himachal Pradesh, Uttarakhand, Sikkim and North Bengal.
- Reintroduction of threatened plants from lab to wild habitats (>2000 plantlet of 5 threatened species) have been carried out in two states Uttarakhand and Meghalaya.

Skill Development and Capacity Building

- 50 Skill development/Training Program



were organized online & in field on different issues like Water management, Management of NTFP, Low cost Bamboo treatment, Medicinal plant cultivation, Horticulture Skills, Mushroom Cultivation, Saffron Cultivation, Solar energy, Honey Bee Keeping', Plant Taxonomy, GIS Mapping, etc. in J&K, HP, Uttarakhand, Sikkim, Tripura, Manipur, AP, Assam and Meghalaya.

- Total 33 workshop and Awareness Program are organized online and in field with more than 1200 participants on-Spring Rejuvenation, Organic farming, Biodiversity Conservation, Disaster Bamboo Treatment Method, Restoration of ecosystem services, etc. in 8 states and 1 UT.

Infrastructure Development (ID)

- Two disaster resilience plans were prepared for the two NE cities Gangtok (Sikkim) and Shillong (Meghalaya) in collaboration with GSI and NESAC.
- Efforts were made for conservation of traditional buildings and dissemination of traditional knowledge in Uttarakhand.
- Healthy and resilient ecosystem development plans were developed for 6 village sites and also developed the indicators of a resilient village ecosystem at the individual and Community level in Uttarakhand.

Physical Connectivity (PC)

- Road pavement model has been developed using low grade local material for high altitude areas of the Himalayas-Himachal

Pradesh and Arunachal Pradesh.

- Cold Bituminous based road building model is being tested in lab and field conditions in collaboration with state road agencies.

Handling of Hazardous substances (HHS)

- Technology was commercialised for conversion of plastic waste into high value products such as Graphene, Graphene nano-sheet based electric double layer capacitor in collaboration with Kumaun University and NRDC.
- Environmental monitoring and technology Model was developed for treatment of acid mine drainage (AMD) and restoration of coal mine affected areas in two states viz., Meghalaya and Assam.

2. Him-Nature Learning Centers (Him-NLCs) and State Government Projects (SGPs)

- Six State-of -Art Him Nature Learning Centres (NLCs) have been initiated in 6 IHR States (Himachal Pradesh, Sikkim, Assam, Tripura, Manipur and Nagaland).
- 11 State Government Projects (SGPs) have been implemented in Himachal Pradesh, Uttarakhand, Manipur and Nagaland on river revival, ecotourism models, land rehabilitation, etc.
- Total 58 nature Conservation Clubs (N'CCs) have been formed covering 1650 students under Him-NLC Assam. Total 10 exposure visits and 15 awareness programs (flora and fauna, Swachh Bharat, Biodiversity Conservation, etc.) were organized to National parks and Wildlife sanctuaries in 06 NLCs.



Fig 1: Groundwater augmentation activity for rejuvenating the springs-Uttarakhand and Sikkim



Fig 2: Medicinal Plant Cultivation at high altitude region of Uttarakhand



Fig 3 Establishment of homstays model focusing on environmental protection and conservation of Cultural Heritage- Uttarakhand



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 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

Indian Council of Forestry Research and Education (ICFRE), an apex body in the national forestry research system, has been undertaking holistic development of forestry research, education and extension covering all aspects of forestry. The Council deals with solution based forestry research in tune with the emerging issues in the sector, including global concerns such as climate change, conservation of biological diversity, combating desertification and sustainable management and development of resources.

Objectives of ICFRE

1. To undertake, aid, promote and coordinate forestry research, education and extension leading to scientific and sustainable management of forest resources in the country.
2. To align forestry research programs in the council with national priorities including achievement of Sustainable Development Goals and combating climate change.
3. To provide scientific advice and policy support to the central and state governments aiding informed decision making in forestry matters of national importance and international commitments.
4. To act as a repository of scientific knowledge related to forestry, environment and climate change, and disseminate such knowledge to various stakeholders including forest dependent communities and also provide consultancy and capacity building services in environment and forest sector.
5. To provide technical assistance and support to states, forest-based industries, tree growers, farmers and others for forest protection, afforestation, agro- forestry and allied activities.
6. To develop appropriate forest based technologies, processes and products for sustainable resource use, livelihoods and economic growth.
7. To promote forestry education in the country and facilitate universities in improving quality through technical and financial support including development of uniform curricula.
8. To conduct other activities incidental and conducive to attainment of forestry related objectives, which the council may consider necessary.



Progress/Achievements made during 2020-21

1. The first ever virtual Regional Research Conference (RRC) on 'Forestry research in western and central India' was jointly organized by Arid Forest Research Institute, Jodhpur and Tropical Forest Research Institute, Jabalpur and was hosted at AFRI, Jodhpur on 25 August 2020.
2. The second virtual RRC was organized by the Institute of Forest Productivity, Ranchi jointly with the Institute of Forest Biodiversity, Hyderabad on 22 September 2020. The main objective of this conference was to formulate research programmes keeping in mind the research requirements of State Forest Departments and other stakeholders.
3. NAEB, MoEF&CC, Govt. of India entrusted ICFRE to prepare DPR of 13 major Indian rivers namely Beas, Brahmaputra, Cauvery, Chenab, Godavari, Jhelum, Krishna, Luni, Mahanadi, Narmada, Ravi, Satluj and Yamuna through forestry Interventions. All the nine institutes of ICFRE are involved in preparation of the DPRs. Under this project, the identified riverscapes falling under natural, agricultural and urban landscapes are proposed to be treated through the forestry interventions. Various meetings with different stakeholders and subject matter experts were carried out to identify areas and to design treatment models.
4. The ICFRE is implementing a scheme named "Strengthening Forestry Research for Ecological Sustainability and Productivity Enhancement" aimed at conserving forest genetic resources, enhancing forest productivity, strengthening of ecosystem services, and sustainable use of resources, strengthening the extension of forestry research through various scientific and technological interventions and capacity building of ICFRE personnel. The intervention of ICFRE is proposed in diverse disciplines of forestry research, policy and extension. The scheme is for 5 years starting from January 2020 (60 months).
5. ICFRE has taken initiative in bringing out the second version of "National Forestry Research Plan" for a period of 10 years starting from 2020. The plan is to align forestry research in the council as per the contemporary needs. The council had brought out first National Forestry Research Plan in 2000. The new NFRP is aligned to regional, national and international requirements and includes lessons learned from the past experiences and recommendations of various forestry conferences and seminars. The plan prioritizes research issues taking into account the vision, mission and objectives of the council.
6. ICFRE compilation on "Important Invasive Alien Species (IAS) in Forests of India: Status and Management" deals in detail with major invasive alien species, history of their introduction, their spread in India, various management strategies adopted and ICFRE initiatives in this field. The compilation is an attempt to provide information on important IAS in forests of



India and their possible control measures. The approaches and strategies outlined in this compilation showed that much progress has been made in the effort to prevent the introduction and spread of IAS in India particularly in forests and protected areas.

7. During the financial year 2020-21, the following 02 State Agricultural Universities/ Institutes have been accredited with ICFRE.
 - Department of Forestry, North Eastern Regional Institute of Science & Technology, Nirjuli, Arunachal Pradesh.
 - Forest College & Research Institute, Hyderabad.
8. Two studies have been awarded to the following organizations to undertake the policy research studies under the Centre for Forest Policy Research:
 - Network for Certification and Conservation of Forest, Noida (UP)
 - The Energy & Resource Institute, New Delhi
9. Human Resource Development: The following 8 Training programmes for 146 participants have been organized for capacity building and skill upgradation of Scientists, Technical and Administrative Staff of the Council under the Human Resource Development Programme:
 - Statistical methods in Forestry Research
 - Integrated Pest and Disease Management
 - Soil Survey
 - Market Mechanism of Agroforestry Products
 - Composting Techniques
 - Induction training to newly recruit Administrative Staff
 - Office Procedures, handling office correspondence, file management, noting and drafting, service and establishment rules, office equipment etc.
 - Computers applications
10. ICFRE has signed MoUs with various organizations including National Institute of Hydrology (NIH), Roorkee; Botanical Survey of India (BSI), Kolkata for collaboration in the field of forestry research, education and extension. ICFRE, Dehradun is in the process of signing MoUs with 08 National and International organizations working in the field of forestry research, education and extension.
11. ICFRE extended scientific consultancy services under various projects related to the different aspects of environment.
12. Preparation and submission of reports on
 - o Production enhancement of Karadikolla iron ore mine in Sandur Taluk, Bellary district Karnataka to the CEC of Hon able Supreme Court of India and Department of Mines and Geology, Govt. of Karnataka.
 - o Report on Monitoring and evaluation of NTPC Ltd. assisted afforestation carried out through SFDs in different states of



the India to the NTPC Ltd., Noida for the year 2019-20.

- o Finalization of environmental audit



View of Kolisalu-PuraNTPC plantation in Karnataka



Geo matting of Over Burden of Iron Ore Mine in Karnataka

13. ICFRE is implementing components on Forest carbon stocks measuring and monitoring - capacity-building and scaling up of Integrated Sustainable Land and Ecosystem Management Approaches for Reducing Land Degradation and Desertification under the Ecosystem Services Improvement Project (ESIP).
14. Baseline reports of forest carbon stocks of ESIP areas of Madhya Pradesh and Chhattisgarh has been prepared.
15. Training Manuals (in Hindi and English) on Measurement of Forest Carbon Stocks for capacity building of State Forest Departments has been developed and published.
16. Baseline reports of socio-economic status of ESIP areas of Chhattisgarh and Madhya Pradesh have been published.
17. Study on Evaluation of the effectiveness of Forestry Extension System through the Van Vigyan Kendra and recommendations for its strengthening has been initiated.
18. Development of Roadmap for institutional and policy mainstreaming of SLEM in India has been initiated.
19. Development of an online national reporting portal for capturing trends and status of key impacts and progress indicators of UNCCD on land degradation, desertification and drought has been initiated.
20. 11 flyers (in Hindi and English) have been published for capacity building of the local communities of the ESIP project areas of Chhattisgarh and Madhya Pradesh.
21. ICFRE observed Hindi Fortnight from 14 to 28 September 2020. The Fortnight included seven competitions namely, Noting-Drafting, Hindi Essay Writing, Hindi Translation, Hindi Debate, Hindi Quiz and Self - Written Poetry Recitation in which 56 participants actively participated. The competitions were organized in physical form observing COVID-19 precautions. Opening and closing ceremony was streamed online.



Hindi Fortnight from 14 to 28 September 2020 at ICFRE

Research Findings of ICFRE Forest Research Institute (FRI), Dehradun

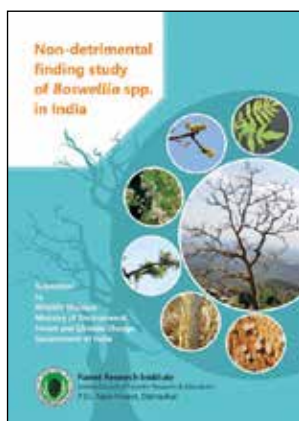
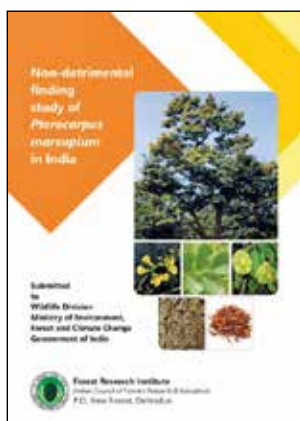
- Development of agroforestry models of *Gmelina arborea* and *Phyllanthus emblica* (Aonla) with agriculture crops on fallow and degraded lands of farmers in Uttarakhand and Uttar Pradesh is under progress.
- Propagation technique for production of plants from juvenile root cuttings of *Litsea glutinosa* (Maida- lakri) was standardized. Plant raised by root cutting (thong) takes twenty four months to grow plantable size.
- A new solar vacuum dryer was conceptualized, fabricated and installed in Wood Seasoning Discipline, FRI, Dehradun. The dryer is heated by solar energy. The dryer is also capable of storing solar heat during day time and reutilize it in the night time. Since, the drying is augmented by vacuum, it is expected that wood drying will be faster than conventional methods.



Fabrication and installation of a 'Solar Vacuum Wood Dryer capable of thermal energy storage



- Studies on 'Non Detrimental Finding (NDF)' on *Boswellia* species and *Pterocarpus marsupium* in India were awarded by the Ministry of Environment, Forest and Climate Change, Govt. of India to the Institute. Information was collected from existing literature on various aspects such as existing stocks, taxonomy, distribution, marketing etc. Based on the collected information, comprehensive detailed report on NDF studies on *Boswellia* species and *P. marsupium* in India was prepared and submitted to MoEF&CC, Govt. of India, New Delhi for Inclusion or Exclusion of species under CITES Appendix.



- FRI, Dehardun developed a novel process for isolation of fibre from *Pinus roxburghii* (Pine) needles.
- One new species of whitefly, *Pealiussatakshiae* Dubey (Hemiptera: Aleyrodidae), infesting *Quercus leucotrichophora* (Fagaceae) was also described.
- Two new record of braconid wasps - *Apantelesexpulsus* Turner on neem looper, *Cleoracornaria* (Lepidoptera:

Geometridae and another *Apantelesruoidus* Wilkinson on teak defoliator, *Hyblaeapuera* (Lepidoptera: Hyblaeidae) - were also reported from North India.

- **Establishment of field gene banks**

The field gene banks of the prioritized species established at the following sites where the land was provided by Uttarakhand Forest Department.



Establishment of field gene bank at Champawat Forest Division

Institute of Forest Genetics & Tree Breeding, Coimbatore

- Vegetative propagation technique for *Pterocarpus santalinus* (Red sanders) was developed using stem cuttings.
- Three species of long horned grasshoppers new to science (Orthoptera:



Tettigoniidea: Phaneropterinae)
viz. *Trigonocorypahathensis*,
Trigonocoryphaponmaniae and
Trigonocoryphadivyae collected from
Coimbatore, Jawadhu hills and Theni have
been described and deposited in Zoobank.;
published in Zootaxa – Newzealand.

**Institute of Wood Science & Technology,
Bengaluru**

- High value composite materials from bamboo (in the form of lumber using laminated strips and crushed strands bonded with structural grade adhesives)



Bamboo lumber and Table made

- Lower density and poor grade wood species such as *Ailanthus excelsa*, *Maesopsiseminii* and *Melia dubia* were modified with thermosetting resins (PF and MF) blended with nanoparticles (nanclay and nano silica). The process was found to improve various technological properties of wood material by filling the cavities and fibre cell wall. Enhanced properties were manifested by higher dimensional stability, density, hardness and strength properties. The impregnated wood also exhibited higher resistance to flammability and bio-

have been developed as an alternate to solid wood lumber for different structural applications, besides, providing additional benefits such as renewable, sustainable and eco-friendly material. The strength properties of these materials (bamboo lumber) are comparable or better than commonly used structural timber species. Few products like tables, window frame, flooring tiles etc. have been made using bamboo lumber. A documentary on process of making bamboo lumber has been made for wider publicity of the technology.

degradability leading to value-addition and improved utilization of these low density woods.



A small table from *Ailanthus excelsa*
Nano-wood composite



- Studies on morphology, wood anatomy and physical properties of important mangrove species from Maharashtra sea coast for their identification were carried out.
- *Pestalotiopsis guepinii* (Desm.) Steyaert– A new pathogen of Indian Sandalwood (*Santalum album* L.) trees causing foliar blight disease was reported from Karnataka region.



A-Infected branch of *S.album* B-Developed lesions along leaf margin

- Studies were made to develop Integrated Pest Management (IPM) strategies against the major defoliating pests of Mangroves in the Thane district of Maharashtra.
- The institute has published two patents namely A Transparent Lignocellulosic Composite and Simple and Rapid Infrared (IR) Spectrum based detection method for discrimination of pure Sandalwood and other essential oils. The institute has also filed three provisional patent applications for Novel wood veneer and natural fiber reinforced thermoplastic based hybrid composite, Simple pretreatment of oil seeds for de-acidification of natural oil and Eco friendly treatment for colour and durability of natural fibers and their products.

Arid Forest Research Institute, Jodhpur

- Tissue culture studies on *Schizostachyum dullooare* under progress.
- Established three Agro forestry trials of Sandalwood plantation with horticulture species at Anand, and VVK Rajkot in Gujarat and Jaipur in Rajasthan.



A-Infected branch of *S.album* B-Developed lesions along leaf margin

Himalayan Forest Research Institute, Shimla

- Vegetation study in 12 selected sites in Kibber Wildlife Sanctuary recorded 116 plant species. The species showed contiguous distribution pattern.

Tropical Forest Research Institute, Jabalpur

- Regeneration pathways of *Diospyros melanoxylon* (Tendu) through its root suckers and seeds were studied in Gondia and Gadchiroli forest divisions of Maharashtra.
- Studying regeneration status of tendu in Maharashtra
- Three new white grub species, *Holotrichiarustica*, *H. mucida* and *Schizonycharuficollis* damaging teak seedlings were reported for the first time in central India.



- Established Demo-bamboo plantation in the farmers' field of Jabalpur district with an aim to popularize bamboo

and its benefits to the farmers under BTSG-ICFRE scheme of National Bamboo Mission.



Closer view of *Bambusa balcooa* planted at farmer's field, Jabalpur



Farmer with bamboo plantation at Badkur village, Kundam block of Jabalpur district



Overview of Demo-bamboo plantation at Bhokadevri village, Jabalpur district

- Established a progeny trial of *Tectonagrandis* representing seedlings from 28 CPTs of 04 states viz. M.P., Chhattisgarh, Maharashtra and Odisha.

- Established a Seedling Seed Orchard of *Tectonagrandis* representing seedlings from 33 families of 03 states viz. M.P., Chhattisgarh and Maharashtra.



Progeny trial of teak



Seedling Seed Orchard of Teak



- Propagation through juvenile cuttings in difficult-to-root *Dalbergialatifolia*: Achieved adventitious rooting in 29% of juvenile cuttings after hedging of 10 years old progeny of difficult-to-root *Dalbergialatifolia*.



Adventitious rooting in *Dalbergialatifolia*

- Adventitious rhizogenesis in semi hardwood cuttings of Candidate Plus Trees and production of quality planting material in *Gmelina arborea* (Khaimer, White teak).

Institute of Forest Productivity, Ranchi

- 75 numbers of CPTs of *Pterocarpus marsupium* were selected from West Bengal and Jharkhand states. Seeds collected from 21 CPTs were mechanically scarified and tried for germination count. Various germination parameters were recorded from different CPTs ranging from 20% (CPT 20) to 70% (CPT 13).



Seedlings are being raised in the nursery of IFP Campus



CPT selection on *Pterocarpus marsupium*

- 210 candidate plus trees of Chironji (*Buchananiacochinchinensis*) have been selected in 15 (Fifteen) districts of Jharkhand (Ranchi, Khunti, East Singhbhum, Simdega, Ramgarh, Koderma, GirdihGodda, Pakur, Dumka, Sahibganj, Deoghar, Latehar and Palamu) and 1(one) district of West Bengal (Purulia). Seeds were collected from 67 candidates plus trees from Kujju, Chandwa, Bundu, Tamar, Simdega areas and physical parameters i.e seed length, width, height and 100 seed weight was recorded. Seed oil content of 67 CPTs has been estimated by petroleum ether extraction method.



Oil extraction from Chironji seeds



Major Extension Activities of ICFRE Institutes

- ICFRE Institutes and Centres observed the following:
 - o World Environment Day on 05 June 2020
 - o International Day for Biological Diversity on 22 May 2020

- o National Forest Martyrs' Day on 11 September 2020
- o Van Mahotsav in July 2020
- o Cleanliness Drive on 02 October 2020
- o Vigilance Awareness Week in October-November 2020



DG, ICFRE at KV, ITBP, Dehradun during Van Mahotsav 2020

Forest Research Institute, Dehradun

- A talk on 'Aroma Tourism' was delivered in a webinar on the 'Post Covid 19 Aroma Wellness Tourism' organized by the MSME-Technology Centre, Ramnagar, Nainital on 15 May 2020.
- With the aim of disseminating research outcomes on natural dye, a Webinar on "Natural Dye from Forest Biomass" was organized on 24 July, 2020 which was attended by representatives from academia, research, NGO, Industries KVICs, Central Silk Boards, State Silk Board and other stakeholder groups.
- Organized a webinar on "Agroforestry and livelihood generation" targeting different stakeholders like State Forest

Departments, different Research Institutes under ICFRE, students of Colleges and Universities and Management Institutes, trainees of IGNFA and CASFOS, Non-Government Organizations, Self Help Groups, entrepreneurs and farmers at committee room, ICFRE Dehradun on 05th August, 2020. About 65-70 participants were participated online by using the web based virtual platform during pandemic crises in this programme.

- Organized a webinar on 'Bamboo genetic improvement from classical to biotechnological approaches' at Forest Research Institute, Dehradun on 26 August 2020 through google meet. A total of 45 delegates from various institutes,



universities, industries and forest departments were participated in the webinar.

- Participated in one day online National Seminar on “Agroforestry Research and Innovation Scenario” at FRC-ER, Prayagraj held on 25 September 2020.
- Delivered a Radio Talk broadcasted through AIR, Dehradun on the topic “Potential of Wild Fruit Processing in Employment Generation” for knowledge dissemination and awareness generation.
- Celebrated Himalayan Day on 9th September, 2020 and organized an online lecture delivered on “Himalaya as laboratory to unravel mysteries of nature” by Dr. Maharaj K. Pandit, Professor, Delhi University. About 65-70 participants were participated online by using the web based virtual platform during pandemic crises in this programme.
- Organized a one day training workshop on “Market mechanism of Agroforestry products” for technician and technical assistant of FRI on 15 September 2020 at FRI board room. 21 participants were participated the training programme.
- Organized a one day online webinar on medicinal plants for teachers and students of KVs and NVs on 24 September 2020 under Prakriti programme. About 140 participants were participated online virtual programme.
- Organized a one day webinar on “Sustainable harvesting and utilization of

NTFPs” for SFDs, NGOs, SHGs and other stakeholders on 14 October 2020 at FRI, Dehradun. About 40-50 participants were participated in the online programme.

- Organized a Virtual Stakeholder Consultations workshop on Draft Document for Safeguards Information System for REDD+ on 15th October, 2020 at FRI, Dehradun. Forty two participants joined through VC from Forest Department, other line departments of the State Government, research and academic institutions, NGOs, JFM committee members, farmers and local community members etc.

Institute of Forest Genetics and Tree Breeding, Coimbatore

- Due to the prevailing COVID 19 pandemic situations, hosted Online Knowledge Series as part of “Prakriti – Student Connect Programme” of Indian Council of Forestry Research & Education (ICFRE) to school and college students. “Talk to Scientist” was the main theme wherein the students got a chance to interact with Scientists and Officials of the institute. The series was attended by over 950 students belonging to 08 schools and college.





- Delivered a talk in Dinamalar on 27 May 2020 and live show in News 360 in PuthiyaThalaimurai about Locust insects on 28 May 2020.
- The ENVIS Resource Partner on Forest Genetic Resources and Tree Improvement at the Institute of Forest Genetics and Tree Breeding, Coimbatore commemorated International Day for the Conservation of the Mangrove Ecosystem on 27 July 2020.



- Observing International Day for the Conservation of the Mangrove Ecosystem

Institute of Wood Science and Technology, Bengaluru

- Hosted first virtual consultative meeting on “Draft Safeguards Information System (SIS) for REDD+ Implementation in India” on 16 September 2020 on behalf of ICFRE, Dehradun. The meeting was convened to invite comments and suggestions from stakeholders on the draft document prepared by ICFRE. The meeting was attended by 65 participants.
- Institute has organised 6 short term trainings and 7 webinars and workshops

for various stake holders from different states and organizations on various forestry and wood science related topics.

- Four training programmes were organised under VVK for 550 farmers in Ramanagar, Kolar/Mysore, Kalburgi and Vijayapura districts of Karnataka .
- MoU between ICFRE and Andhra Pradesh and Goa Forest Departments for developing synergy in forestry research, education and extension activities has been signed by Director, IWST on behalf of ICFRE and PCCF’s of both the states.
- MoU has been signed on May 27, 2020 between IWST and Kalika Green Energy, Bangalore to commercialize thermally modified wood for mass production and its usage in developing higher value products.

Rain Forest Research Institute, Jorhat

- FRC-LE, Agartala organized a one day awareness programme through video conference on social distancing awareness campaign with reference to COVID-The awareness programme was organized in collaboration with Tribal Cooperative Marketing Development Federation of India (TRIFED) and Tripura Rehabilitation Plantation Corporation Limited (TRPC LTD) on 17 April 2020, 57 members of tribal SHGs benefitted from the programme.
- RFRI, Jorhat organized training programme on “Raising of Bamboo Plantations” at Agartala on 19 May 2020. 80 nursery growers attended the programme.



Training on raising of bamboo plantations at FRCLE, Agartala

- Forest Research Centre Livelihood and Ecosystem (FRC-LE), Agartala conducted demonstration programme on “Germination and Bed Preparation for Bamboo Seeds” on 25 May 2020. 5 bamboo farmers attended the programme.
- Rain Forest Research Institute (RFRI), Jorhat conducted Skill Development Training on Bamboo Nursery Management from 29 June to 03 July 2020. Five forest personnel attended the training.



