



सत्यमेव जयते

# ANNUAL REPORT - 2022 - 23



Government of India

Ministry Of Environment, Forest And Climate Change





# ANNUAL REPORT - 2022 - 23



**Government of India**  
**Ministry Of Environment, Forest And Climate Change**





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## Abbreviations

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



UNDP	: Combat Desertification : United Nations Development Programme	WHC	: World Heritage Conservation
UNEP	: United Nations Environment Programme	WII	: Wildlife Institute of India
WCCB	: Wildlife Crime Control Bureau	ZSI	: Zoological Survey of India
WGEEP	: Western Ghat Ecology Expert Panel		





## **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.**

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

**MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (PARYAVARAN, VAN AUR JALVAAYU PARIVARTAN MANTRALAYA)<sup>1</sup>**

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.**<sup>2</sup>
  - 8a. **Omitted.**<sup>3</sup>
  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.<sup>4</sup>
  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.<sup>5</sup>
  24. Desert and Desertification.
  25. Forest Survey of India.
  26. Indian Institute of Bio-diversity, Itanagar.
  27. Central Pollution Control Board.
- Modified vide Amendment series no. 306 dated 31.07.2014
  - Omitted vide Amendment series no. 350 dated 14.06.2019 (Earlier substituted vide Amendment series no.306 dated 31.07.2014).
  - Omitted vide Amendment series no. 350 dated 14.06.2019 (Earlier inserted vide Amendment series no.306 dated 31.07.2014).
  - Modified vide Amendment series no. 300 dated 26.02.2012
  - Inserted vide Amendment series no. 287 dated 12.07.2006
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.**<sup>1</sup>
  35. **Omitted.**<sup>2</sup>
  36. **Omitted.**<sup>3</sup>
  - 36A. Climate change and all other matters related thereto.<sup>4</sup>
  37. **Omitted.**<sup>5</sup>
  38. **Omitted.**<sup>6</sup>
  39. **Omitted.**<sup>7</sup>
  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).<sup>8</sup>

**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 Schedule Tribes on forest lands.<sup>9</sup>

- 
1. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
  2. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
  3. Omitted vide Amendment Series no. 349

- dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
4. Inserted vide Amendment series no. 306 dated 31.07.2014.
5. Omitted vide Amendment Series no. 349 dated 04.04.2019 (transferred to D/o Animal Husbandry and Dairying).
6. Omitted vide Amendment Series no. 334 dated 06.07.2017.
7. Omitted vide Amendment Series no. 334 dated 06.07.2017.
8. Inserted vide Amendment series no. 334 dated 06.07.2017.
9. Inserted vide Amendment series no. 285 dated 17.03.2006.



CHAPTER

**01**

***Life : Life Style For Environment***



## 1.1 Lifestyle for Environment

### Background:

Recognizing that lifestyle has a big role in climate change, the Hon'ble Prime Minister of India Shri Narendra Modi, at the 2021 UN Climate Change Conference (UNFCCC COP26), proposed a 'One-Word Movement', to the global community. This one word is LIFE...L, I, F, E, i.e. Lifestyle For Environment. Mission LiFE was announced with an objective to bring individual behaviours at the forefront of the global climate action narrative. LiFE envisions replacing the prevalent 'use-and-dispose' economy—governed by mindless and destructive consumption—with a circular economy, which would be defined by mindful and deliberate utilization. The Mission intends to nudge individuals to undertake simple acts in their daily lives that can contribute significantly to climate change when embraced across the world.

The announcement of five nectar elements (Panchamrit) in CoP 26 by Hon'ble Prime Minister of India led to updation of India's existing NDCs. Among the updated NDCs one is "To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LiFE'— 'Lifestyle for Environment' as a key to combating climate change"

Additionally, Hon'ble PM Narendra Modi, in the presence of U.N. Secretary-General Antonio Guterres, launched 'Mission LiFE' (Lifestyle for Environment), a new initiative for sustainable and healthy lifestyle at the Statue of Unity in Gujarat on 20<sup>th</sup> October, 2022. Emphasizing the benefits of Mission LiFE, the Prime Minister said that it connects the power of the people for the protection of this earth, and teaches them to utilise it in a better way. The Mission aims to create and nurture a global network of individuals,

namely 'Pro-Planet People' (P3), who will have a shared commitment to adopt and promote environmentally friendly lifestyles.



To translate the vision of Lifestyle for Environment (LiFE) into measurable impact, Mission LiFE is envisioned as a dedicated global programme, led by India, that aims to mobilise 1 billion Indians to become Pro Planet People, 5.15 lakh Indian villages to become LiFE Villages, 3700 Urban Local bodies (ULBs) to become LiFE ULBs and 766 districts to become LiFE districts over a time-period of 5 years.

In order to achieve the targets of "Mission LiFE" major changes in the existing structure of the individual's lifestyle and in the policies of the government are required.

The Mission LiFE approach is based on the following

**Focus on Individual Behaviours-** Make LiFE a mass movement (Jan Andolan) by focusing on behaviours and attitudes of individuals and communities.

**Co-create Globally-** Crowdsource empirical and scalable ideas from the best minds of the world, through top universities, think tanks and international organisations.

**Leverage Local Cultures-** Leverage climate-friendly social norms, beliefs and daily household practices of different cultures worldwide to drive the campaign.

**Vision of Mission LiFE:** The vision of LiFE



is to live a lifestyle that is in tune with our planet and does not harm it. And those who live such a lifestyle are called “Pro- Planet People”. Mission LiFE borrows from the past, operates in the present and focuses on the future.

**LiFE Actions-** In view of Mission LiFE being launched in the 75<sup>th</sup> year of India's independence, a comprehensive and non-exhaustive list of 75 individual LiFE actions across 7 categories is identified such that most actions are (i) Specific and measurable; (ii) Easy to practice by individuals, communities and institutions, with minimal supply-side dependencies; (iii) Non-disruptive to ongoing economic activity, and, in fact, promoting economic activity in the foreseeable future. There are 75 LiFE actions (<https://www.niti.gov.in/sites/default/files/2022-10/Brochure-10-pages-op-2-print-file-20102022.pdf>) under the following themes:

1. Energy Saved
2. Water Saved
3. Single Use Plastic Reduced
4. Sustainable Food Systems Adopted
5. Waste Reduced (Swachhata Actions)

## 6. Healthy Lifestyles

## 7. E-Waste reduced

It is highlighted that the Green Skill Development Programme which is a part of Environmental Information, Awareness, Capacity Building was initially launched with the objectives to skill youth in environment, forest and wildlife sectors and enabling them to be gainfully employed or self- employed. There are currently 25 courses under GSDP covering diverse fields like pollution monitoring, emission treatment, operation of Sewage Treatment Plants, waste management, water budgeting etc. Most of the GSDP courses are aligned with the seven themes of LiFE.

### Activities Undertaken:

The ministry has taken a lot of steps in order to comply the agenda of Mission life:

India hosted a pavilion with the theme of LiFE- Lifestyle for Environment at COP 27 at Sharm El Sheikh from 6<sup>th</sup> to 17<sup>th</sup> November 2022. The Pavilion had been designed to send out the message of LiFE through various audio-visuals, Logo, 3D models, set up, décor and side events.

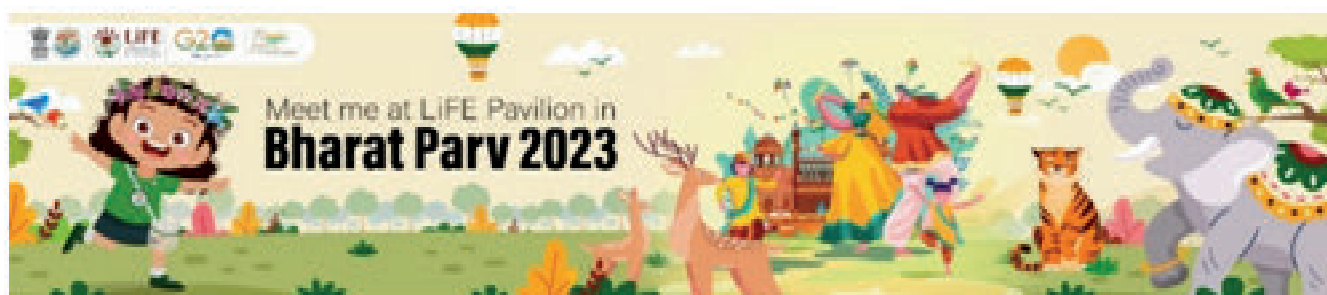






2. A pavilion on the theme Mission LiFE was set up by MoEFCC during 'Bharat Parv' being organized by Ministry of Tourism,

from 26<sup>th</sup> January to 31<sup>st</sup> January, 2023 at Red Fort, New Delhi on the occasion of celebration of the 74<sup>th</sup> Republic Day.





3. National Museum of Natural History, a subordinate office of MoEFCC in collaboration with Euro International School, Sector 109, Gurugram organised painting competition on ParikshaPeCharcha on the theme: “Jal Hai to Kal Hai-MISSION LiFE” on 23<sup>rd</sup> January 2023. 732 students from 30 schools of Gurugram actively participated in the competition. The book titled “Exam Warriors” authored by Prime Minister Shri

Narendra Modi was given as a token gift to all the students.

4. Regional Museum of Natural History (RMNH), Mysore, regional branch of National Museum of Natural History (NMNH) under the Ministry of Environment, Forest and Climate Change organised awareness programmes on #SaveEnergy #LifestyleforEnvironment-Mission LiFE, Green talk and Green pledge on 20<sup>th</sup> January 2023.



*Students taking Green Pledge at GSSS School, Mysore*







6. A National Workshop on Lifestyle for Environment was conducted on 30<sup>th</sup> Jan 2023 wherein







- Exhibition was held to display GSDP/LiFE products made by EIACP centers. Some of the products include honey, bamboo, craft products, coconut shell handicrafts, lantana furniture using green skilling component of the program products the products made of Bamboo and Lantana were showcased.
- Mobile apps like Carbon watch and a LiFE game for kids to inculcate LiFe actions in a fun way were showcased
- An infographic booklet “Lexicon of LiFE:A-Z of sustainable Lifestyle “ highlighting the simple changes one can adopt at individual and community level for transitioning towards sustainable life style was launched.







6. An exhibition held to showcase the products that would be in consonance of Mission



LiFE were shown. These products were created by EIACP centres.

7. The LiFE actions enshrined in Mission LiFE are showcased through various interactive media platforms such as LED screen, Motion Sensor wall, Interactive wall, Live AR wall etc.
8. A technical session for the “Ideas and Action for LiFE” held in the National Workshop. In

this technical session all the seven themes of Mission LiFE were discussed.

9. A LiFE cell has been set up in the ministry after CoS meeting.
10. Inter-ministerial meeting has been conducted for mobilizing support and overall awareness.



**23<sup>rd</sup> - 24<sup>th</sup> September 2022**

**Tent City II, Ekta Nagar, Gujarat**

**NATIONAL CONFERENCE OF  
MINISTERS  
OF ENVIRONMENT,  
FOREST AND CLIMATE CHANGE**

CHAPTER

**02**

***Ektanagar-National Conference***



## 2.1 PM's address & significance



Hon'ble Prime Minister Shri Narendra Modi addressed the Conference virtually

“I think that the role of the Environment Ministry is more as a promoter of the environment rather than as a regulator.”

“Where environment clearance used to take more than 600 days 8 years ago, it takes 75 days today.”

“The faster the environment clearance is available, the faster the development will also take place.”

“There should be healthy competition as well as collaboration among the States to promote environment measures.”

“The PM Gati Shakti National Master Plan is also a great tool for protecting the environment.”

“I urge all environment ministers to promote a circular economy as much as possible in their States.”

“Both the central and the state governments together have to move towards a green industrial economy.”

### Significance of National Conference of Ministers of Environment, Forest and Climate Change:

Taking forward the spirit of cooperative federalism, the National Conference of Ministers of Environment, Forest, and Climate Change, was convened to create synergy amongst the Central and State Governments in formulating policies on issues relating to environment and its conservation, with an eye on development, and to promote better coordination and sharing of best practices amongst the Centre and the States.



**Environment Ministers from various State government  
attended the National Conference.**



## 2.2 Themes and Outcomes

**Six Themes were discussed in the conference. The key outcomes are as follows:**

<b>Themes</b>	<b>Action</b>
<b>PARIVESH</b>	<ul style="list-style-type: none"> <li>The PARIVESH portal may further dynamically indicate the go, and no-go areas for undertaking projects based on available guidelines and other ongoing other projects.</li> <li>The existing projects may be integrated with GIS layers of PARIVESH.</li> <li>Cadastral map data on PM Gatishakti; which has many other details such as survey no, and type of forest on a 1:5000 scale may be used in PARIVESH through API from Gatishakti BISAG N, as and when required.</li> </ul>
<b>LiFE and Combating Climate Change</b>	<ul style="list-style-type: none"> <li>Promoting LiFE as a mass movement of pro planet people.</li> <li>Alignment of SAPCC with India's NDCs, under the Paris Agreement.</li> <li>Coverage of all relevant sectors in respective SAPCCs.</li> <li>States requested for completion of the revision of SAPCCs at the earliest.</li> </ul>
<b>Plastic and Waste Management</b>	<ul style="list-style-type: none"> <li>States / UTs to effectively enforce ban on identified Single Use Plastic (SUP) items and promote alternatives to banned SUPs, alternatives and effective plastic waste management</li> <li>States to carry out awareness generation for behavioral change and provide assistance and undertake capacity building of MSMEs</li> <li>States / UTs to strengthen waste processing infrastructure including recycling infrastructure to ensure fulfillment of EPR</li> <li>States/UTs to hold regular meetings of State Level and District level taskforces to develop and implement comprehensive action plan on the above topics and update progress on national dashboard</li> <li>Best practices for promotion of alternatives by States/UTs to be shared for wider adoption.</li> </ul>





<b>Wildlife Management including Bio-Diversity and Conservation of Wetlands</b>	<p>Wildlife Management:</p> <ol style="list-style-type: none"> <li>1) Adopting landscape based management approach in wildlife conservation</li> <li>2) Synergy between biodiversity &amp; wetland conservation for wildlife management</li> <li>3) State/UTs to seek funds for all species identified under species recovery programme</li> <li>4) Adoption of best practices for the mitigation of the Human Wildlife conflict</li> <li>5) Involvement of stakeholders including local communities in wildlife conservation.</li> </ol> <p>Bio-Diversity:</p> <ol style="list-style-type: none"> <li>1) States/ UTs to take a proactive approach by supporting measures to strengthen SBBs and UTBCs</li> <li>2) States/ UTs to complete the preparation of PBRs and to support the transition to e-PBRs</li> <li>3) States/ UTs to expedite the submission of shapefiles of Recorded Forest Areas (RFAs) and Protected Areas (PAs) in required formats.</li> <li>4) Only 14 States/ UTs have declared BHS, remaining to declare more such sites.</li> <li>5) States/UTs to assist in identifying potential OECM sites.</li> <li>6) NBA/ SBBs/ UTBCs to work in close coordination to ensure knowledge sharing and capacity building.</li> </ol>
<b>Prevention and Control of Pollution</b>	<ul style="list-style-type: none"> <li>• Effective implementation of City level action plans by NCAP cities</li> <li>• States/Union Territories to conduct regular meetings of State level and City level Committees under NCAP</li> <li>• Regular updation of PRANA portal by NCAP cities</li> <li>• Preparation of State action plans based on airshed approach</li> <li>• Effective mobilisation of resources through convergence of Central and State level Programmes/Schemes</li> <li>• Effective engagement with Institutes of Repute (IoRs) by NCAP cities</li> <li>• Timely utilisation of NCAP and XV. Finance Commission funds and timely submissions of Utilization Certificates</li> <li>• Jan Andolan – Effective engagement of citizens, youth and all stakeholders for improving air quality</li> </ul>
<b>Agro-forestry</b>	<ul style="list-style-type: none"> <li>• Ministry to prepare a draft Model Act/ Rules which can be shared with all states/ UTs for promotion of agroforestry.</li> <li>• Ministry will involve ICFRE, other research institutions, state government representatives and experts while drafting Model Act/ Rules for promotion of agroforestry.</li> <li>• After bringing out necessary relaxations in the regulatory and legal regime, emphasis should be given to development of market linkages and assured income for growers</li> </ul>





### Glimpses from the National Conference



Full Report Link

<https://moef.gov.in/wp-content/themes/moef-green/ebook/ncmefcc/ncmefcc.html>



CHAPTER

**03**

***Environment-Abatement of Pollution,  
Policy and Law***





### 3.1 Control of Pollution

The Ministry of Environment, Forest & Climate Change administers the Central Sector Scheme-'Control of Pollution' to curb environmental pollution. For FY 2022-23, the total budget (under BE) of the scheme is Rs.600 crore. The CP Division releases a major part of the funds to CPCB and some parts to other agencies as per the EFC/guidelines of the scheme. The CPCB further releases the funds to SPCBs and other agencies according to the approved proposals. The main objective of the Control of Pollution scheme is to monitor air quality across the country and take appropriate air pollution mitigation measures, besides monitoring water quality and noise levels in the country. The CP scheme is operational since 2018, and the components are as follows:

- a. Assistance for Abatement of Pollution to weaker SPCBs/PCCs-
- b. Under this component State Pollution Control Boards (SPCBs) / Pollution Control Committee (PCCs) are supported to meet the expenditure requirements for taking pollution abatement activity including pollution assessment (Source monitoring, monitoring of ambient air, water and noise), technical studies for R&D, survey and documentation for creation of environmental database and consultation in the area of pollution abatement of air, water & noise, scientific research and studies on issues of waste management, incentivisation of wastes, training and mass awareness, education, seminars/workshops/ conference, lab upgradation/ procurement of equipment, E-Governance and IT applications including online consent management, online emission / effluent monitoring systems, development of IT infrastructure.
- c. National Clean Air Programme (NCAP)

#### I. Background

2. NCAP has been launched by MoEFCC in

January 2019 with an aim to improve air quality in 131 cities by engaging all stakeholders.