Participants of documentation workshop



Skill Development Training on Bamboo Nursery Management

- FRC-LE, Agartala conducted farmers training under NBM organized at Nalchar on 26 May 2020. 15 farmers attended the programme.
- RFRI, Jorhat organized documentation workshops on “Utilization of Medicinal Plants & Herbs” by the Munda and Santal Community of Tripura on 10 June 2020. 31 traditional healers, senior citizens, panchayat functionaries attended the programme.
- Rain Forest Research Institute (RFRI), Jorhat organized training workshop on “Bamboo Craft Work for Hand Made Water Bottles” from 10 to 14 August 2020. 8 tribal youths of Tripura and other artisan stakeholders participated in the programme.
- RFRI, Jorhat organized training workshop on “Skill Upgradation on Bamboo Based Utility Products and Entrepreneurship Development” from 23 to 31 August



2020. 8 stakeholders participated in the programme.

- RFRI, Jorhat conducted an awareness programme on “Bamboo Charcoal Production and Briquetting under National Mission of Himalayan Studies (NMHS)” on 15 September 2020 at Deithor, KarbiAnglong (Assam). Around thirty participants including Gaon-burha (Village Headman), NGO members and bamboo growers participated in the programme.
- FRCLE, Agartala organized training of trainers on “Bamboo based Utility Products and Enterprise Development” from 1 to 9 September 2020. 18 young bamboo artisans attended the programme.
- FRCLE, Agartala organized demonstration programme on “Identification and Marking of Clumps of Different Age Groups in *Bambusapolyomorpha*” on 26 September 2020. 30 members of self help group at Charilam, Sipahijala, Tripura attended the programme.

Arid Forest Research Institute, Jodhpur

- Capacity building training was organized to VFPC/ SHG members in Sirohi and Pali districts on value addition of different products. Six trainings each of three days



were organized during August-September 2020 on value addition of *Feronia limonia* (pickle and Murabba), *Momordica dioica* (pickle) and *Tamarindusindica* (Squash, Chutney and Jam). About 100 tribal SHG/VFPC members participated enthusiastically.

- E-copy of (1) “जैविक खेती: उपयोगिता तथा तैयार करने की विधियाँ” and (2) “शुष्क क्षेत्रों में वनों से प्राप्त खाद्य” were sent to each KVK in Rajasthan and Gujarat under Networking of ICAR Krishi Vigyan Kendras (KVKs) and ICFRE, Van ViigyanKendras.
- E-publication on (1) आदर्श वन पौधशाला—स्थापना एवं प्रबंधन (2) “AFRI Darpan” magazine was sent to both KVK of Rajasthan and Gujarat.
- 13 types of pamphlets on different techniques and one Information Booklet got printed and provided to stakeholders.

Himalayan Forest Research Institute, Shimla

- Celebrated Himalayan Day on 09 September 2020 online through ‘Google Meet’. The programme was attended by 60 participant the scientists, officers, officials and researchers of the Institute and the trainees of “Ashtavarga Group of Medicinal Plants” from Uttarakhand Forest Department. About 60 participants participated online and offline.
- Celebrated International Day for the Preservation of Ozone Layer on 16thSeptember 2020. About 40 participants participated online and offline.
- Celebrated Wildlife Week-2020 (02 October-08 October 2020) in which



various activities and programs were organized institute viz., online lectures and quiz competition. An online webinar was organized on 06 October 2020 through “Google Meet” and offline medium. About 75 participants participated online and offline.

Tropical Forest Research Institute, Jabalpur

- Delivered invited talk on - ‘Tree improvement of Indian Sandalwood - a perspective’, to Staff and PG students of Navsari Agricultural University, Gujarat and Agricultural Universities held on 04 July 2020.
- Four Institute level seminars were organized as follows:
 - o Value Chain in Agro forestry on 29 June 2020
 - o Land degradation: focus on forests degradation in India on 31 July 2020
 - o Regulatory Framework for the testing and Release of Tree Varieties and Clones on 31 August 2020
 - o Wild edible and medicinal mushroom of central India on 30 September 2020

Institute of Forest Productivity, Ranchi

- Institute of Forest Productivity (IFP), Ranchi organized two webinars one on “Problems in Trees Tissue Culture” on

28 July 2020 and another on “Importance of Quality Planting Material for Conservation and Sustainable User of Medicinal Plants” on 30 July 2020.

- IFP, Ranchi organized National Handloom Day on 7 August 2020.
- IFP, Ranchi organized online training programme on “Soil Survey” from 9 to 11 September. Technical Staffs of various Institutes of ICFRE attended the programme.

Institute of Forest Biodiversity, Hyderabad

- IFB, Hyderabad organized training programme on “Office Procedures, Handling Office Correspondence, File Management, Noting and Drafting etc.” for administrative staff from 8 to 10 September 2020.
- IFB, Hyderabad organized monthly seminar on “Bioprospecting for Industrial Utilization of Lesser Known Forest Plants” on 30 September 2020.
- IFB, Hyderabad organized monthly seminar on “Eucalyptus Improvement and status in India” on 4 August 2020. 13 officers and staff attended the programme.
- IFB, Hyderabad organized Van Mahotsav Week at IFB, Hyderabad from 01 to 07 July 2020.

Budget allocation of the scheme during the year and Progress of expenditure (ICFRE)

Budget Component	Budget allocation by MoEF for 2020-21 (Rs. in crore)	Progress of Expenditure upto 31-10-2020 (Rs. in crore)
Plan (GC)	230.00	153.47*
This includes opening balance as on 01.04.2020 under Salary Component		



Indian Plywood Industries Research and Training Institute (IPIRTI)

IPIRTI is a Society registered under the Karnataka Societies Registration Act, 1962; Union Minister for Environment & Forests is the ex-officio President of the Society. Statutory members include Secretaries to Government of India in Ministries of Environment & Forests, Agriculture, Science & Technology and Planning Commission, Director General of Forests-MoEF, 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 (since 1989) as a Scientific & Industrial Research Organization by the Government of India under the Department of Scientific and Industrial Research Scheme, 1989. It is also recognized (since 1999) as a nodal centre by Forest Research Institute, Dehradun for pursuing Research programme for award of Ph.D. degree. The Institute has its headquarters at Bangalore spread over an area of about 7 hectares where the most modern R & D, testing & training facilities are housed. It has outreach field station (FS) located at Kolkata and a Centre at Mohali in 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.

Important activities undertaken during the reference period (preferably in bullet points)

- 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 forests 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.



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

- **Research:** During the period 83 projects including were undertaken out of which out of which 9 Institute projects, 5 sponsored projects and 20 consultancy projects are completed. About 7 products/processes has been recently developed by IPIRTI.
- **New Product/Process:** About 7 products/processes has been recently developed by IPIRTI.
- **Training and Education:**
 1. Training for 31st Batch of one-year Post Graduate Diploma Course in Plywood and Panel Products Technology (PPPT) with 30 candidates commenced from November 2019. However, the classes are suspended from March 2020 due to Covid-19.
 2. Two short term vocational training courses were conducted from 01.01.2020 to till date.
 3. Two-days Training Workshop for Indian Forest Service Officers on “Contribution of Forests Plantation in Livelihood support Industrial Production” was conducted during 20th to 21st January 2020 at IPIRTI, Bengaluru sponsored by Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India. IPIRTI is awarded with 88% Weighted Average by Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India for overall performance in organizing this training.

- **Testing:** Testing of Samples were conducted as per relevant Bureau of Indian Standards (BIS) and International standards. The total number of samples tested from 01.01.2020 to till date is 614.
- **Extension:** During the period, two awareness campaigns were organized viz., South Indian Industry - Institute Meet in Association with South Indian Plywood Manufacturers Association (SIPMA) on 17th January 2020 and “Institute-Industry Meet” in Association with Kandla Timber Association (KTA) on 5th March 2020. In addition, several outreach activities for Government, community and other stakeholders were taken up.

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.

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

IPIRTI organized Awareness Campaign in different parts of the country i.e. East, West and South (EWS) regions with support from industries/industry association and IWST Bengaluru and Forest Research Institute



Dehradun to bring the awareness about latest technologies and recent innovations in R&D and also to receive feedback from industries about their issues and problems. For the awareness campaign in North region IPIRTI joined North India Industry-Institutes meet organized by FRI Dehradun (20th December, 2019) to share the common platform for all the industry stakeholders of the region.

During these meets, IPIRTI demonstrated its novel technological innovations, training programmes and testing services. IPIRTI also participated in the open house discussion. The industry members were appraised on standardization activities related with panel products through CED:20 meetings. The Awareness Campaigns jointly organized by Research organizations and the Industry Associations provided good opportunity for all the industry stakeholders from across the country to put-forth their views about the challenges and the problems faced by the

industry in the country and to understand the latest technologies which can be commercially exploited/implemented.

The major outcome of the awareness campaigns was that the industries urged that Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore may take the lead to identify suitable indigenous substitute for pine timber or other timbers being imported. It was also recommended to bring in few amendments in Indian Standards w.r.t to preservative retention value and for few high end products. The major recommendation from the open house discussion with regard to rationalization of GST rates and custom duty on wood logs and timber is that at present importers are suffering due to 18% Integrated Goods and Service Tax (IGST) which is payable in advance at the time of filing the Bill of Entry. In this regard, Government may rationalize the rate of IGST from 18% to 5% to reduce the burden level of industries. During the open



Southern Region Industry-IPIRTI Meet held on 17th January 2020 at IPIRTI, Bengaluru



house discussions, it was understood that rate of custom duty was too high with no relation to value additions to the wood products. Participants, traders and saw mill owners requested the Government to rationalize the rates of custom duty reasonably to support value addition in the country. Regarding Plant

Quarantine issues, it was recommended that, most of the countries have banned the use of methyl bromide as fumigant except in India. Hence, the Government may explore to replace with any other suitable chemicals while importing the logs from other countries for the benefit of industries.



Western Region Industry-IPIRTI Meet held on 5th March 2020 at Kandla, Gujarat

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

Following 5 Research Reports have been published from January 2020 to till date.

RR No.	Project Title
RR-218	Development of Particle Board using Carbon Nano Tubes (CNT) to improve physical and mechanical properties
RR-219	Suitability of <i>Melia Dubia</i> for Manufacture of Flush Door
RR-220	Development of cellular core door using bamboo silvers as infill
RR-221	Development of fast curing modified phenol formaldehyde resin for manufacture of plywood at lower curing temperature
RR-222	Development of transparent wood polymer composite



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 comes from Uttar Pradesh, Bihar, Madhya Pradesh and Orissa. 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 have set up the online platform and conducted couple of webinars and RAC meeting through virtual platform.

Indian Institute of Forest Management (IIFM), Bhopal

The Indian Institute of Forest Management (IIFM), Bhopal was established in 1982 with financial assistance from the Swedish International Development Cooperation Agency (SIDA) and academic assistance from the Indian Institute of Management (IIM), Ahmedabad. **The Institute conducts long-term courses in management and related fields for officers of the Indian Forest Service and Officers from the Central and State Governments. The Institute also runs various educational Programmes including Post Graduate Diploma in Forestry Management (PGDFM), Post Graduate Diploma in Sustainability Management (PGDSM), Certificate course on Chartered Foresters (C3F), M. Phil, Fellow Programme in Management (FPM) and Ph.Dprogrammes in Forestry and Natural Resource Management. IIFM conducts Management Development**

Programmes (MDPs)/short term training courses to transfer technical and managerial skills. The Institute conducts research on emerging and important thematic areas in the forestry sector through its various Centre's of Excellence. Institute also provide Consultancy Services on Sustainable Forest Management and Forest Certification, Marketing of Forest Products, Ecosystem Services and Management, Forest Policy, Biodiversity, Protected Area Management, and Human Life, Climate Change, Geo-informatics, Conservation, Environment and Human Behaviour

The Institute, as a sectoral management institute, imparts education in forest management, which is a judicious mixture of forestry, social, and management science. The Institute constantly endeavours to keep in touch with the problems of people, especially the forest dwellers and undertakes need-based research. The Institute tries to serve as a reservoir of knowledge in the area of forest management and ensures proper integration of external and indigenous knowledge suitable to Indian context.

The specific objectives of the Institute are:

Education and Training

- To meet the demand for the trained human resource with managerial and analytical skills in the areas of forestry, environment and development management through regular educational courses.
- To update the knowledge and managerial skills of the serving professionals in the



above areas through short-term training Programs.

Research and Consultancy

- To generate information on field realities and derive meaningful interpretation through systematic research.
- To offer consultancy services to the client organizations based on the available expertise.

Dissemination

- To disseminate the research-based information/knowledge and meet the information needs of the forestry, environment and allied sectors through training, seminars and publications.

Databases and Information Systems

- To generate and maintain relevant databases through Information Management System as an essential input for policy formulation, project planning and strategy development in forestry, environment and allied sectors

Policy Formulation, Analysis & Advocacy

- To function as a national 'think tank' on forestry and environment aimed at developing appropriate policies and strategies.
- To play an advocacy role in the sectors of concern to promote adoption of appropriate policies and to safeguard the genuine interests of the disadvantaged stakeholders whenever necessary without compromising national interests.

Activities undertaken so far during the financial year 2019-20:

• Conducted Educational Programmes:

- Post Graduate Diploma in Forestry Management (PGDFM) Program
- Post Graduate Diploma in Sustainability Management(PGDSM)
- M Phil Programme in Natural Resource Management (NRM) Programme
- Fellow Programme in Management (FPM)
- Ph D Programme (FRI-DU)
- Certificate Course on Chartered Foresters (C3F)
- Management Development (MDP) Programmes
- Research and Consultancy Activities
- Publications

Progress/Achievements (Up to 31/12/2020)

Education

The Institute offers four academic programmes, Post Graduate Programme in Forestry Management (equivalent to Master's Degree), Post Graduate Diploma in sustainability Management(PGDSM), M.Phil. (Natural Resource Management) and Certificate course on Chartered Foresters. The Institute is also recognized as a Nodal Centre for Research by Forest Research Institute, Deemed University (FRI), Dehradun for Doctoral programme. Two years Post Graduate Diploma in Forestry Management (PGDFM),



the flagship programme of Indian Institute of Forest Management, was launched by the Institute in July 1988 for young graduates belonging to different streams of knowledge drawn from all over the country. The PGDFM programme is recognized by the All India Council for Technical Education (AICTE) and equated to a corresponding Masters' Degree of an Indian University by the Association of Indian Universities (AIU) and is accredited by

the National Board of Accreditation (NBA) for the academic years 2018-2019 to 2020-2021. The Programme was initiated in the Academic Year 2019-20 and is recognized by AICTE. The Post Graduate Programme in Sustainability Management aims to prepare professionals with a blend of managerial, technical, analytical and social skills as well as values to address emerging sustainability issues and challenges in environmental sector.

The details of students admitted in the Academic programmes are as under:

S. No.	Academic Programme	Batch	No. of students
01.	Post Graduate Diploma in Forestry Management	2020-22	87
02.	Post Graduate Diploma in Sustainability Management	2020-22	18
03.	M. Phil(NRM)	2020-22	Admission process underway
04.	FPM	2020-24	04

Details of Placement of PGDFM Students in 2018-20 Batch:

- The placement for the PGDFM 2018-20 batch was completed successfully.
- The highest package this year is Rs. 14 lakhs per annum

1.	Total Number of organizations participated in the Placement offering jobs	59
2.	Total Number of organizations where students were finally placed	42
3.	Total Number of eligible students placed	104

Sector-wise details of placement-2017-19:

Sl. No.	Organizations/Sectors	No. of Students
1	Banking and Finance Sectors	33
2	Development NGOs/CSR	23
3	State Rural Livelihood Missions (DoRD)	20
4	Forest Based Agencies	02
5	Other Government Agencies	05
6	Wildlife/Environment NGOs	05
7	Consulting & Research	14
7	Others	02
Total		104



Research

Research constitutes one of the core activities of the Institute. The Institute carries out its research agenda through the following Centres of Excellence:

- International Centre for Community Forestry (ICCF)
- Centre for Ecological Services Management (CESM)
- Centre for Sustainable Forest Management and Forest Certification (CSFM&FC)
- Centre for Climate Change Studies (CCCS)
- Centre for Policy Studies (CPS)
- Centre for Application of Management Techniques in Government (CAMTG)
- Centre of Excellence for IIFM – Industry Interface for Sustainable Development
- Geo-Informatics Centre for forestry, climate change and livelihood support
- Centre of Excellence in Corporate Social Responsibility (C-CSR)
- Centre for Forest Hydrology.

Status of Research projects at IIFM during 01.01.2020 to 31.12.2020

	Total No. of Projects	Sanctioned Amount
No of Projects completed	07	Rs.50,15,000/- (Rupees Fifty lakhs fifteen thousand only)
No of Projects ongoing	14	Rs.2,36,67,855/- (Rupees Two crore thirty six lakhs sixty seven thousand eight hundred fifty five only)

Ongoing Research Project at IIFM during 01.01.2020 to 31.12.2020

S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
1.	Developing Evaluation and Monitoring Framework for Enhancing Adaptive Capacity through Climate Smart Village of Madhya Pradesh	Dr. Jigyasa Bisaria Dr Bhaskar Sinha	EPCO, Government of Madhya Pradesh	Rs. 35,76,000/-
2.	DST sponsored R&D project on “Behavioural Adaptation with Climate Change in Himalayan Region”	Dr.Parul Rishi Dr. Amitabh Pandey Dr. B.K. Upadhyay	Department of Science & Technology, New Delhi	Rs.28,08,855/-



S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
3.	Human Capacity Building Programme on Climate Change Adaptation for Natural Resource Management for Sikkim, Arunachal Pradesh and Manipur	Dr Bhaskar Sinha Dr. Anup Upadhyay	Department of Science & Technology, New Delhi	Rs.49,78,000/-
4.	“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 UNF.CCC	Dr Bhaskar Sinha Dr.JigyasaBisaria	UNDP-GEE-MoEF&CC, New Delhi	Rs.20,05,000/-
5.	Co-production of Sustainable MFP management Solutions: a study in Sehore Forest Division of Madhya Pradesh.	Dr. Manmohan Yadav Dr. Pradeep Chaudhry Dr. Sandeep Tambe Dr. CP Kala Dr.AdvaitEdgaonkar Dr. Ashish David Dr. Dharmendra Dugaya	MP MFP Federation, Bhopal MP	Rs. 20,00,000/-
6.	Developing Monitoring Framework (identification and estimation) for Hydrological Services of Forest landscape	Dr. Omprakash Madguni	Madhya Pradesh Forest Department under green India Mission (GIM)	Rs. 20,00,000/-



S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
7.	Economic Services of Forest of Jharkhand	Dr. Advait Edgaonkar Dr.MadhuVerma	Jharkhand Forest Department (CF Plantation, Research & Evaluation, Jharkhand, Ranchi)	Rs. 20,00,000/-
8.	Suggesting mechanism for Sustainable Management of Biodiversity and Access and Benefit-sharing mechanism in the state of Madhya Pradesh	Dr. Pankaj Srivastava Dr. Manmohan Yadav Dr.Pradeeep Choudhary Dr. Sandeep Tambe Dr.Suprava Patnaik Dr.AdvaitEdgaonkar Dr. Ashish David Dr. Manish Mishra Dr. D Dugaya	Madhya Pradesh Biodiversity Board	Rs.11, 60,000/-
9.	Traditional agroforestry (Home Garden) of Bharia of Patalkot: means for sustainable biodiversity conservation and well being	Prof. Suprava Patnaik Prof. Ashish David	IIFM	75,000/-.
10.	“The case of and case for Mangrove conservation around Mumbai”	Prof. Ashish David Prof. Suprava Patnaik	IIFM	65,000/-
11.	A fretwork for assessing the sustainability of CFR management in India: An exploratory study	Dr. Sandeep Tambe Prof. Suprava Patnaik	IIFM	7,50,000/-



S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
12.	Ecological status of Anjan (Hardwickiabinata): Study the extent, causes of population decline in selected Forest Divisions of Malwa and Nimar regions of Madhya Pradesh	Dr.Manish Mishra (PI), Dr. Omprakash Madguni, Dr. M.K. Singh	IIFM	7,50,000/-.
13.	Study of Forest Influences on Dynamics of River Ecosystem with respect to Climate Change: A Study in Selected Watersheds in Mandla District	Dr. JigyasaBisaria, Dr. Bhaskar Sinha & Dr. Pankaj Shrivastava	IIFM	7,50,000/-.
14.	Crisis Response and Forest-Resource Use: Tracking Rural Livelihood Decisions in Response to the Covid-19 Pandemic in Ratapani Wildlife Sanctuary and Adjoining Areas (India)”	Dr.Ujjal Kumar Sarma, P.I., Dr.AlarkSaxena, Co-P.I., Dr. Alder KelemanSaxena, Member, Dr. Patrick Jantz, Member Dr. Pankaj Shrivastava as Advisor	IIFM	7,50,000/-.
	Total No. of Projects: 14		Total	Rs.2,36,67,855/- (Rupees Two crore thirty six lakhs sixty seven thousand eight hundred fifty five only)



Completed Research Project during 01.01.2020 to 31.12.2020

S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
1.	“Comparative Analysis of Literacy and Education Status Between Tribals and Non Tribals and identification of issue and finding out solutions of low literacy rate among the Tribals in MP	Dr. Debashish Debnath Dr. Manish Mishra	Tribal Research & Development Institute Bhopal	24,00,000/- (Rs.8,00,000/- each Project)
2.	Biodiversity Management and livelihood generation of Tribals in Agriculture Forest Products in different ecosystem in MP	Dr. Debashish Debnath Dr. Manish Mishra	Tribal Research & Development Institute Bhopal	
3.	Problems of low entrance among Schedule Tribe candidates in medical and engineering colleges: its causes and probable solutions	Dr. Manish Mishra Dr. Debashish Debnath	Tribal Research & Development Institute Bhopal	
4.	Co-production of Sustainable Bamboo Management Solutions in Eastern Maharashtra	Dr. Sandeep Tambe Dr.Suprava Patnaik Dr. Anup P. Upadhyay Dr.AdvaitEdgaonkar Dr.JigyasaBisaria Dr. Rekha Singhal	Maharashtra Forest Department, Nagpur	18,00,000/-
5.	Evaluation Study of the JICA assisted project on “Capacity Development for Forestry Management and Training of Personnel”	Dr. Amitabh Pandey Dr. B K Upadhyay	Ministry of Environment & Forest & Climate Change	Rs. 6,80,000/-



S. No.	Title	Principal Investigator/ Members	Funding Organization	Sanctioned Budget in Rs.
6.	Hand stitched versus Machine Made: A case Study on the participation of the Lodhas of Paschim (Western) Medinipur in Community Forestry	Dr. Debashish Debnath	IIFM	75,000/-
7.	Restoration of the Degraded Riparian Wastelands through Private Forestry along the Narmada River –A case on Ranga Plantation in Jabalpur	Dr. Debashish Debnath	IIFM	60,000/-
	Total No. of projects : 07		Total	5015000/- (Fifty lakhs fifteen thousand only)

Training

Management Development Programmes (MDP) or Executive Education is one of the important activities of the Institute. These executive education programmes help the institute to engage with professionals in a two-way sharing and learning process. The focus of these programmes is on sharing various principles, frameworks, tools and techniques with in-service professionals of forestry and allied sectors.

Important activities undertaken during the reference period

- Completed the migration to ERP software for automation of MDP management
- Enabled delivery of training programmes through online platform
- Two proposals viz; (1) Mass Communication and Media Management for press and media, (2) Forest Certification in the Indian context for forest-based industries sent to MoEF&CC for the year 2020-21 under the scheme of Forestry Training and Capacity Building.
- Conducted online training programme “Environmental Leadership and Life Skills” sponsored by DST during 26-30 October 2020 sponsored by DST, Govt. of India
- Two proposals for preparation of training material of two video films, viz. (1) Science



and Art of River Rejuvenation Through Forestry, (2) Forest Certification submitted to Ministry.

- Online Training programme on “Community Resource Management for Women Scientists & Technologists” is to be conducted from 23-27 November 2020 sponsored by DST, Govt. of India
- Online Training programme on “Natural Resource and Environmental Management” is to be conducted from 18-22 January 2021 sponsored by DST, Govt. of India
- Online Training programme on “Environmental Leadership and Life Skills for women scientists and Technologists” is to be conducted from 08-12 February 2021 sponsored by DST, Govt. of India
- Training programme titled “Science and Art of River Rejuvenation through Forestry” for IFS officers through online mode is to be conducted during last quarter of 2020-21 under the scheme “Forestry Training and Capacity Building”.
- Fee based training programme on “Graduating from Traditional to Sustainable Management of Forest Bamboo Resources” is to be conducted in the month of March 2021
- Second in a row of three training workshops on “Criteria & Indicators approach for SFM based Monitoring, Assessment and Reporting for WPOs” has been planned to organize online in December 2020. The training workshops have been aimed for the North-Eastern, Southern and Central/Western regions. The first such capacity building training workshop has already been conducted for the North, East and North-Eastern regions between 17-18 September 2019 at Guwahati, Assam and was received with great positivity with 21 WPOs participating and representing forest departments of Uttar Pradesh (2), Nagaland (1), Manipur (4), Sikkim (1), Assam (9), West Bengal (2) and Uttarakhand (2).
- Proceedings of International Conference on “Responsible Management of Non-Wood Forest Produce (NWFP) Resources: Access and Benefit-sharing” jointly organized with the IIFM and MP Minor Forest Produce (Trade & Development) Cooperative Fed. Ltd. During 20-21 December 2019 at Bhopal.