3. NCAP envisages reduction by 20-30% in PM 10 concentration over baseline in year 2017 by 2023-24.

#### II. Progress - Action Plan

2. NCAP focuses on preparation and implementation of national/state/City level action plans of the targeted 131 cities.
3. The national level plan will include the action plans of different Ministries/ Departments of Government of India. This includes convergence of schemes/ programmes of different Ministries/Departments, received action plans from 7 line Ministries (MoP, MoRTH, MoHUA, MNRE, MHI, DoAFW & MoPNG)
4. State Action Plans have been prepared by 14 States/UTs, Andhra Pradesh, Assam, Delhi, Telangana, Uttar Pradesh, Madhya Pradesh, Meghalaya, Maharashtra, Nagaland, Haryana, Jammu & Kashmir, Punjab, Karnataka, and West Bengal.
5. City level action plans have been prepared in 131 cities.

#### III. Progress – Air quality improvement

3. 95 cities have shown improvement in air quality in FY 2021-22 compared to base levels of 2017 and 20 cities conforming to national ambient air quality standards in comparison to 6 cities in 2017.

#### IV. Financial Arrangement

4. **Rs. 842 crores** have been released to 82 non-attainment cities funded by MoEFCC under NCAP for initiating measures to improve air quality such as construction and demolition waste management facilities, non- motorised transport infrastructure, green buffers, laying of pavements, mechanical street sweepers, composting units etc.

Further, 15th Finance Commission (XV-FC) has provided a special grant of **Rs 4,400 crore** to 42 million plus cities/urban agglomerations for FY 2020-21. The



performance based grant of **Rs. 12,139 crore** for FY 2020-21 to 2025-26 have been allocated for improvement in air quality of 42 million plus cities/urban agglomerations under Million- Plus Cities Challenge Fund (MPCCF). Based on the performance assessment of the million plus cities **Rs. 7681 crores** has been released till December 2022.

#### V. Monitoring, Evaluation and Reporting (MER)

5. Committees have been set up at national, state and city level for coordination, monitoring and evaluation of progress on action plans by various stakeholder agencies/Departments/Ministries:

e. National Level

I. Apex Committee under Chairmanship of Hon'ble Minister, EFCC

ii. Steering Committee under the Chairmanship of Secretary, EFCC

iii. Monitoring Committee under the Chairmanship of Additional Secretary, MoEFCC

iv. Implementation Committee under the Chairmanship of Chairman, CPCB

f. State Level

I. Steering Committee under the Chairmanship of Chief Secretary

ii. Implementation Committee

under the Chairmanship of Additional Chief Secretary/Principal Secretary, Environment

g. City Level

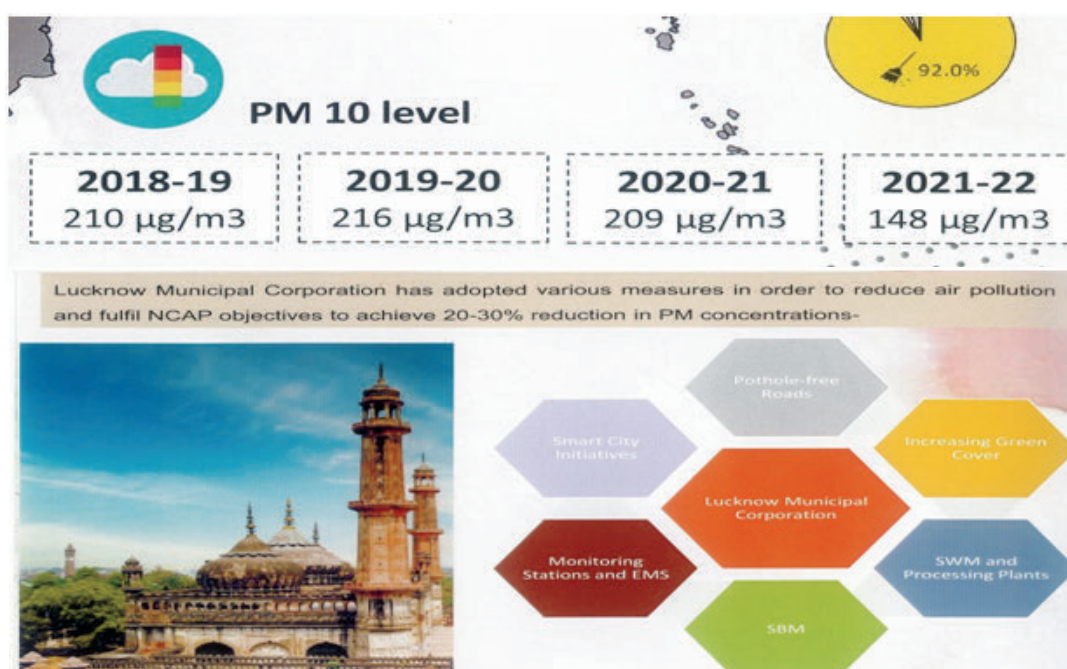
I. City level Implementation and Monitoring Committee under the Chairmanship of District Collector/Municipal Commissioner.

h. **1 Apex Committee meeting** under the chairmanship of Hon'ble Minister EFCC, **5 Steering Committee meetings** under the chairmanship of Secretary, MoEFCC, **9 Monitoring Committee Meetings** under the chairmanship of Additional secretary, MoEF&CC and **11 Implementation Committee meetings** under the Chairmanship of Chairman, CPCB, have been convened till date.

I. MoUs have been signed with NCAP cities between CPCB, SPCB and ULB and 42 MPCs between the MoEF&CC, State government and urban local bodies under XVFC.

j. 63 Institute of Reputes ) are assigned to 131 cities for capacity building and for effective implementation of City action plans. The Ministry has designated IIT Kanpur as the nodal academic institution to coordinate with other IoRs.

#### City Action Plan\_Lucknow





**VI. Guidelines under NCAP**

Guidelines have been prepared for the following:

1. Guidelines for Release and Utilisation of Funds under National Clean Air Program
2. Ranking of Cities – “Swachh Vayu Survekshan”
3. Guidelines for Capacity Building Public Outreach under NCAP
4. Guidelines for NKN(National Knowledge Network) & IoRs (Institutes of Repute) under NCAP
5. Document on National Mission for Clean Air (NMCA)

**VII. Knowledge Support, Capacity Building & Public Awareness**

1. A National Knowledge Network (NKN) with IIT, Kanpur as coordinator and experts from fields, NGOs and academia, has been established and is also operational, to provide technical and knowledge support to the programme at national/state/city level. NKN primarily provides knowledge based scientific support and will be an advisory entity to CPCB for all air quality associated matters.
2. To extend scientific support for various activities identified in city action plan, Institute of Repute (IoR), - an institute working in or nearby, preferably IITs or NITs or local Institutes working or having expertise in air quality management, has been made knowledge partner to each cities through an MoU in March 2021. Role and responsibilities of the ULBs, SPCB and IoR have been defined to undertake the approved activities of the Program in a systemic, scientific and time bound manner.
3. MoEF&CC is also conducting regional workshops for sensitization, knowledge sharing and capacity building of the stakeholders in the State. The following such workshops were organized:
  - a. Western region - on 22nd and 23rd November 2021, in Mumbai for the States of Maharashtra, Gujarat, Madhya Pradesh and Goa to sensitize stakeholders about the NCAP and XV-FC grant for improvement



Training workshop for Registration on Centralized Extended Producers Responsibility (EPR) Portal for Plastic Packaging held in Mumbai

- b. in air quality.
- b. Delhi & NCR region – on 7<sup>th</sup> & 8<sup>th</sup> March, 2022, in Gurugram, covering Delhi and NCR region on “Dialogue towards clean air” on the issues of air quality of Delhi NCR.
- c. Southern region - on 21st and 22nd May 2022, in Chennai (covering Andhra Pradesh, Karnataka, Telangana, Tamil Nadu, Kerala, Andaman & Nicobar, Lakshadweep, Pondicherry and Daman & Diu).
- d. Expo on Startups – **was organized** on 26<sup>th</sup> & 27<sup>th</sup> September, 2022, in Chennai, hosting start-ups in air quality management & monitoring, and financial institutions to provide a platform for scaling up their solutions.



Exhibition of Start-Ups in Air Quality Management held at National Expo on Single-Use Plastics and Start Up Conference held during 26-27 September, 2022 at Chennai Trade Centre, Nandambakkam, Chennai



National Expo on Eco-alternatives to banned single use items and Startup Conference 2022 held in Chennai on 26-27 September 2022.

- e. VAYU conference – National conference on VAYU series on air quality management on 3<sup>rd</sup> & 4<sup>th</sup> December, 2022, in Bhubaneswar, Odisha, covering all 131 cities across 24 states/UTs gathered



Vayu Conference on air quality management on 3<sup>rd</sup> & 4<sup>th</sup> December, 2022

scientists, experts, academicians, mentors, students and other stakeholders across the country. During the conference, 9 Cities have been awarded a prize money of Rs. 5.25 crore under “Swachh Vayu Survekshan” under different categories.

4. In this portal, action plans of cities, states and line ministries will be reflected and monitored for their implementation status. It will provide all information related to various policies / programs / schemes / activities of the stakeholders along with the progress made towards improvement in air quality across the





- country
- b. Environmental Monitoring Network Programme<sup>1</sup>
- I. Operation and Maintenance of Continuous Ambient Air Quality Monitoring Stations (CAAQMS)
  - ii. National Ambient Noise Monitoring Network (NANMN) – strengthening and establishment of New Stations in Million Plus Cities
  - iii. National Water Monitoring Programme (NWMP)
  - iv. Operation and Maintenance of National Air Quality Monitoring Programme (NAMP)
- stations Details of Environmental Monitoring Network Programme has been given in Fig 1 and Fig 2 of the chapter where further information on CPCB is given
- d. earch and Outreach Programmes-The Ministry is providing funds to the projects which have impact on prevention and control of pollution. The proposals received under Research and Outreach Programme are placed before the Project Appraisal Committee (PAC) constituted under NCAP for recommendations. Project Appraisal Committee includes members from DST, CSIR and Ministry of Earth Sciences and other related stakeholder Ministries/organizations. In FY 2021-22, a total of 34 projects were funded by MoEF&CC at a total budget of ₹ 1.95 crores.
- In FY 2022-23, the following 16 Projects under the Annual Action Plan of R&D Scheme (F.Y. 2022-23) of the Central Pollution Control Board for conservation and development have been approved by the Project Appraisal Committee for a total budget of ₹ 4.83 crores:
- I. Assessment of Environment Issues and Study of BAT in the respective industrial Sector as regards Pollution for revision/development of new Environment Standards for identified sectors
  - II. Assessment of contaminated Sites, Performance Evaluation & Monitoring of remediation work execution and updating the inventory of confirmed/probable

contaminated sites; Performance Evaluation and Monitoring of Sea ports to review status of Environment Management and prevailing practices of Environmental regulations

- III. Assessment of Environment Issues and Study of BAT in management of Battery waste for development of Guidelines for Implementation of Battery Waste Management Rules, 2022

- III. Preparation of Sector Specific Documents for identification of Hazardous waste streams in Aluminium, Pulp & Paper and Pesticide Sectors, its characterization and waste management practices for individual sectors, including options for **Best Available Practices for individual sectors and for Cleaner Technologies** for waste

#### IV. Revision of Guidelines on Hazardous Waste Management

- V. Performance Evaluation of various treatment technologies adopted by Sewage Treatment Plants and to assess the potential of recycling for different use and best practices
- VI. Assessment and Preparation of Ambient Noise Maps of Important Cities Towns/ Industrial Hubs
- VII. Field-Scale Demonstration Project on Bio-Remediate Polluted natural drain using industrial by-products to make the bio-blocks with combined Engineering Approach of Aeration, Microorganisms
- VIII. Mapping of Surface Water bodies, Pollution Sources and Assessment of Water Quality in Rivers and lakes using GIS and Remote Sensing
- IX. Assessment of Micro Plastics in Ambient Air at Selected Locations
- X. Assessment of Air, Water and Soil Pollution in Different Mining Areas in North Eastern Region
- XI. Monitoring and Assessment of impact on water Quality due to Unscientific Mining of Sand in the Catchment Area of Umtynagar river
- XII. Measurement of POPs/ Elements/ VOCs in Critically polluted area in Eastern Region





- XIII. Study on the Macro invertebrate Community, a Bio-indicator of Water Quality, in the Eastern Stretch of River Ganga
- XIV. Insight of Polycyclic Aromatic Hydrocarbons(PAHs) form the Tropical Riverine system : Bhagirathi – Hooghly (Lower stretch of the River Ganga)

One of the important tasks assigned to CP

Division is to notify industry specific discharge standards under Schedule-I: 'Standards for Emission or Discharge of Environmental Pollutants from various Industries' of Environment Protection Act, 1986.

Apart from implementation of scheme, CP Division also looks after the administrative and financial matters of CPCB and CAQM.

**Table: Status of funds under Control of Pollution Scheme**

S. N.	Components	FY 2021-22			FY 2020-21			FY 2019-20			FY 2018-19		
		BE	RE	Released	BE	RE	Released	BE	RE	Released	BE	RE	Released
1	Assistance for Abatement of Pollution to CPCB and all SPCBs in lieu of Water Cess funds subsumed with GST	120.00		208.82	120.00		62.27	120.00		111.00	250.00		-
2	National Clean Air Programmes (NCAP)	290.00		98.75	290.00		152.73	290.00		244.96	150.00		1.50
3	Environmental Monitoring Programme –NAMP	18.00			18.00		18.00	18.00		18.00	18.00		1.45
4	Environmental Monitoring Programme – CAAQMS	2.36		93.00	2.36		-	2.36		2.36	-	5.00	-
5	Environmental Monitoring Programme- NANMN	8.40			8.40		-	8.40		8.40	8.00		-



6	Environmental Monitoring Programme - NWMP	14.20			14.20		14.20	14.20		14.20	13.50		2.00
7	Research Programmes	5.00		2.59	5.00		0.47	5.00		3.94	5.00		-
8	Outreach Programmes including Capacity building and awareness of other stakeholders	3.00		1.48	3.00		-	3.00		-	2.00		-
9	Assistance for Abatement of Pollution & ongoing projects under CETP and CT scheme	9.04		2.06	-		19.74			6.00	-		-
		470.00	407.10	406.70	460.96	267.50	267.41	460.96	445.00	408.86	446.50	5.00	4.95

S. N.	Components of scheme (2022-23)	Fund Allocation	Released
1	Assistance for Abatement of Pollution to CPCB and all SPCBs in lieu of Water Cess funds subsumed with GST	68.00	3.80
2	National Clean Air Programmes(NCAP)	650.00	353.39
3	Environmental Monitoring Programme - NAMP, CAAQMS, NWMP, NANMN	111.00	15.27
4	Research & Outreach Programmes	6.50	0.15
	<b>Total</b>	<b>835.50</b>	<b>372.61</b>

**Rules/Regulations framed in the reference period:** under the “The Commission for Air Quality Management in the National Capital Region and Adjoining

Areas(CAQM) Act, 2021 {29 of 2021}- Following Rules/Regulations have been notified.

(I) CAQM(Form of Annual Statement of



Accounts) Rules, 2022-notified on 04-05-2022

- (ii) CAQM, (Form and Manner of Furnishing Annual Report) Regulations, 2022-notified on 12-05-2022 by the CAQM
- (iii) CAQM(salaries, allowances and conditions of service of the officers and staff of the Commission) Rules, 2022-notified on 11-07-2022
- (iv) CAQM(salaries, allowances and conditions of service of the officers and staff of the Commission) Amendment Rules, 2022-notified on 6-10-2022

### **Commission for Air Quality Management in National Capital Region and Adjoining Areas (CAQM)**

The Commission for Air Quality Management in National Capital Region and Adjoining Areas has been set up in accordance with the notification dated 23rd April, 2021 for better co-ordination, research, identification and resolution of problems surrounding the air quality in the NCR and adjoining areas. The Commission is broad-based and adopts 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. Meetings of the Commission are held regularly and during 2022-23 so far 12 meetings have been held.

- 2. The following four sub-committees have been constituted under Section 11 of the Act:
  - Sub-Committee on Safeguarding & Enforcement ; Sub-Committee on Monitoring & Identification ; Sub-Committee on Research & Development;

Sub-Committee on Graded Response Action Plan (GRAP)

- 3. Grant-in-aid to the tune of Rs.17 crore has been allocated by the Government of India to the Commission for FY 2022-23.
- 4. The Commission has identified the major sectors contributing to air pollution in this region. The core focus areas are Vehicular Pollution, Industrial Pollution, Dust from Construction and Demolition Project activities, Road and Open Areas Dust, Biomass Burning, episodic events like Agricultural Stubble Burning, burning of fire crackers, Municipal Solid Waste burning, Fires in Sanitary Landfills and Air Pollution from Dispersed Sources etc. The Commission has so far issued 70 directions and 7 advisories, besides executive orders to various agencies concerned including the Govt. of NCR States and various bodies in the region also laying down responsibilities and concrete steps to be taken by them for improving of air quality in the region.