Consultancy

Faculty members of the Institute undertake consulting assignments to provide solutions to the sector-specific problems and as inputs for policy making. During the period under report the Institute is currently having 05 consultancy projects in the area of ecological studies, environmental-economic, socio-economic studies, evaluation of schemes and programmers and cross-functional areas of forest certification and sustainable forest resource management and non-timber forest products.

**Table: Present status of Consultancy projects, ongoing and projects under negotiation**

Sr. No.	Title of the Project	Client	Status	Amount (Rs.)
1	Assignment of Weights to Climate Smart Agricultural Code	Solidaridad Asia	Ongoing	Rs. 4,73,000/-
2	Preparation of Integrated Wildlife Management Plan for Moher sub basin for Northern Coalfields Ltd., Singrauli Region	Northern Coalfields Limited, Singrauli	Ongoing	Rs. 35,26,000/-
3	Third Party Evaluation of Increasing Green Cover (IGC) Programme in Odisha	Office of the Principal Chief Conservator of Forests, Bhubaneswar, Odisha	Ongoing	Rs. 45,66,000/-
4	Impact Assessment of CSR Projects of Indian Oil Corporation Limited	Indian Oil Corporation Limited	Yet to be awarded	Rs. 15,00,000/-
5	For Technical collaboration for the implementation of Project CHIRAAG	Chhattisgarh Department of Agriculture and Biotechnology	Under consideration	Under consideration
				1,00,65,000/-

Awards & Recognition Received by IIFM:

IIFM achieved 62nd Rank Overall under the National Institutional Ranking Framework (NIRF), Ministry of Human Resources Development, Government of India Ranking 2020.

Other Major Activities

1. New course 'Post Graduate Diploma in Sustainability Management' has started from the academic year 2020-21. The classes are running online
2. The Orientation programme for PGDFM

students was held from 4TH August to 7th August, 2020 online.

3. Conducted Two weeks "Hindi Pakhvada" consisting of various programmes on Hindi i.e. Essay Writing Handwriting, Slogan writing, translation, typing etc., for encouraging the use of Official language in the Institute. The programme was concluded on 15th September, 2020.
4. Partnering QCI for sensitization and capacity building through creation of Demonstration Plots for the Voluntary



Certification Scheme for Medicinal Plant Produces developed by the NMPB.

Budget Allocation & Progress of Expenditure

The total Budget Allocation for F.Y. 2020-21 is Rs 34.00 Crores, (Rs.24.0 Crores for salary, Rs. 3.00 Crores for creation of capital assets and Rs.7.00 Crores for General) against the budget allocation of Rs 34.00 for Financial Year 2019-20. However, the actual amount released for F.Y. 2019-20 is Rs 29.00 Crores only. The expenditure in 2020-21 as on 31/10/2020 is Rs 16.40 Crores, the same was Rs 17.50 Crores in the year 2019-20.

Indira Gandhi National Forest Academy

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. 77 IFS Probationers of 2018 Batch have been trained as per IFS course curriculum and they have joined their respective cadre states.
 - b. 73 IFS Probationers of 2019 Batch are undergoing their training from Dec. 2019 as per IFS course curriculum and will pass out in August 2021.

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) - Online	16th Nov. – 12th Dec.2020	Estimated 40
2	MCT Phase – IV (14-16 Years)	-	-
3	MCT Phase – V (24-26 Years)- Online	04th – 16th Jan. 2021	Estimated 40

3. Best Practices in Forestry, One-week Compulsory Course sponsored by MoEF&CC

S. No.	Course	Duration and Period	No. of Participants
1	Best Practices in Forestry	11th – 15th Jan, 2021	Estimated 25



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

- 2018-20 IFS batch consisting of 77 IFS Probationers completed their professional forestry training at IGNFA.
- At present 2019-21 IFS batch is under training at the academy and they are undergoing On the Job Training (OJT) in their cadre.
- 2020-22 IFS batch would be joining the Academy in the month of December 2020.
- Regarding infrastructure development extension of Executive Hostel (by adding 40 rooms) has been completed (except furnishing works) by CCU at an estimated cost of Rs. 05.74 crore (approx.).
- The work of construction of all-weather swimming pool is in progress 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.

Academy handled 02 batches of IFS Probationers during COVID-19 Pandemic. Though 03 Probationers of 2018-20 IFS course and 01 Probationer of 2019-21 course tested positive for COVID-19, Academy handled the issue efficiently and ensured that all protocols and precautionary measures were put in place and further spread was controlled. The training of 2018 batch was completed and the training of 2019 batch was resumed after brief suspension due to the Pandemic, using online mode and other measures.

Directorate of Forest Education, P.O. – New Forest, Dehradun

The Directorate of Forest Education (DFE)

under the Ministry 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:

1.	Central Academy for State Forest Service, Dehradun	40
2.	Central Academy for State Forest Service, Coimbatore	40
3.	Central Academy for State Forest Service, Burnihat	40
4.	Central Academy of Forest Education, Kurseong	40

Besides this 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, Sunder Nagar, 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
8. Odhisa Forest Rangers College, Angul

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

1. One (01) new batch of State Forest Service Officers are undergoing induction training at Central Academy for State Forest Service, Coimbatore.
2. Three (03) batches of State Forest Service Officers are undergoing induction training at Central Academy for State Forest Service, Coimbatore, Central Academy for State Forest Service, Dehradun and Central Academy for State Forest Service, Burnihat.
3. Two (02) batches of State Forest Service

Officers have passed out at Central Academy for State Forest Service, Dehradun and Central Academy for State Forest Service, Coimbatore.

4. Five (05) new batches of Range Forest Officers are undergoing induction training at Telangana State Forest Academy, Dulapally, Hyderabad (Telangana), Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu), Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand), Karnataka State Forest Academy, Dharwad (Karnataka) and Kundal Academy of Development, Admin. And Management.
5. Six (06) batches of Range Forest Officers are undergoing training at Kundal Academy of Development, Admin. And Management, Karnataka State Forest Academy, Dharwad (Karnataka), Kundal Academy of Development, Admin. And Management, Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand), Forest Training Institute and Ranger College, Sundernagar (HP) and Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu).
6. Six (06) batches of Range Forest Officers have passed out at Central Academy of Forest Education, Kurseong, Tamil Nadu Forest Academy, Coimbatore (Tamil Nadu), Telangana State Forest Academy, Dulapally, Hyderabad, Karnataka State Forest Academy, Dharwad (Karnataka), Central Academy for State Forest Service, Burnihat and Uttarakhand Forestry Training Academy, Haldwani (Uttarakhand)
7. Refresher Course/Theme based Workshops



for In-service State Forest Service Officers and Senior Forest Range Officers at CASFoS, Coimbatore and CASFoS, Dehraun.

8. Organizing One Week Thematic Courses for the Frontline Staff (Deputy Rangers/ Foresters/Forest Guards) of the State Departments of J&K during the calendar year: 04 courses

Central Academy for State Forest Service, Burnihat

- Anti-Terrorism Day on 21.05.2020
- World Environment Day on 05.06.2020
- International Yoga Day on 21.06.2020
- Independence Day on 15.08.2020
- Swachhta Abhiyan Fortnight (celebration on the conclusion of two-year long commemoration period of 150 Birth Anniversary of Mahatma Gandhi (w.e.f. 28.09.2020 – 09.10.2020)
- Two online Training to be conducted for other stakeholders (Eco and Photography club)
- One online Training of personnel of Other Service (Agriculture, Horticulture and Animal Husbandry, Police) to be conducted.
- Construction of Type-III (10 Nos), Type V (4 Nos), and Type VI (1 No) are in Progress and will be completed within March, 2021.

Central Academy for State Forest Service, Dehradun

- Construction of Executive Hostel and Other Major upgradation works
- Virtual Convocation of SFS batch 2018-2020 was held on 06.05.2020
- World Environment Day on 05.06.2020
- Virtual Yoga Day on 21.06.2020

- Van Mahotsav was celebrated on 03.07.2020. During this many plants were planted at campus of Academy.
- Independence Day on 15.08.2020
- Hindi Pakhwada fortnight was celebrated during 02.09.2020 to 15.09.2020. Four categories prizes were distributed under this: Hindi Sulekh Pratiyogita, Hindi Kavya-Path Pratiyogita, Tippani and AlekhanPratiyogita and Hindi Tankan Pratiyogita
- Swachhta Abhiyan-2020 was held on 02.10.2020 on occasion of 150th Birth Anniversary of Mahatma Gandhi. During this all campus of Academy including North and South hostel was cleaned.

Central Academy for State Forest Service, Coimbatore

- During this Covid-19 pandemic situation, the Academy was able to achieve the following progress in conducting Induction and in-service training activities through online mode.
 - a. Five days module on “Solar Energy for Climate Change mitigation” Organized by **Mahatma Gandhi Institute for Combating Climate Change, Government of NCT Delhi** (JFM, Rural and Tribal Development Course) held on 03.08.2020 to 07.08.2020
 - b. PRA tool & techniques & Microplan Preparation held on 03.09.2020 to 05.09.2020
 - c. East India Tour (Virtual) held on 07.09.2020 to 18.09.2020 & 28.09.2020 & 29.09.2020



- d. Working Plan Field Exercise held on 21.09.2020 to 25.09.2020
- e. Ecological Census Techniques held on 30.09.2020 and 01.10.2020
- f. 2nd Phase Examination held on 13.10.2020 to 16.10.2020
- g. Viva – Voce held on 19.10.2020 to 21.10.2020

Central Academy of Forest Education, Kurseong

- Anti-Terrorism Day on 21.05.2020
- World Environment Day on 05.06.2020 (Documentary Video on 'Bird Biodiversity' prepared by the CAFE, Kurseong)
- International Yoga Day on 21.06.2020
- Independence Day on 15.08.2020
- Swachhta Fortnight (celebration on the conclusion of two-year long commemoration period of 150 Birth Anniversary of Mahatma Gandhi (w.e.f. 28.09.2020 – 09.10.2020))
- Three Online Training to be conducted for other stakeholders (nature club, student, Panchayat members)
- Rehabilitation of Basket Ball, Lawn Tennis and Badminton Court and construction of Water tank and chain link fencing around the campus.
- Repair and retrofitting

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

- 28th issue of Santaroma magazine is being brought out by the Officer Trainees of 2018–20 SFS Batch I and II at CASFoS, Coimbatore.

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

CASFOS, Burnihat

- The training of FRO trainees 2018-20 batch of CASFOS, Burnihat was started on 11.02.2019 and it was completed on 10.08.2020. Training of Two years SFS course started on 26.08.2019 is going on. Due to Covid-19 pandemic resultant nationwide lockdown imposed by the Government to contain spread of Novel Corona Virus, the Academy could not organize the passing out ceremony of FRO course.
- The challenges faced due to COVID-19 is to work online (mostly to conduct tour, meeting, other official works) due to shortage of faculty, staff and poor network connectivity.
- The Academy campus/building has been sanitized properly and has provided sanitizers/masks to the trainees and staff, oximeter, forehead thermometer has been purchased and oxygen level and temperature each of officer trainees and staff are checked regularly.
- Faculty/Guest Faculty/Contractual Faculty/Staff have fulfilled their duties either home or from the office.

CASFOS, Dehradun

- All the tours and lectures are being conducted through online/virtual. There is difficulty in field sessions and tours by the OTs.

CASFOS, Coimbatore

- Due to covid-19 Pandemic situation, the



trainees who were undergoing OJT could not join the Academy for the Phase-II training. Hence, the Academy successfully conducted the classes, tours (virtual tours) and the Phase-II exams through online mode.

- Moreover, 2 numbers of one-week workshops for the in-service SFS officers were conducted through online mode. The resource persons had delivered the presentation online. The remaining four courses will also be conducted in the period (before 31-03-2021). Despite, Covid-19 pandemic all the Academic timelines and targets are being met with the use of technology.

CAFE, Kurseong

- The training of FRO trainees 2018-20 batch of CAFÉ, Kurseong was started on 08.10.2018 and they completed on 07.04.2020. But due to nationwide lockdown imposed by the Government to contain spread of Novel Corona virus (COVID-19), the Institute could not organize the Passing Out Ceremony.
- Though there are less number of staff members even they have fulfilled their duties either from home or from the office.
- The Institute premises/building has been sanitized properly and has provided sanitizers/masks to the trainees and 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.

Training of IFS Officers

The Ministry of Environment, Forests & Climate Change 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 as also 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, the 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 are 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. The Ministry of Environment, Forests & Climate Change Government of India 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. The Ministry of Environment, Forests & Climate Change Government of India 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. The Ministry of Environment, Forests & Climate Change Government of India is planning to organize 12 training courses for IFS Officers in various disciplines in various institutions in the country for these stakeholders.

6.7 Wildlife Institute of India (WII)

Wildlife Institute of India (WII) was established 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 MoEFCC 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.

1. 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 utilized 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 organizations, and state wildlife organizations, which ensures that research conforms to the national conservation priorities.

Research Projects during 2020-21

Projects funded by WII's Grants-in-Aid/MoEFCC	35
NTCA funded projects	17
Externally aided projects	44
Department of Science & Technology	08
CAMPA/ Species Recovery Programme	04
Total	108



NMCG-WII Biodiversity Conservation & Ganga Rejuvenation Project Highlights

The first-ever assessment of river biodiversity in Ganga basin for conservation planning was initiated in 2020. A video-conference was held on 21 April 2020 with the Hon'ble Minister for Jal Shakti, Shri Gajendra Singh Shekhawat, Shri U.P. Singh, Secretary, MoJS, Shri Rajiv Ranjan Mishra, Director General, NMCG, WII and Ganga Praharis. About 1,774 participants from five countries, including India participated in an online course on "Basics of Rescue and Rehabilitation of Freshwater Macro-fauna in Ganga Basin with special reference to Chelonians and Crocodilians" from 5 June to 4 July 2020. Dolphin Safari was inaugurated at six sites on Ganga River Dolphin Day, 5 October 2020.

'Ganga Avlokan' a first of its kind museum showcasing Ganga's exquisite landscapes, distinctive biodiversity and cultural vibrancy was inaugurated by the Hon'ble Prime Minister, Shri Narendra Modi on 29 September 2020. The museum also houses a souvenir shop, which sells products made by the trained Ganga Prahari. A book 'Rowing Down the Ganges', which captures the essence of Ganga through pictures and description from its source to sea was also released by the Hon'ble Prime Minister on this occasion. Ganga Praharis rescued more than 55 individuals of key aquatic and other species, at various sites along the Ganga River and its tributaries. Fourteen online training workshops on 'Biodiversity Monitoring and Wetland Conservation' module were conducted across the Ganga River Basin in which various stakeholders were

trained. A total of 754 participants attended the workshop. "Catch the Rain" campaign was organized by the WII-NMCG team at various Ganga River Basin sites from 29 July to 27 September 2020. A total of 451 participants attended the workshop. Kanpur Interpretation Centre 'Anubhuti' was inaugurated by Shri Dara Singh Chauhan, the Hon'ble Minister of Environment, Govt of Uttar Pradesh. Nineteen livelihood centers have been established wherein 68 training programmes were conducted, and 1,261 Ganga Praharis were trained. Start-ups by trained Ganga Praharis have been initiated realizing the Hon'ble Prime Minister's "Vocal for Local" campaign to achieve the goals of 'Aatmanirbhar Bharat'. The three-day-long Ganga Utsav-2020 was celebrated by WII-NMCG from 2-4 November 2020.

Assessment of the Ecological Status of Select Indian Rivers for Conservation Planning: AnNRCD-WII initiative

The project "Assessment of the ecological status of select Indian rivers for conservation planning" under the aegis of the National River Conservation Directorate (NRCD), Ministry of Jal Shakti was initiated after the Administrative Approval and Expenditure Sanction (AA&ES) on 11 September 2020. An extensive literature review on biodiversity of Barak, Mahanadi, Narmada, Godavari, Cauvery and Periyar rivers is being carried out. The status report based on secondary information will be submitted as scheduled in the project document's timeline by March 2021.

Endangered Species Recovery Programme

Recovering endangered species populations



entails targeted, multidisciplinary research that flows into management actions and advocacy for policy changes. With this vision, the Ministry of Environment, Forest and Climate Change (MoEFCC) and Wildlife Institute of India (WII) has commenced recovery programs for endangered species with funding support from CAMPA, MoEFCC. WII has been implementing this programme with the help of State Forest Departments and other stakeholders. Species targeted for recovery actions are Great Indian Bustard, *Ardeotisnigriceps*; Sangai, *Rucervuselidii*; River Dolphin, *Platanista gangetica* and Dugong, *Dugong dugon*.

WII successfully established the conservation breeding centre for Great Indian Bustard; successfully rehabilitated incidentally captured dugongs; identified the second home for sangai; and standardized monitoring protocol for dolphin. The declining trends of these endangered species have been stopped, and poaching or by catch of these species has been significantly reduced. A scholarship to school going students of fishermen have helped to reach out to the local communities and got their supports for the conservation of these species. As part of this programme, the first 'World Dugong Day' was celebrated on 28 May 2020 to create awareness among people.

E-flow (Environmental Flow): A Tool for Mainstreaming the River Conservation into the Production Sectors

Rapid population growth and river valley developments have modified the rivers and its basin over the years in India, reducing its ecosystem services, impacting human health

and well-being. The NMCG has identified flow alteration and pollutants as the two major sources for degradation of the Ganga River that is also applicable to all rivers in India. In this context, the Wildlife Institute of India has developed a methodological tool and estimated the environmental flows for various rivers so that both biodiversity conservation and development can go together. WII has estimated the e-flows for Polavaram Project in Andhra Pradesh and Etalin Project in Arunachal Pradesh to promote the sustainable development in these river valleys. In collaboration with various stakeholders, WII has been developing a 'Framework' for e-flow estimation for the country.

National Mission for Sustaining the Himalayan Ecosystem (DST-NMSHE Project)

Under the NMSHE project, WII established faunal species occurrence relationships with the geophysical determinants of distribution. Spatially-explicit predictions for climate habitat suitability in the current and future environments were developed for selected indicator *ichthyofauna* (snow trout and brown trout), *herpetofauna* (Himalayan pit viper), and mammals (musk deer, blue sheep, and snow leopard). Areas of suitable climatic niche over the IHR were identified. Advanced knowledgebase was also developed on the species current distributions, bringing forth the first-ever records of six mammal species from Uttarakhand.

Rapid Estimation of Amphibian Population in India

A first-ever non-invasive method for rapid



estimation of Amphibian population in India from difficult to sample habitats (Himalayan Streams). Discovery of Arunachal Rain Snake, *Smithophisarunachalensis* and rediscovery of Assam Keelback, *Herpetoreaspeali* after 129 years. First-ever comprehensive amphibian inventory was done based on an integrated approach from Panna Tiger Reserve, Madhya Pradesh.

Habitat Improvement and Conservation Breeding of Great Indian Bustard

a collaborative initiative of the Wildlife Institute of India, MoEFCC, State Forest Departments, International Fund for Houbara Conservation, and NGO partners, implemented the following science-based conservation actions for the Critically Endangered Great Indian Bustard (GIB) and Endangered Lesser Florican: (i) Development of founder GIB population with 16 captive-reared chicks of 2-16 months age from wild-collected artificially hatched eggs in a state of the art conservation breeding facility at Sam, Jaisalmer. (ii) Three GIBs and two Lesser Floricans have been additionally tagged at Jaisalmer and Ajmer. (iii) Technical inputs and recommendations were provided on legal matters regarding GIB conservation at the Hon'ble the Supreme Court of India, Jodhpur High Court and National Green Tribunal.

2. Higher Education and Academic Activities

XVII M.Sc. Course in Wildlife Science

The XVII MSc batch started their second-semester course work from 10 January 2020. As part of their wetlands tour, the students were taken to Chilika Lake Bird Sanctuary, Bhitarkanika NP and

National Chambal Sanctuary. Due to continued nationwide lockdown and travel restrictions, the third Semester's theory classes also resumed through the online platforms. With the relaxation of lockdown and travel restriction, the students could finally return to the Institute in the first half of October. They went through a mandatory quarantine within the Institute. All the students appeared for their theory and practical exam on 28-29 December 2020 respectively, after which they set out for their dissertation project fieldwork and data collection.

First M.Sc. Heritage Conservation and Management

The 2ndSemester for the inaugural 2019-2021 batch of M.Sc. Heritage Conservation and Management began on 17 January 2020. Between April-December 2020, two semesters were completed. The 2ndSemester was run partially in campus and partially online due to ongoing Covid-19 pandemic. A total of seven modules were completed in this Semester. The 3rdSemester was elective based module and also run online. It comprised five modules following Government of Uttarakhand guidelines, the students returned to the campus in December, but the online mode of teaching was continued. The students prepared their dissertation proposals.

3. Training Programmes

XLI Post Graduate Diploma in Advanced Wildlife Management Completed,



Dehradun, 1 September 2019 to 30 June 2020.

The course began on 1 September 2019 and concluded on 30 June 2020. It started with a full capacity of 20 trainees that included 15 forest officials of Deputy/ Assistant Conservator of Forests rank from ten Indian States and five foreign nationals of equivalent position (two from Myanmar and three from Bangladesh). A total of 66 days of field input was provided through six field tours and two short trips. The restrictions due to the outbreak of COVID-19 pandemic necessitated the use of online methods of pedagogy. The management plan field tour was carried out at the Institute with online inputs from in-house as well as external experts. All the 20 officer trainees have successfully completed the course, with 15 of them received an honours diploma.

XXXV Certificate Course in Wildlife Management Concluded, Dehradun, 1 November 2019 – 31 January 2020.

The XXXV Certificate Course in Wildlife Management started on 1 November 2019. In all, 19 officer trainees of Range Forest Officers and equivalent levels underwent the training course at WII, which included one each from Madhya Pradesh and Mizoram, two from Uttarakhand, six each from Malaysia and Myanmar and three from Bangladesh.

Total eight weeks were spent at the Institute for learning, while the remaining

five weeks were spent in field tours in the various Protected Areas across India and Sri Lanka to learn multiple techniques and practices. The officer trainees undertook the Orientation-cum-Techniques Tour at Chilla Range of Rajaji Tiger Reserve from 23 November to 4 December 2019. The Management Tour was conducted from 3-22 January 2020 at various protected areas in India and Sri Lanka in India. All the officer trainees have successfully completed the course.

4.1 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:

- Exhibition at Shiv Ghat on Makar Sankranti, Haridwar, 14 January 2020.
- Landscape-Level Stakeholders/Experts Consultation Workshop, Panna Tiger Reserve, Madhya Pradesh, 18-19 January 2020.
- National Workshop on Habitat Management for Elephants to Mitigate Human-Elephant Conflict, Dehradun, 20-21 January 2020.
- Training Course on Health Management of Captive Wild Animals, Dehradun, 21-25 January 2020.
- Certificate Course in Bird Identification and Basic Ornithology, Dehradun, 30 January - 13 February 2020.
- Celebration of World Wetland Day 2020, in Asan Wetland Conservation Reserve;



Surajpur Bird Sanctuary; and Soor Sarovar Bird Sanctuary, 2 February 2020.

- Consultative Meeting of Chief Wildlife Wardens and Independent Regional Expert Committees for Management Effectiveness Evaluation of National Parks and Wildlife Sanctuaries, 2018-19, New Delhi, 3-4 February 2020.
- National Training Programme for Ganga Praharis Spearhead Team, Dehradun, 3-10 February 2020.
- Wall Painting Competition – Doon Smart City, Dehradun, 8-18 February 2020.
- Exhibition Inaugurated at USAC, 10 February 2020.
- One-Week Training Course on Management of Coastal and Marine Biodiversity in India: Challenges and Prospects, Port Blair, Andaman & Nicobar Islands, 10-14 February 2020.
- Meeting on Compilation of Bio-Diversity Accounts, Dehradun, 11 February 2020.
- Thirteenth Conference of Parties of Convention on Migratory Species of wild animals (CMS CoP13), Gandhinagar, 15-22 February 2020.
- Special Course on Wildlife Protection, Law and Forensic Science for Officers of Customs & CGST, Rajasthan Zone, Dehradun, 27-29 February 2020.
- Certificate Course on “Wildlife Management using Geospatial Techniques”, Dehradun, 24 February - 21 March 2020.
- World Wildlife Day Celebration, Chakrata, 3 March 2020.
- Workshops on International Day of Action on Rivers, Kalagarh Tiger Reserve and Sarnath, Varanasi, 14 March 2020.
- Celebration of World Heritage Day, Dehradun, 18 April 2020.
- Earth Day Celebrated, Dehradun, 22 April 2020.
- Migratory Bird Day Celebrated, Dehradun, 9 May 2020.
- Webinar on Disaster and World Heritage with focus on Pandemic on International Day for Biological Diversity, Dehradun, 22 May 2020.
- World Turtle Day Celebrated, Dehradun, 23 May 2020.
- Dugong Day - 2020 Celebrated at WII, 28 May 2020.
- World Environment Day Celebrated, Dehradun, 5 June 2020.
- Webinar on India-EU Experience Sharing on Adaptation Planning and Implementation, Dehradun, 30 June 2020.
- Webinar for Capacity Building of Zoo Personnel in “Managing Rescue, Rehabilitation and Release of Aquatic Macro-Fauna of Ganga Basin” Dehradun, 13-14 July 2020.
- World Elephant Day Celebrations by Project Elephant Division and Elephant Cell of WII, New Delhi, 12 August 2020.
- NMCG (Component-3b) Activities, Dehradun, August & September 2020.
 - (i) Webinar Session with School Students;



(ii) Wild with Art; and (iii) Wildlife Search in Backyard.