### **Policy to Curb Air Pollution in the National Capital Region, July, 2022**

- 6. CAQM organised an interactive workshop- 'Dialogue towards Clean Air' at Gurugram on 7th-8th March, 2022 involving all stakeholders, to garner opinions and suggestions for long-lasting solutions to the problem of poor air quality in NCR. The report of the Sub Committee was discussed and approved in the meeting of the Commission. Based on the report approved by the Commission, the 'Policy to Curb Air Pollution in NCR' was formulated and was widely circulated for implementation among GNCTD, Government of Haryana, Punjab, Rajasthan and Uttar Pradesh, concerned Ministries and Departments of the Central government and other concerned State and Central government agencies as well as to other bodies concerned.
- 7. Following initiatives, sector-wise, have





been taken to prevent, control and abate air pollution in the Delhi NCR:

#### a) Industrial Pollution

The Commission is working in close coordination with various stakeholders (NCR States, GNCT of Delhi, CPCB, SPCBs of NCR States and Delhi Pollution Control Committee etc) to ensure regular audit and inspection of the Industries With persistent efforts and follow up by the Commission, all the identified 1799 industries in Delhi have completely switched over to PNG/Cleaner fuels and the status of shifting of industries in NCR districts of the concerned states is as follows:

Status as on 31.10.2022	Haryana (NCR)	UP (NCR)	Rajasthan (NCR)	NCT of Delhi	Total in NCR
No. of fuel-based industries	2,988	2,273	525	1784	7,570
No. of industries shifted to approved fuels	2,718	1,786	422	1,784	6,710
Balance	270	487	103	-	860

#### b) Vehicular Pollution

The Commission has issued advisory for “Mandating procurement of zero emission and e- vehicles” to give a further push to clean technologies in transport sector and a gradual shift towards zero emission vehicles/ e-mobility and is regularly monitoring its progress. Battery charging infrastructure have also been installed at 1995 sites in Delhi. b) Vehicular Pollution

The Commission has issued advisory for “Mandating procurement of zero emission and e- vehicles” to give a further push to clean technologies in transport sector and a gradual shift towards zero emission vehicles/ e-mobility and is regularly monitoring its progress. Battery charging infrastructure have also been installed at 1995 sites in Delhi.

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

State Governments / Govt. of NCT of Delhi have been advised to constitute dedicated task forces to ensure smooth traffic management, including developing an “Intelligent Traffic Management System” (ITMS).

Action against Polluting Vehicles in Delhi (April – October, 2022)

NCR States	No. of Centers issuing PUC	No. of PUC issued	No. of Challan issued
Delhi	947	21,87,000	68351
Haryana	1776	13,01,948	7933
Rajasthan	197	70,037	2831
Uttar Pradesh	589	14,28,027	7923

#### c) Dust from Construction and Demolition Project activities

The Commission had issued directions for “Control/Prevention of Air Pollution from Construction and Demolition activities” with illustrative dust control / mitigative measures like Monitoring through a dedicated Web-portal , Video fencing of projects, Installation of Anti- smog guns, screens at construction sites, Use of Dust-suppressants and water mist, Transportation of C&D materials in covered vehicles, Installation of air quality monitoring sensors in project sites and Self-audit and certification mechanism by the agencies concerned. All the NCR State governments and GNCTD have launched their web portals.

#### d) Dust from Roads and Open areas

The Commission have issued Advisories and Directions to the NCR states, GNCTD



and agencies like NHAI, DDA and municipal corporations/ council of GNCTD for setting-up of “Dust Control and Management Cells” tasked with monitoring and implementation of various dust control measures in all such road projects/activities and management of dust from roads and open areas. 11 Departments / Agencies in NCT of Delhi, 18 Departments / Agencies in Uttar Pradesh, 17 Departments / Agencies in Haryana and 14 Departments / Agencies in Rajasthan have set up Dust Management cells in their respective jurisdiction in the NCR.

The focus is mainly on activities like optimum utilization of road sweeping machines, Scientific disposal of dust collected in designated sites/landfills, Sprinkling of water on roads/ROW to suppress dust especially after mechanized sweeping, augmentation of capacity of mechanized sweeping and sprinkling, Proper maintenance of roads and regular monitoring to keep the roads pot hole free, laying and repairing of roads in a manner which fully supports mechanized sweeping, conversion of non-paved road sides into paved one or into green areas, Greening of central verges, Preference to cemented roads over the bituminous roads especially in Industrial Areas and Identification of hotspots of road dust and implement target specific road dust control.

**e) Agricultural Stubble Burning**

The Commission has identified Crop Residue Management as one of the priority areas. Based on the deliberations held in series of meetings with the State Governments of Punjab, Haryana, UP, Rajasthan, Government of NCT of Delhi, State Pollution Control Boards of NCR States and Delhi Pollution Control Committee (DPCC) and knowledge institutions like Indian Council of Agricultural Research (ICAR), Indian Agricultural Research Institute (IARI),

Indian Space Research Organization (ISRO) etc., the Commission developed a framework for effective prevention and control of Stubble Burning.

Directions were issued to the State Governments of Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi on 10.06.2021 to prepare state specific detailed and monitorable action plans, based on following six components of the framework i.e. In-situ Crop Residue Management including use of bio-decomposers, Ex-situ Crop Residue Management, Prohibition of Stubble/Crop Residue Burning, Effective monitoring/enforcement, Plans / Schemes to reduce the generation of paddy straw and IEC activities for the Plan of Action. Based on the framework, detailed state specific action plans developed by Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi for 2021, updated action plans for the year 2022 have been prepared by the State of Punjab, Haryana and Uttar Pradesh (NCR Districts).

The Commission issued statutory directions to the Chief Secretaries of Punjab, Haryana, Uttar Pradesh, Rajasthan and Delhi on 12.09.2022 for “Implementation and review of the updated/revised plan of action for prevention and control of stubble burning in 2022”.

Guided by the Commission, ISRO developed a standard protocol, in consultation with major stake holders including IARI, for recording and monitoring of crop residue burning events, which shall not only ensure data integrity but will avoid diverse reporting of fire events/counts. Directions were also issued by the Commission to the States of Punjab, Haryana, Uttar Pradesh, Rajasthan and Government of NCT of Delhi on 16.08.2021 to ensure adoption and application of the standard protocol for estimation of Crop Residue Burning Fire



Events using Satellite Data. The Commission has closely monitored the daily fire counts and taken up with the State Governments concerned, on a daily basis for enforcement actions

Components of the Framework  
In-situ Crop Residue Management

- A. Availability and allocation of CRM machinery;** High yield and short duration paddy varieties, as substitute of PUSA- 44; Harvesting schedule staggered to improve machine utilization; Super SMS mandated with Combine harvester; Extensive use of Bio-decomposer developed by IARI

**B. Ex-situ Crop Residue Management**

The Commission has issued advisories to the State Governments of Punjab, Haryana and Uttar Pradesh on “Ex-Situ Stubble Management” for tackling the problem of Stubble Burning on 28.07.2021. The Commission has also advised State Governments to establish an ecosystem and robust supply chain mechanism to boost ex-situ utilisation of straw.

Further, directions were issued on 17.09.2021 to all the 11 Thermal Power Plants in NCR and adjoining areas within 300km of Delhi for “Ex-Situ Paddy Straw Management through co-firing of biomass pellets/torrefied pellets (with focus on paddy straw) in coal based thermal power plants”.

**A. Major alternate usage of paddy straw as economic resource have been suggested namely**

Biomass Power Projects; Co-firing in Thermal Power plants; Feed stock for 2G

Ethanol plants; Feed stock in Compressed Biogas plants; Fuel in Industrial Boilers, WTE plants, Brick Kilns etc; Packaging materials, Agri-panels etc.

**B. Initiatives undertaken/planned by the concerned stakeholders**

Tenders for procurement of biomass pellets for co-firing in thermal power plants are called for and executed by the respective thermal power plants, and are being coordinated by the Ministry of Power. Such co-firing has already been started in power plants. The progress on this front is being monitored and reviewed in active coordination with Ministry of Power, NTPC and the other power plant operators concerned. Long-term procurement tenders are underway in most of the power plants.

Effective and continuous supply of biomass/ paddy straw is an important component in the framework developed by the Commission towards prevention and control of agricultural stubble burning. To this end, advisories have been issued for efficient and robust supply chain for “Ex-Situ Stubble Management”.

Further, Direction was issued in February, 2022 to permit running of Industries in NCR (beyond Delhi) on Biomass fuels along with PNG, also targeting utilization of paddy straw. Directions were also issued in May 2022 to permit new industries in NCR, beyond Delhi, to use bio-mass fuels in industrial boilers.

The following table depicts the status of the paddy residue burning in the NCR:

Paddy Residue Burning events (Period: 15th September- 30th November)

Punjab		Haryana		Uttar Pradesh (NCR)		Delhi		Rajasthan (NCR)		Total	
2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
71,304	49,922	6,987	3,661	252	198	4	10	3	1	78,550	53,792
	-30%		-48%		-21%		+150%		-67%		-32%





## IEC Activities

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

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

The Commission is pursuing with States/ GNCTD to implement State- wise action plan for control of Bio-mass/Municipal Solid Waste Burning and fires in Landfill Sites, focusing on deployment of enforcement teams, quick complaint redressals and corrective actions through IT enabled platforms and for strict compliance of the plan of action. The action plan for GNCTD, Haryana for control of biomass/ MSW burning and fires in landfill sites have been prepared.

**9. Quarterly reporting:**

The Commission has developed a reporting mechanism for Quarterly monitoring, to ensure effective enforcement of the air pollution control measures by GNCTD and concerned states in the NCR.

**10. Greening & Plantation**

The Commission sought comprehensive action plans for Plantation/ Greening to abate air pollution. Major components of the action plans are Greening of Central verges, Greening of open areas along road side/ right of ways, Greening of hotspot areas and other high polluted areas, Afforestation and sustainability of green areas/saplings. The plantation targets in the NCR States and GNCTD and the achievement are given below:

## Targets for Greening/Plantation (No of saplings)

States	2022-23 Target (Number of Saplings)	Plantations done as on 31.10.2022
Delhi	31,89,191	37,33,880
Uttar Pradesh (NCR Districts)	1,69,29,310	1,74,81,303
Haryana (NCR Districts)	85,06,999	65,73,288
Rajasthan (NCR Districts)	9,84,992	10,10,738
Total	2,96,10,492	2,87,99,209

To effectively use increased green cover as a dust mitigation and air pollution control measure the following has been envisaged:

- Expanding the net of "Nagar Van" and "Nagar Vatika", wherever feasible, in urban agglomerations and cities in NCR, including adoption of Miyawaki technique for dense plantation in limited urban spaces.
- Mass plantation drives focusing on proper nurturing and better survival rate, prioritizing native species and protection of all categories of forest areas with special emphasis on involving students, faculty members, staff and residents in the plantation drives.
- Target oriented action plans for Greening/ paving of central verges and sidewalks along the entire road network.
- State governments and other institutions were advised to lay emphasis on dense forestation using various techniques including Miyawaki technique, keeping in view small areas available in NCR Delhi. They have been advised to use STP/ ETP treated water for irrigation purpose.
- While interacting with the State governments concerned and major institution of higher education, academic and research institutions in the NCR Region, they have been advised to lay Special emphasis on involving students,



faculty members, staff and residents in the plantation drives.

#### 11. Constitution of an “Expert Group”

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

#### 12. Abatement of Non-point Dispersed Pollution

For the abatement of Air Pollution from “Non – Point” dispersed sources, the then SDMC in their jurisdiction carried out a pilot project in association with Air Pollution Action Group (APAG). The project was focused around the Issue 'identification', Issue 'Allocation' and issue 'resolution' through an IT enabled “Smart City 311 App”, supported by a robust monitoring and review programme. The Project has been replicated in MCD (then SDMC, EDMC and North MCD) and NDMC. A standard operating procedure (SOP) has been formulated to facilitate replication and up-scaling of the project, envisaged along with inter-agency coordination among DPCC, Nodal officers and support from other agencies.

#### 13. Graded Response Action Plan

The Commission has comprehensively revisited the contours of the GRAP in vogue, towards an effective implementation mechanism and control on the adverse air

quality scenario that generally persists in the entire NCR during the peak winter months. The Sub- Committee for Operationalization of GRAP has been reconstituted with Member Technical, CAQM as its Chairman and Member Secretary, CAQM, and Senior representatives from the Commission, Central Pollution Control Board, DPCC, HSPCB, RSPCB, UPPCB, IMD, IITM, Pune and Maulana Azad Medical College as its members.

The main features of the revised GRAP for NCR are:

1. The GRAP for the NCR has now been classified under 4 different stages of adverse air quality in Delhi viz. Stage – I 'Poor' (AQI 201 – 300), Stage – II 'Very Poor' (AQI 301-400), Stage – III 'Severe' (AQI 401-450) and Stage – IV 'Severe +' (AQI >450) respectively.
2. Actions under Stages II, III and IV of the GRAP shall be invoked at least three days in advance of the AQI reaching to the projected levels of that stage, based on the dynamic model and weather / meteorological forecast to be provided to the Commission by IMD / IITM on a day-to-day basis.
3. Restrictive actions undertaken as per previous stages shall be continued, in addition to the air pollution stage under which the restrictive actions are envisaged to be taken.
4. The Sub-Committee on GRAP constituted by the Commission shall meet frequently to plan for advance action and issue necessary orders for invoking various provisions of the GRAP, based on the prevalent air quality and the AQI forecast to be provided by IMD from time to time. The Sub Committee shall also review the actions taken by various agencies responsible towards effective implementation of the GRAP.
5. The Chief Secretaries of NCR States and GNCTD shall frequently review the actions and implementation of the GRAP especially when the air quality falls or is likely to fall in the 'Severe' or 'Severe +' category (Stage III and beyond).



- 6.. The Commission may decide upon additional measures and exceptions to the schedule of the GRAP, under different air pollution categories i.e., Stages I to IV, as per the prevalent AQI and weather forecast.

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

14. Intensified actions for deteriorated air quality during winter

The Commission has been closely studying the Air Quality parameters and associated meteorological conditions. Necessary directions / orders are being issued by the Commission from time to time taking due cognizance of the prevailing adverse climatic and meteorological conditions advised and projections by IMD. A five - Member "Enforcement Task Force" (ETF) has been constituted by the Commission, which frequently review and closely monitors the field-level implementation and compliances of Commission's directives .

A total of 40 Inspection Teams/ Flying Squads have been constituted for incognito inspections/surprise checks in various sites across different sectors across NCR

Status of Closure Directions issued (As on 20.12.2022)

Total sites inspected	Sector-wise Closure Case			Total	State-wise Closure Cases			
	Industry	C&D Sites	DG Sets		Delhi	Haryana	Uttar Pradesh	Rajasthan
10,840	418	199	41	658	135	177	277	69

Status of Resumptions of Units

Sector-wise Resumption Case			Total	State-wise Closure Cases			
Industry	C&D Sites	DG Sets		Delhi	Haryana	Uttar Pradesh	Rajasthan
306	77	37	420	89	106	169	56

### R&D Projects :

14. The CAQM invited R&D proposals and pilot projects from scientists/researchers / NGOs/Consortia/individuals for improvement of Air Quality .
  - a. Total 21 project proposals were received by 31st July, 2022. Out of these following 07 proposals have been approved for financial assistance by the Commission during the financial year 2022-23.
  - b. Use of Artificial Intelligence (AI)/ Machine Learning (ML) tool for vehicle counting by uploading the CCTV footage on Cloud Platform.
  - c. Addressing Vehicular Traffic Induced Road Dust re-suspension with S&T based Action Plans for Air Quality Improvement in Delhi NCR
  - d. An Autonomous Drone Swarm Framework for Real Time Air Quality Monitoring and Pollutant Quantification in NCR hotspots
  - e. Decision Support System for Air Quality Management in Delhi and its Bordering Districts in the NCR
  - f. Trial of Ambient Air Purification System (APS) in a Market Place in Delhi NCR
  - g. Under actuated Filter less Air Cleaner Retrofit for Rolling Stock and Vehicles
  - h. Evaluation of Retro-fitment of 2 wheeler and 3-Wheeler Auto-rickshaws with Electric Drive as an option for improvement in air quality in NCR.

### 16. Grievance redressal and facilitation

The Commission has set up a grievance redressal mechanism for dealing with the complaints/ grievances received. These are examined for expeditions redress and reply and a fortnightly status report is submitted to the Chairperson, CAQM.. In addition, public may also meet these officers on any working day as well, with prior appointment.

### 17. Budget Allocation for Financial Year 2022-23

'Budget allocation as per Budget Estimate of MoEF&CC for Financial Year 2022-23 is





**Rs.17.00 Crore**, the details are:

- a. General : Rs. 14.65 Crore
- b. Capital : Rs. 0.10 Crore
- c. Salary : Rs. 2.25 Crore

### 3.2 Central Pollution Control Board

#### 1.0 Introduction

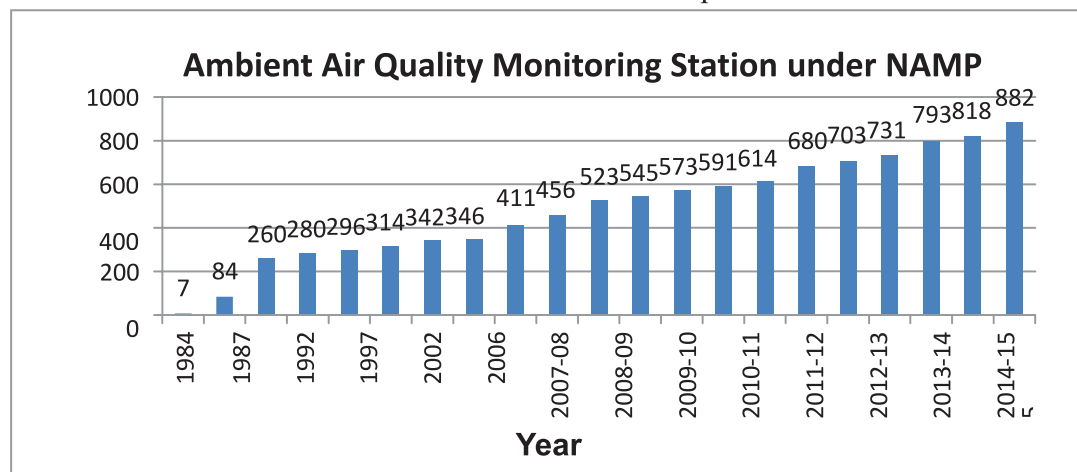
Under the provisions of The Water (Prevention & Control of Pollution) Act, 1974, the Central Government constituted the '**Central Board for the Prevention and Control of Water Pollution**' on September 23, 1974. The name of the Board was amended to **Central Pollution Control Board (CPCB)** under the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

Act, 1981. The enactment of the Environment (Protection) Act, 1986, which is the umbrella legislation for enforcement of measures for protection of environment, and several notifications of Rules under the Act widened the scope of activities of the Central Board.