- Hindi Pakhwada Celebrations at WII, Dehradun, 14-28 September 2020.
- Three-day Webinar series on “Marine Mammal Conservation in India: Status, Challenges and Opportunities”, Dehradun, 12- 14 October 2020.
- World Snow Leopard Day Celebrations at WII through Webinar, Dehradun, 23 October 2020.
- World Fish Migration Day Celebrated by WII, Rudraprayag, 23-24 October 2020.
- Capacity Building Workshop for ‘Inventorisation and Prioritization of Potential World Heritage Sites in Madhya Pradesh’, Orchha, November 2020.
- GIS Day Celebrated at WII, Dehradun, 22 November 2020.
- Constitution Day Ceremony at WII, Dehradun, 26 November 2020.

4.2 Major Achievement

Adi Kailash Landscape Expedition, 8-16 October 2020.

A seven-member multidisciplinary team headed by Dr Dhananjai Mohan, Director, WII conducted an expedition to the Adi Kailash Landscape to identify its key sites of natural and cultural importance for nomination as a UNESCO World Heritage Site. Through the expedition, the team documented a wide variety of its Himalayan and trans-Himalayan

ecosystems, habitat and biodiversity alongside the religio-spiritual significance of the Adi Kailash landscape. During the expedition, the team completed a kora (sacred circuit) of the Adi Kailash peak (5,975 m) using the high altitude Sinla Pass (around 5,500 m) to cross over from the Vyans to the Darma valley. The team travelled through several scenic and culturally relevant settlements including Tawaghat, Chhiyalek, Garbyang, Gunji and Kuti along with a slight detour for Kalapani, the origin of the river Kali and Om Parvat. The team also experienced the cultural richness of the region’s main inhabitants, the Rung community, whose traditional lifestyle is intricately linked with nature. The expedition team concluded that though the region was dotted with culturally significant natural sites, more rigorous work with regard to mapping to historical sources was needed.

Antarctica Programme

WII has been a part of the Indian expeditions to Antarctica and monitoring seabirds, marine mammals and their habitats in the Southern Ocean and Antarctica since the early 1990s. WII has standardized the methodologies for enumerating wildlife populations, mapping their distribution and studying behaviour of selected indicator species groups in Antarctica to monitor and strengthen the wildlife research in Antarctica. WII could publish the status paper on birds in the operating areas of India in Antarctica during the reporting period.



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 which aims to promote environmental awareness and mobilize student's participation for environment conservation. The objectives of the scheme are achieved through implementation of the programmes namely National Green Corps (NGC) – "Ecoclub" Programme, National Nature Camping Programme (NNCP) and Capacity Building Activities (CBA) on EEAT scheme.

b) Important activities undertaken upto 30.12.2020 :

- National Green Corps (NGC) 'Ecoclub' Programme: MoEF&CC embarked upon a major initiative for creating environmental awareness among children by formulating National Green Corps (NGC) in 2001-02. There are around 1,60,000 Eco-clubs across the country. A financial assistance of Rs 5,000/- per Eco-club is provided under this programme. The programme is implemented through State Nodal Agencies. The activities undertaken by the students of Eco-clubs include:

Awareness on solid waste management through waste segregation (biodegradable and non-biodegradable) and on concept of 4R's i.e. 'Reduce, Reuse, Recycle and

Recover' amongst students of schools through establishing 2-Bins in schools– (1) Blue Bin for dry waste like Paper waste, Glass waste, E-waste and (2) Green Bin for wet waste.

Celebration of important environmental days in schools such as World Environment Day, World Wetland Day, Earth Day, etc. by organising debates, quiz, slogan competition, drawing/poster competition etc, on the related theme.

Plantation drives in and around the school campus, during the months of July and August/monsoon season.

Every school make efforts to become Single use – plastic free school/college; all 'single-use' plastic items to be banned in schools such as plastic cups, plastic plates, straws etc.

Structure of Ecoclub:

1. Eco-club shall be headed by the Principal.
 2. There shall be Eco-club Coordinator in the school/college.
 3. Schools/college having such institutional structure may also be designated as "Eco-club along with its school/college name" as the suffix.
 4. Number of students in Ecoclub - minimum 50 students for undertaking the activities.
- **National Nature Camping Programme:** The 'Nature experience' to children and teachers has huge potential to trigger the sensitivity towards nature appreciation and conservation, leading to positive



environmental actions at different levels. Under this programme field visits (nature camps) are organised in different protected areas/ Nature parks/Tiger Reserves of the country to create awareness amongst school/college students on environment and nature. The activities undertaken includes 'ApnaParyavaranJaniye' (Know your Environment) by preparing small checklist of flora and fauna seen/spotted by them in the nature trail, Bird watching, Trekking, Green Pledges, Group Discussion involving record/sharing of experiences and Other nature based activities.

The programme is implemented through State Nodal Agencies (SNAs) across the country. The Ministry provide financial assistance not exceeding Rs. 2000/- (Rs. two thousand only) per student for a camp of 2 nights - 3 days duration. There is a ceiling of twenty camps per State/UT and maximum 50 students in one camp.

- **Capacity Building Activities:** The objective of this programme is to support capacity building activities and to impart skills to students (schools and colleges) and teachers of Eco-club on various thematic areas like Bio-diversity conservation, Waste Management and concept of 4Rs – Reduce, Reuse, Recycle & Recover; Sustainable Development Goals, Climate Change related issues with focus on Adaptation and Mitigation, Control of pollution and any other related theme of MoEF&CC.

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

- **Number of Ecoclubs supported in States** – Till date 81,194 Ecoclubs have been supported financially (status as on 25.1.2021) in 14 States.
- **Number of Nature camps supported:** 40 nature camps have been supported for the Eco-club students.
- **'Single Use Plastic Free' Eco-clubs:** Keeping in view of the pandemic situation, it was communicated to Eco-clubs to maintain the activities for single use plastic free tag.
- **Harit Diwali:** Eco-clubs celebrated environment- friendly Diwali by cleaning houses, renovating and decorating homes with diyas, lighting up candles, lamps; donating clothes/books to needy; making colourful rangoli etc.
- **Earth Day Celebrations:** Eco-club students participateddigitally in the Earth Day celebrations (22 April). Online entries were received in the category of poems, posters and short videos.
- **Development of Ecoclub portal:** In order to disseminate the environment education programmes of the Ministry to the nationwide schools & colleges, division is in the process of the developing the Eco-club portal. The portal shall help in real time updates of various activities done bystates and Ministry and to showcase success stories of eco-clubs.



d) Promulgation of new acts/rules

NIL

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

WORKING GROUP ON THE EEAT SCHEME-

The committee comprises of member of the State Nodal Agency from different State/UT on rotational basis. Director/ Additional Director, EE Division is the Member Secretary. The committee meet once in every three- four month and give suggestions/feedback on the scheme for its strengthening.

f) Important Conferences organized in India or International Conferences- nature of participation, subjects discussed, implementation –action taken.

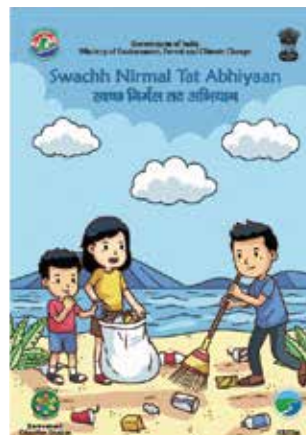
NIL

g) MEAs, Agreement with countries, international organisations, compliance.

NIL

h) List of major publications brought out-

E-book on “SwachhNirmal Tat Abhiyaan” has been prepared by the division in collaboration with SICOM. The booklet documents the detailed information on the programme alongwith the identified beaches as well as riverfronts across the country. It aims to promote the activities which can play an important role in changing the behavior of individuals.



i) Challenges in work due to COVID -19 and the response of the Division

Due to the COVID situation, the schools remain closed and the activities of the EEAT scheme could not be implemented on field/ground. However, the students of Ecoclub showed their interest towards celebration of environment day digitally and also celebrated Harit Diwali in their homes.

2) For each scheme/programme under the Division

Name of the Scheme /programme and its objectives:

a) Progress/achievements both cumulative and for the reference period.

Information provided above.

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

Not applicable



4) Grant –in-aid released to Institutions /organisations including NGOs.

Funds processed under the scheme as on 25.1.2021

S. No.	Name of the Organisation	Purpose	Total amount released	Remarks	Status of third party evaluation
1.	Chhattisgarh Environment Conservation Board, Chhattisgarh	To implement the EEAT scheme	36671250		Scheme has been recommended for continuation based on the third party evaluation study by National Productivity Council, Ministry of Commerce and Industry.
2.	Mizoram Pollution Control Board Mizoram		14248250		
3.	Nagaland Pollution Control Board Nagaland		13747750		
4.	Environmental Management & Policy Research Institute Karnataka		92999112		
5.	Gujarat Ecological Education and Research Foundation Gujarat		85453520		
6.	Centre for Environmental Studies Odisha		50006321		
7.	Assam Science, Technology and Environment Council Assam		17825000		
8.	Forest, Environment & Wildlife Management Department Sikkim		2877830		
9.	Rajasthan State Bharat Scout & Guide Rajasthan		18430880		
10.	Telangana State Pollution Control Board Telangana		20452500		



S. No.	Name of the Organisation	Purpose	Total amount released	Remarks	Status of third party evaluation
11.	Himachal Pradesh Council for Science, Technology And Environment Himachal Pradesh		8796786		
12.	Environment Management Agency of Tamil Nadu, Tamil Nadu		18991087		
13.	Punjab State Council for Science and Technology Punjab		14355000		
14.	Environmental Planning and Coordination Organization Madhya Pradesh		36050000		
			430905286		



As part of POSHAN ABHIYAAN, plantation of medicinal plant in Ecoclub School of Madhya Pradesh.



Handicrafts items prepared by Ecoclub students from Rajasthan



Use of waste tyres in school garden by Ecoclub in Sikkim

7.2 Swachh aur Swastha Bharat Cell

Aim/Objective of Swachhta Action Plan:

1. **Swachh aur Swastha Bharat Cell** of the Ministry is involved in raising awareness on Swachh Bharat Abhiyan through Information, Education and communication (IEC) activities. To implement IEC a **Swachhta Action Plan (SAP)** has been prepared and is being implemented in States/UTs through State Nodal Agencies. The aim is to create awareness on Swachh Bharat with respect to the mandate of the Ministry which is environment conservation and protection.
2. **SAP 2020-21** has been divided into four quarters April- June, July- September, October-December and January – March. Each quarter consist of a focused activity along with other activities, the same may be seen at **annexure A**. During April – June the activities were focused on awareness about solid waste management under the title **‘Dust to Dustbin campaign’**, during July-September-; Ministry under

its SAP implemented **‘ODF awareness in rural areas’**, from October –November, the focused activity was **‘Awareness on curbing the Single Use Plastics’** whereas from December- January the focused area of activity is **‘ODF awareness in Urban Areas**. Under the SAP, below mentioned tools of awareness are used to implement the above programmes:-

- Rallies
- Mini –marathon
- Door-to- Door Campaigns
- Knowledge Workshops
- Environment Film Festival
- Cleanliness drives
- Plantation drives
- Swachhta Melas
- Subject specific campaign (eg. Swachh Bharat K Liye Swachh Hawa)
- NukkadNataksetc

3. Besides, the Ministry under Swachhta



Action Plan has taken an initiative to distribute mask and sanitizer during every campaign/activity to the underprivileged sections of society. The budget of the

Swachhta Action Plan has been kept at Rs 20 lakh for each State/UT as per laid norms of the Ministry. The expenditure details as on date are given in **Annexure B**.

Annexure A

Ministry of Environment Forest and Climate Change Swachhta Action Plan (SAP) 2020-21

MONTH	ACTIVITY	FOCUSSED ACTIVITY
APRIL - JUNE	<ul style="list-style-type: none">Dust to Dustbin Campaign (Dry Waste and WetWaste Segregation awareness for households)SwachhtaPakhwada 1-15th June 2020 (activities as directed by Department of Drinking water and Sanitation or MoEF&CC)Awareness on E-Waste	Dust to Dustbin campaign
July - September	<ul style="list-style-type: none">ODF awareness in rural areas,Swachhta Hi Seva- September 2020(Activities directed by Department of Drinking Water and Sanitation or MoEF&CC which may include shramdaan activities)Plantation Drive in public places other than forest land	ODF awareness in rural areas
October-December	<ul style="list-style-type: none">Awareness on Plastic Pollution (SUPs)Swachh aurSwasth Bharat keLiye Swachh Hawa- Awareness on Air PollutionSwachh Jal Abhiyan-Awareness on Water Pollution (cleanliness drives at riverfront, beaches, ponds, lakes, etc)	Awareness on curbing the Single Use Plastics
January -March	<ul style="list-style-type: none">ODF Awareness in Urban AreasEnvironment Film Festival for School/College Students/CitizensAnnual Reports, Newsletter etc	ODF Awareness in Urban Areas



Annexure B

Name of States/UTs which have been provided with Financial Assistance in the current financial year (2020-21):

S. No.	State Name	Amount Sanctioned (INR) For 2020-21	Amount Released (INR) for 2020-21 A	Amount Reimbursed for expenditures made in 2019-20 (INR) B
1	Manipur	20,00,000		
2	Telangana	20,00,000	10,00,000	3,36,000
3	Assam	20,00,000	20,00,000	
4	Odisha	20,00,000	20,00,000	
5	Karnataka	20,00,000	20,00,000	
6	Tripura	20,00,000		
7	Madhya Pradesh	20,00,000		
8	Chandigarh	20,00,000	20,00,000	
9	Mizoram	20,00,000	20,00,000	
10	Gujarat	19,92,000		
11	Sikkim	20,00,000	20,00,000	
12	Punjab	20,00,000	20,00,000	
13	Goa	10,20,000		
Total		2,50,12,000	1,50,00,000	3,36,000

- Total fund released (C) as on date under SAP 2020-21, is A+B = Rs 1,53,36,000
- Total fund sanction (D) as on dated is Rs 2,50,12,000
- Total funds allotted under OAE Head in FY 2020-21 is Rs 6, 67, 00,000.
- Photographs of the activities undertaken under Swachhta Action Plan.



Webinar on "Swachh Bharat Swasth Bharat" organised during SwachhtaPakhwada 2020-21



Awareness on Solid Waste Management among of Street Vendors in Bengaluru, Karnataka



Mask and Sanitizer Distribution under SwachhtaPakhwada in Telangana



Plantation Drive in Telangana



Virtual Launch of Mask and Sanitizer Distribution at Kotla Sabzimandi, New Delhi by Shri Babul Supriou Hon'ble, Minister of State for Environment, Forest and Climate Change.

7.3 Media Cell

MoEFCC 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, 2020. This year the theme was Nagar Van (Urban Forest) to focus on the importance of urban forests. With a view to protect such forest lands in urban areas and to create forested areas in urban cities, with participation and collaboration between Forest Departments, Municipal Bodies, Non-Government Organizations (NGOs), Corporates and local citizens, the Ministry of Environment, Forest and Climate Change launched the 'Nagar Van' Scheme on WED, 2020. The event chaired by Hon'ble Minister of Environment,

Forest and Climate Change, Shri Prakash Javadekar, Hon'ble Minister of State, Shri Babul Supriyo saw virtual participation from national and international dignitaries including Executive Director, United Nations Convention to Combat Desertification (UNCCD), Executive Director, United Nations Environment Programme (UNEP), Minister (Forest), Government of Maharashtra, besides senior officers from the Ministry of Environment, Forest and Climate Change at the centre and state level and certain NGO representatives. The event also included, inter alia, release of best practices in urban forests and screening of a film showing success stories including conversion of 16.8 ha of a barren hills into urban forest in Pune.



B. Production and airing of documentary series on Doordarshan

MoEFCC 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. Social Media:

Ministry has social media accounts on Twitter, Facebook, Instagram and YouTube.

S. No.	Social Media Handle	Followers on 31.12.2020
1	Facebook	1,21,151
2	Instagram	55,036
3	Twitter	1,27,183
4	YouTube	3,710

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 an objective 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 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 ParagatiMaidan, BhaironMandir 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 environmental education (EE); to undertake museum and collection based research 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.



a. Important activities undertaken during the reference period

- The NMNH and its Regional centres have been undertaken Environmental educational programmes/ activities throughout the year to all sections of the society such as International Day for Disabled, World Environment Day, Orientation Workshop for Teachers, Ozone Day, Youth Nature Camp and Wildlife Week, etc.
- NMNH and its regional centres set up thematic/online exhibitions such as Air pollution, Save the Sea Turtles, 'Bats of Madhya Pradesh and Chattisgarh for general public to enhance their knowledge on environmental awareness and sensitisation.
- Regional centres have prepared documentary films based on the galleries for awareness of nature and wildlife.
- In addition, the NMNH also developed thrust areas on Museum Accessibility (Social inclusion) and Traditional Knowledge on Biodiversity.
- NMNH actively participated in the Thirteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP13) held at Gandhinagar from 15 to 22 February 2020 and set up an Exhibition on "Save the Sea Turtles" and organised a drawing Competition for school children.

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

- A total number of 2,40,137 people visited the Regional Centers (Mysore, Bhopal, Bhubaneswar and SawaiMadhapur during the reference period.
- NMNH, and its regional museums located at Mysuru, Bhopal, Bhubaneswar, SawaiMadhopur has organised 66 online National and International Nature classrooms Webinar series on various environmental days such as Wildlife Week, International Day for Disaster Risk Reduction, Teachers orientation workshop and Birth Anniversary of Dr. EK Janaki Ammal.

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

Information Desk Calender on "Water is Life", e-publications such as The Great Indian One Horned Rhinoceros, Swamp Deers of India and Flyers on Plant and Animal diversity of RMNH Mysore Campus in 5 languages viz. English, Hindi, Kannada, Malayalam, Tamil and Telugu.

i. Challenges in work due to COVID-19 and the responses of the Division.

For the containment of COVID-19 Pandemic, the National Museum of Natural History (NMNH), New Delhi and its Regional Centres at Mysore, Bhopal, Bhubaneswar and Sawai Madhopur were closed for the general visitors as per the directions from Government of India. The museums were



working with minimum essential staff and the rest of the officials are assigned duties to work-from-home.

NMNH is dealt with the pandemic by going digital, conducting online programmes through Webinars like Green Talk Series, and inviting online entries for various competitions like Painting, Poems, Slogan Writing, Short Videos, etc.

NMNH conducted Online Summer Vacation Programme for children by creating a

YouTube Channel for lectures, talks by eminent scientists, experts in the field of environment education and Creative Art & Craft short videos by artists of NMNH, virtual visits of Museum Galleries, etc. NMNH used MoEFCC Website and various social platforms like Facebook, Twitter, and Instagram for wide publicity of its online programmes, competitions and webinars. E-certificates to the participants of the various programmes were sent through E-mail.





CHAPTER

08

Centre of Excellence



SACON was set up by the MoEFCC under the Scheme on “Centre of Excellence” during November, 1988 and commenced its functioning from June 1990 in Coimbatore, Tamil Nadu. Realizing the significance of a holistic approach in avian studies and conservation, the major objectives of SACON have been designed to cover the entire field of natural history focusing on Ornithology.

Objectives and functions of the Division:

- 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 for 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 during the reference period

- Thirty-four research projects were executed, of which seven were completed (Details in Part c.)
- 37 research articles, 19 abstracts/posters, 3 popular articles, 12 technical reports,

one book (Details of major publication in Part h.)

- Five students are to be awarded Ph.D. and 23 students are currently registered for their Doctoral degree
- The first batch of M.Sc. Ornithology and Conservation Biology defended their dissertation research (Details in Part c.)

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

- SACON has undertaken 34 research projects covering major biogeographic zones in the country, funded by agencies such as the Ministry of Environment, Forest and Climate Change; Department of Science & Technology; Forest Departments of Andhra Pradesh, Chattisgarh, Himachal Pradesh, Karnataka, Maharashtra, Odisha, and West Bengal; UNDP – India; National Mission on Himalayan Studies; National Highways Authority of India; WWF-India; National Centre for Sustainable Coastal Management, Chennai and Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra.
- The completed projects include (1) Assessment of status, distribution, and threats to the population of threatened Sarus Crane *Antigone antigone* in Gujarat which showed a stronghold of the Sarus Crane population is in the Central Gujarat region. The study recorded 66 breeding pairs with a breeding success



of 43.47%; (2) Assessment of status, distribution and threats to the population of threatened Sarus Crane *Antigone* in Uttar Pradesh. The study recorded 2000 individuals of Sarus Crane in 43 of 75 districts of Uttar Pradesh. (3) A Study on Bird Hazards in selected Indian Civil Airfields, for which location-specific recommendations have been given based on the collected data for three select airfields viz., Coimbatore International Airport; Sardar Vallabhbhai Patel International Airport (SVPIA), Ahmedabad; and Kannur International Airport, Kerala; (4) Ecology of *elephant Elephas maximus* in South-West Bengal including population dynamics, migratory pattern, feeding habits and human-elephant conflict; (5) Polycyclic Aromatic Hydrocarbon (PAH) contamination in Palikaranai Wetland, Chennai—fish as an indicator; (6) Impact of dredging and opening of the sea mouth into Pulicat Lake at Rayadoruvu, Vakadu Mandal on the habitat of Pulicat Bird Sanctuary, Andhra Pradesh and (7) Impacts of the proposed eight-lane access-controlled Chennai-Salem Greenfield Corridor on the Mountain Ecosystems (hilly regions).

- The Avian Physiology Division is steadily involved in the 'Establishment of National Avian Forensic Laboratory (NAFL) at SACON' ever since its inception in December 2018. The new state-of-the-art facility has so far preserved more than 1000 biological samples (blood/tissue/feather/DNA) of

150 bird species in the 'Avian Biobank'. Of these, species-specific barcodes were generated for about 120 species. NAFL has extended its services to various government agencies such as Wildlife Institute of India, Arignar Anna Zoological Park, Chennai, and Indian Air Force, and successfully solved 6 cases of bird species identification and 2 cases of molecular sexing. NAFL services have also been extended to other taxa. During the reporting period, NAFL also provided hands-on biological sample collection training to over 120 forest guards/rangers at Tamil Nadu Forest Academy (TNFA), Coimbatore and Sathyamangalam Tiger Reserve, Erode, Tamil Nadu.

- The recently completed study on Bird Hazards in selected Indian Civil Airfields has brought out a 'Best practice guide' at a National level workshop in collaboration with the Airport Authority of India, attended by 60 officials of AAI. An MoU was also signed between AAI and SACON for taking up similar studies in 26 Civil airports of AAI and also to extend the real-time help for AAI for the mitigation of bird hazards in the future.
- The first batch of the SACON's new Post-Graduate Programme in Ornithology & Conservation Biology under affiliation with Saurashtra University, Rajkot, Gujarat completed their four semesters. The students, in consultation with teaching faculty, developed research proposals for their dissertation studies which were undertaken in the Fourth semester.



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

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

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

- SACON conducted a one-day National Ornithological Symposium with a plan to develop a “National Red List for Indian birds”, since as of now, India does not have any mechanism to classify the species to prioritize their conservation status. The symposium was attended by the subject experts from different government and non- government organizations of the country.
- SACON participated in the 13th Meeting of the Conference of Parties (CoP) to the Convention on Migratory Species (CMS) held in February 2020 at Gandhinagar, Gujarat, hosted by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. During the Conference, SACON organized three side events namely (1) Landscape Level Conservation & Management Planning: Need and Way Ahead (2) Coastal Mudflats as a Key Wintering Habitat for Migratory Birds: Conservation Issues and Challenges, (3) Birds for People & People for Birds: Select Case Studies from SACON & its

Associates. Apart from this, SACON also screened a 20- minute film on ‘A Day in Nilgiri Biosphere Reserve - A Lifescape to Experience’. During the occasion, SACON also brought out a Booklet on “SACON’s Accomplishments and Achievements at a glance; 1990 – 2020” which was released by Sh. C.K. Mishra, IAS, Secretary to the Govt. of India, MoEFCC, New Delhi.

- SACON also organized several training programmes, workshops, and meetings including Training Workshop on Bio-Statistics, Training Workshop on Bird Hazards to Aircraft, Field training on Human-Wildlife Conflict Management for SACON M.Sc. students, Workshop on ‘Use of Analytical Instrumentation in Environmental Studies, Meeting of Standard Operating Procedure on Human-Gaur conflict mitigation in India, Training Workshop on ‘Monitoring and Management of Wetlands’ for the IFS officials, National Ornithological Symposium, ‘On-the-job Training’ for Coimbatore Institute of Technology, and Monitoring and Management of wetlands

f. **List of major publication brought out- brief purpose of each, wherever necessary**

- Divyapriya C and Pramod P (2019). Spectral characteristics of Common Iora *Aegithinaitiphia* vocalizations and their context-specific preferences *Current Science*, 117(11):1863-1871.
- Kumar SR, Anoop V, Arun PR, Jayapal R, and Ali AMS (2019). Avian mortalities from two wind farms at Kutch, Gujarat



- and Davangere, Karnataka, India. *Current Science*, 116:1587-1592.
- Praveen J, Jayapal R, and Pittie A (2019). Updates to the checklists of birds of India, and the South Asian region-2019. *Indian BIRDS*, 15:1-9.
 - Praveen J, Jayapal R, and Rasmussen PC (2019). Birds of South Asia: Additions over 'the Ripley Guide'. *Indian BIRDS*, 15:112-116.
 - Ramesh Kumar S, Anoop V, Arun PR, Jayapal R and Samsoor Ali AM (2019). Avian mortalities from two wind farms at Kutch, Gujarat and Davangere, Karnataka. *Current Science*, 116:1587-1592.
 - Rao GB, Babu S, Quadros G and Kumar AV (2019). Bird diversity in the coastal talukas of Sindhudurg District, Maharashtra, India. *Journal of Threatened Taxa*, 11(9): 14166-14186.
 - Singh R, Yadav AS, Tripathi V and Singh RP (2019). Effect of seasons in shedding pattern of Salmonella in layer poultry birds. *Indian Journal of Poultry Science*, 54(1): 63-67.
 - Babu S, Sureshmarimuthu S and Kumara HN (2019). Ecological determinants of species richness and abundance of endemic and threatened owl in the Andaman Islands, India. *Ardeola*, 66:89-100.
 - Jayakumar S, Muralidharan S and Dhananjayan V (2020). Organochlorine Pesticide Residues Among Colonial Nesting Birds in Tamil Nadu, India: A Maiden Assessment from Their Breeding Grounds. *Archives of Environmental Contamination and Toxicology*, 78:555-567.
 - Kumar S, Periyasamy A, Rao NVR, Sunil SS, Kumara HN, Sundararaj P, Chidananda G and Sathish A (2019). Multiple infestations of gastrointestinal parasites-Probable cause for high mortality of Spot-billed Pelican *Pelecanus philippensis* at Kokrebellur Community Reserve, India. *International Journal for Parasitology: Parasites and Wildlife*, 9:68-73.
 - Mane AM and Manchi SS (2019). Spatiotemporal roosting movements of the cave-dwelling Andaman Edible-nest Swiftlet *Aerodramus fuciphagus inexpectatus*. *Wilson Journal of Ornithology*, 131 (1): 62-71.
 - Nachappa MP, Dey P, Sharma SK, Sarkar I, Ray SD and Singh RP (2020). Partial mitochondrial genome of Indian rose-ringed parakeet *Psittaculakrameri* from India. *Mitochondrial DNA Part B*, 5(2): 1232-1233.
 - Patil AJ, Shirke B, Rao GB, Babu S, Manchi SS and Quadros G (2019). Record of a few Pelagic bird sightings along Sindhudurg Coast, Maharashtra. *Ambient Science*, 6(2): 56-57.
 - Ramesh T, Kalle R, Sankar K, Qureshi Q, Giordano A J and Downs C T (2019). To resettle or not?: Socioeconomic characteristics, livelihoods and perceptions in resolving human-tiger conflict in the



Nilgiri Biosphere Reserve, India. *Land Use Policy*, 83:32-46.

- Sarkar I, Dey P, Sharma SK, Ray SD and Singh RP (2020). Comprehensive bioinformatic analysis of newly sequenced *Turdoidesaffinis* mitogenome reveals the persistence of translational efficiency and dominance of NADH dehydrogenase complex-I in electron transport system over *Leiothrichidae* family. *bioRxiv* (doi: <https://doi.org/10.1101/2020.01.23.917716>).
- Singh RP, Escobar E, Wildt DE, Patel S and Pukazhenthil B (2019). Sphingosine-1-phosphate promotes gonocyte differentiation in thawed sheep testicular explants cultured in vitro. *Theriogenology*, 128: 184-192.

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

- The outbreak of the novel coronavirus, COVID-19 has had some serious implications across the country, and SACON was no different in facing and handling this global emergency.
- SACON implemented a range of control measures laid by the Centre and State

Governments upon the announcement of the countrywide lockdown in March 2020.

- With the relaxations of lockdown, SACON opened the workspace for their Core Staff and subsequently for the researchers following the *Standard Operating Protocols* issued by the Centre and State Governments.
- Since SACON is remotely located, and most of the activities and meetings are now conducted on online platforms, the internet facility on the campus was vastly upgraded to ensure complete and thorough connectivity. With the improved internet facility, SACON has successfully held and participated in meetings, participated in webinars and conferences, and conducted viva-voce examinations for the M.Sc. batch and Ph.D. Candidates.
- In the coming months, SACON is in the course of preparing itself to carry out all academic and official work in its complete strength keeping in place all the safety measures suggested by the government to contain the spread of COVID-19.

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.	Salim Ali Centre for Ornithology and Natural History (SACON) Coimbatore	Grant-in-Aid-Salary	Rs. 2.10 Cr (received on 24/04/20)	NA	



Sarus Crane in Gujarat



Sarus Crane with hatchling (Palana, Kheda, Gujarat)



Sarus crane nests in Khet – Talavadi (Uttar Pradesh)



Workshop On 'Best Practices' to Mitigate Bird Hazard in Indian Civil Airports



Booklet release at CMS COP by Sh. C.K. Mishra, IAS, then Secretary to the Govt. of India, MoEFCC, New Delhi



Paddy crop depredation by an Elephant in South-west Bengal



CHAPTER

09

Environmental Information



9.1 Economic Division

Economic Division of the Ministry is headed by the Economic Adviser. It is responsible for the following areas of work:

- 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).
- 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.
- Appraisal of environment friendly proposals related to fiscal incentives and recommending appropriate proposals for inclusion in the Union Budget.
- Nodal Division to monitor implementation of specific announcements in the Union Budget concerning Ministry of Environment, Forest & Climate Change.
- Secretariat for the Sectoral Committee to review the release and utilization of the Grants-in-Aid for State Specific Needs recommended by the Thirteenth Finance Commission/Fourteenth Finance Commission. Compliance under the Fiscal Responsibility and Budget Management Act, 2003.
- Coordination of inputs/ material for the Economic Survey to the Department of Economic Affairs.
- Nodal Division to deal with references received from M/o Commerce & Industry relating to Trade & Environment including Cabinet/ Cabinet Committee/ Committee of Secretaries matters.
- 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.
- 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.
- Engagement with the DBT Mission, Cabinet Secretariat to spearhead the work of on-boarded schemes of the Ministry on DBT Bharat portal (www.dbtbharat.gov.in) and coordinating with the Divisions concerned for reporting of monthly progress,



requirement of database of beneficiaries, etc. It is responsible for ensuring the following actions for the DBT Applicable schemes of the Ministry:

- i. 100% Electronic transfer of benefits
 - ii. 100% Aadhaar based transfers
 - iii. Capturing and maintenance of MIS for all DBT schemes of the Ministry
 - iv. Curbing pilferage and duplication
- Officers of the Division attend regular interactive sessions and review meetings with the DBT Mission on Aadhaar Act and reporting of progress on DBT on-boarded schemes.
 - Organizing interactive meetings in the Ministry with the members of the DBT Mission on reporting of progress, requirement of database of beneficiaries etc. for officials in the Ministry handling the on-boarded Schemes.
 - 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 during the reference period 1.1.2020-31.12.2020:

- Drafted and finalised comments on different economic and environmental issues, particularly on Cabinet Notes, EFC Memos, Parliament matters, NITI Aayog references etc.
- Coordinated and contributed comments on Cabinet Notes and different Memorandum of Understanding (Italy, New-Zealand etc), Economic Survey, OECD Reviews, concept notes and other documents referred to the Ministry by the Ministry of Finance.
- Coordinated and prepared Ministry's response on various environmental issues like providing inputs for inclusion in the draft plan of activities for implementing this Program of Multilateral Trade and economic Cooperation of SCO, providing comments for the 24th Session of the India Russia Intergovernmental Commission for trade, economic, scientific and cultural cooperation(IRIGC-TEC) etc.
- Coordinated and contributed comments on Cabinet Notes and different Memorandum of Understanding documents referred to the Ministry by the Ministry of Commerce and Industry.
- Coordinated and contributed comments to Department of Commerce on matters like requirement of database of all existing Technical Regulations in India for conducting an exercise of mapping of HS codes of tariff lines against all items of trade to be shared with Custom authorities for better enforcement of regulations at the port of entry which will help in establishing a Standard Quality Eco-system in India.
- Coordinating with NIC and the Divisions concerned with Investment clearance for providing feedback on MoEF&CC to the National Investment Clearance Cell established by DPIIT.
- Economic Division has found out through



coordinating with the Divisions of this Ministry that under **Indicator :1.26** in the Global Competitiveness Report 2019, 20 treaties relates to MoEF&CC instead of 29. The 9 treaties are concerned with other Ministries.

- Coordinating with the concerned Divisions of MoEF&CC for implementation of the Budget paras related to pollution and climate change and communicating them to DEA on monthly basis.
- Liaisoning between Central Board of Indirect taxes and Custom (CBIC) and Wildlife Crime Control Bureau (WCCB) on the trade matters, coordinating with concerned Divisions for providing comments on the amendments of the specific policy conditions of the Import policy by DGFT, facilitating comments from the concerned Divisions on the tariff lines.
- Facilitated Project Divisions in preparation of Draft Notification under Section 7 of the Aadhaar Act, 2016.
- Under DBT, State level data is available for 11 schemes and Nation level data is available for 1 scheme. The district level data can be reported for 5 centrally sponsored schemes.
- The schemes de-boarded from DBT Portal are: a) GBNIHE, b) NMHS, c) TCB and ABG (Assistance to Botanical Garden) Scheme, d) AICOPTAX, e) ICFRE, f) Biosphere Reserves Scheme, g) Conservation and Management of Mangroves and Coral Reefs Programme and h) Wildlife Institute of India, Dehradun

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 Resource Partners (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, Community based sustainable development of villages, District level grid based survey for sustainable management of natural resources, etc. The 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, 123 training programmes were conducted at 46 locations throughout the country covering diverse fields and 2847 youth joined the 'Green Skilled Workforce'. 29 training programmes have

been started during financial year 2020-21. The training involves almost 70% skilling in the form of practical training and around 30% theory component. A total of 140 GSDP training proposals are received for 2020-21 from various ENVIS Hubs and RPs.



Lantana Furniture and Crafts training under GSDP by ENVIS RP at Amrita University, Coimbatore, Tamil Nadu.



Release of ENVIS Newsletter on Nature Interpretation Course by ENVIS RP at GBPNiHE, Almora.



- **National Environment Survey (NES)-a Grid-based Resource Information and Decision Support System (GRIDSS) for sustainable management of natural resources:** the ENVIS Hubs/Resource Partners would carry out environmental survey of the country through a grid-based approach, covering various parameters like flora, fauna, pollution, waste inventory mapping, etc., to fill data gaps in respect of various environmental parameters and to ascertain the status of environment at district level. The secondary data collection is under way and district level survey would commence in the select districts by the Hubs/RPs after the secondary data collection has been completed and the data gaps identified.
- **Information and Knowledge Products of ENVIS:** ENVIS regularly brings out value-

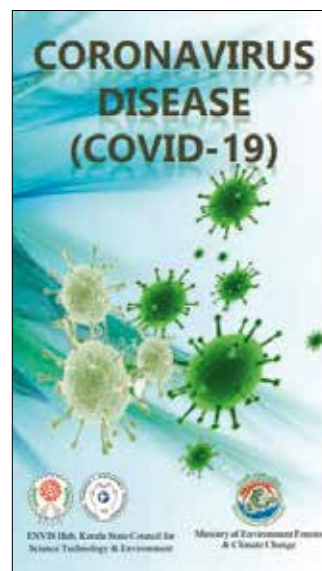
added information products relating to Environment, Forest, Wildlife and Climate Change which include theme based newsletters, special publications, e-newsletters, thematic bulletins, technical reports, mobile apps, directories of information at State/regional/ National level, Bibliography, information 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 685 Knowledge products including newsletters, books, theme based special publications, e-books, e-bulletins, booklets, environment calendars, brochures, pamphlets, DVDs, CDs, Mobile Apps, etc.



Puducherry ENVIS Hub, Puducherry Pollution Control Committee released Mobile Application i.e. "Patchi" containing information about terrestrial and wetland birds in Puducherry region.



E-Newsletters and Special Publications – during COVID-19 by ENVIS RP at IIHH (Sulabh), New Delhi.



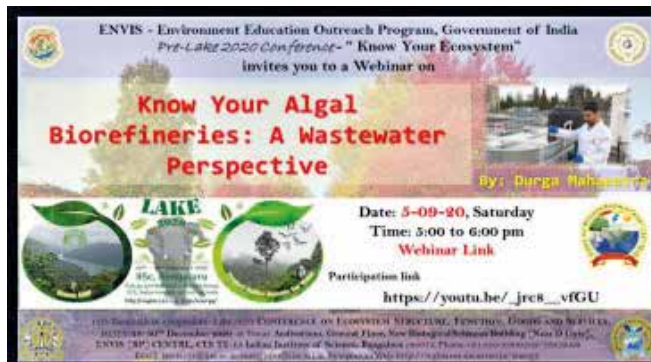
A booklet on COVID-19 prepared by ENVIS Hub at KSCSTE, Thiruvananthapuram



- 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. World Ozone Day, World Wetland Day, World Forest Day, International Day for Biological Diversity, etc.



An Educational Video on "The Nature of Fiddler Crab in Mangrove Ecosystem" developed by Puducherry ENVIS Hub.



Thematic Webinars under 'Know your Ecosystem' by ENVIS RP at CES-IISc, Bengaluru.

- 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 45,000 queries till December 31, 2020 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 put together, witnessed about 2.75 crore hits and is expected to reach more than 3.5 crore by March 31, 2021.

- **Review of ENVIS Hubs/RPs:** A series of Video Conferencing (VC) conducted with ENVIS Hubs and Resource Partners (RPs) chaired by Senior Advisor, MoEF&CC on the following agenda with Northern, North-East, Southern Region ENVIS Hubs/ RPs on 3rd July, 13th July, 11 November, 2020 respectively and proposed VC of Eastern and Western Region ENVIS Hubs/ RPs is scheduled on tentatively 28-29 January, 2021. Agenda of the VCs were: (i) ENVIS Activities for 2020-21 and Road Map in the light of emerging challenges due to COVID Pandemic. (ii) GSDP Proposals for 2020-21 and Road Map in view of the lockdown imposed due to 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 or any other issues. (v) Status of EAT entries in PFMS Portal. (vi) Ongoing activities for the current year (including programmes conducted during COVID Pandemic). (vii) Proposed Plan of Activities for FY 2021-22. (viii) Suggestions/ feedback for ENVIS Scheme.
- **Visits to ENVIS Hubs/RPs:** Shri Devender Singh, Senior Economic Advisor, MoEF&CC along with Kumar Rajnish, NPC, ENVIS Secretariat visited WWF-India and TERI ENVIS Resource Partner, New Delhi on Wednesday, 4th & 5th November 2020 to overview the ongoing ENVIS activities and activities proposed for 2021-22.as per approved mandate of the ENVIS Scheme. During the visit, he suggested to bring more e-version of the Knowledge products and online dissemination through ENVIS Websites. He also suggested that ENVIS RPs/Hubs may start Training of Trainers (ToTs)in various GSDP Courses.



Review visit of ENVIS RP at TERI, New Delhi by Sr. Economic Advisor, MoEF&CC.



Review visit of ENVIS RP at WWF, New Delhi by Sr. Economic Advisor, MoEF&CC.

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

NA

4. Grants-in-aid released to Institutions/

organisations including NGOs (as on December 16, 2020)

The details of Grants-in-Aid released for mandated activities of ENVIS Cell in the Ministry and ENVIS Hubs/RPs during F.Y. 2020-21 (as on 16.12.2020) to various organisations, are as follows:

Table No: 9.1

Sl. No.	ENVIS Hubs hosted by State Government Departments	GIA for functioning of ENVIS Hub/RP (in ₹)
1	Assam Science, Technology and Environmental Council (ASTEC), Guwahati	18,72,017.00
2	Centre for Environmental Studies (CES), Forest & Environment Department, Government of Odisha	20,47,709.00
3	Chhattisgarh Environment Conservation Board (CECB), Raipur	20,47,710.00
4	Department of Ecology, Environment and Remote Sensing, State Government of J&K	11,70,717.00
5	Department of Environment - Chandigarh	11,04,717.00
6	Department of Environment & Forests – Arunachal Pradesh	20,47,709.00



Sl. No.	ENVIS Hubs hosted by State Government Departments	GIA for functioning of ENVIS Hub/RP (in ₹)
7	Department of Environment & Forests (DoE&F), Kavaratti, Lakshadweep	11,77,317.00
8	Department of Environment, Govt. of Tamil Nadu	11,84,577.00
9	Directorate of Environment & Climate Change Department (DoE&CCD), Haryana	10,18,248.00
10	Directorate of Environment, Dept. of Forests and Environment, Govt. of Manipur, Imphal	20,47,709.00
11	Environment Management & Policy Research Institute (EMPRI), Bengaluru	20,47,709.00
12	Environment Protection Training and Research Institute (EPTRI-Hub), Hyderabad	11,84,577.00
13	Forests & Environment Department, Govt. of Jharkhand	11,04,717.00
14	Forests, Environment & Wildlife Management Department, Sikkim, Gangtok	20,47,709.00
15	Gujarat Ecology Commission (GEC), Gandhinagar	20,47,710.00
16	Kerala State Council for Science, Technology and Environment (KSCSTE), Thiruvananthapuram	11,84,577.00
17	Mizoram Pollution Control Board (MPCB), Aizawl	20,47,709.00
18	Nagaland Pollution Control Board (NPCB), Dimapur	20,47,709.00
19	Puducherry Pollution Control Committee (PPCC), Puducherry	20,33,849.00
20	Punjab State Council for Science and Technology (PSCST), Chandigarh	10,12,544.00
21	Tripura State Pollution Control Board (TSPCB), Agartala	11,84,577.00
22	Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), Dehradun	8,50,044.00
ENVIS Resource Partners (RPs) hosted by Govt., Autonomous Bodies / Institutions		
23	Amrita Vishwa Vidyapeetham (AVV), Coimbatore	10,59,744.00
24	Botanical Survey of India (BSI), Kolkata	11,04,717.00
25	Central Arid Zone Research Institute (CAZRI), Jodhpur	9,71,867.00
26	Environment Protection Training and Research Institute (EPTRI-RP), Hyderabad	11,84,577.00
27	Forest Research Institute (FRI), Dehradun	11,84,577.00



Sl. No.	ENVIS Resource Partners (RPs) hosted by Govt., Autonomous Bodies / Institutions	GIA for functioning of ENVIS Hub/RP (in ₹)
28	G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD), Almora	11,84,577.00
29	Gujarat Cleaner Production Centre (GCPC), Gandhinagar	20,47,710.00
30	IIT-Indian School of Mines (ISM), Dhanbad	11,04,717.00
31	Indian institute of Chemical Technology (IICT), Hyderabad	11,84,577.00
32	Indian Institute of Sciences (IISc), Bengaluru	20,47,710.00
33	Indian Institute of Tropical Meteorology (IITM), Pune	11,54,720.00
34	Institute for Wildlife Sciences, University of Lucknow, Lucknow	10,59,744.00
35	Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore	11,84,577.00
36	National Botanical Research Institute (NBRI), Lucknow	11,84,577.00
37	National Institute of Occupational Health (NIOH), Ahmedabad	10,12,544.00
38	School of Planning and Architecture (SPA), New Delhi	11,84,577.00
39	State Council of Science and Technology Sikkim (SCSTS), Gangtok	11,54,720.00
40	Thiagarajar College of Engineering (TCE), Madurai	10,12,544.00
41	Wildlife Institute of India (WII), Dehradun	11,84,577.00
42	Zoological Survey of India (ZSI), Kolkata	11,43,899.00
ENVIS Resource Partners (RPs) hosted by Statutory Bodies		
43	Central Pollution Control Board (CPCB), Delhi	8,92,007.00
44	Centre of Advance Study in Marine Biology (CASMB), Parangipettai	11,84,577.00
45	Department of Environmental Science, University of Kalyani (DESKU), Nadia	11,84,577.00
46	Department of Zoology - University of Madras (DzUM), Chennai	11,84,577.00
ENVIS Cell/Resource Partners (RPs) hosted by Registered Societies (NGOs)		
47	Asian Development Research Institute (ADRI), Patna	11,84,577.00
48	Consumer Education and Research Centre (CERC), Ahmedabad	20,47,710.00
49	CPR Environmental Education Centre (CPREEC), Chennai	11,84,577.00
50	International Institute of Health and Hygiene (IIHH), Delhi	11,84,577.00
51	Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore	11,04,717.00
52	The Energy Resources Institute (TERI), New Delhi	11,84,577.00
53	World Wide Fund for Nature-India (WWF), New Delhi	11,84,577.00
54	Indian Environmental Society (IES), Delhi	36,03,654.00



9.2 Statistics Division

Statistics Division in the Ministry of Environment, Forest and Climate Change liaisons with all divisions of the Ministry, its subordinate offices and autonomous institution to strengthen the process of collection, validation processing and interpretation of statistical data.

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 institution 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 the Ministry of Statistics and Programme Implementation (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 to provide inputs on behalf of the Ministry for the publication.
- iv. It functions as the nodal division as regards SDG related coordination in MoEFCC 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 MoEFCC and with other Ministries and UN.
- vi. Represent the Ministry in UNEP's consultations on Global Environment Outlook (GEO).
- vii. It is required to undertake other environment statistics related matters and surveys including data components of assigned Global Indices.

Activities undertaken

9.3 SDG Co-ordination Unit

Coordination regarding Implementation of Sustainable Development Goals, SDGs in the Ministry

- Coordinated with the Divisions of the ministry in planning the implementation of the SDG targets. Specifically efforts were made in respect of SDG 6 "Ensure availability and sustainable management of water and sanitation for all" through a meeting with CPCB during August 2020; Data on 6.3.2 transmitted to MoS&PI. Further information on SDG 3 "Ensure healthy lives and promote well-being for all at all ages" (Target 3.9) shared with MoH&FW.
- SDG Implementation Plan for environment related SDGs was conceptualized and given shape with the help of all the concerned Divisions. SDG Implementation Report has been initiated 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” and inputs received from nearly all Divisions ;

- A refinement proposal on indicators relevant to the Ministry was submitted to Ministry of Statistics and Programme Implementation (MoSPI) for consideration by the High Level Steering Committee for refinement of SDG Indicators chaired by Chief Statistician of India on vide email dt. June 17, 2020; Time series data with regard to MoEFCC indicators was submitted for the 2nd SDG progress report to MoSPI on which was released on June 29, 2020
- Coordinated with NITI Aayog on various SDG related to *Indicators for the SDG Index India Report and provided latest disaggregated data for industrial waste water (Goal 6), data on biomedical waste (Goal 11), area under desertification and number of threatened wetland flora and fauna (Goal 15).*
- *Provided inputs for answers for CAG Audit paras raised in respect of Goal 14 to the ICZM Division*
- Comments were furnished on the SDG 12 Report (suggestions regarding outcome oriented indicators for Resource Efficiency) for the Switch Asia Project to *Resource Efficiency Cell in the International Cooperation Division.*

Activities pertaining to Environmental Accounting

- The Division provided comprehensive comments on the Concept Paper on Natural Resource Accounting released by GASAB (Government Accounting and Standards Advisory Board) under CAG.
- It also provided inputs for NCAVES (Natural Capital Accounting and Valuation of Ecosystem Services) project being implemented by MoS&PI. A meeting with UNSD had been held in this regard for discussing the prospects and problems in this sphere.
- Publications of MoEFCC relevant to Natural Capital Accounting have been furnished to MoSPI for showcasing at the NCAVES India Forum being organized by MoSPI during January 2021.

Global Indices for Reform and Growth Dashboard 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).
- In this regard a dashboard has been prepared by the Niti Aayog for the monitoring exercise of global indices. DDG (Stats.) has been nominated as the nodal Officer for the GIRG dashboard in case of



EPI and CCPI. Accordingly, the Division has furnished the following inputs for EPI :-

- i. EPI- Global index parameters –General details to Niti Aayog
 - ii. EPI- Methodology sheet for computation of the 32 parameters of EPI to Niti Aayog
 - iii. EPI -India Index Parameters and Reform areas for Air Quality and Wetland Loss to Niti Ayog
 - iv. Comments on data issues to be taken up with the Publishing Agency of EPI to CC Division
- For CCPI the following inputs were furnished to the NATCOM Cell:-
 - i. Methodology sheet of global index parameters for CCPI
 - ii. Inputs regarding data sources of suggested CCPI parameters for the India Index
 - iii. Comments on data source related matters to be taken up with German Watch , PA of CCPI

Progress/Achievements

The process of National SoER 2020 and States of Environment Reports for all States and Union Territories has been initiated.

Continuing committees/commissions-

Statistics Division is a member of Index-cum-Project Monitoring Units in regard to Environmental Performance Index and Climate Change Performance Index constituted in the year 2020, for the purpose of identifying key India Index Parameter and India Index Reform

Actions for the indicators mentioned in these indices.