#### 2. Important Activities during 2021-22 Air Quality Monitoring Network

The following steps have been taken to monitor and improvement of air quality:

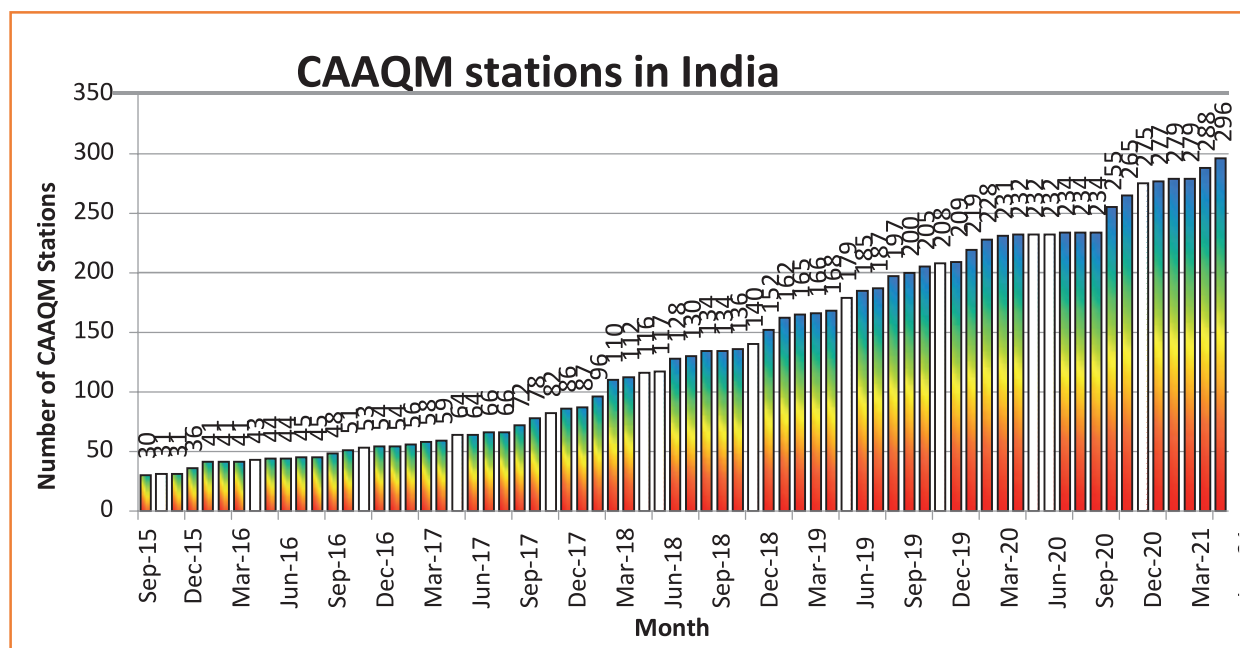
- Under Sub-section 2 (h) of Section 16 of the Air (Prevention and Control of Pollution) Act, 1981 National Ambient Air Quality Standard (NAAQS) has been notified on November 18, 2009 as a policy guideline that regulates the effect of human activity on the environment.
- CPCB has started National Ambient Air Quality Monitoring Programme (NAMP) in 1984. At present, the manual ambient air quality monitoring network has 882 operating stations covering 352 cities/towns in 29 States and 6 Union Territories are presented in



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

- Continuous Ambient Air Quality Monitoring System is a specialized system that is housed in a temperature controlled container/room and is equipped for monitoring of ambient air pollutants using different analyzers. The real time data generated through this system is transferred to Central Server and also to digital display

board for public viewing. The data of these CAAQMS are being used for generating the daily Air Quality Index (AQI) of the cities. The network of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) is expanding in the country and at present, 296 CAAQM stations covering 148 cities in 22 States and 4 UTs are existing across the country are presented in **Fig. 2**.



**Fig. 2: Continuous Ambient Air Quality Monitoring Stations in the country**

- Under CAAQMS the Particulate Matter (PM<sub>10</sub> & PM<sub>2.5</sub>), Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), Ammonia (NH<sub>3</sub>), Carbon Monoxide (CO), Ozone (O<sub>3</sub>) and Benzene (C<sub>6</sub>H<sub>6</sub>) are being monitored at all locations. The CAAQM stations are also equipped with sensors to measure meteorological parameters such as Wind Speed, Wind Direction, Ambient Temperature, Relative Humidity, Solar Radiation and Rainfall.

## 2.0 Water Quality Monitoring Network

CPCB in association with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) has established water quality monitoring network under National Water Quality Monitoring Programme (NWMP). Network strength has been enhanced to 4484 locations. The network comprises of monitoring locations in 28 States and 7 Union Territories (UTs) is given in **Table 1**.

**Table 1 Water Quality Monitoring Network State-wise under NWMP**

State	River	Lake	Pond	Tank	Wetland	Canal	Creek / Marine / Sea / Coastal	Drain	Ground Water	STP	Water Treatment Plant (raw Water)	Total
Andhra Pradesh	48	10	1	4	21	12	6	5	1	-	33	141
Arunachal Pradesh	29	-	-	-	-	-	-	-	-	-	-	29
Assam	96	17	27	1	2	-	-	-	-	-	65	208
Bihar	96	3	2	-	-	-	-	-	-	-	70	171
Chandigarh	-	1	-	-	-	-	-	3	-	-	7	11
Chhattisgarh	29	1	1	-	-	-	-	-	-	-	8	39
Daman And diu	13	-	-	-	-	-	-	-	-	-	12	25
Delhi	12	3	-	-	-	-	2	26	-	6	45	94
Goa	33	12	-	-	-	14	3	-	1	-	8	71



Gujarat	67	20	2	1	-	3	3	-	2	-	89	187
Haryana	22	4	1	-	-	-	14	1	-	3	29	74
Himachal Pradesh	148	5	-	-	-	-	-	28	-	-	53	234
Jammu & Kashmir	63	36	-	-	-	-	-	2	-	-	23	124
Jharkhand	65	4	4	-	-	-	-	-	-	-	3	76
Karnataka	109	80	-	95	-	-	-	1	-	-	2	287
Kerala	132	27	7	-	-	6	3	2	1	-	35	213
Lakshadweep	-	-	3	-	-	-	-	-	-	-	42	45
Madhya Pradesh	158	22	12	1	-	-	-	-	-	-	54	247
Maharashtra	162	-	-	-	-	34	-	10	-	-	50	256
Manipur	41	5	13	-	-	-	1	-	-	-	10	70
Meghalaya	64	7	-	-	-	-	-	-	-	-	13	84
Mizoram	46	1	2	1	-	-	-	-	-	-	26	76
Nagaland	19	2	-	-	-	-	-	-	-	-	10	31
Odisha	133	7	8	-	-	90	9	4	3	-	90	344
Puducherry	6	3	-	-	-	-	-	-	-	-	22	31
Punjab	59	3	3	-	-	-	-	10	8	-	46	129
Rajasthan	35	19	1	-	-	-	5	-	-	-	139	199
Sikkim	25	2	-	-	-	-	-	-	3	-	-	30
Tamil Nadu	86	8	-	1	-	34	5	5	16	-	22	177
Telangana	60	109	13	37	-	-	-	13	11	-	45	288
Tripura	38	8	10	-	-	-	7	-	-	-	57	120
Uttar Pradesh	114	2	2	-	-	-	1	-	-	2	40	161
Uttarakhand	40	2	-	-	-	-	3	-	3	-	19	67
West Bengal	60	14	-	-	-	1	2	-	-	-	68	145
<b>Total</b>	<b>2108</b>	<b>437</b>	<b>112</b>	<b>141</b>	<b>23</b>	<b>194</b>	<b>64</b>	<b>110</b>	<b>49</b>	<b>11</b>	<b>1235</b>	<b>4484</b>

## 2.1 National Ganga River Basin Authority (NGRBA)

The Central Government has set up the NGRBA vide gazette notification dated 20<sup>th</sup> Feb, 2009 as a collaborative institution of Central and State Governments under the Environment (Protection) Act (EPA) of 1986 for abatement of pollution of River Ganga.

National Mission for Clean Ganga (NMCG) was registered as a society on 12<sup>th</sup> August, 2011 under the Societies Registration Act 1860. It acted as implementation arm of NGRBA which was

constituted under the provisions of the EPA, 1986.

Further, NGRBA was reconstituted in September, 2014 but it was dissolved with effect from the 7<sup>th</sup> October, 2016, consequent to constitution of National Council for River Ganga (Rejuvenation, Protection and Management) (referred as NCRG) vide notification no. S.O. 3187(E) dated 7<sup>th</sup> October, 2016 under EPA 1986. There are three projects being carried out under the Namami Gange Programme (NGP) at CPCB is given in **Table 2**.





**Table 2**  
**Details of Projects under NGRBA Cell**

S No.	Project	Funding Agency	Project Duration	Total Budget (Rs. Crores)	Status
1	Pollution Inventorization, Assessment and Surveillance (PIAS)	MoEF & CC	5 Years (w.e.f. 01.04.2011)	34.77	Completed
			3 Months		
		MoWR, RD & GR	1 Years (Revised)		
		MoWR, RD & GR	3 Months till 28.09.2017	83.25	On-going
			3 Years (w.e.f. 29.09.2017)		
		NMCG, MoWR, RD & GR	6 Months		
			1 Year 6 months (till 25 <sup>th</sup> Sept, 2022)		
2	Water Quality Monitoring (WQM)	The World Bank (through NMCG)	7 Years (w.e.f. 19.07.2013)	126.17	On-going
	WQM Phase-II		6 Years (w.e.f. 20.06.2020 to 19.06.2026)		
3	Strengthening of Environmental Regulators (SER)- Phase I	The World Bank (through NMCG)	8 Years & 8 months (w.e.f. 19.06.2013 till 17.02.2022)	69.26	Completed
	SER Phase II		3 years (w.e.f. 18.02.2022 to 17.02.2025)	66.21	On-going

### 2.1.1 Pollution Inventorization, Assessment & Surveillance on River Ganga (PIAS)

The PIAS project was funded by the Ministry of Environment & Forests and was sanctioned at a cost of Rs. 34.77 crores on 29<sup>th</sup> March, 2011 for 5 years vide order No. A-12012/9/2010-NRCD-II. An extension and re-appropriation PIAS project with an additional cost for inspection of GPIs (Grossly Polluting Industries) in Yamuna basin and other activities with extension of 1 year w.e.f. 26.03.2021 to 25.03.2022 was received from NMCG on 26.05.2021. The same has been again extended up to 25.09.2022 with effect from 26.03.2022 without any cost escalation and within the sanctioned project amount of Rs. 83.25 crores.

Under this project, CPCB has carried out different activities under monitoring, surveillance of water quality of river Ganga

from its origin to confluence to Bay of Bengal such as in-depth inspection of Grossly Polluting Industries (GPIs), monitoring of Sewage Treatment Plants (STPs), Common Effluent Treatment Plants (CETPs), Ground water monitoring to assess the impact of CETPs/STPs and major drains falling into the river of river Ganga and its tributaries like river Banganga, Ramganga, river Kali East, river Pandu and Hindon sub-basin (river Hindon, Kali–West and Krishna).

The objective of the project is to inventorise the pollution sources (both point and non- point) and to assess the pollution load being discharged into the river Ganga directly or indirectly through tributaries, namely Banganga, Ramganga, Kali-East and Pandu. The activities carried out under the project during April, 2021-March, 2022 are given in **Table 3**.



**Table 3**  
**Inspections/Monitoring under PIAS Project during 2021-22**

S. No.	Activities	No. of inspections/ monitoring	Frequency of monitoring
1.	Compliance verification of Grossly Polluting Industries (GPIs) (by CPCB)	19*	Yearly
2.	Compliance verification of Grossly Polluting Industries (GPIs) (through Third party technical institutes)	2400 out of 2706 (Ganga basin-1051 and Yamuna-1655)	Yearly
3.	Adequacy Assessment of Common Effluent Treatment Plants (CETPs) & Common Chrome Recovery Unit (CCRU)	34	Quarterly
4.	Performance evaluation of Sewage Treatment Plants (STPs)	470	Quarterly
5.	Pollution assessment of major drains falling into the river Ganga	1530	Half-yearly

\* All GPIs were inspected under NGT direction

### 3.0 Categorization of Industrial Sectors into Red, Orange, Green and White Category

Based on the Pollution Index (PI), industries have been categorized into red, orange, green & white category. Pollution Index (PI) is a function of water pollution, air pollution, hazardous waste generation, fuel consumption and amount of waste water generation. So far, 254 sectors have been categorized into red, orange, green & white category.

During the year 2021-22, considering the notifications issued by the Ministry of Agriculture and Farmers Welfare (vide Gazette Notification No. 2051 dated 14.07.2020 and No. 1972 dated 01.06.2021 regarding inclusion of Fermented Organic Manure (FOM) and Liquid Fermented Organic Manure (LFOM) under Fertilizer (Inorganic, Organic or Mixed) (Control) Act, 1985) and to promote the cleaner sources of energy, categorization has been revised for Compressed Biogas (CBG) / Bio-CNG plants and categorized 'CBG plants (irrespective of the type of feed) producing FOM/LFOM as by-products' under white category. CBG plants based on animal waste and crop residue are

categorized under green category. CBG plants based on Municipal Solid Waste (MSW) and process waste are categorized under orange category. In addition, 'Household bio-digesters / gobar-gas (cow-dung) plants based on bio-degradable wastes, etc.' are categorized under white category.

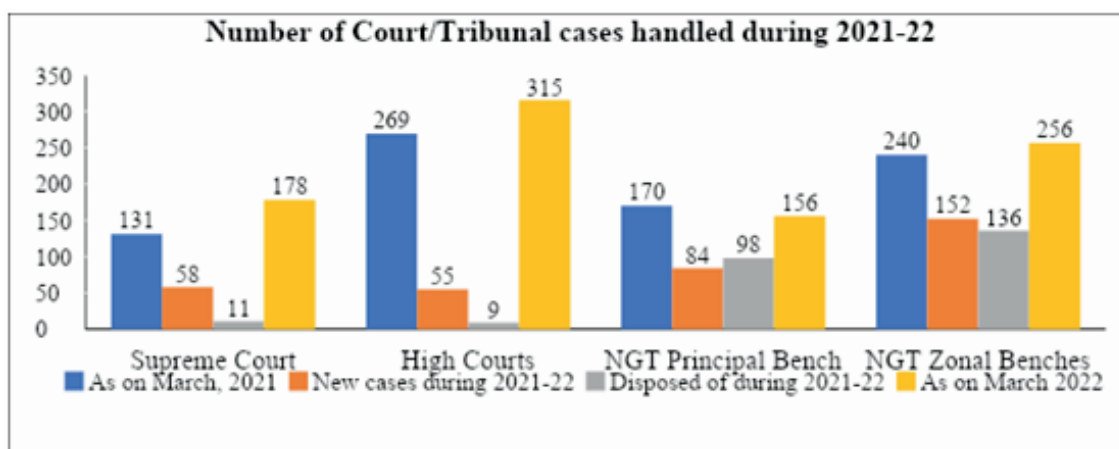
### 4. Environmental Quality Monitoring of Polluted Industrial Areas (PIAs) for Evaluation of Comprehensive Environmental Pollution Index (CEPI)

CEPI is used to characterize quality of environment at a given location following the algorithm of source, pathway and receptor. CEPI relates to evaluation of environmental quality in industrial area based on air, surface water and groundwater pollution as well as based on industries and health statistics. The industrial areas have been categorised as given below:

- Areas having CEPI scores 70 and above are considered as Critically Polluted Area (CPA),
  - Areas having CEPI scores between 60 and 70 are considered as Severely Polluted Area (SPA)
- Areas having CEPI scores less than 60 are considered as Other Polluted Area (OPA).

**5.0 Status of Court / Tribunal cases in which CPCB is a respondent**

Particulars	Supreme Court	High Courts	NGT Principal Bench	NGT Zonal Benches
As on March, 2021	131	269	170	240
New cases during 2021-22	58	55	84	152
Disposed of during 2021-22	11	9	98	136
As on March 2022	178	315	156	256

**7.0 Budget Allocation for Financial Year 2022-23**

Budget allocation as per Budget Estimate of MoEF&CC for Financial Year 2022-23 is

**Rs.100.00 Crore**, the details are:

- a) General : Rs. 26.00 Crore
- b) Capital : Rs. 04.00 Crore
- c) Salary : Rs. 70.00 Crore

**7.0 Industrial CAAQMS Portal**

Industrial Air Quality Management Portal has been developed to collect, store, and analyze data from Automatic Ambient Air Quality Monitoring System installed in industrial premises.

The portal supports visualization of ambient air quality data in graphical as well as tabular formats.

**7.1 Sameer App**

Sameer App was created by CPCB to create public awareness about air quality and provide



a platform for grievances redressal. Since its launch, it has been downloaded by more than 1,80,000 users on Android and iOS platforms.





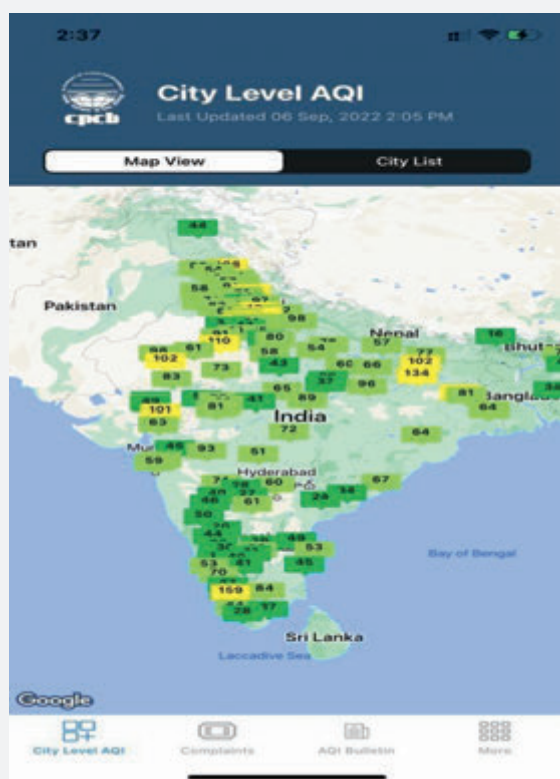
This App provides hourly updated information on AQI for more than 186 (148 cities?) cities using real time data from 365 (296 stations as per CAAQMS?) stations in 31 States/UTs. It can be readily accessed using the interactive map format. It provides real-time AQI, pollutant-wise sub-index and monthly calendar depicting overview of AQI for each monitoring location. Daily AQI bulletin published by CPCB is uploaded on the App at 4 PM. The App also issues advisories through push notifications to the public as per prevailing air quality levels. This CAAQMS data is made available to public and various agencies through the CPCB CCR Portal (<https://airquality.cpcb.gov.in>).