Important Conferences organized in India or international conferences

The Global Environmental Outlook is a comprehensive assessment of the State of the World Environment under review. In this context a Steering Committee has been constituted to deliberate on the mandate of GEO 7 Report and provided inputs to upcoming UNEA in this regard. DDG(S) has been nominated as representative of MoEFCC in Steering Committee and has attended all the virtual meetings held in this regard.

MEAs, Agreement with countries, international organizations, compliance

Inputs were provided for SDGs in respect of BRICS Environmental Ministers' Meeting held on 30th July 2020;

Inputs on behalf of MoEFCC, India were furnished to the Steering Committee for Options and recommendations for the future Global Environment Outlook (GEO) 7 - GEO is the only assessment which covers all forms of environmental change comprehensively. *This would serve as a working document for consideration by UNEA.*

List of major publications

Annual Report of the Ministry for the year 2019-20 was compiled and submitted to the Parliament.

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 State of Environment Report (SoER) for each State/UT will be published with a periodicity of two years followed by a national SoER.

The template for the preparation of the State of Environment Report was finalized and sent to all States/UTs with a request to undertake the preparation of the Report

9.4 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.
- Formulating replies to Parliament Questions relating to fund disbursement to NGOs of MoEFCC and related matters..
- Responding to various representations

received from PMO, Cabinet Secretariat, Individuals etc.

- Handling RTI applications.
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 NGO-Darpan Portal to bring transparency in the affairs of disbursement of funds to NGOs.
 3. Further as per direction received from NITI Ayog, 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. All Program Divisions running Centrally Sponsored Schemes through states have been requested to issue the direction to concerned states for following the guideline of NITIAAyog & ensure the implementation of the decisions taken in meeting dated 16.09.2020, under intimation of NGO Cell of MOEFCC.



CHAPTER

10

Legislation and Institutional Support



10.1 Policy and Law

The Policy and Law Division is allocated funds under the Budget Head “National Green Tribunal” and the budget under this is further allocated to –

- National Green Tribunal(NGT),
- Grants-in-Aid to Loss of Ecology Authority, Chennai
- Grants-in-Aid to Dahanu Taluka Environment Protection Authority, Ahmedabad.

The Policy and Law Division handles the administrative issues of NGT while the Eco Sensitive Zones and Control of Pollution Divisions are administrative in charge of Dahanu Taluka Environment Protection Authority and Loss of Ecology Authority, respectively.

10.2 National Green Tribunal (NGT)

The 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.

During the period from 01.01.2020 up to 30.09.2020, a total of 1,657 cases were instituted before the National Green Tribunal, 1,906 cases were disposed of and a total of 2,716 cases were pending before the various

benches of the NGT, since its inception till date.

The Ministry took various measures for smooth functioning of the NGT. The process for appointment of Judicial Members and Expert Members against vacancies that had arisen during the year was initiated timely and with the approval of the Appointments Committee of the Cabinet (ACC) one Expert Member each joined the Tribunal on 01.11.2019 and 01.01.2020 respectively and one Judicial Member joined the Tribunal on 16.03.2020.

An advertisement calling for applications for the six vacant posts of Expert Members, NGT was published in the National Dailies on 09.11.2019. The due process of selection was carried out and the recommendations of the Search-cum-Selection Committee were forwarded to the ACC for consideration in September, 2020.

Apart from this, an advertisement was published in the National Dailies on 30.07.2020 for filling up nine vacant posts of Judicial Members in NGT (including anticipated vacancies up to January, 2021). After following the due process, the recommendations of the Search-cum-Selection Committee were forwarded to the ACC for consideration.

Legal Monitoring Cell (LMC)

The Legal Monitoring Cell in Policy & Law Division monitors the progress of court cases and also acts as the point of coordination for the Divisions of the Ministry handling the court cases. The number of cases in which the Ministry was a Party in matters pending before the Supreme Court of India, various High Courts, National Green Tribunal (all Benches),



Central Administrative Tribunal etc. as on 30.09.2020 was 2,384. The replies, rejoinders, affidavits with respect to the pending cases were being filed timely and in none of the cases a reply was pending for filing for more than 3 weeks, against any of the Divisions handling CourtCases.

Eco-labelling Scheme

The Ecomark Scheme was launched by the Ministry of Environment and Forest in 1991 vide Notification dated 20.02.1991, for awarding the 'Ecomark' to environment-friendly products under different categories. The Scheme is administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 with support of the Central Pollution Control Board (CPCB) to assess and certify the products. A Steering Committee headed by Secretary, (E&F) was constituted vide Order dated 06.03.1991 to determine the products to be taken up for labelling as environment friendly and to formulate the strategies for the promotion, implementation, future development, and improvements in the working of the scheme.

The composition of the Steering Committee has been amended twice by issuing Resolutions dated 25.04.2013 and 19.12.2016.

A Technical Committee was set up in the Central Pollution Control Board under the chairperson-ship of 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.

The Eco-labelling Scheme has been given an impetus to align it with emerging market demands and increased environmental awareness among the consumers and producers/ manufacturers. The products are required to adhere to compulsory quality standards specified by the BIS, as a pre-requisite to Eco-labelling.

The specific objectives of the Ecomark Scheme are as follows: -

- To provide an incentive for manufacturers to reduce the adverse environmental impact of products.
- To reward genuine initiatives by companies, to reduce the adverse environmental impact of their products and processes.
- To assist consumers to become environmentally responsible by providing sufficient information to take account of environmental factors in their purchasing decisions.
- To encourage citizens to purchase products, which have a less harmful environmental impact.

The Government of India has notified the Ecomark scheme criteria for the following 17 product categories:

1. Soaps and Detergents
2. Paper
3. Food Items
4. Lubricating oils
5. Packaging materials/Package
6. Architectural Paints and Powder Coatings
7. Batteries
8. Electrical and electronic goods
9. Food Additives



10. Wood Substitutes
11. Cosmetics
12. Aerosols and Propellants
13. Plastic Products
14. Textiles
15. Fire-extinguisher
16. Leather
17. Coir and Coir Products

To expedite the action for strengthening the implementation of the Scheme, it was felt that this being a specialized subject area, the services of a domain expert may be engaged, and accordingly, a Consultant 'B' for Ecomark Scheme was engaged by the Ministry on 01.06.2020.

A proposal was submitted to the Chairman, Central Pollution Control Board (CPCB) to constitute a Technical Subcommittee for the development of Ecomark criteria for products made out of construction and demolition (C&D) waste on 13.08.2020.

Review of various Acts/ Legislations implemented by the Ministry of EF&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 Ministry of EF&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 exercise is aimed at improving the 'ease of doing business' and at the same time ensure 'ease of living' for the citizens of the country, with emphasis on moving away from criminal proceedings for civil offences by imposing higher and stringent penalties. The purpose is also to bring in greater efficiencies in implementation of the provisions of the relevant Acts/ Legislations by the agencies/ authorities and for better resource management; etc.

The Policy & Law Division has 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.

BE 2020-21	Total Budget Allocation 40.00 Crores (Revenue) 61.00 Crores (Capital) to NGT under Major Works	MoEF 14,57,10,000	NGT 24,42,90,000	Grants-in-Aid (General) to LoEA and DTEPA 1,00,00,000
RE 2020-21	Total Budget Allocation 35.00 Crores (Revenue) 0.01 Crores (Capital) to NGT under Major Works	14,40,30,000	20,24,70,000	85,00,000



CHAPTER

11

Climate Change



11.1 Climate Change

India's actions for combating climate change are guided by its domestic sustainable development agenda, under the overall framework of UNFCCC (United Nations Framework Convention on Climate Change) which is the primary multilateral treaty for steering global climate action and Protocols and Agreements under the framework convention. The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal Ministry for international climate change negotiations under UNFCCC. The Climate Change Division of the Ministry looks after the issues related to international climate change negotiations and related domestic policies and actions. The Division is also responsible for submission of National Communications (NATCOMs) and Biennial Update Reports (BURs) as part of the reporting mechanism under UNFCCC.

The implementation phase of the Paris Agreement under UNFCCC will begin in 2021. The 26th Conference of Parties (COP 26) to the United Nations Framework Convention on Climate Change (UNFCCC) under the Presidency of United Kingdom (UK) was scheduled to be held in the month of November 2020 but had to be postponed due to COVID-19 Pandemic. It has now been scheduled for November 2021 in Glasgow, UK.

India's post-2020 climate goals: India has submitted its Nationally Determined Contributions for the post-2020 period to UNFCCC, outlining the climate actions intended to be taken under the Paris Agreement. The eight goals put forth by India in its NDC are:

1. To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
2. To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
3. To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.
4. 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 including from Green Climate Fund (GCF).
5. To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
6. To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
7. To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.
8. To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for



joint collaborative R&D for such future technologies.

Constitution of an Apex committee for Implementation of Paris Agreement (AIPA)

The period of implementation for India's NDCs is 2021-2030. In order to generate a coordinated response on climate change and meet its obligations under the Paris Agreement including its Nationally Determined Contributions (NDC), an inter-ministerial Apex Committee for Implementation of Paris Agreement (AIPA) under the Chairmanship of Secretary, MoEFCC has been notified on 27th November 2020.

National Action Plan on Climate Change (NAPCC) and State Action Plan on Climate Change (SAPCC):

The National Action Plan on Climate Change (NAPCC) provides an overarching framework for implementation of mitigation and adaptation actions, as well as for generation of knowledge regarding climate change. The NAPCC encompasses eight core missions in the specific areas of Solar Energy, Enhanced Energy Efficiency, Sustainable Habitat, Water, Sustaining the Himalayan Ecosystem, Strategic Knowledge for Climate Change, Green India and Sustainable Agriculture. These Missions are anchored in different Ministries and Departments of the Government of India. These Missions play a critical role in meeting India's NDC targets. State Action Plans on Climate Change (SAPCC) have been prepared in line with the NAPCC to achieve coherence between the strategies and actions at National and Sub-National level. SAPCC aims to mainstream climate change

concerns in the State planning process. States/UTs are being provided financial assistance for revision of their SAPCCs.

Climate Change Action Programme (CCAP):

Climate Change Action program (CCAP) is a central sector scheme with an objective of building and strengthening scientific & analytical capacity for climate change assessment, establishing appropriate institutional framework and implementing climate related actions in the context of sustainable development at Central and State levels. The National Carbonaceous Aerosols Programme (NCAP) and Setting up of Long Term Ecological Observatories (LTEO) are important components of CCAP.

The NCAP-COALESCE is a multi-institutional project envisaged towards understanding scientific complexities related to carbonaceous aerosols, focusing on issues underlying their origin and fate, and their role as drivers of regional climate change over India. The goal of LTEO programme is to generate data on the impacts of climate change on biodiversity across the varied landscapes of India, and use this data to develop measures to mitigate and adapt to climate change. LTEO currently consists of nine research studies on a variety of taxa (ranging from vegetation to herpetofauna and mammals), conducted in six major biogeographic zones (Western and Eastern Himalayas; Central India; Northwest Arid Zone; Western Ghats; Andaman & Nicobar Islands). Currently, preparatory work is ongoing for the full-scale initiation of field research in 2021.

National Adaptation Fund on Climate Change (NAFCC):

NAFCC is a Central Sector Scheme



that aims to support concrete adaptation activities to deal with the adverse effects of climate change. The projects related to adaptation in sectors such as agriculture, water, forest, animal husbandry etc. are eligible for funding under NAFCC. The National Bank for Agriculture and Rural Development (NABARD) is the National Implementing Entity (NIE) for NAFCC. So far, projects at a total cost of Rs.847.48 Crores have been approved under NAFCC in 27 States/UTs. A sum of Rs 504.94 crores has been released so far and projects are at various stages of implementation.

National communication and Biennial Update Report submitted to the UNFCCC:

As a party to UNFCCC, India is required to periodically communicate relevant information regarding implementation of the Convention. India has already furnished its first and second National Communications, as well as first and second biennial update reports (BUR) to the UNFCCC. The key highlight of India's second BUR is the achievement of 21% reduction in emission intensity of its Gross Domestic Product over 2005 levels. Ministry has made progress in the preparation of India's third Biennial Update Report. The report will update India's National GHG inventory of 2016 and the progress on addressing climate change on domestic front including reduction in emission intensity of GDP. India's third BUR is at an advanced stage of finalization.

Significant domestic and international events in climate change

(i) **Climate Ambition Summit:** A virtual event was the 'Climate Ambition Summit',

hosted by the United Nations, UK and France in partnership with Chile and Italy, on December 12, 2020. The focus of the Summit was to bring world leaders together to make new commitments to tackle climate change and deliver on the Paris Agreement. Hon'ble Prime Minister, Shri Narendra Modi, highlighted that India is on track not only to achieve but also to exceed its targets under the Paris Agreement. The emissions intensity of GDP has reduced by 21% over 2005 levels and India's solar energy capacity has grown from 2.63 GW in 2014 to 36 GW in 2020. India's Renewable energy capacity is the 4th largest in the world and further an ambitious target of 450 GW by 2030 has been set. Hon'ble PM also mentioned the increase in forest cover in India, and about India's pioneering global initiatives of International Solar Alliance (ISA) and the Coalition for Disaster Resilient Infrastructure (CDRI).

(ii) **Launch of India Climate Change Knowledge Portal:** India's Climate Change Knowledge Portal (<https://www.cckpindia.nic.in/>) was launched on 27th November, 2020 by Shri Prakash Javadekar Hon'ble Minister Environment, Forest and Climate Change, Government of India. The portal is a single point Information resource which captures sector-wise adaptation and mitigation actions that are being taken by the various line Ministries in one place including updated information on their implementation. The knowledge portal will help in disseminating knowledge among citizens about all the major steps



Government is taking at both national and international levels to address climate change issues.

(iii) **CEO Forum on Climate Change:** The private sector plays a pivotal role in creating low-carbon sustainable economies. In the second India CEO Forum on Climate Change held virtually on 5th November 2020 under the Chairmanship of Shri Prakash Javadekar Hon'ble Minister Environment, Forest and Climate Change, Government of India, around 24 leading Indian companies representing different sectors reaffirmed their commitment to take voluntary actions towards achieving India's NDC goals. A 'Declaration of the Private Sector on Climate Change' was released in the CEO forum.

(iv) **G20 Environment Ministers' meeting:** The meeting was held virtually under the Presidency of The Kingdom of Saudi Arabia, on 16th September 2020. India participated in the Environment and Climate Stewardship Working Group (CSWG) events, that resulted, inter alia, in two reports on Managing Emissions in the Context of the Circular Carbon Economy Platform and Adaptation in the Context of the Circular Carbon Economy Platform. The reports capture India's significant policies and programme in mitigation and adaptation in various sectors of the economy as well its global initiatives like International Solar Alliance and Coalition for Disaster Resilient Infrastructure.

(v) **Leadership Group for Industry Transition**

(LeadIT): Two major virtual events were held to build the momentum for industry transition in hard to abate sectors. A virtual Industry Transition Day was held on 7th July 2020, where Ministers of eight countries in a joint ministerial statement called for continued momentum and ambitious action to ensure an industry transition that tackles the climate change crisis, creates decent jobs and delivers prosperity for all. Shri Babul Supriyo, Hon'ble Minister of State Environment, Forest and Climate Change, Government of India participated in the Opening plenary of the Summit. A virtual LeadIT summit was held on December 1, 2020, ahead of the fifth-year anniversary of the Paris Agreement. Shri Prakash Javadekar, Hon'ble Minister Environment, Forest and Climate Change, participated in the opening Plenary. The summit focussed on exploring opportunities and challenges in implementing industry transition through technology, finance and National policy and catalysing demand.

(vi) **XIth Petersberg Climate Dialogue:** Shri Prakash Javadekar Hon'ble Minister Environment, Forest and Climate Change, Government of India participated in the dialogue on April, 2020 in virtual mode. India along with 30 other countries deliberated over ways and means to tackle the challenge of reinvigorating economies and societies sustainably from COVID-19 pandemic.

(vii) **UNFCCC June Momentum:** The UNFCCC organized a series of informal meetings



from 1-10th June 2020 with the objective facilitating active exchanges among governments, experts and relevant stakeholders to build momentum on climate action and to expand the understanding of the way forward into climate action and the negotiation process. About 20 virtual events were held during this period.

(viii) **UNFCCC Climate Dialogues** were organized from 23rd November to 4th December 2020 to advance work in the subsidiary bodies and COP agenda items. The objective of the Climate Dialogues was to provide a platform for Parties and other stakeholders to showcase progress made in 2020 and exchange views and ideas across the subsidiary bodies and COP agenda items mandated for 2020.

Clean Development Mechanism (CDM): 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. NCDMA examines CDM projects as per standard procedures and sustainable development criteria for granting

Host Country Approval (HCA). Some of India's key achievements in CDM are:

- As on 15 December, 2020, 1681 out of total 7846 projects registered by the CDM Executive Board are from India, which so far is the second highest in the world.
- Certified Emission Reductions (CERs) issued to Indian projects is 255 million (12.36%) of the total 2062 million CERs issued.
- NCDMA has accorded Host Country Approval to 3060 projects covering different sectors of energy efficiency, fuel switching, industrial processes, municipal solid waste, renewable energy and forestry, spread across the country.
- CDM supported the deployment of renewable energy especially in solar, wind, hydro and biomass in the country.

Green Climate Fund: 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, three (03) projects have been approved to India with USD 177.8 Million of GCF funding. The total value of these three (03) projects is 546.6 Million USD to address both adaptation measures and mitigation action. The establishment of National Project Management Unit (NPMU) for the GCF funded UNDP Project "Enhancing Climate Resilience of India's Coastal Communities" is under progress.



Hon'ble Minister EFCC in a virtual event addressed Industry champions at 2nd India CEO Forum on climate change and released a Declaration on Climate Change signed by 24 key industry captains and Ministry of Environment, Forest and Climate Change (05-11-2020)



Hon'ble Minister of Environment, Forest & Climate Change on the occasion of launching 'India's Climate Change Knowledge Portal' on 27.11.2020



Hon'ble Minister of Environment, Forest & Climate Change participated in the Industry Transition Leadership Summit on 01.12.2020



A press conference was organized by the Ministry on the 11th December, 2020, to showcase the achievements of the country with respect to climate actions, on the eve of the fifth anniversary of the Paris Agreement.



Bilateral meeting Shri Prakash Javadekar, Hon'ble Minister Environment, Forest and Climate Change, Government of India, and Rt. Hon. Dominic Raab, Foreign Secretary, United Kingdom.

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) 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 has 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.

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 during 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.

In the implementation of technology conversion from HCFC-141b to non- ODS and low-Global Warming Potential (GWP) technologies in foam sector, 160 enterprises, including large number of Micro, Small and Medium Enterprises (MSMEs) have entered into Memorandum of Agreement (MoA) with Ozone Cell. MoAs had also been entered with 4 enterprises in Refrigeration and Air-conditioning (RAC) manufacturing sector 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.

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. HCFC 141 b is one of the most potent chemical involved in stratospheric ozone depletion after the CFCs.

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:

Table No:

S. No.	Particulars	2016	2017	2018	2019	2020	2021	2022	2023
1	Montreal Protocol Reduction Schedule (ODPtons)	1447.38 90% of baseline	1447.38 90% of baseline	1447.38 90% of baseline	1447.38 90% of baseline	1045.33 65% of baseline	1045.33 65% of baseline	1045.33 65% of baseline	1045.33 65% of baseline
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

The actual consumption of HCFCs for the controlled uses for the year 2019 was reported as 935.27 ODP tonnes, which is within the compliance target under the Montreal Protocol. Hence, the country is in compliance

with respect to the obligation under the Montreal Protocol.

Kigali Amendment to the Montreal Protocol - Energy Efficiency

India piloted Decision XXIX/10 in the 29th



Meeting of Parties (MOP) the report of the Technology and Economic Assessment Panel (TEAP) of the Montreal Protocol in response to the Decision, acknowledged that by the use of more energy-efficient equipment during phase down of Hydrofluorocarbons (HFCs) will lead to doubling the total reduction of greenhouse gases emissions both from direct and indirect sources.

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 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 (38,000) Service Technicians have been up-skilled and certified under phase I 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.

A Technical Assistance facility has been established and operationalized in the year 2020 at Laboratory for Advanced Research in Polymeric Materials (LARPM) CIPET, Bhubaneswar for providing training and testing facilities to System Houses and small 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 towards 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.



Photograph of High Pressure PU Foam Processing Unit with Moulds established at Laboratory for Advanced Research in Polymeric Materials (LARPM) CIPET, Bhubaneswar

Enabling Activities

Ozone Cell, MoEF&CC, in association with the UN Environment (UNEP) has been implementing the enabling components of HPMP Stage-II. Under the UNEP component the following studies have been commissioned by Ozone Cell, MoEF&CC in October, 2020:

- i. Application of non-ODS and low Global Warming Potential (GWP) alternatives in Building Sector in India in collaboration with Alliance for an Energy Efficient Economy (AEEE).
- ii. Application of non-ODS and low Global Warming Potential (GWP) alternatives in Cold Chain Sector in India in collaboration

with Pricewaterhouse Coopers India Pvt. Ltd. (PWC).

- iii. Existing policy landscape, methodology and implementation mechanism for public procurement in the country including bulk procurement relevant to further adoption of non-ODSs, low GWP and energy efficient alternative technologies along with capacity building and awareness in collaboration with The Energy and Resources Institute (TERI)
- iv. Service sector enterprises/ technicians in RAC sector involving collection, collation and analysis of information through desk study as well as field visit in collaboration with NTPC School of Business.



In addition, the following activities under the enabling component are being undertaken:

- a. A MoA has been signed between Ozone Cell, MoEF&CC and National Academy of Customs Indirect Taxes and Narcotics (NACIN) for activities related to Customs and Enforcement capacity building comprising training of trainers, capacity building workshops for customs and enforcement officers, border dialogue with neighboring countries on specific ODS trade related aspects. In preparation for enforcing import ban on HCFC 141b starting 1.1.2020, a special module was introduced in customs trainings. In addition, the field customs formations were also sensitized through NACIN on the prohibition of HCFC 141 b imports in the country.
- b. A MoA has been signed with Ozone Cell, MoEF&CC and Energy Efficiency Services Limited (EESL) for the activities related to energy efficiency in RAC Service sector comprising 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.

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 22nd 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. School Poster making competition was organized to raise awareness among children.
- iii. 9th, 10th and 11th edition of the newsTRAC: Quarterly Newsletter for Technicians in Refrigeration and Air-conditioning (RAC) sector have been published.
- iv. 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.
- v. Ozone Cell has set up YouTube channel, Facebook and Twitter pages for awareness creation on ozone layer.
- vi. Separate QR codes have been generated for the instructional videos for wider dissemination through print medium.
- vii. Pamphlets and information material was brought out and disseminated.
- viii. 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.
- ix. 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.



Photograph of Ms Geeta Menon, Joint Secretary, MoEF&CC, Government of India addressing the participants during the "Workshop on Conversion to non-ODS and low GWP blowing agents in foam manufacturing sector" held on 24th February, 2020 at New Delhi, India

India Cooling Action Plan (ICAP)

India is the first country in the world to develop a Cooling Action Plan, which addresses cooling requirement across sectors and lists out actions that 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.

The United Nations Secretary General in his message on World Ozone day 2019 has highlighted the need for all countries to develop national cooling action plans. This step taken by India has led to a global recognition of this important policy initiative which can help in climate action and achievement of sustainable development goals.

The Ministry has taken steps to operationalize the recommendations given in ICAP along with concerned line Ministries and Government Organizations, Industry and think tanks and Academia.



Activities related to the implementation of ODS Rules, 2000 and its amendments and reporting under 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 and the Country Program Progress Report (CPPR) has been prepared and submitted to the Ozone Secretariat and the Secretariat of 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 2019 is as follows:

Table No.

ODS	Total Production for all uses * (MT)	Export** (MT)	Import** (MT)	Production for Feedstock uses* (MT)	Consumption for controlled uses as per definition#
					ODS (MT)
CTC ¹	23617.429	0.000	926.001	23617.429	0.000
Halon -1211 ³	0.000	0.000	5.000	0.000	0.000
Halon -1301 ^{1&3}	129.045 ²	134.628 (120 MT feedstock + 14.628 MT recycled and recovered)	2.004	129.045	0.000
Methyl Bromide ⁴	3532.545	1775.244	21.122	0.000	1778.423
HCFC-22	82656.937	25464.408 (including 306 MT feedstock)	0.000	47510.083	9988.446
HCFC-123	0.000	0.000	97.679 (including 20.199 MT feedstock)	0.000	77.48
HCFC-142b ¹	0.000	0.000	1300.00	0.000	0.000
HCFC-141b	0.000	0.000	3494.180	0.000	3494.180
HCFC-133A ¹	0.000	0.000	126	0.000	0.000
HCFC-225 ca/cb ¹	1585.638	1530.14	0.000	1585.638	0.000
Bromofluoro-methane ¹	0.2401	0.238	0.442	0.2401	0.000

1 For feedstock (exempted under the Montreal Protocol)

2 9.045 MT Halon-1301 destroyed

3 Recycled/ Recovered halon (exempted under the Montreal Protocol)

4 for Pre-shipment & Quarantine

Sources

*Producers

**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)

The Indian delegation actively participated in the following Montreal Protocol virtual meeting during the year 2020

(i) Open ended working group and;

(ii) Executive Committee of the multilateral fund.



11.3 United Nations Convention to Combat Desertification

Introduction

Desertification Cell in the Ministry of Environment, Forest and Climate Change (MoEF&CC) is the nodal division coordinating activities allied to combating desertification and restoring degraded land.

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
- The national executing agency for the Sustainable Land and Ecosystem Management (SLEM) programmatic approach
- 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

Objectives

The Desertification Cell plans, coordinates and collaborates activities -

- To restore of 26 million hectares of degraded land
- For sustainable land and ecosystem management
- For the achievement of Land Degradation Neutrality ((LDN) in India, by 2030

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. Inventorisation and monitoring of the status of desertification/land degradation in the country vide mapping, survey, calculation and assessment of the drivers of degradation using Earth observation satellites in co-ordination with Space Application Centre;
- e. Restoration of twenty-six million hectares of land by 2030 (Bonn Challenge target) 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.
- f. Documentation, Dissemination and promotion of case studies related to sustainable land and ecosystem management projects.
- g. Formulation of policy frameworks addressing restoration of land in co-



ordination with Ministries viz. Ministry of Agriculture and Farmers Welfare, Ministry of Rural Development, Ministry of Jal Shakti, Ministry of Mines, Department of Space, Ministry of Tribal Affairs, Ministry of Panchayati Raj, Ministry of Coal, Ministry of New and Renewable Energy and Ministry of Housing and Urban Affairs.

Important Activities during the reference period (i.e. 1/4/2020-31/12/2020):

- Assembled the data in respect of the schemes executed by the line Ministries and various divisions of this Ministry pertaining to land restoration.
- Identification and quantification of workable degraded land area in India, state-wise;
- Acquiring customised digital data of degraded land area in India, location-wise from Space Application Centre;
- Initiating a study on empowering India's decision-makers with tools to assess linkages between Land Degradation Neutrality (LDN) and Sustainable Development Goals (SDG) implementation in collaboration with International Institute for Applied Systems analysis (IIASA);
- Initiating the establishment 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;

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

- Development of an online portal for visualization of district wise degraded area of land with the processes of degradation, in collaboration with Space Application Centre. The portal may be examined for knowing the precise location of degraded lands in each State of India, so that it could help in realizing the gaps in location of interventions under various ongoing schemes related to reclamation/reduction of land degradation, of various Line Ministries;
- An inter-Ministerial Committee of nodal officers of line Ministries has been constituted under the chairmanship of Smt. B.V. Uma Devi, Additional Secretary, MoEFCC, to review the progress on the Land Degradation Neutrality and restoration of 26 million hectares of degraded land (commitments made by Hon'ble PM during CoP-14 in 2019). The first virtual meeting of the Committee has been held on 31st August 2020.
- Constitution of a National Committee of comprising of Directors/Nodal Officers of Research Institutions for strengthening/supporting/executing the planning and efforts for achieving India's national commitment related to land degradation neutrality and restoration of degraded land;



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

- The first CoP Bureau meeting held virtually on 26th June 2020 was headed by HMEFCC, the CoP President with a participation of the officials of Desertification Cell and Shri Ibrahim Thiaw, Executive Secretary, UNCCD and all the CoP Bureau Members;
- Shri JigmetTakpa, Joint Secretary participated in the various virtual meetings of Inter-governmental Working Group (IWG) on effective policy and implementation measures for addressing drought on UNCCD;
- Shri JigmetTakpa, Joint Secretary participated in the various virtual meetings

of G20 Environment Deputies Meeting, as the expert on land issues from MoEFCC.

- Shri JigmetTakpa, Joint Secretary, National Focal Point, UNCCD participated in the second technical meeting of the CoP Bureau as the CoP President which was organized virtually on 30th September by the UNCCD Secretariat;

List of major publications brought out-

- Coffee Table Book showcasing the events, activities that were organised for and during the CoP-14 of UNCCD held in India during September 2019.

Challenges in work due to Covid-19 and the response of the division:

- Virtual celebration of Drought and Desertification Day 2020, which was earlier planned to be organised in Ladakh, a cold desert.



CHAPTER

12

International Cooperation



12.1 International Cooperation

International Cooperation (IC) Division of the Ministry coordinates matters related to international environmental cooperation (both Bilateral as well as Multilateral), Resource Efficiency, Global Environment Facility (GEF) and Partnership for Action on Green Economy (PAGE).

MULTILATERAL MATTERS

IC is the nodal Division for the United Nations Environment Programme (UNEP), Global Environment Facility (GEF) and GEF Agencies, International Resource Panel (IRP), 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), India-Brazil-South Africa (IBSA) Summit on Environment amongst others. The Division supports annual contributions to various UN and other international bodies working on environmental matters.

Important multilateral activities:

- I. **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. **One Planet Network,** spearheaded by UNEP, is the network of the 10 Year

Framework of Programme on Sustainable Consumption and Production, Responsible for a systems-based approach that addresses the range and complexity of interactions in the production and consumption of food worldwide through Sustainable Food System (SFS) Programme. This Ministry joined as nodal Ministry for One Planet Network.

- III. **International Resource Panel** is an important organ of UNEP, launched in 2007, with a view to build and share the knowledge needed to improve our use of natural resources worldwide and to steer away from over-consumption, waste and ecological harm to a more prosperous and sustainable future. It is administered by the Steering Committee, an intergovernmental body, which gives the Panel strategic direction, ensures policy relevance, helps set the annual work plan, oversees budgets and advises on the scientific make-up of the Panel.
- IV. **Partnership for Action on Green Economy (PAGE):** PAGE, a United Nations entity, was established in 2012 as a follow up of an outcome of the Rio+20 Declaration, *"The Future We Want"*. India took membership of PAGE in 2018. It is a joint initiative of five UN Agencies: the UNEP, the International Labour Organization (ILO), the United Nations Industrial Development Organization (UNIDO), the United Nations Institute for Training and Research (UNITAR) and the United Nations Development Programme (UNDP). In



order to prepare, implement, monitor and evaluate activities aimed at achieving national priorities in India under PAGE, a National Steering Committee (NSC) has been constituted under the Chairmanship of Secretary, EF&CC, with representation from the concerned Ministries.

V. 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.

VI. 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.

VII. 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.

VIII. Asia Protected Areas Partnership (APAP):

APAP is a regional platform to help governments and other stakeholders collaborate for more effective management of protected areas (PA) in the region. It is chaired by IUCN Asia and co-chaired by an APAP Country Member. The co-chair serves a term of three years. This Ministry has sent India's consent to Co-Chair Asia Protected Areas Partnership for three years (2020 to 2023), and also proposed to host one APAP Steering Committee, one APAP Technical Workshop every year and other activities as may be mutually agreed upon from time to time.

IX. SWITCH-Asia:

SWITCH-Asia, launched in 2007, is a EU funded programme to share knowledge, disseminate and promote replication of successful project practices, facilitate networking between Asian and European stakeholders & produce



publications on sustainable consumption and production (SCP) practices. SWITCH Asia II Programme was launched in 2018.

X. **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.

The GEF Council Meetings were held in June 2020 and December 2020 in Washington D.C. The meetings were held on virtual platform for the first time. India was represented by the Executive Director, World Bank and also Council Member for South Asia Constituency. Till date, 11 projects have been approved under GEF-7 cycle.

XI. **Resource Efficiency:** This Ministry constituted a Resource Efficiency Cell (RE Cell) under International Cooperation Division in October, 2018 to institutionalize resource efficiency for sustainable consumption and production in policy and practice. Key functions of RE Cell are knowledge management, policy formation, capacity building and mainstreaming of resource efficiency.

Important multilateral activities:

(a) **European Union's Resource Efficiency Initiative (EU-REI) Project:** European Union's Resource Efficiency Initiative (EU-REI) for India aims to support India in the implementation of the United Nations Global Sustainable Consumption and Production (SCP) agenda. The project released *Toolkit on Resource Efficiency and Circular Economy* including modules, Trainer's Manual and Participants



Handbook in November 2020. The project facilitated expert visits and conducted Training of Master Trainers (ToTs) last year, continuing which it plans to undertake webinars, regional ToTs, and developing knowledge products on Resource Efficiency with MoEFCC partnership.

- (b) **Webinar on “Resource Efficiency for Greening of Recovery and fostering Sustainable Economic Growth in a resource constrained world”:** EU Public Diplomacy project in association with the European Union – Resource Efficiency Initiative (EU-REI) and support of EU Delegation in India organized EU-India webinar on “Resource Efficiency for Greening of Recovery and fostering Sustainable Economic Growth in a resource constrained world”, on the occasion of World Environment Day (5 June 2020). Shri R.P. Gupta, Secretary, EF&CC delivered the key-note on ‘Resource efficiency for greening the recovery’.
- (c) **India - EU High Level Webinar:** Shri R.P. Gupta, Secretary, EF&CC addressed the audience during India - EU High Level Webinar held on 12 October 2020 (through virtual platform) on sharing ideas on green recovery post COVID-19 “Is Green the New Growth Paradigm?” The Secretary highlighted the efforts of the Government of India in tackling the COVID crises and green recovery pathways. India’s efforts in combating climate change and Sustainable Macro Economic Development were highlighted.

- (d) **Meeting of National Steering Committee (NSC):** The first meeting (in virtual format) of the National Steering Committee (NSC) of the Partnership for Action on Green Economy (PAGE) was convened under the Chairmanship of Shri R.P. Gupta, Secretary, MoEF&CC on 17 November 2020. The meeting discussed and approved the PAGE Annual Workplan of India 2020 and reviewed progress in PAGE activities.

Other Important multilateral activities:

- (a) **6th BRICS Environment Ministers’ meeting:** The Environment Ministers of the BRICS countries (Brazil, Russia, India, China & South Africa) participated in the 6th BRICS Environment Ministers’ Meeting (held under the presidency of Russia) on 30 July 2020 via video-conference. The meeting adopted BRICS Environment Ministers’ Statement. During the meeting, the need for all the BRICS nations to work as a group for the post 2020 Biodiversity framework was also emphasized. The said meeting was preceded by the BRICS Working Group meeting, wherein senior officers of this Ministry, the Ministry of Jal Shakti and the Ministry of Housing of Urban Affairs participated. In the Meeting, Shri Prakash Javadekar, Hon’ble Minister for Environment, Forest & Climate Change highlighted the progress made by India in the field of environment, forest and climate change.
- (b) **G20 Environment Ministers’ meeting:** MoEFCC engaged with G20 Presidency for work under two tracks viz.



(a) Environment and (b) Climate Change Stewardship Group (CSWG). This year the Presidency deliberated on two subjects viz. (i) Land Degradation and (ii) Coral Reef Conservation. A series of virtual meetings were organised, wherein senior officers of this Ministry participated and deliberated / negotiated on the subjects, which culminated into adoption of an

Environment Communique.

The Environment Ministerial Meeting (EMM) of the G20 countries was held on 16 September 2020 through video conferencing under the Presidency of Kingdom of Saudi Arabia. Prior to this meeting, a two-days Environment Deputies Meeting took place on 14 and 15 September 2020.



Representing India, Shri Prakash Javadekar, Hon'ble Minister for Environment, Forest and Climate Change congratulated the Saudi Presidency for exemplary work in bringing together the nations of the world to address the urgent environmental challenges and propose impactful solution. He assured India's support to all Nations who have been impacted by the pandemic and promised to

strengthen collective efforts for a sustainable and inclusive recovery of the global economy. He also elaborated on the efforts made by India for protection of environment, forests and wildlife; as well as for combating pollution, land degradation, coral reef management and climate change. He committed to work together with G20 Countries to make the world better for all.



Shri Javadekar highlighted the efforts made by National Coastal Mission Programme under which government has taken many steps to protect and sustain coral reefs in the country. He also shared the efforts made by India towards achieving land degradation neutrality, and towards attainment of global goals of climate change mitigation and adaptation. He said India believes that Equity, Common but differentiated responsibilities, and finance and technology partnerships are key pillars and India is walking the talk on Paris Agreement and its Climate commitments.

BILATERAL MATTERS

IC is also the nodal Division for bilateral (country-to-country) cooperation in the field of environment. The Ministry has entered into 27 Agreements / Memorandum of Understanding (MoUs) with various countries like Australia, Austria, Bangladesh, 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.

Important bilateral activities during 2020-21:

(a) **MoU between the Ministry of Environment, Forest & Climate Change, India and the Ministry of Environment and Climate Change, Finland:** A Memorandum of Understanding (MoU) between India and Finland on Environmental Cooperation was signed on 26 November, 2020. Shri Prakash Javadekar, Hon'ble Minister of Environment, Forest and Climate Change and Ms. Mikkonen Krista, Minister of the Environment and Climate Change, Finland signed the document on behalf of their respective countries in a virtual signing ceremony. The MoU will advance partnership & support, exchange best practices to prevent Air and Water pollution; Waste management; promote circular economy, low-carbon solutions & sustainable management of natural resources; etc.



(b) **Meeting with Ms. Barbara Pompili, Hon'ble Minister for Ecological Transition, France:** A Virtual 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 4 December 2020. The meeting deliberated on issues relating to combatting climate

change, loss of bio-diversity, International Solar Alliance, etc. The meeting also discussed proposal for the establishment of an Indo-French Year of Environment over the period 2021-2022. As the international agenda for 2021 will be marked by key deadlines in the fields of the environment, biodiversity and climate change, both sides emphasized the need for working together.



(c) **Meeting with Ms. Svenja Schulze, Hon'ble Minister, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany:** A meeting was held (via video conferencing) between Shri Prakash Javadekar, Hon'ble Minister, Environment, Forest and Climate Change

and Ms. Svenja Schulze, Hon'ble Minister, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany on 28 April 2020. The bilateral meeting discussed a range of issues concerning technical cooperation with Germany in the fields of ClimateChange,



protection of Biodiversity, Water & Waste Management & Circular Economy.

- (d) **Meeting with Mr. Muhammad Imran, High Commissioner of Bangladesh:** Shri Babul Supriyo, Hon'ble Minister of State, Ministry of Environment, Forest and Climate Change, Government of India met with H.E. Mr. Muhammad Imran, newly appointed High Commissioner of Bangladesh to India, at Indira Paryavaran Bhawan on 1 October 2020. Matters related to Environment and Climate Change in general and Sundarbans & Tiger Conservation in particular were discussed.



- (e) **MoU between India and Denmark on cooperation in the areas of Environment:** The MoU between India and Denmark on cooperation in the areas of Environment was renewed on 6 November 2020, extending the validity of MoU for a period of 10 years. It was first signed in 2009 with a validity of 10 years.

- (f) **Sustainable and Environment-friendly Industrial Production Project (SEIP-II) under Indo-German bilateral technical cooperation:** The project having a budget of 5 million EUR with a duration of March 2019 to February 2022 is providing Technical Cooperation from Germany to the National level agencies and in the three selected States, viz. Uttarakhand, Bihar and West Bengal for strengthening strategic and operational governance structures to effectively combat industrial water pollution. The activities of the project are related to strengthening of legal framework, institutional structures and processes, incentive mechanisms, knowledge products (guidelines, online tools etc.), and resource efficiency & sustainable production and consumption.

- (g) **MOU between the Ministry of Environment, Forest and Climate Change of the Government of India and the National Environment Commission of the Royal Government of Bhutan:** The Union Cabinet of India has approved the signing of a Memorandum of Understanding (MoU) between India and Bhutan on Cooperation in the Areas of Environment. The MoU will enable establishment and promotion of closer and long-term cooperation between the two countries in the field of environment protection and management of natural resources on the basis of equity, reciprocity and mutual benefits, taking into account the applicable laws and legal provisions in each country.



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 13 externally aided forestry

projects are under implementation in the country. The projects 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.

Table No. Ongoing projects are as follows:

S. No.	Name of the Project	Theme	Project Duration	Funding Agency
1.	Assam Project on Forest and Biodiversity Conservation-Phase II	Forest and Biodiversity Conservation Sustainable Forest Management	2019-20 to 2024-25	French Development Agency (AFD)
2.	West Bengal Forestry and Biodiversity Conservation Project	Biodiversity Conservation Community Development	2012-13 to 2019-20	JICA
3.	Rajasthan Forestry and Biodiversity Project (Phase-II)	Biodiversity Conservation Poverty Alleviation and Livelihood Improvement Water conservation Structures	2011-12 to 2020-21	JICA
4.	Tamil Nadu Biodiversity Conservation and Greening Project	Biodiversity Conservation	2011-12 to 2019-20	JICA
5.	Sikkim Biodiversity Conservation and Forest Management Project	Forest and biodiversity conservation Eco –tourism Joint Forests Management	2010-11 to 2019-20	JICA



S. No.	Name of the Project	Theme	Project Duration	Funding Agency
6.	Odisha Forestry Sector Development Project Phase-II	Biodiversity Conservation and science based management of protected area. Infrastructure development, REDD plus preparedness Forest Management under JFM mode	2017-18 to 2026-27	JICA
7.	Uttarakhand Forest Resource Management Project	Livelihood improvement – Community Development & IGAs Restoration/Development Forests Resource	2014-15 to 2023-24	JICA
8.	Japanese Technical Cooperation Project for Natural Disaster Management in Forest Areas of Uttarakhand	100% Grant Mode	2016-17 to 2020-21	JICA
9.	Himachal Pradesh Forest Eco-Systems Climate Proofing project	Under planting of Chir Pines areas Rehabilitation of bamboo plantation Soil and water conservation measures/ drainage line treatments	2016-17 to 2020-21	KfW
10.	Himachal Pradesh Forest Ecosystem Services (HPFES) – Technical Cooperation Project funded by GIZ.	Preparation of micro-plans in selected pilot sites with ecosystem services approach etc.	2015-16 to 2019-20	GIZ



S. No.	Name of the Project	Theme	Project Duration	Funding Agency
11.	Himachal Pradesh Forest Ecosystem Management & Livelihood	Soil and Moisture Conservation Biodiversity Management Wildlife barbital improvement program Environmental Rehabilitation	2018-19 to 2027-28	JICA
12.	Nagaland Forest Management Project	Forestry interventions and Biodiversity Conservation through Community Participation. Livelihood Improvement and Community Development.	2017-18 to 2026-27	JICA
13.	Sustainable Forest and Catchment Management in Tripura	Sustainable Forest Management Soil & Moisture Conservation Livelihood Development	2018-19 to 2027-28	JICA



CHAPTER

13

**Administration and
Civil Construction**



13.1 Administration

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;
- 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
- Establishment/service matters of Secretariat Group 'A', 'B' & 'C' posts (except officers working at the strength of IFS and NAEB Divisions) 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



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.

Activities undertaken:

During the year 2020-21, the major activities undertaken by Administration division are as under:-

- Promotion of 1 Research Officer (Environment) Grade-I to the post of Scientist 'B'
- Started process for filling up of 15 vacancies of Scientists in various grades.
- Promotion of 02 Research Officer (Environment) Grade-II to Research Officer(Environment) Gr-I
- Recruitment of 02 Research Investigator (Forestry) and 05 Research Assistant (Environment)
- Ad-hoc Promotion of 01 Technical Assistant (WL) to Technical Officer (WL)
- Advertisement published to fill up the vacant post of Library Information Assistant (01) and Research Officer (Environment) Gr-II (05)

- Special Cash Package in lieu of LTC - Facilities have been availed by 62 officers
- Special Festival Package - 45 officers have been sanctioned and issued UTSAV cards.
- Monitoring and timely disposal of RTI applications and PG portal cases received during the period
- Timely processing of retirement benefits of 4 officials

Promotion: Total 79 cases were considered for promotion of Scientists of the Ministry including its subordinate offices under Flexible Complementing Scheme during the year 1.1.2020 to 31.12.2020. Details are as below:-

- 05 case of promotion from the grade of Scientist 'F' to Scientist 'G'
- 03 case of promotion from the grade of Scientist 'E' to Scientist 'F'
- 51 cases of promotion from the grade of Scientist 'D' to Scientist 'E'.
- 11 cases of promotion from the grade of Scientist 'C' to Scientist 'D'.
- 09 cases of promotion from the grade of Scientist 'B' to Scientist 'C'.

Recruitment: Filling up of 34 vacancies of Scientists in the Ministry including its subordinate offices is under process. Details are as under:-

- 01 Post of Scientist 'G' (Director-ZSI)
- 01 Post of Scientist 'E'
- 03 Posts of Scientist 'D'
- 20 Posts of Scientist 'C'
- 09 Posts of Scientist 'B'



Extension of Service: Extension of service of Dr. J.R. Bhatt, Scientist 'G' beyond the age of superannuation till the age of 62 years (From 1.4.2020 to 31.3.2022)

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, 2020 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 Cadre.

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 into 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 21 cadres during the year 2020.



- Cadre review of Indian Forest Service in respect of States of Rajasthan, Himachal Pradesh, Uttar Pradesh 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 completed and closed for the assessment year 2019-2020 on 31.12.2020.
- An Up-to-date Civil List of IFS officers as on 01.01.2020 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 has 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.
- 48 IFS officers selected at various levels under the Central Staffing Scheme of the Ministry and 9 IFS officers joined under the Central Staffing Scheme of the Department of Personnel & Training, 01 at the level of Secretary and 16 IFS officers have been

empanelled at the level of Joint Secretary at the Centre.

- Around 22 Court Cases pending in various Courts across the Country were disposed off. A total of 149 RTI application and 187 CPGRAM applications were disposed off during year 2020.

13.3 Vigilance Division

- The Vigilance Division interacts with Central Bureau of Investigation (CBI) in various matters and facilitates CBI for obtaining the 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 01.01.2020 to 30.11.2020, 131 complaints were received and examined and 123 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. 6 (Six) 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. 873 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.

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 2020-21, at the end of the Monsoon Session on 23rd September 2020, a total of 587 Parliament Questions were answered by the Ministry pertaining to various aspects of Environment Forest and Climate Change 329 questions were replied in the Lok Sabha, out of which 23 were starred and the rest 306 un-starred. A total of 258 questions were replied in the Rajya Sabha, out of which 20 were starred and 238 were un-starred.

The questions covered a wide range of issues with which this Ministry is concerned and among them prominent were the questions relating to Pollution, Forest Conservation, Wildlife Management, Climate Change, Environmental Conservation, Environment Impact Assessment, Freshwater and Marine Conservation, Waste Management, Water Management, Biosafety, Environmental Education, Medicinal Plants and Disaster Management etc.

Graphical representation of the Parliament Questions replied by the Ministry during 2020-21 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	Grand Total
Starred	23	0	23
Unstarred	228	78	306
Total	251	78	329

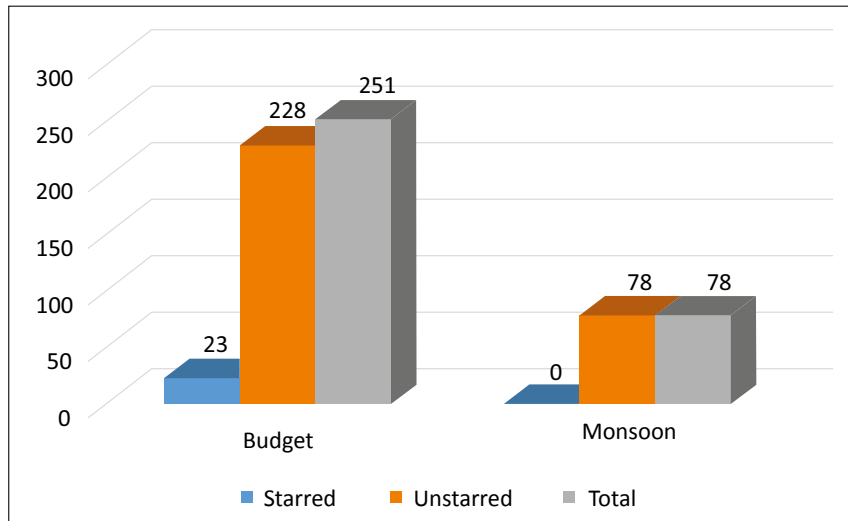


Fig 1: Chart showing number of questions replied by the MoEF&CC in Budget and Monsoon sessions of Lok Sabha during 2020-2021

1. Rajya Sabha

Type	Budget	Monsoon	Grand Total
Starred	20	0	20
Unstarred	168	70	238
Total	188	70	258

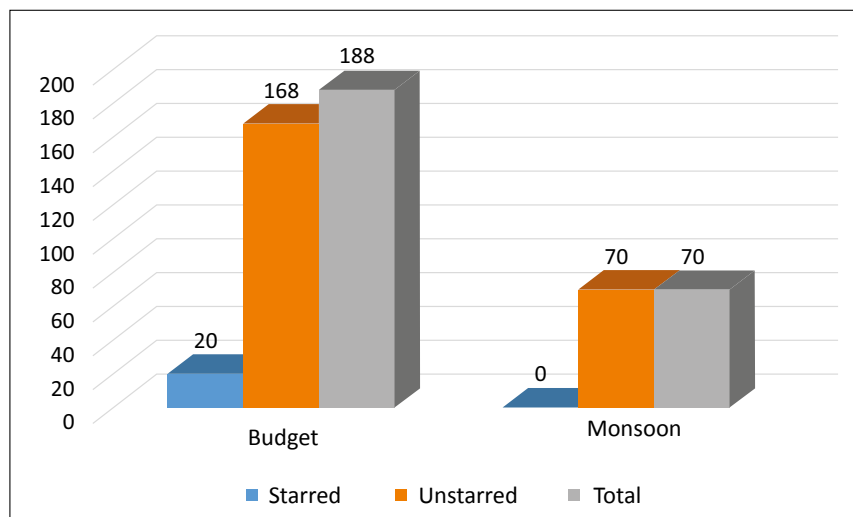


Fig 2: Chart showing number of questions replied by the MoEF&CC in Budget and Monsoon sessions of Rajya Sabha during 2020-2021



II. Consultative Committee Meetings:

Further the Parliament Section of the Ministry, during the year 2020-21, also coordinated three meetings of the Department related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change.