Sameer App provides a facility for lodging grievances related to air pollution. The complainant can upload photographs along

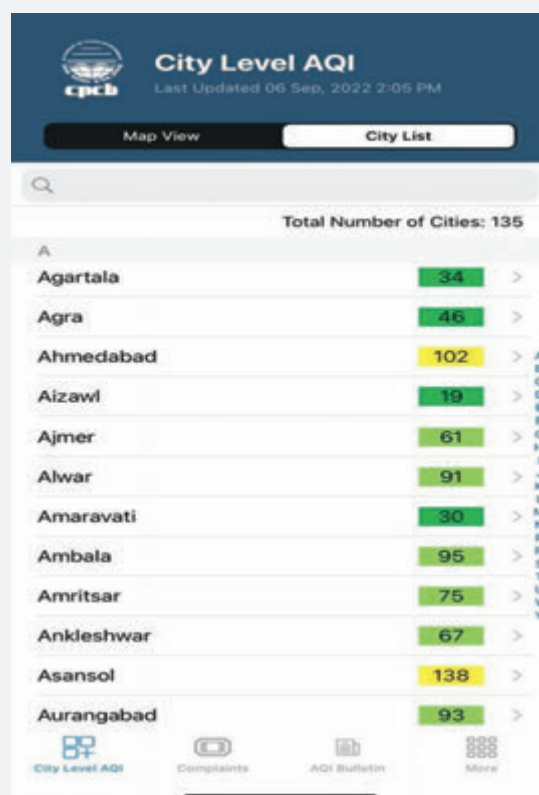
with complaint, and geo-coordinates are automatically captured for pinpointing exact location of source of air pollution for facilitating prompt action by concerned agencies. The complaints are automatically forwarded to implementing agencies depending on the location of the complaint. For Delhi-NCR, more than 40 agencies responsible for mitigation of air pollution are configured on the App which is well integrated with complaint management system of implementing agencies. Since November 2018, so far around 30K+ public complaints were received on Sameer App. Out of these about 80% complaints (27K+) were resolved through coordination with more than 42 implementing agencies which also have Zonal or Regional offices which sums up to more than 100 offices in Delhi NCR.

### Snapshot of AQI

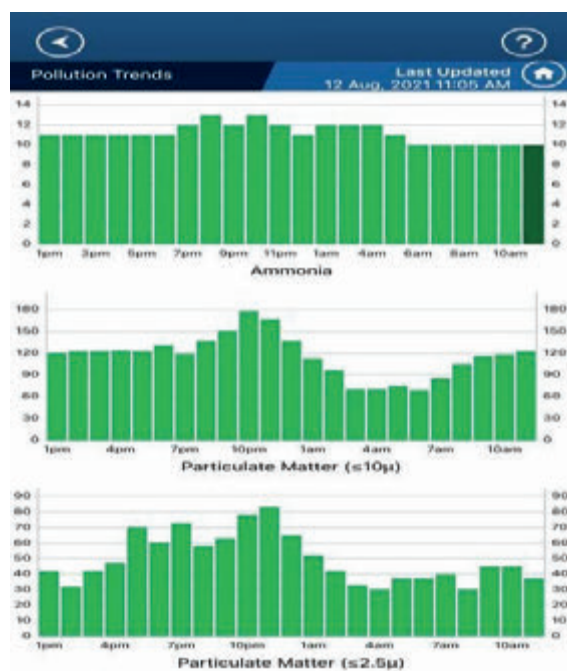
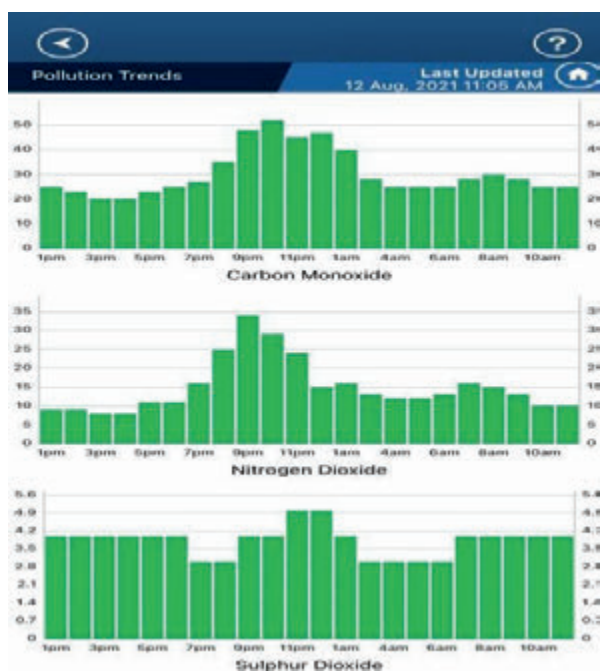
**Map View:-** It shows the Average AQI for a City on map display



**List View:-** It Shows the Avg. AQI values in list view



**Pollutant wise 24 – Hour Trend:** Provides detailed view for different ambient air quality pollutants monitored at a selected station



**AQI calendar: - It shows Monthly Station wise AQI overview.**



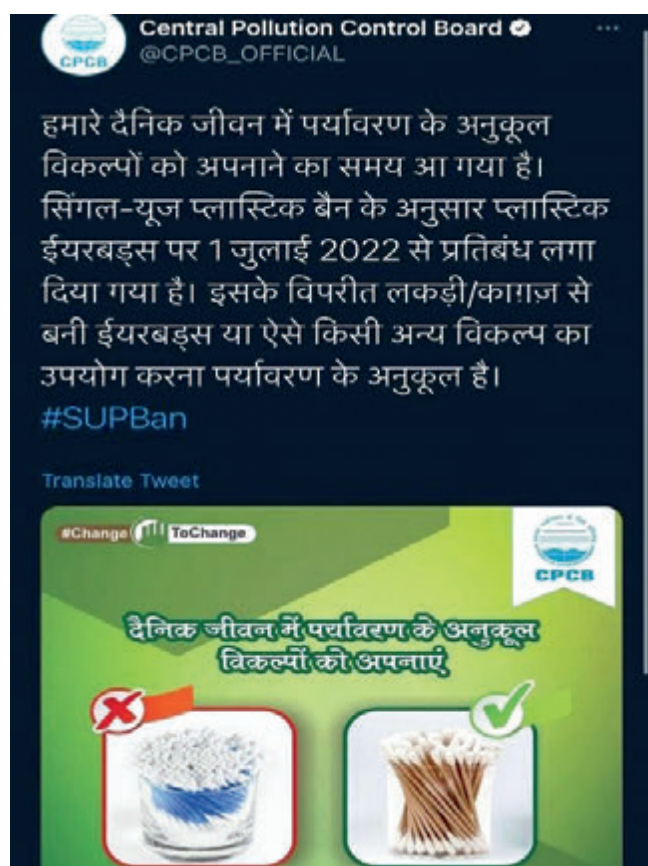
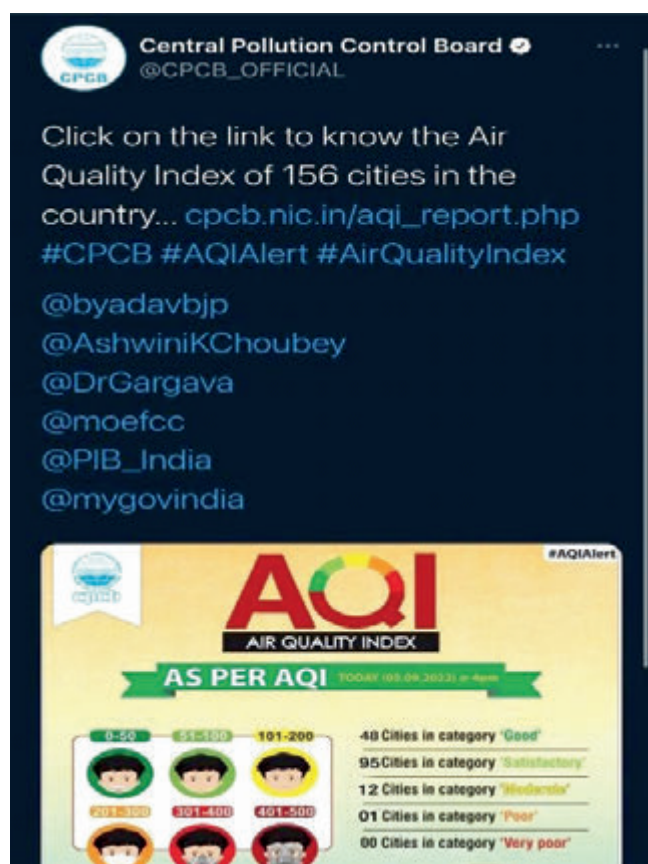
## 7.2 CPCB Social Media Platform

As Social Media is now the dominant digital avenue for two-way communication hence, Central Pollution Control Board created Social Media Handles on different Social Media Platforms to use them for dissemination of information on pollution related issues, creating awareness on functions, schemes and activities of CPCB and giving citizens the facility to reach out to CPCB for raising air pollution related queries. Presently, CPCB is reachable at Twitter, Facebook, Instagram, Koo and YouTube. More than 14K complaints have been received on different social media platforms out of which 64% complaints have been resolved.





## Some glimpses of Social Media posts:







## 8.0 Guidelines Developed by CPCB

The following guidelines have been developed by CPCB:

- Guidelines on “Integrated Guidance Framework for Chemicals Safety in Respect of the Isolated Storages and Industries Covered Under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.”
- Guidelines for Environmental Management of Dairy Farms and Gaushalas” has been revised as per the directions of the Hon'ble National Green Tribunal (NGT) in O.A. No. 46/2018 (Nuggehalli Jayasimha Vs. Government of NCT of Delhi) and circulated to all Chief Secretaries and SPCBs / PCCs of States / UTs for implementation.
- Guidelines on Environmental Management of C&D Wastes (*March, 2017*) and In addition 'Guidelines on dust mitigation measures in handling construction material and C&D wastes (*November, 2017*)' were issued by CPCB (Rules and Guidelines are available on the Website of CPCB).

### Development of Environmental Standards:

The Ministry of Environment, Forest and Climate Change (MoEF&CC) formulates and notifies standards for emissions or discharge of environmental pollutants viz. air pollutants, water pollutants and noise limits, from industries, operations or processes with an aim to protect and improve the quality of the environment and abate environmental pollution. The standards are framed in consultation with the concerned stakeholders. The process is based on the best practices and techno-economic viability. The notification of standards also involves formulation of load based standards i.e. emissions/discharge limits of pollutants per unit of product obtained/ processes performed to encourage resource utilization efficiency and conservation aspects. The standards for any industrial process/ operation recommended by Central Pollution Control Board (CPCB) are subjected to stakeholder consultation

including general public. The comments are compiled and technically examined by CPCB and change, if any, incorporated. In sustained efforts towards control of air/ water pollution caused by various sectors of industries, the Ministry embarked upon developing new standards/revision of existing standards for various industrial categories.

### Achievements and Progress are as follows:

- A total of 81 standards across various industries have been notified/ revised so far. The major sectors 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 SO<sub>2</sub> and NO<sub>x</sub> for five industrial sectors – Lime Kiln, Ceramic, Glass, Foundry and Reheating Furnaces, Pharmaceutical Industry, PVC Pipes and Fittings, and Membrane based water purification system etc. The final notifications published in year 2022 on Emission and Discharge Standards under Environment (Protection) Act 1986 are as follows:

1. Emission standard for Brick Kiln, vide Gazette Notification No. G.S.R. 143 (E), dated 22.02.2022
2. Amendment of emission Standard for Thermal Power Plants, vide Gazette Notification No. G.S.R. 682 (E), dated 06.09.2022
3. Emission Standards for Generator Set (Genset) upto 800 kW, vide Gazette Notification No. G.S.R. 804 (E) dated 03.11.2022

The draft notifications published in year 2022 for stakeholders consultation on Emission and Discharge Standards under Environment (Protection) Act 1986 are as follows:

- I. Calcined Petroleum Coke (CPU), vide G.S.R.



- 405(E), dated 31.05.2022
- II. Industrial Boilers, vide G.S.R. 477(E), dated 27.06.2022
  - III. Hot Mix Plants vide G.S.R. 805(E), dated 04.11.2022
  - IV. Amendment of Common Effluent Treatment Plants, notification vide G.S.R. 811(E), dated 10.11.2022.

### 3.3 Hazardous Substances Management (HSM)

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

#### Major Rules are as follows:

##### **Solid Waste Management Rules, 2016:**

These rules 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, 2022:**

E-Waste (Management) Rules, 2022 has been notified on 2<sup>nd</sup> November, 2022 which covers 106 Electrical and Electronic Equipment (EEE) including Solar PV waste. The Rules are a transformative step towards implementation of the announcement made by Hon'ble Prime Minister to promote Circular Economy. New rules provide Extended Producer Responsibility (EPR) regime for e-waste recycling according to the needs of the current scenario.

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

These rules 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.

The 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:**

These 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.



*Common Bio-medical Waste Treatment Facility and Hazardous Waste Treatment Facility (TSDF) to treat 14 tonnes of hazardous waste per annum at Manipur funded under Central Sector Scheme of HSM Division*

##### **Plastic Waste Management Rules, 2016:**

These were notified on 18th March, 2016. These rules apply to the manufacture, import stocking, distribution, sale and use of carry bags, plastic sheets or multilayered packaging etc. The jurisdiction of applicability of the rules have been expanded from municipal area to rural areas as well. For the first time,



responsibility of waste generators has been prescribed. Individual and bulk generators like offices, commercial establishments, industries are to segregate the plastic waste at source, handover segregated waste, pay user fee as per bye-laws of the local bodies.

#### **Construction & Demolition (C&D) Waste Management Rules, 2016:**

The rules notified in 2016 apply to everyone who generates construction and demolition waste such as building materials, debris, and rubble waste resulting from construction, re-modelling, repair and demolition of any civil structure of individual or organization or authority. The rules mandate for collection, transportation, storage and re-processing of C&D waste. Emphasis was given on recycling/ recovery of valuable materials and C&D waste as 'RESOURCE'. Scope of the rules includes construction & demolition/ renovation of buildings, excavation, road/ flyover/ underpass/ bridge construction, laying utility pipelines etc. Timeline were prescribed for creation of physical reprocessing facility at all places for recycling C&D waste. for recycling C&D waste.

#### **Battery Waste Management Rules, 2022:**

Ministry of Environment, Forest and Climate Change, Government of India published the Battery Waste Management Rules, 2022 on 24<sup>th</sup> August, 2022 to ensure environmentally sound management of waste batteries. New rules replace Batteries (Management and Handling) Rules, 2001. The rules cover all types of batteries, viz. Electric Vehicle batteries, portable batteries, automotive batteries and industrial batteries. The rules function based on the concept of Extended Producer Responsibility (EPR) where the producers (including importers) of batteries are responsible for collection and recycling/refurbishment of waste batteries and use of recovered materials from wastes into new batteries.

#### **Ash utilisation notification, 2021:**

The Ministry of Environment, Forest and

Climate Change has reviewed the existing fly ash notification, 1999 and issued new notification on 31<sup>st</sup> December, 2021 with an aim to achieve 100% ash utilisation generated from coal and lignite based thermal power plants.

**Chemical Safety:** The Ministry of Environment, Forest and Climate Change notified the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and the Chemical Accidents (Emergency Planning, Preparedness and Response) (CAEPPR) Rules, 1996 for ensuring chemical safety in the country. Objective of these rules is to prevent chemical accidents from industrial activities and mitigate impacts of chemical accidents. The notification mandates thermal power plants to achieve 100% utilisation of current generation of ash in 3-5 year cycle and legacy ash in 10 years. The eco-friendly purposes for utilisation of ash have been prescribed. Objective of these rules is to prevent chemical accidents from industrial activities and mitigate impacts of chemical accidents. Occupier of the hazardous chemicals is required to declare major hazards of industrial activity to public and prepare on-site emergency plan & safety reports, conduct regular safety audits and mock-drills, etc. Further, crisis management framework for chemical emergencies has been formulated.

**Public Liability Insurance:** The Public Liability Insurance Act, 1991 enacted with a purpose to provide immediate relief to the persons affected by accident occurring while handling hazardous substance and for matters connected therewith or incidental thereto. PLI Act, 1991 covers death or injury to any person other than workman (General Public) or damage to property resulting from an accident while handling hazardous substance. The Act covers 179 chemicals and flammable substances. As per Section 7A of the Amended Act, 1992, the Major Accident Hazard (MAH) units shall contribute an amount equal to the amount of premium of the





insurance policy to the Environment Relief Fund (ERF) to be created by the Central Government.

### **Resource Efficiency and Circular Economy:**

#### **Mission Circular Economy**

- Hon'ble Prime Minister, Shri Narendra Modi, in his address to the nation on the occasion of 75<sup>th</sup> Independence Day on 15<sup>th</sup> August, 2021 had highlighted India's action on 'Mission Circular Economy'.
- Circular Economy Action Plans for 10 waste categories (Lithium ion batteries; E-waste; Toxic and hazardous industrial waste; Scrap metal (ferrous and non-ferrous); Tyre and Rubber; End of Life Vehicles; Gypsum, Used Oil, Solar Panels and Municipal Solid Waste have been finalized, and are under implementation.
- MoEFCC is the Nodal Ministry for Circular Economy Action Plan for Tyre and Rubber and stakeholder ministry in other CE Action Plans.

**Multilateral Agreements:** The Division is also the nodal point for the following multilateral agreements

**Basel Convention:** The Convention regulates transboundary movement of hazardous wastes and disposal (import and export) and prescribes environmentally sound management of wastes domestically. To implement the provisions of transboundary movement of hazardous waste, the Ministry has established a Prior Informed Consent (PIC) mechanism for regulating import and export of hazardous waste under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

#### **Stockholm Convention:**

Stockholm Convention is a global treaty to protect human health and the environment from Persistent Organic Pollutants (POPs).

To implement the obligations, the Ministry notified the Regulation of Polychlorinated

Biphenyls Order, 2016; and Regulation of Persistent Organic Pollutants Rules, 2018 to prohibit production, import and use of hazardous chemicals. The Ministry has prepared National Implementation Plan for 12 POPs.

#### **Rotterdam Convention:**

The objective of the Rotterdam Convention is to promote shared responsibility and cooperative efforts among parties in the international trade of chemicals to protect human health and the environment, and contribute to the environmentally sound use of chemicals.

India ratified the convention in May, 2005. A total of 52 chemicals are listed in Annex III includes pesticides and industrial chemicals. India has established the mechanism for Prior Informed Consent for import and export of hazardous chemicals.

#### **Minamata Convention:**

The Minamata Convention is a global legally binding instrument with the objective to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. India ratified the Convention in June, 2018. India has established a mechanism for Prior Informed Consent for import and export of mercury to meet its obligations.

#### **Strategic Approach to International Chemicals Management (SAICM):**

SAICM is a global policy framework to promote sound management (production and use) of chemicals throughout their life-cycle to minimise significant adverse effects on human health and environment.

To promote safe use of chemicals, Ministry has notified a Regulation on lead content in Household and Decorative Paints Rules in November, 2016 to prohibit manufacture/ trade/ import/ export household and decorative paints with Lead or Lead compounds in excess of 90 parts per billion.

**Central Sector Scheme 'Creation of Management Structure for Hazardous Substances':**

HSM Division promotes environmentally sound management of wastes and chemicals through innovative solutions and pilot

projects, capacity building, awareness and training for sustainable management of wastes and Hazardous Substances. Central financial assistance is provided to the proposals recommended under the Central Sector Scheme.

S. No.	Organisation	Purpose	Amount released
1.	M/s Mother Earth Environ Tech Pvt. Ltd.	Setting up of Treatment, Storage and Disposal Facility (TSDF) of Hazardous Waste in District Ramanagara, Karnataka.	Rs.1,32,49,300/- out of sanctioned amount Rs.3,97,48,000/-
2.	M/s Climate Collective Foundation	India Plastic Challenge- Hackathon, creating awareness on plastic pollution and its solutions.	Rs.14,04,000/- out of sanctioned amount Rs.17,55,000/-
3.	M/s Kerala Enviro Infrastructure Ltd.	Setting up of Common Bio- Medical Waste Treatment And Disposal Facility (CBWTF), District Kochi, Kerala.	Rs. 36,00,000/- out of sanctioned amount Rs.90,00,000/-
4.	Bamdev Smart Solutions Pvt. Ltd.	Setting up of CBWTF in Banda, Uttar Pradesh	Rs. 20,00,000/- out of sanctioned amount Rs. 50,00,000/-
5.	Manipur Pollution Control Board	Setting up of TSDF and CBWTF, West Imphal District, manipur	Rs. 1,34,00,000/- out of sanctioned amount Rs. 3,35,00,000/-
6.	Mizoram Pollution Control Board	Setting up of CBWTF, Aizwal, Mizoram	Rs. 80,00,000 out of sanctioned amount Rs. 2,00,00,000/-
7.	Goa State Pollution Control Board	Setting up of TSDF of Hazardous waste	Rs. 35,50,000/- out of sanctioned amount Rs. 3,00,00,000/-
8.	M/s Manav Rachna University	“Wastes to Resources”- An awareness campaign for Waste Management, inaryana, Faridabad	Rs. 4,00,000/- out of sanctioned amount Rs.10,00,000/-
9.	M/s Inclusive Recycling Foundation	Innovative awareness and training program to promote safe and circular e-waste management	Rs. 4,00,000/- out of sanctioned amount Rs.10,00,000/-
10.	M/s Pt. Deen Dayal Upadhyay Smriti Sansthan	Plastic waste management awareness campaign in Jaipur and Dausa, Rajasthan	Rs. 6,42,800/- out of sanctioned amount Rs. 16,07,000/-
11.	M/s Sri Venkateshwara University	Awareness programmes on solid waste management in rural areas (10 villages) of Tirupati, AP	Rs. 8,00,000 out of sanctioned amount Rs. 10,00,000/-
12.	M/s Chintan M/s Environmental Research and Action Group	Enabling ULBs to use social media to implement PWM Rules 2021, New Delhi	Rs. 5,99,896/- out of sanctioned amount Rs. 14,99,74,000/-
13.	M/s Vibhavari foundation	Creating awareness regarding SUP ban and zero waste in 15 villages of district Dewas, M.P.	Rs. 4,00,000/- out of sanctioned amount Rs. 10,00,000/-



14.	MyGov	Setting up and engaging Social Media team with MoEF&CC on creating awareness on environmentally sound management	Rs. 38,00,000/- out of sanctioned amount Rs. 95,00,000/-
15.	Central Pollution Control Board, New Delhi	GIS based national hazardous waste tracking system	95,00,000 out of sanctioned amount Rs.2,35,32,339/-
16.	Centre for Development of Advanced Computing (CDAC), Delhi	Online e-waste material balance system for handling of e-waste management cycle	26,07,500/- out of sanctioned amount Rs. 5, 87,74,000

### Externally funded projects:

HSM Division implements the following externally funded projects in collaboration with respective agencies in the field of chemicals and wastes:

- I. GEF-UNIDO: Environmentally Sound Management of Poly Chlorinated Biphenyls (PCBs) in India;
- ii. GEF-UNIDO: Development and promotion of non-POP alternatives to DDT;
- iii. UNEP: India-Norway Marine Pollution Initiative;
- iv. UNEP: Partnership for Action on Green Economy (PAGE);
- v. GIZ: Circular Economy Solutions (CES) preventing Marine Litter in Ecosystems;
- vi. EU: EU-Resource Efficiency Initiative (EU-REI), and SWITCH-Asia Programme;
- vii. Development of Regulatory Framework for Minamata Convention in India.

### Activities undertaken:

1. To implement Hon'ble PM's announcement, Notification on phasing out of 12 Single-Use Plastics (SUP) items w.e.f. 1st July, 2022 was issued in August, 2021:
- I. Ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;
- ii. Plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 microns, stirrers.
2. Plastic packaging waste, which is not covered under the phase out of identified single use plastic items, will be collected and managed in

an environmentally sustainable way through Guidelines for Extended Producer Responsibility notified on 16th February 2022.

3. Plastic Waste Management (Second Amendment) Rules 2022 – Alignment with EPR Guidelines, Environmental Compensation and biodegradable plastics.

Thickness of Plastic carry bags increased to 75 microns (30.9.2021) and to 120 microns (31.12.2022)







Awareness programme on Solid Waste Management and Plastic Waste management in various schools and universities.

2. The Ministry launched an Awareness Mascot 'Prakriti' for spreading awareness among the citizens and youth on green initiatives for protection of environment.
3. Green Pledge 'Swachh Bharat Harit Bharat' was launched for citizens for taking pledge on protection of environment and elimination of single use plastics.
4. The following green initiatives for plastic waste management (PWM) were launched,
  - I. National Dashboard on Elimination of SUP and PWM,
  - ii. EPR Portal for Plastic Packaging,
  - iii. Mobile App for SUP Grievance Redressal,
  - iv. Monitoring module for SUP,
  - v. Industrial production of Graphene from Waste Plastic
10. Winners of the India Plastic

Challenge-Hackathon 2021 were felicitated for innovative ideas and digital solutions for plastic waste mitigation and elimination of Single-Use Plastics.

11. Draft Bill for amendments in Public Liability Insurance Act, 1991 has been incorporated in 'The JAN VISHWAS (AMENDMENT OF PROVISIONS) BILL, 2022. The BILL has been tabled in the Lok Sabha on 22<sup>nd</sup> December, 2022. (BILL NO. 299 OF 2022). The proposed amendment will provide conducive business environment for the industries dealing with hazardous chemicals.
12. Regulations on market based Extended Producer Responsibility (EPR) principle have been notified for four categories of wastes i.e. plastic packaging waste, battery waste, e-waste and waste tyre.
13. The Ministry has notified 'Guidelines on the Extended Producer Responsibility (EPR) for Plastic Packaging' under Plastic Waste Management Rules, 2016 on 16 February, 2022.
14. Ministry of Environment, Forest and Climate Change, Government of India published the notification on 'Extended Producer Responsibility (EPR) for Waste Tyre' on 21st July, 2022 through amendment in Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 to ensure environmentally sound management of waste tyres.
15. Battery Waste Management Rules, 2022 were notified on 24th August, 2022 to ensure environmentally sound management of waste batteries. The rules function based on the concept of Extended Producer Responsibility (EPR).
16. Integrated Disaster Management Framework for industries covered under MSIHC Rules, 1989' prepared by Ministry and CPCB shared with States/ UTs for implementation.
17. 24x7 Crisis Control Room Infrastructure for chemical industrial disaster has been setup at MoEF&CC.
18. To review implementation of Bio-Medical Waste Management, 2016, 02 Meetings of the Central Monitoring Committee convened (in Feb-2022 and May-2022) and compliance



report filed to Hon'ble NGT.

19. India engaged constructively with all member states at 5th UNEA to develop consensus on the historic resolution for driving global action on plastic pollution "End plastic pollution: Towards an international legally binding instrument".
20. India has negotiated its position and protected interests in amendment of Minamata Convention on mercury for phase-out of 8 Mercury Added Products such as compact fluorescent lamps, cold cathode fluorescent lamps, photograph film and paper, and propellant for satellites by 2025 and adoption of two additional measures for phase-down of dental amalgam during the COP4 held on 21-24 March, 2022 in Bali, Indonesia.
21. Import of approximately 116 MT of mercury has been permitted by providing 15 Prior Informed Consents under Minamata Convention.
22. Following interventions were made by India in the 2022 COP meetings of the Stockholm and Rotterdam Conventions:
  - I. INDIA supported the listing proposals of ban on Perflourohexane sulfonic acid (PFHxS), its compounds and isomers
  - ii. INDIA supported continued usage of DDT for disease vector control
  - iii. INDIA opposed the listing proposals of various chemicals viz. chrysotile asbestos, paraquat dichloride and carbosulfan under Annex-III of the Rotterdam Convention considering domestic interests – COP deferred the matter.
23. Ministry has notified amendment in HoWM Rules, 2016 on 23<sup>rd</sup> December, 2022 to allow import of High End High Valueused medical equipment.
24. Notification on amendments to Ash Utilisation Notification, 2021 has been published on 30th December, 2022.
25. GEF-funded Project on 'Review and Update of the National Implementation Plan' under Stockholm Convention on POPs initiated in Nov., 2022 with UNEP, CPCB and CSIR-NEERI & NIIST.
26. Project Steering Committee meeting held to review GEF funded project 'Development of

alternatives to DDT'. Key achievements: VCRC transferred the technology for development of Bt. based Pesticides to HIL, 14.2 Lakh Mosquito nets manufactured under the project sold to Airforce, CRPF and M/o Health and Family Welfare.

21. Project Steering Committee meeting held for reviewing GEF funded project 'Environmentally sound management of PCBs in the country'. Key achievements: 133 MT PCB oils treated, static facilities of Pure PCB destruction by PLASCON and Low PCB treatment have been commissioned.

### 3.4 Development and Promotion of Clean Technology and Waste Minimization Scheme

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

The main objective of the Scheme related to waste minimization was to optimize the consumption of raw materials and also to reduce waste generation by adopting suitable production techniques which are cleaner in nature and can be adopted by the existing units without necessarily changing the production processes or unit operations. The approach to the problem was towards utilizing the existing production facilities in an optimal manner. The purpose of the



scheme was to assist primarily the Small and Medium Scale units which do not have access to the requisite technical expertise to achieve waste minimization with the following objectives of:-

- I. Identification of priority areas and development of appropriate economically viable clean technologies and waste minimization strategies for small scale and medium scale industries through interface with industry, R&D establishments and academic institutions.
- ii. Promotion and adoption of clean technologies and waste minimization strategies by the industry/industrial clusters through setting up of pilot/demonstration projects on prototype development,
- iii. (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 5 ongoing projects under the Scheme and the budget allocation of ₹ 1.5 Crore has been allocated in Centre Sector Scheme of the Division.

### 3.5 Policy and Law

#### Introduction

The Policy and Law (P&L) Division deals with the administration/ establishment matters of the NGT; framing of NGT Recruitment Rules/ Amendments in the NGT Act and NGT Recruitment Rules; coordination with the Ministry of Law & Justice and handling of court cases in the Supreme Court of India, various High Courts and NGTs.

The P&L Division handles the administrative issues of NGT while the ESZ and CP

Divisions are administrative-in-charge of Dahanu Taluka Environment Protection Authority and Loss of Ecology Authority, respectively. The Division is allocated funds under the Budget Head “National Green Tribunal” and the budget under this is further allocated to –

- National Green Tribunal;
- Grants-in-Aid to Loss of Ecology Authority, Chennai, and
- Grants-in-Aid to Dahanu Taluka Environment Protection Authority, Ahmedabad.

### 3.6 National Green Tribunal

#### **National Green Tribunal (NGT)**

The National Green Tribunal was set up on 18<sup>th</sup> 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. As per Section 4 (1) of NGT Act 2010, the tribunal shall consist of a) full time Chairperson, (b) not less than ten but subject to maximum of twenty full time Judicial Members as the Central Government may, from time to time, notify and (c) not less than ten but subject to maximum of twenty full time Expert Members, as the Central Government may, from time to time, notify. Hon'ble Mr. Justice Adarsh Kumar Goel, a sitting Judge of the Supreme Court of India was appointed as Chairperson, NGT w.e.f. 06.07.2018.

#### **Legal Monitoring Cell (LMC)**

A Legal Monitoring Cell set up in the Policy & Law Division monitors the progress of court cases and also acts as an effective





coordinator with various Divisions of the Ministry regarding court cases. The total number of cases in which the Ministry is a Party, as on 22.11.2022, are 2,617 in matters pending before the Supreme Court of India, High Courts, National Green Tribunal (all Benches), Central Administrative Tribunal, etc.

### 3.7 Ecolabelling Division

#### Eco-labelling Scheme

I. The Ecomark Scheme was launched by the Ministry of Environment and Forest in 1991 vide G.S.R. 85(E) dated 21.02.1991 with the objective to assist consumers to make environment-friendly choices of products and

promote industry to implement an environment-friendly processes or production methods.

ii. The Government of India has notified the final criteria for 17 product categories (1992-2018) under Ecomark Scheme: - Soaps and Detergents; Paper; Food Items; Lubricating oils; Packaging materials/Package; Architectural Paints and Powder Coatings; Batteries; Electrical and electronic goods; Food Additives; Wood Substitutes; Cosmetics; Aerosols and Propellants; Plastic Products; Textiles; Fire-extinguisher; Leather; and Coir & Coir Products. These 17 product categories have 335 standards therein for different products. There are 52 functional Ecomark licenses.



CHAPTER

**04**

***Environmental Impact Assessment  
and Clearance***



#### 4.1 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 27<sup>th</sup> 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) biodiversity, 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, 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 a 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 660 projects (between 1st January, 2022 to 31st December, 2022). The sector-wise environmental clearances issued to projects by the Ministry during the year 2022 (upto December 31, 2022) is given in the Fig.1 while the graphical representation of average time taken for grant of Environment Clearance is given in Fig 2.

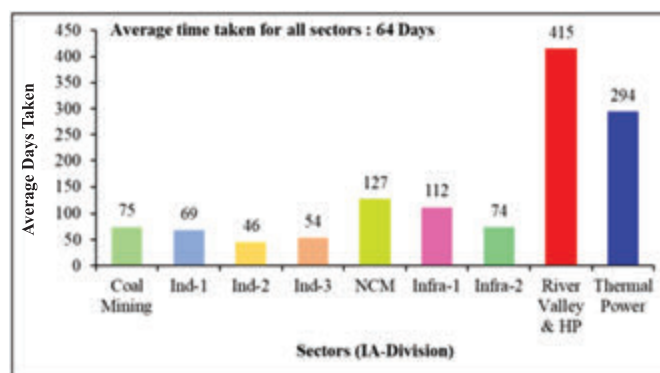
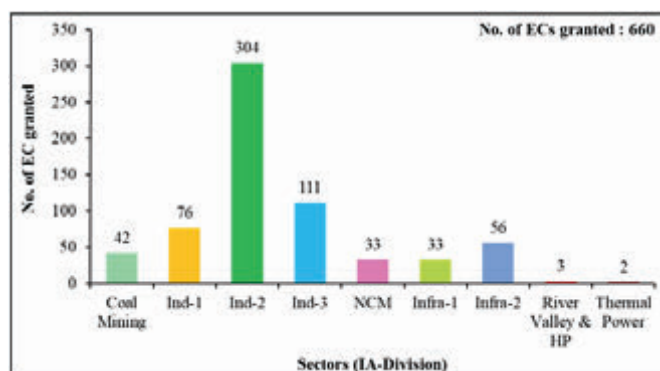


Fig. 1 Average time taken for grant of EC (1st January 2022 to 31<sup>st</sup> December 2022)



Constitution of State Environment Impact  
Fig. 2- Environment clearances granted (1st January 2022 to 31st December)





### **Constitution of State Environment Impact Assessment Authorities (SEIAA)**

As on date the Ministry has constituted thirty-four State/ UT level Environment Impact Assessment Authorities (SEIAA) under sub section (3) of section 3 of the Environment (Protection) Act 1986 for approval of EC of category B projects and activities which have been appraised by SEACs. Eight SEIAA/ SEAC have been constituted in 2022.