The following were the subjects the Department Related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change, discussed are:

- i. Demand for Grants (2020-21),
- ii. Draft Environment Impact Assessment Notification (EIA), 2020,
- iii. Impact of Air Pollution on COVID-19 Pandemic at National level and measures taken under National Clean Air Programmed.

In addition of the above, other meetings relating to Consultative Committee, 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 MoEFCC.

13.5 Information Technology (IT) and e-Governance

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.

Important activities undertaken during the reference period (i.e. 1/4/2020- till date)

- Implemented e-Office in all Regional Offices, Forest Survey of India, National Biodiversity Authority, Indira Gandhi National Forest Academy.
- VPN Access provided to all e-Office 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.
- Implemented Ministerial Policy and Implementation Dashboard - An Online portal for management and tracking of key task & activities of the Ministry

Progress/Achievements for both cumulative and 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).

- Continued the Management of Wi-Fi System at Indira Paryavaran Bhawan including addition/deletion of users, configuration in mobile phones and installation of certificates in iPhones.
- Monitored the regular updation of material in Social Media sites (<http://twitter.com/moefcc>), (<http://facebook.com/moefcc>), (<https://www.instagram.com/moefccgoi/>)
- Continued the Management of Budget Expenditure Management System for IFD, PAO, B&A, PC and other Divisions.
- 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.
- Continued the implementation of SPARROW for online recording of APARs in r/o IFS officers.
- Continued assisting the DBT Cell for implementation of DBT App in the Ministry.
- Implemented Ministerial Policy and Implementation Dashboard - An Online portal for management and tracking of key task & activities of the Ministry.

- Assisted and supported implementation of “National Portal for inter-state/ intra-state movement of Timber, bamboo and other forest Produce”
- 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 25 States/UTs viz. 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 Thirteen (13) States viz. Andhra Pradesh,



Chhattisgarh, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Odisha, Tamil Nadu, Telengana, Punjab, Uttarakhand and Himachal Pradesh. The mobile version of OCMMS is implemented in Ten (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.

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 Singlewindow 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 and single sign-in for all types of clearances (i.e., Environment, Forest, Wildlife and CRZ)
- 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 fulfillments 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
- Alerts & Notification (SMS and email)
- e-talk
- 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 3953 RTI applications and 322 RTI appeals under RTI Act, 2005 during the year 2020 (01.01.2020 to 31.12.2020)
- The Ministry has 88 CPIO's and 69 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.
- 29 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.

Challenges in work due to COVID – 19 and the response of the Division:

The General Administration Division (GA) has faced considerable challenges due to spreading of COVID- 19. As per instructions issued by ministry of Health & Family Welfare, Ministry of Home Affairs and Department of Personnel and Training, the work done are as detailed below:

- Provided automated sanitizer dispenser on every wing of every floor of Indira Paryavaran Bhawan of this Ministry. Regular refilling and cleaning of these are also being done.
- Framing SoP for cleaning and maintaining the same till date.
- Provided sanitizer and masks to the Officers and employees of the Ministry.



- iv. Complete indoor disinfection of I.P Bhawan and Government vehicles on alternate days' basis till date.
- v. Specific provision for hired vehicles to contain spread of COVID.
- vi. Coordinate with CPWD for increased fresh air circulation through Air Handling Units as per recommendation of specific committee constituted for it, enhance regular cleaning for air filters.
- vii. Arrange Rapid Antigen Test/ RT-PCR Test for CoVID-19 for all the officers/officials of this Ministry.
- viii. Arrange vehicles for the officers/employees of this Ministry who had to attend office during the Lockdown period.
- ix. Arranged VCs/ virtual meetings of Hon'ble MEF/Hon'ble MOS, EF&CC during the Lockdown 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.
- Smt. Geeta Menon, Joint Secretary (PG) is the Nodal Public Grievance Officer of the Ministry.
- During the period 1st January, 2020 to 31st December, 2020, the PG Cell had received only 4533 public grievances. out of these 4378 grievances are General nature and 155 grievances are related to COVID-19.
- During the period, 4736 grievances

(including COVID-19 related grievances) have been disposed and only 129 grievances are pending for disposal. As on date no COVID-19 related grievance is pending in the Ministry.

- The rate of disposal of grievances 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 received in the Ministry to achieve 100% disposal of all PG cases including COVID-19 related matter 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 (1.1.2020 to 31.12.2020):

- **Meeting of Official Language Implementation Committee** – Due to Covid-19 only two 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 were reviewed. The remaining two meetings 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-** With a view to review the position of implementation of Official Language Policy of the Union, inspections of 11 attached/subordinate offices under the administrative control of the Ministry of Environment, Forest & Climate Change were also carried out by officer(s) of Official Language Division of the Ministry.
- **Revival of Medini Award Scheme** - To

promote writing of books originally in hindi on environment issues '**Medini Award Scheme**' was reintroduced from 01st April, 2018. Books received for Award/Prize were studied/evaluated by the Evaluation Committee constituted under the chairmanship of Additional Secretary, Ministry of Environment, Forest and Climate Change for taking decision on grant of Award. After discussion the Committee has not found any book suitable for award and decided to continue the Scheme for following year.

- **Publication of Paryavaran Magazine**– Articles for 70th edition of Ministry's Hindi magazine 'Paryavaran', have been invited. As soon as sufficient articles are received the required action will be taken place.
- **Hindi Pakhwara**– Hindi Pakhwara was organized in the Ministry from 01.09.2020 to 15.09.2020. During this period six Hindi competitions aimed to increase progressive use of Official Language Hindi were organised. Employees of the Ministry, NAEB and CCU actively participated in these competitions.

13.10 Civil Construction Unit (CCU)

The Government of India decided that each major scientific department with a 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 Forest (now MoEF&CC). The main roles of CCU are:



- Planning of works including preparation of estimates in house and vetting of estimates prepared by other PWOs.
- To construct major works in house or get these constructed through other PWOs.
- 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

The CCU is engaged in execution of various civil & Electrical work of the MoEF&CC, its attached, subordinate and autonomus offices. These include works of BSI, FSI, ZSI, DFE, NMNH, IGNFA, ICFA, NZP, IIFFM, GBPIHED, IPIRTI,

CPCB, WII and CZA. All 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 National Zoological Park, Delhi are also handled by the CCU.

Challenges in Work 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.

S. No.	Name of Work	Sanctioned Amount (Rs. in Lakhs)
Important Works In progress		
1	C/o All Weather Swimming Pool for IGNFA, Dehradun.	1500.00
2	C/o 10 Nos. Residential Quarters for BSI, Dehradun	366.00
3	C/o Regional Museum of Natural History, Gangtok	5759.00
4	C/o National Museum and State of Art Auditorium in the premises of EBRC, ZSI, Gopalpur	1108.00
5	C/o Type-III (10 nos.), Type-V (Duplex) (4 nos.) and Type-VI (Duplex) (1 no.) residential quarters for CASFOS, Burnihat	1143.00
6	C/o Faunal repository building for ZSI, Port Blair	297.00
7	C/o 7 nos. staff quarters at RMNH, Sawai Madhopur	274.00
Important Works Under Planning		
1	C/o office building and residential quarters for RO (SEZ).	2900.00
2	Redevelopment of BGIR, Noida.	45000.00
3	C/o visiting scientist hostel for ZSI, Port Blair	271.00
4	C/o Addl. Building for new lab cum training center for ZSI, Chennai.	686.00



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. To prepare ToR for Evaluation Monitoring Committee (EMC).
- v. To get ToR vetted by Inter Ministerial Group (IMG).
- vi. Coordination with NITI Aayog.
- vii. Nodal Division for coordination with NITI Aayog in the matter of monitoring and evaluation of programmes of the Ministry.
- viii. Any other matter as assigned by the competent authority in the Ministry.

III. Organization structure:

The Division functions under the overall

supervision of Senior Economic Adviser and is headed by the Economic Adviser.

IV. Progress in the FY 2020-21:

As per the guidelines issued by the Ministry of Finance and NITI Aayog, DMED has prepared the road map and strategy to create a mechanism for monitoring and evaluating the Public funded schemes of the Ministry. The Division has also examined the evaluation methods opted for the Ministry's schemes as per their SFC/ EFC memos, Appraisal Notes etc., finalized for continuation of the Schemes beyond the 12th Five Year Plan Period, i.e. from 2017-18 to 2019-20 so as to align their period with the Fourteenth Finance Commission cycle (2015-16 to 2019-20).

DMED formulated a set of common Terms of References (ToRs) for conducting evaluation studies of the Schemes by drawing parameters like Financial, Physical and Implementation issues. The implementing Divisions were requested to furnish the Scheme Specific ToRs to project pragmatic requirements of the Schemes. Additionally, in compliance with directions of the NITI Aayog and Finance Ministry, EMC supervised the evaluation exercise of Central Sector Schemes only, as the Centrally Sponsored Schemes were evaluated by an agency engaged by the NITI Aayog.

The following Central Sector Schemes are being evaluated by independent third party agencies:



GROUP-I , ENVIRONMENT PROTECTION(EP)

1. Pollution Abatement
2. Hazardous Substances Management
3. Control of Pollution

GROUP-II ENVIRONMENT CONSERVATION (EC)

4. Eco-Task Force
5. Climate Change Action Plan
6. National Adaptation Fund
7. National Coastal Mission (including EAP)

GROUP-III DECISION SUPPORT SYSTEM (DSS)

8. Environmental Information Systems
9. R&D for Conservation and Development
10. National Mission on Himalayan Studies

GROUP-IV ENVIRONMENT AWARENESS AND CAPACITY BUILDING (EACB)

11. Forestry Training and Capacity Building.
12. Environmental Education, Awareness and Training

In accordance with the TOR of the Committee, Expressions of Interests (EOIs) were invited from eligible agencies and suitable agencies were selected according to grouping of Schemes. The agencies which qualified for carrying out the evaluation of the Schemes were as follows:

For Group- 1: Housing and Urban Development Corporation Limited (HUDCO)

For Group-2: Deloitte Touche Tohmatsu India LLP.

For Group-3: M/s CS Datamation Research Services Pvt. Ltd.

For Group-4: National Productivity Council.

The evaluating agencies visited the organizations implementing these schemes and the places where the schemes are implemented by the different Programme Divisions for collection of data and outcome of schemes.

In accordance with the Request for Proposal (RFP), evaluating agencies were asked to submit their draft report to the Ministry. DMED forwarded the draft reports to all the Divisions concerned seeking their comments/ inputs. The comments/ views of the Programme Divisions were duly forwarded to the evaluating agencies to incorporate them in the Reports.

The evaluating agencies made a detailed presentation before the senior officers of the Integrated Finance Division, DMED and Programme Divisions of the Ministry. Based on the presentations the Ministry sought clarifications on critical areas from the evaluating team members of Agencies concerned and based on the information/ responses requested to finalize the reports.

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 2020-21

The Ministry has been allocated an outlay of Rs 3100.00 crore in the Budget Estimates (BE) for the Financial Year 2020-21.

The financial outlays and expenditure during 2020-21 is given in the following table:

Table No: 14.1
Umbrella Scheme-wise Allocation (2020-21)

(Rs in crore)

S. No.	Name of the Scheme	BE 2020-21	AE 2020-21 (upto 31.12.2020)
1	Environmental Knowledge and Capacity Building (CS)	86.37	34.96
2	Environment Protection, Management and Sustainable Development (CS)	192.00	83.39
3	National Coastal Management Programme (CS)	103.00	52.35
4	Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation (CS)	175.86	45.99
5	Control of Pollution	460.00	190.65
6	National Mission for a Green India (CSS)	311.00	179.91
7	Integrated Development of Wildlife Habitats (CSS)	532.00	247.93
8	Conservation of Natural Resources and Ecosystems (CSS)	83.00	26.24
Total		1943.23	861.42

**Umbrella Non Scheme-wise Allocation (2020-21)**

(Rs in crore)

S. No.	Name of the Scheme	BE 2020-21	AE 2020-21 (upto 31.12.2020)
1	Secretariat	139.00	103.50
2	Attached/ Subordinate offices	532.27	249.84
3	Assistance to Autonomous Bodies	340.00	233.65
4	Statutory & Regulatory Bodies	145.50	85.11
	Total	1156.77	672.11
	Grand Total (Scheme + Non Scheme)	3100.00	1533.52

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.

This office was awarded best performing Pr.AO amongst all PrAOs of civil ministries across India, by the Hon'ble Finance Minister on the occasion of 44th Civil Accounts Day Celebration, 2020.

The Internal Audit Wing (IAW) conducts Internal Audit of PAOs, DDOs, Autonomous Bodies, and performance audit of schemes

of the Ministry. In FY 2019-20, 33 audits were conducted raising 75 paras involving non-recovery/over-payment/in fructuous/irregular/non-accounting of payments of more than Rs. 1,500 crores

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 the Public Financial Management System (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. As a result, during FY2019-20, 96% (by number) of the payments and receipts of the Ministry were digital transactions.

Emphasis was laid on online collection of non-tax receipts through Non-Tax Receipts Portal (NTRP) to eliminate delay and digitize all receipts. During FY 2019-20 more than Rs. 5,000 crores was remitted to government account through NTRP in respect of CAMPA funds from states.



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 himself.

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.

During the year, State/UT share of more than Rs. 47,000 Crores of CAMPA fund have been transferred to respective State/UT Government account.

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, especially during March closing to ensure booking of maximum expenditure.

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.



Annexure-I

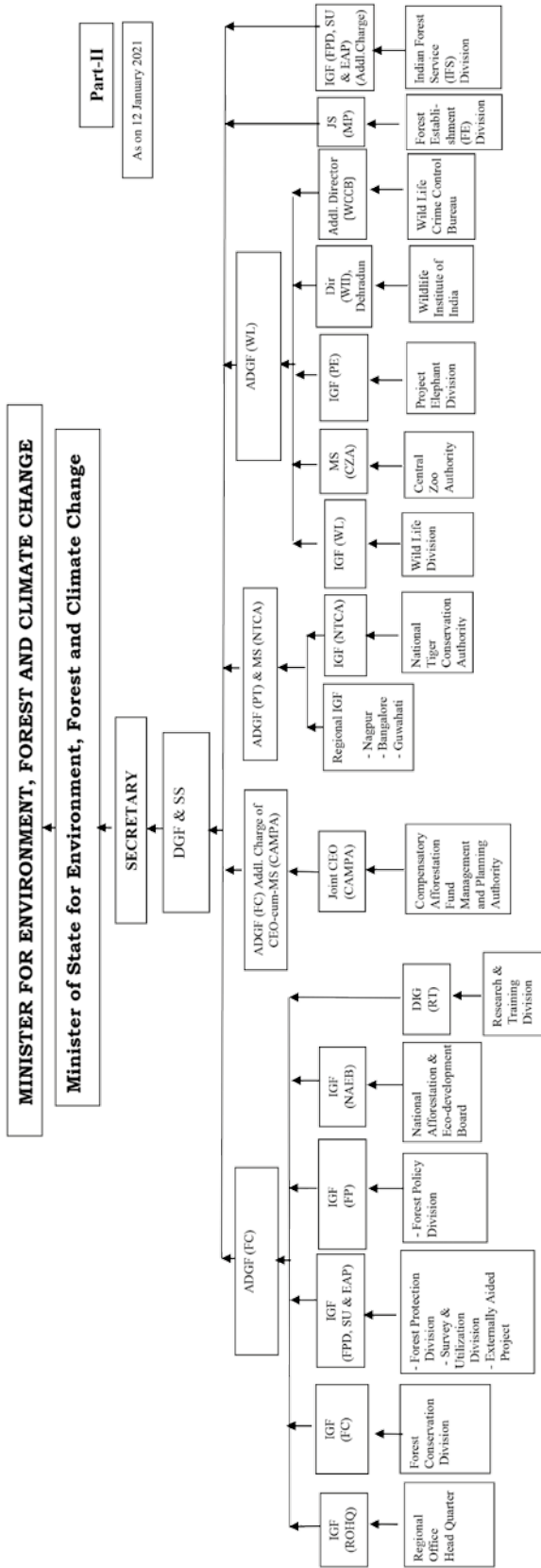
List of pending C&AG Paras (up to 20th January, 2021)

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	30 of 2015	7.1	Implementation of E-waste (Management and Handling) Rules, 2011 by Central Pollution Control Board – regarding
4	30 of 2015	7.2	Inordinate delay in completion for pilot projects for sewage treatment- regarding
5	39 of 2016	Entire Report	Environment and Sustainable Development
6	6 of 2020	7.1	Additional expenditure on electricity charges consumed for residential purpose.(NZP)



Annexure-III

ORGANISATIONAL STRUCTURE OF MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (DIVISIONS UNDER FOREST & WILDLIFE WINGS)



Part-II
As on 12 January 2021



RAMSAR SITES OF INDIA

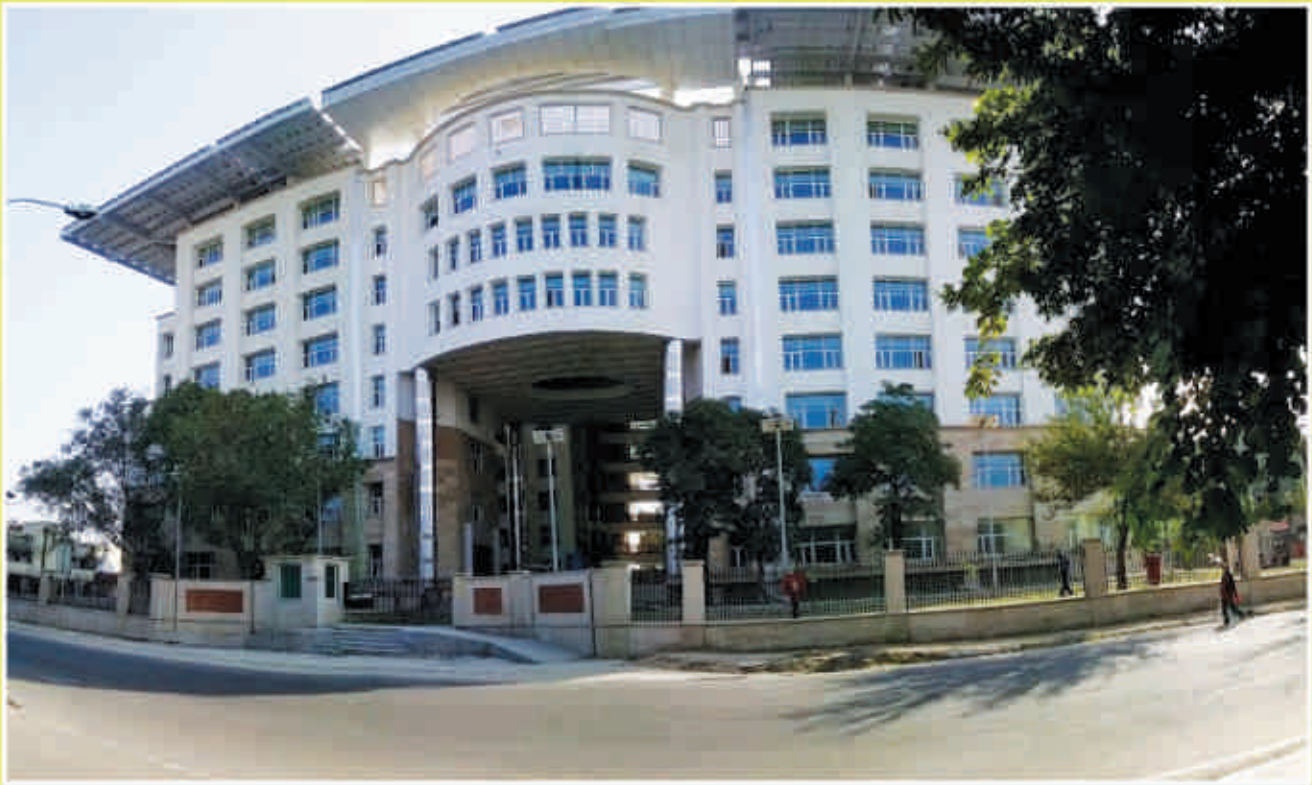
	State/UT		Wetland	Date of Designation	Co-ordinates	Area (hectares)
1	Andhra Pradesh	1	Kolleru Lake	19-08-2002	16°37'N 081°12'E	90100
2	Assam	2	Deepor Beel	19-08-2002	26°07'N 091°39'E	4000
3	Bihar	3	Kabartal Wetland	21-07-2020	25°37'N 086°08'E	2620
4	Gujarat	4	Nalsarovar	24-09-2012	22°46'N 072°02'E	12000
5	Himachal Pradesh	5	Chandertal Wetland	08-11-2005	32°28'N 077°36'E	49
		6	Pong Dam Lake	19-08-2002	32°01'N 076°04'E	15662
		7	Renuka Wetland	08-11-2005	31°37'N 077°27'E	20
6	Jammu and Kashmir	8	Hokera Wetland	08-11-2005	34°04'N 074°42'E	1375
		9	Surinsar-Mansar Lakes	08-11-2005	32°45'N 075°12'E	350
		10	Wular Lake	23-03-1990	34°16'N 074°33'E	18900
7	Kerala	11	Asthamudi Wetland	19-08-2002	08°57'N 076°34'E	6140
		12	Sasthamkotta Lake	19-08-2002	09°01'N 076°37'E	373
		13	VembanadKol Wetland	19-08-2002	09°49'N 076°45'E	151250
8	Ladakh	15	Tsomoriri Lake	19-08-2002	32°54'N 078°18'E	12000
9	Madhya Pradesh	16	Bhoj Wetlands	19-08-2002	23°13'N 077°19'E	3201
10	Maharashtra	17	Lonar Lake	22-07-2020	19°58'N 076°30'E	427
		18	Nandur Madhameshwar	21-06-2019	20°01'N 074°06'E	1437
11	Manipur	19	Loktak Lake (MR)	23-03-1990	24°25'N 093°49'E	26600
12	Odisha	20	Bhitarkanika Mangroves	19-08-2002	20°39'N 086°54'E	65000
		21	Chilka Lake	01-10-1981	19°42'N 085°21'E	116500
13	Punjab	22	Beas Conservation Reserve	26-09-2019	31°23'N 075°11'E	6429
		23	Harike Lake	23-03-1990	31°13'N 075°12'E	4100
		24	Kanjli Lake	22-01-2002	31°25'N 075°22'E	183
		25	Keshopur - Miani Community Reserve	26-09-2019	32°05'N 075°23'E	344
		26	Nangal Wildlife Sanctuary	26-09-2019	31°23'N 076°22'E	116
		27	Ropar Lake	22-01-2002	31°01'N 076°30'E	1365



	State/UT		Wetland	Date of Designation	Co-ordinates	Area (hectares)
14	Rajasthan	28	Keoladeo Ghana National Park (MR)	1-10-1981	27°13'N 077°31'E	2873
		29	Sambhar Lake	23-03-1990	27°00'N 075°00'E	24000
15	Tamil Nadu	30	Point Calimere Wildlife and Bird Sanctuary	19-08-2002	10°19'N 079°37'E	38500
16	Tripura	31	Rudrasagar Lake	08-11-2005	23°28'N 091°16'E	240
17	Uttar Pradesh	32	Nawabganj Bird Sanctuary	19-09-2019	26°36'N 080°39'E	225
		33	Parvati Arga Bird Sanctuary	02-12-2019	26°56'N 082°09'E	722
		34	Saman Bird Sanctuary	02-12-2019	27°00'N 079°10'E	526
		35	Samaspur Bird Sanctuary	03-10-2019	25°59'N 081°23'E	799
		36	Sandi Bird Sanctuary	26-09-2019	27°18'N 079°58'E	309
		37	Sarsai NawarJheel	19-09-2019	°58'N 079°15'E	161
		38	Sur Sarovar	21-08-2020	27°15'N 077°50'E	431
		39	Upper Ganga River	08-11-2005	28°33'N 078°12'E	26590
18	Uttarakhand	40	Asan Conservation Reserve	21-07-2020	30°26'N 077°40'E	444
19	West Bengal	41	East Calcutta Wetlands	19-08-2002	22°27'N 088°27'E	12500
		42	Sunderbans Wetland	30-01-2019	21°46'N 088°42'E	423000
19 States & UTs		42 Ramsar Sites			Total Area = 1,081,438 hectares	

MR: Montreux Record

Sourced on 06/01/2021 from www.ramsar.org



INDIRA PARYAVARAN BHAWAN



Website: <http://www.moef.gov.in>
Facebook: <https://www.facebook.com/moefcc>
Twitter: <http://www.twitter.com/moefcc>
Email: moefcc@gov.in