### **Implementation of Single-Window Integrated Environmental Management System.**

Pursuant to the spirit of 'Digital India' initiation and capturing the essence of Minimum Government and Maximum Governance, a Single-Window Integrated Environmental Management System named PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single window Hub) has been developed by the Ministry of Environment, Forest and Climate Change through NIC and 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

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 PARIVESH has paved the 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.

Major modules namely, Know Your Approval module (KYA); Decision Support System (DSS); Common Application Form (CAF) and majority of clearance specific forms; PARIVESH administration; end-to-end processing of Forest Clearance (FC) have been developed and integrated.

Complete Go-Live of modules / functionalities, *inter-alia*, including compliance module, integration of clearances other than EC, FC, WL and CRZ will be done in the Year 2023 to make PARIVESH portal as One Stop Solution for the green clearances and compliances thereof, administrated by the Ministry.

**Post Project Monitoring of Environment Clearance Conditions:** 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



incorporate the environmental safeguards during the project cycle in accordance with the conditions stipulated in the Environmental Clearance letter; and

To take appropriate corrective measures to check adverse impact on environment during operation of the respective projects.

Monitoring of projects with respect to conditions stipulated in the environmental clearance issued under EIA Notification, 2006 and Coastal Regulation Zone (CRZ), 2011 is carried out through the nineteen Integrated Regional Offices (IROs).

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

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

**Accreditation of the EIA consultants with Quality Council of India (QCI)/ National Accreditation Board of Education and Training (NABET):** The environmental appraisal of development projects is undertaken as per the provisions of EIA Notification 2006 based on EIA/ EMP reports prepared by the project proponents with the assistance of accredited consultants. Good quality EIA reports are a pre-requisite for appropriate decision making. As of now, only consultants accredited with QCI/ NABET are allowed to prepare EIA/ EMP reports and present the cases before EACs/ SEAC. As per

185 accredited EIA Consultant Organizations.

**Achievements:** As part of systemic reforms, the IA Division has issued five amendments to the EIA Notification, 2006 and 26 Office Memorandums during 2022 for streamlining the EC process. The notifications issued are as under:-

- I. Notification S.O. 1807(E) dated **12.04.2022**- EC validity period of the developmental proposal has been increased.
- ii. Notification S.O. 1886(E) dated **20.04.2022**, Further, Delegation & Decentralization for Mining, Irrigation, Power and Transportation & Connectivity under EIA, 2006 to SEIAA has been made. The same notification also provided clarification on the appraisal of National Defence and Strategic projects at the Central level without change in category.
- iii. Notification S.O 1953 (E) dated **27.04.2022**, exemption of aerial rope-ways from ambit of Environmental clearance was issued.
- iv. Notification S.O 2163 (E) dated **09.05.2022** the time for re-scheduling of public hearing was reduced from 30 days to 15 days. It has also been directed through the said notification that the Sub-Divisional Magistrate may supervise and preside over the public hearing if the project is confined to the territorial jurisdiction of one sub-division, otherwise any District level officer can preside as authorized by the District Magistrate.
- v. Notification S.O. 3194(E) dated **14.07.2022**, exemption of following projects from requirement of Environmental Clearance was issued.
  - a. National / State Highways within 100 km from Border.
  - b. Toll Plaza width/junction improvements at intersections excluded from Right of Way.
  - c. Fishing ports up to 30,000 TPA fish handling capacity exempted from EC.
  - d. Thermal power plant up to 25 MW based on biomass exempted from EC.
  - e. Expansion of only Airport Terminal buildings without increasing existing airport area categorised as B2 i.e. exempted from Public



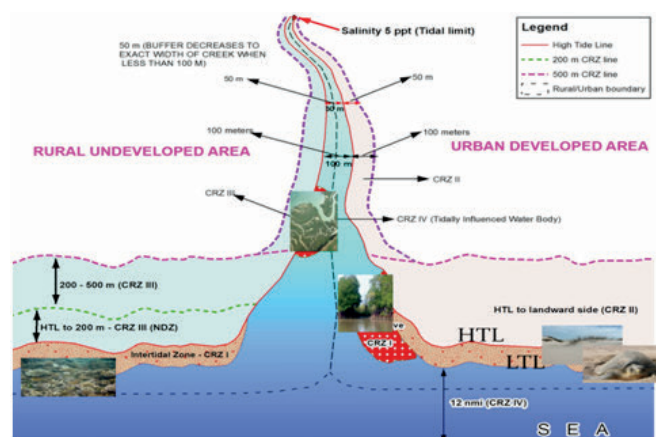
- e. Expansion of only Airport Terminal buildings without increasing existing airport area categorised as B2 i.e. exempted from Public Hearing and EIA.

**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.

## 4.2 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 CRZ Notification

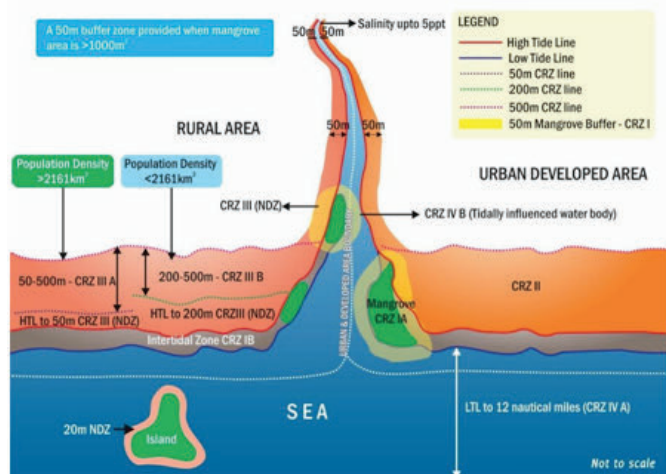
The Shailesh Nayak Committee held wide ranging consultations with State Governments and other stakeholders and submitted its recommendations in 2015. Based on the recommendations and further examination, a draft notification viz. CRZ Notification, 2018 in supersession of CRZ Notification, 2011 was issued 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 and 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, 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 '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 6<sup>th</sup> 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

#### A. Policy Decisions:-

- OM dated 26/04/2022 issued detailing the processes and flow for obtaining CRZ/ IPZ 2011 clearances for different categories of projects.
- Notification S.O. No.2090 (E) dated

05/05/2022 was published regarding amendment in Island Protection Zone (IPZ) Notification, 2011. The items "Setting of Gas based power plant" added vide this notification.

- Notification S.O. No. 2095 (E) dated 05/05/2022 was published regarding amendment in Island Coastal Regulation Zone (ICRZ) Notification, 2019. The items "Setting up of Gas based power plant in islands with geographical areas >1000 sq.km" added vide this notification.
- Issues related to 'Legally designated Urban Areas' of the State of Kerala as per CRZ Notification, 2019 was resolved and letter issued vide letter No. IA3-3/12/2021-IA.III dated 07/09/2022.
- Amendment in the provision of IIMP for developmental Project in Lakshadweep i.e. all the tourist operations shall have a mandatory clearance from LCZMA, Lakshadweep Environment & Forest Department in consultation with the respective island Panchayat" issued vide letter No. IA3-12/11/2021-IA.III dated 12/9/2022.
- Notification S.O. 4650(E) dated 30/09/2022 published regarding delegation of Powers under Section 5 of the Environment (Protection) Act, 1986.
- SCZMA were authorized to file complains under Section 19 of the Environment (Protection) Act, 1986 vide Notification S.O. 4649 (E) dated 30/09/2022.
- SCZMA were Empowered under Section 10 of the Environment (Protection) Act, 1986 vide Notification S.O. 4648(E) dated 30/09/2022.
- Based on the representations received from different stakeholders, inter-alia, for delegating the powers of giving Coastal Regulation Zone clearance to the State Coastal Zone Management Authorities or State Governments for small infrastructure projects located in CRZ-I and CRZ-IV areas, including the provision of temporary beach shacks as already available in Coastal Regulation Zone notification, 2011 and expanding the said provision to all coastal states, allowing removal of sand bars by traditional communities under the provisions of the



2019 *vide* notifications dated 24<sup>th</sup> November 2022 after due stakeholder consultation and recommendation of an Expert Committee constituted for the same.

- OM dated 29/11/2022 issued detailing the processes and flow for obtaining CRZ/ICRZ 2019 clearances for different categories of projects.

**B. Implementation of CRZ Notification 2019:-**

- NCZMA meeting was held under the Chairmanship of Secretary MoEFCC during the period.
- Reconstitutions of West Bengal Coastal Zone Management Authority notified *vide* Notification S.O. No. 1947(E) dated 26/04/2022.
- Reconstitution of NCZMA notified *vide* Notification S.O. No. 2194 (E) dated 11/05/2022.
- Coastal Zone Management Plan (CZMP) of Karnataka State as per the CRZ Notification, 2019 approved *vide* letter No. IA3-12/14/2021-IA.III dated 02/09/2022.
- Coastal Zone Management Plan (CZMP) of Goa State as per CRZ Notification, 2011 was approved *vide* letter No. 12-13/2018-IA.III dated 06/09/2022.

- Island Coastal Regulation Zone Plan (ICRZP) of Little Andaman Island as per ICRZ Notification, 2019 issued *vide* letter No. IA3-12/3/2021-IA.III dated 12/9/2022.
- Maharashtra Coastal Zone Management Authority Correction/ Amendment issued *vide* Notification S.O. No. 4566(E) dated 28/09/2022.
- Andhra Pradesh Coastal Zone Management Authority Amendment issued *vide* Notification S.O.5119 (E) dated 03/11/2022.
- Gujarat Coastal Zone Management Authority Reconstitution issued *vide* Notification S.O.5946(E) dated 20/12/2022
- Goa Coastal Zone Management Authority Recostitution issued *vide* Notification S.O.6071(E) dated 27/12/2022

**C. EAC (CRZ)/CRZ Clearances:-**

Total of 25 CRZ clearances(from 1/4/2022 to 30/11/2022) have been issued by the Ministry for various developmental activities/ projects permissible in the CRZ areas.



CHAPTER

**05**

*Conservation - Biodiversity*





### 5.1 Biodiversity Conservation and Survey III

The work dealt under Biodiversity Conservation and Survey is as follows-

#### International Commitments:

- **Convention on Biological Diversity (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. India enacted the Biological Diversity Act in 2002 to give effect to the provision of this Convention. India has also prepared a National Biodiversity Action Plan (NBAP) in 2008, and an Addendum to NBAP was prepared in 2014 with 12 National Biodiversity Targets, developed in line with the 20 global Aichi biodiversity targets. India also submit a National Report to CBD providing an update on progress in National Biodiversity Targets.
- **The Nagoya Protocol** on Access to Genetic Resources (ABS) and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, adopted under the aegis of CBD in 2010. 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.
- **Intergovernmental Platform on Biodiversity and Ecosystem Services (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.
- National Legislation: Biological Diversity

Act, 2002

In pursuance to CBD, India enacted the Biological Diversity Act in 2002, and notified the BD Rules in 2004. The Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto. It primarily aims at giving effect to the provisions of the CBD suiting to our national needs and requirements. The provisions of the Nagoya Protocol on Access and Benefit Sharing to which India is a Party, are also being implemented through the Biological Diversity Act

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.

#### Important activities undertaken (from January-December 2022):

1. The Ministry celebrated the “International Day on Biological Diversity 2022” on 22 May 2022 with theme “Building a shared future for all life”. The HMEFCC and HMoS inaugurated the biodiversity exhibition on the theme “Biodiversity, Nutritional Security and Human Well-being”.
2. The winners of the 5<sup>th</sup> Cycle of the India Biodiversity Awards were declared. Prizes were presented to the winner of 3 National Level Competitions organised by NBA to create awareness about environment protection and biodiversity conservation in the society. The 4<sup>th</sup> Cycle of the Biodiversity *Samrakshan* Internship Programme was launched.
3. The Hon'ble Minister released the following publications viz.
  - a. The fourth edition of the 'India



- Naturally' which celebrates the India Biodiversity Awards awardees.
- b. "Report on Asia Waterbird Census 2022", one of the longest-running citizen-science biodiversity monitoring programmes in India, was released.

Guidelines and criteria for "Other Effective Area-based Conservation Measures (OECMs)" "Special Cover" of India posts on the occasion of IDB 2022 was released, which signifies the integration of natural and cultural heritage and its linkages with traditional value systems.

4. Other Effective Area Based Conservation Measures (OECMs): A Compendium of OECMS in India was published.
5. As part of Azadi ka Amrit Mahotsav celebration, the Division participated in Swachhta Special Campaign 2.0.

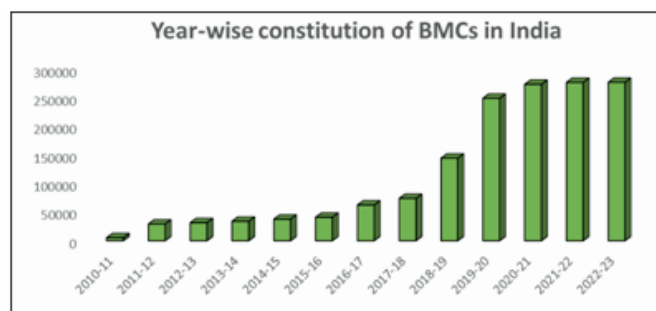
#### Progress/Innovations (from January- December 2022):

- 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 Internationally Recognized Certificate of Compliance (IRCC). Since October 2015, 3150 approval granted to users of biological resources in the ABS CH website for generating IRCC, of which, 800 IRCCs generated during the reporting period.

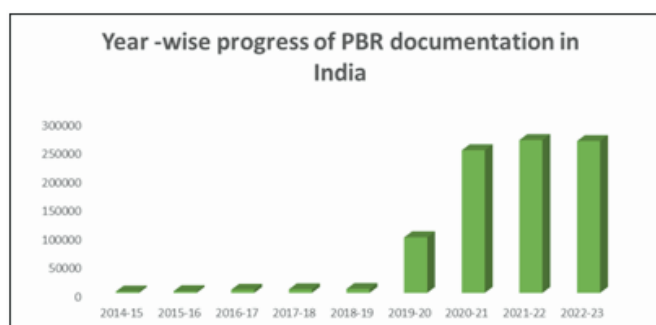
#### Important Cumulative achievements (upto November 2022):

- 2,77,123 BMCs (nearly 99.8% of the total) have been established in 28 states and 8 UTs. Out of these in 2,64,263 BMCs (nearly 95% of the total) PBRs have been prepared by recording the local biodiversity and

associated knowledge.



(Based on figures of 2022-23 as on 23. 11. 2022)



(Based on figures of 2022-23 as on 23. 11. 2022)

- Out of the 36 Biodiversity Heritage sites declared so far in 15 States, 13 sites have been notified in this reporting period

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

- A "South Asian Consultation on Post-2020 Global Biodiversity Framework" was held on 6-7, January, 2022 in hybrid mode at MoEFCC New Delhi.
- During the resumed meetings of the Geneva Biodiversity Conference, held during 14-29 March, 2022, a side event titled 'On mobilizing Finance for Biodiversity' was organized on 15 March, 2022.

#### List of major publications brought out by the Division:-

- India, Naturally!. India's Living Biodiversity – A Peoples' Resource (Fourth Edition, 2022).
- Criteria and Guidelines for Identifying Other



Effective Area Based Conservation Measures (OECMs) in India.

- Other Effective Area Based Conservation Measures (OECMs): A Compendium of OECMS in India.
- Asian Waterbird Census 2022. Summary Report.

### Appraisal of the functioning of each of the autonomous bodies/institutions in relations to their objectives:

The National Biodiversity Authority was established in accordance with the provisions of Section 8 of the Biological Diversity Act, 2002, at Chennai w.e.f. 1st October 2003. 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 sustainably use biological diversity;
- To respect and protect the knowledge of local communities related to biodiversity;
- Conservation and development of areas of importance from the view point of biological diversity by declaring them as biological diversity heritage sites;
- Protection and rehabilitation of threatened species

S. No	Name of Organisation	Purpose	Total Amount Released	Status of third party evaluation	Remarks
1	National Biodiversity Authority	As per the provisions in the Biological Diversity Act, 2002	Rs. 12.44 crores in the current financial year	Conducted by CAG	

## 5.2 Biosafety

### Brief introduction and objectives and functions of the Division:

Activities related to Cartagena Protocol on Biosafety (CPB) to the Convention on Biological Diversity (CBD), Nagoya Kuala Lumpur Supplementary Protocol on Liability and Redress (NKLSPLR), and the Genetic Engineering Appraisal Committee (GEAC) are dealt with in the Division.

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.

NKLSPLR 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 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. The tenth meeting of the Conference of the Parties serving as the meeting of the Parties (COP-MOP) to the Cartagena Protocol on Biosafety was convened in December 2022 in Montreal, Canada.

In accordance with the Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms/ Genetically Engineered Organisms or Cells notified in 1989 (Rules, 1989) under the Environmental (Protection) Act, 1986; the Genetic Engineering Appraisal Committee (GEAC) functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC) for appraisal 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.

### Important activities undertaken (i.e. 1/1/2022-December 2022):

1. The Genome Edited Plants falling under the





categories of SDN-1 and SDN-2, which are free from exogenous introduced DNA were exempted from biosafety assessment under the provisions of Rules 7 to 11 of Rules, 1989 vide OM dated 30.03.2022. This will ease research in the field of Agriculture biotechnology.

2. GEAC has given following approvals:
  - Environmental release of GM crops-01- In October 2022, GM mustard which is the first Genetically Modified (GM) food crop in India was approved for conditional environmental release by the GEAC;
  - Environmental approval to commence commercial production-04;
  - Import of GM products-19;
  - Permissions to conduct BRL-I/BRL-II Trials-03;
  - Permissions to conduct Event Selection Trials (EST)-08;
  - Other items-09;
  - Environmental Release of GM Crop-01.

3. Along with this, GEAC considered discussion on No Objection Certificate (NOC) from State Governments for conduct of confined field trial and took reformatory decisions in its 146th meeting held on 25.08.2022 enabling procedural changes in respect of requirement of NOC from State Government for ease of conduct of confined field trials of GM crops.

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

Reconstitution of the GEAC- The Genetic Engineering Appraisal Committee (GEAC) was reconstituted on 13.07.2022 for a period of three years in accordance with Rules, 1989.

#### **Important Conferences organized in India or international conferences:**

India participated in the 10th Conference of the Parties serving as Meeting of the Parties (CoP-MoP) of Cartagena Protocol on Biosafety convened concurrently with the 15th CoP-MoP to the Convention on Biological Diversity.

#### **MEAs, Agreement with countries, international organizations, compliance:**

1. A multilateral project “Promoting the safe application of biotechnology through Multi country Cooperation in the implementation of National Biosafety Frameworks in Asia” to support the implementation of the Cartagena Protocol on Biosafety South Asia has been approved by GEF through UNEP.
2. A national project on “Mainstreaming of Biosafety and Institutional Capacity Building to strengthen effective implementation of Cartagena Protocol on Biosafety” project has been approved by GEF through UNEP.

#### **5.3 The Zoological Survey of India (ZSI)**

The Zoological Survey of India (ZSI) is a 107-year-old organization functioning under the Union Ministry of Environment, Forest and Climate Change and dedicated for surveys, exploration and taxonomical studies of faunal communities since its inception in the year 1916. ZSI Headquarters is located in Kolkata and has 16 Regional Centers spread across the country. The primary and secondary objectives are as follows:

##### **Primary Objectives**

- Exploration, Survey, Inventorisation and Monitoring of faunal diversity in various states, some selected ecosystems and protected areas of India.
- Taxonomic studies and related trainings with robust expertise for faunal components.
- All India Coordinated Project on Taxonomy (AICOPTAX).
- Status survey of Threatened and Endemic species.
- Preparation of Red Data Book, Fauna of India and States.
- Bio-ecological studies on some important communities/species.
- Preparation of database for the recorded species of the country.
- Maintenance and Development of National Zoological Collections and museums at headquarters and regional centres.
- Training, Capacity Building and Human



Resource Development in general and training on taxonomy for all faunal groups.

- Faunal Identification, Advisory services and Library Services.
- Publication of study-results, including documentation of Fauna of India and its States.

### Secondary objectives

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

### Functions/Strength of ZSI:

- Maintaining National Faunal Repository: One of the largest repositories of the world with 6.3 million faunal specimens and Asia's largest library dealing books on Zoology.
- Updating the data on new species from different ecosystems of the country.
- Maintain DNA, Forensic studies & GIS laboratories
- Contribution of ZSI in the activities pertaining to Conservation of Biodiversity including CBD, ABS, IWPA, CITES, DGQI etc.

#### a. Important Activities undertaken during January to December 2022

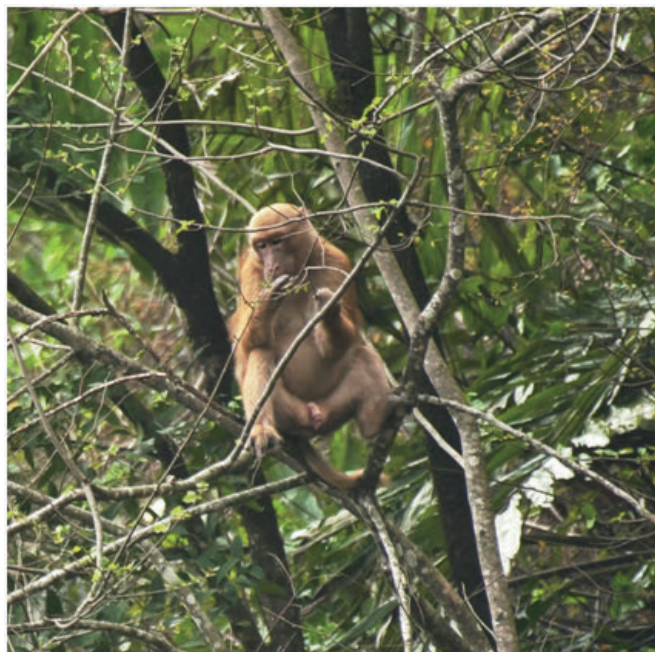
- ❖ **Faunal Surveys, Collections and Identifications:** 92 surveys have been completed during the period, of which 29 surveys were undertaken to different Protected Areas; 5 surveys of States and Union Territories; 19 to different ecosystems; 9 status surveys of endangered species; 19 surveys for Taxonomic studies; 2 to Deccan Peninsula; 4 surveys for study tours and 5 surveys for behavioural studies. A total of 1,75,250 specimens have been

collected from these surveys. Altogether 1,50,641 specimens belonging to 7305 species have been identified under different faunal groups from Protozoa to Mammalia.



Brown winged Kingfisher,  
*Pelargopsis amauroptera* (Pearson, 1841)

**New Discoveries:** A total of 170 new discoveries have been published of which 92 are new species whereas 78 are new record to Indian fauna.



New species of mammal described from India:  
*Macaca selai* Ghosh et.al, 2022

- ❖ **Digital Sequence Information (DSI) on Indian Fauna:** DSI is being generated on new and RET species and also to solve the



taxonomic queries A total of 1616 DNA barcodes of 431 species have been submitted on BOLD and GenBank which includes 141 barcodes for Mammals, 2 for Birds, 47 for Reptiles, 35 for Amphibia, 139 for Fishes, 319 for Hymenoptera, 263 for Lepidoptera, 198 for Diptera, 124 for Thysanoptera, 104 for Arachnida, 66 for Collembola, 60 for Blattoidea, 40 for Ephemeroptera, 29 for Isoptera, 13 for Decapoda, six each for Odonata and Cnidaria, seven each for Orthoptera and Hemiptera, four for Mollusca, three for Tridigrada, two for Coleoptera, one barcode for Cladocera.

❖ **Publications:** A total of 576 publications have been completed during the period which includes 26 Books, 158 papers published in SCI journals, 115 papers in peer-reviewed National and International journals, 249 Book chapters, 15 popular articles, one online checklist and 12 issues of E-Newsletter.

❖ **Capacity Building:** Outreach activities are conducted in both online mode as well as offline modes and were provided to more than 2600 students and researchers. About 46 webinars/ trainings/ workshops were conducted to disseminate knowledge on various topics of biodiversity and its conservation in the year.

❖ **Identification and advisory services:** Identification and Advisory Services on a regular basis is provided by ZSI and this year material received from 104 Institutes/colleges and identified 6563 specimens and 32 photographs belonging to 770 species.

❖ **Wildlife Forensics and Crime Control:** Apart from identification for scientific studies, ZSI scientists also provided identification for wildlife forensics and crime control. The identification include 2068 specimens and 58 photographs belonging to 53 species including many scheduled species.

#### ❖ **Role in Policy interventions**

- ZSI has supported MoEFCC in revising the list of faunal species listed among the various schedules of the draft Wildlife Protection Act amendment bill.
- ZSI proposals for two species of turtles to transfer from Appendix II to Appendix I of CITES and one species of Gecko to Appendix II of CITES were accepted in CITES COP 19 at Panama.
- Environmental Impact Assessment studies for the Holistic Development of Great Nicobar Island project
- ZSI will undertake the task of translocating the coral colonies from the demarcated pipeline routes of IOCL (impact sites) to suitable recipient sites while also proposing to monitor the translocated organisms at their new habitats to ascertain their survival, growth and capacity to aggregate reef associates.

#### **Activities undertaken to celebrate Azadi ka Amrit Mahotsava**

- A series of Webinar and Lecture organized on the different faunal component, Biodiversity and Climate Change.
- Twenty-Six books and Twelve Issues of E-Newsletter published.
- Vigilance Day was observed under the banner of Azadi ka Amrit Mahotsav
- Rashtriya Ekta Diwas was celebrated.
- Swachhta Campaign organized.
- Coastal Cleanup were organized at Digha, Chennai and Andaman & Nicobar Islands
- Special Campaign 2.0 for disposal of pending matters from 2nd to 31st October 2022
  - I. Scrap disposal: 31,306 Kgs of





obsolete metallic and wooden material

- ii. E-waste: 1266 items
- iii. Weeding of files: 3300 physical files
- iv. Space restored: 17,309.5 sq. ft. area  
Revenue generated: Rs. 24,84,579



Coastal Cleanup were organized at Dighe, Chennai and Andaman & Nicobar Islands

#### Progress/innovations for the reference period

- Three new species of mammals including a primate, *Macaca selai* Ghosh et.al, 2022 have been discovered by the scientist of ZSI
- 576 publications including Books, peer-reviewed papers and book chapters have been made
- Status survey of endangered Otters and 28 species of Birds under CITES
- Translocation of over 4540 colonies of Corals
- Tagging of 8000 Olive Ridley and 800 Leatherback Sea Turtles
- Climate change studies through permanent monitoring plots in Himalayas, Western Ghats, Andaman and Nicobar Islands and Lakshadweep  
Species distribution modelling of vertebrates.



Fishing cat, *Prionailurus viverrinus* (Bennett, 1833)

#### Cumulative Achievement

- **Publications:** Altogether 1,550 documents (Books and monographs) and 10,500 scientific papers have been published by ZSI till 2016; of which, over 181 documents and 3295 scientific papers have been published during the last five years. During the reference period, 576 publications have been made.
- **Digital Sequence Information (DSI) of important Taxa:** ZSI is playing major role in enriching the information on DNA barcodes and solving many taxonomic queries and generated 9348 barcodes including 1616 barcodes generated during the reference period.
- **New Discoveries:** 5392 new species have been described by the scientists of ZSI since its inception, while 92 new species and 78 new record to Indian fauna have been published 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, Western Ghats and Gulf of Kutch for the last five years.
- **Digital ZSI:** Achievements include Digital Archive of Publication of ZSI; ZSI Library Repository and ZSI Type Specimens Repository.
- **Identification and advisory services:** Identification and advisory services are provided to students, researchers and faculties from time to time. This year services were provided to 104 Institutes/colleges and identified 6563 specimens and 32 photographs belonging to 770 species.
- **Identification of Confiscated Wildlife Material:** Queries related to confiscated wildlife materials of different animals or



parts of the body for the benefit of Court of Law to culminate wildlife crime are attended as and when received. and this year, identification include 2068 specimens and 58 photographs belonging to 53 species including many scheduled species received from 31 departments.



- Receiving of Dr Janaki Ammal Award for Animal Taxonomy by Dr. Kailash Chandra , Former Director, ZSI from Shri. Bhupender Yadav, Hon'ble Minister of Environment, Forest & Climate Change and Shri. Ashwini Kumar Choubey, Hon'ble Minister of State, MoEFCC

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

ZSI proposals for two species of turtles to transfer from Appendix II to Appendix I of CITES and one species of Gecko to Appendix II of CITES were accepted in CITES COP 19 at Panama.

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

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

**c. Important Conferences organized in**

**India or international conferences-nature of participation, subjects discussed, implementation –action taken.**

- Regional workshop (In Bengali) on “Coastal Biodiversity-Recent Trends and Techniques in Conservation”
- High-End workshop on Taxonomy, Ecology and Genetic Analysis of Indian Scyphozoans
- High End Karyashala on Demonstrating SOPs to combat illegal wildlife trade & strengthening wildlife forensic capabilities in India
- High End Karyashala on “Capacity Building for Young Lepidopterologist: Insight into the Biology and Conservation of Lepidoptera with emphasis on moths
- Orientation Programme on People's Biodiversity Register (PBR)
- One-month certificate course on Bird identification and basic Ornithology under the Green Skill Development Programme, Ministry of Environment, Forest and Climate Change, Government of India
- Workshop on Collection preservation and identification of Crustacean and Ichthyofauna fauna

**d. MEAs, agreement with countries, international organizations, compliance:**

ZSI has signed MoU with seven Universities/Institutes, namely,

- University of Calcutta, Kolkata,
- Shivaji University, Kolhapur
- Harishsingh Gour Central University, Bhopal, Madhya Pradesh
- West Bengal State University, West Bengal
- University of Calicut, Kerala
- Dr.Gafoor Memorial MES Mampad College, Malappuram, Kerala
- Department of Zoology, Fakir Mohan University, Odisha

**5.4 Botanical Survey of India (BSI)**

**a. Brief introduction, objectives and functions of the Division**

**Introduction**

Botanical Survey of India (BSI) is the apex research organization under the Ministry of



Environment, Forest and Climate Change, Govt. of India. It carries out the taxonomic / floristic studies on wild plant resources of the country, with an objective to explore the plant resources of the country. Established on 13<sup>th</sup> February 1890 during the British India, Botanical Survey of India is serving the nation through its incessant survey and exploration of the plant wealth of the nation from the last 133 years. Presently, BSI has 11 regional centres and 5 units, with its headquarters at Kolkata and actively engaged in inventorying the floral resources of wide array of ecosystems from the coastal areas and sea to high mountain ranges of Himalayas covering all the states and union territories.

### Objectives and functions

#### Primary objectives

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

#### Secondary objectives

- Revisionary / Monographic studies on selected plant groups.
- Qualitative studies of nutritive value of ethno-food plants and other economically useful plants.
- Capacity building in plant taxonomy through refresher courses and post M.Sc. certificate course.
- Environmental Impact Assessment of areas assigned to BSI for study.
- Develop and maintain Botanical gardens.
- Preparation of Seed, Pollen and Spore Atlas of Indian Plants.

#### Mandate

Survey, collection, documentation (including

the traditional knowledge associated with plants) and *ex situ* conservation of wild plant diversity.

### b. Important activities undertaken till November 2022

#### Survey and Exploration

- BSI scientists are involved in 82 Annual Research Projects for research in Plant Taxonomy through extensive field surveys in the country. Under these projects, scientists of BSI conducted 43 field tours, including local tours and around 7864 plants and identified 7628 plants.
- During the reference period, BSI discovered 21 plant taxa new to science and 33 plant taxa as new additions to Indian / state flora (*Appendix I*).

#### • Documentation of Phytodiversity

- Based on the floral survey and exploration, BSI is regularly updating and documenting the phytodiversity of the country. In this connection, BSI documented 55,048 taxa of plants, belonging to 21,984 taxa of angiosperms; 82 taxa of Gymnosperms; 1,314 taxa of Pteridophytes; 15,602 taxa of Fungi; 9,008 taxa of Algae; 2,800 taxa of Bryophytes and 2,989 taxa of Lichens towards the complete inventory of floral resources of the country.
- BSI published Plant Discoveries, 2021 on 5<sup>th</sup> June, 2022, which included 204 taxa as new to science from India and 125 taxa as new records for Indian Flora.
- Besides, it is also reported that in seed plants discoveries, 22 new taxa have been assessed as Critically Endangered (CR), 1 as Endangered (EN), 3 each as Vulnerable (VU) and Least Concern (LC) category following the IUCN guidelines.

#### • Research Publication:

- During the reference period, BSI published **197** research papers and **6** books (*can be found in online version of Annual report*) including periodicals (Plant Discoveries, Nelumbo, Vansapati Vaani, Annual Reports and Annual Research Programmes).

#### • Digitization:





- BSI is the custodian of more than **3 million herbarium specimens**, which form the basic reference material for taxonomic/ floristic research worldwide.
  - To commemorate the '*Azadi Ka Amrit Mahotsava*' BSI developed the "**Indian virtual herbarium**" (<https://ivh.bsi.gov.in/>) which provide digital herbarium images and serve as an important platform for information on Indian plants.
  - Besides, BSI also maintains the other online digital platforms such as *e-Plant Checklist of India* and *e-Flora of India* (<https://efloraindia.bsi.gov.in/>), *e-Archives* (<https://archive.bsi.gov.in/>), *Rare Books* (<https://bsi.gov.in/page/en/rare-books>), *Journal Nelumbo* (<http://nelumbo-bsi.in/>), *Medicinal Plant Database* (<https://bsi.gov.in/page/en/medicinal-plant-database>) etc. which serve as important online resources for the Botanical fraternity and promoting taxonomic research in the country.
  - More than 20,25,910 researchers visited and referred these digital platforms of BSI during the reference period.
- **Neutraceutical studies:**
    - Neutraceutical studies were carried out on 40 wild edible plants of North East India.
  - **Ex situ conservation:**
    - As a part of conservation measures, BSI maintains 11 botanical gardens spread out in different phytogeographical regions of India.
    - 165 rare, endemic, endangered, medicinal and economical plant species have been introduced and maintained in these gardens, particularly in Andaman & Nicobar Islands at Dhanikhari Exp. Garden cum Arboretum; medicinally important species of Central India at experimental Garden of Central Regional Centre, Allahabad; economically important species of the Arid region in the experimental Garden of Arid Zone Regional Centre, Jodhpur; Orchidarium of economic and ornamentally valued orchids at BSI, SRC, Yercaud, and BSI, ERC, Shillong.
    - Besides, BSI has also distributed more than 2 lakh seeds / seedlings among local people, village communities and various stakeholders, which plays an important role in carbon credit.
  - **Outreach activities**
    - Under the outreach activities, BSI is also actively involved in promoting research in Plant Taxonomy in the country. BSI regularly organises seminars, symposia, webinars, virtual classes for faculties, college students and research scholars and conducts Capacity Building Training Programmes on topics related to Indian Floral diversity; Botanical Nomenclature Course, Herbarium Methodology, Application of SEM (Scanning Electron Microscope) techniques on plant taxonomy; Application of GIS in flora studies, data-basing and digitization of floral collections; etc.
    - BSI observed important events like World Environment Day, International Biodiversity Day, World Ozone Day, International Mountain Day etc. On these occasions, BSI organised / delivered a series of **24** theme based webinar lectures / events in virtual mode. Altogether, 976 students / participants were benefitted by these activities.
  - **Technical / advisory services to govt. departments**
    - All regional centres of BSI regularly provided technical and scientific inputs to all the State Biodiversity Boards (SBBs), State Wildlife Boards, National Medicinal Plant Boards (NMPB) etc. as and when required.
- c. Important Conferences organized in India or international conferences- nature of participation, subjects discussed, implementation-action taken.**
- During the reporting period, BSI has organised 24 webinars on various thematic areas of Phytodiversity and conservation. Besides, BSI also organised virtual lectures to college students / research scholars and faculties on themes such as Plant Taxonomy, Herbarium Methodology, Plant identification and herbarium preparation and its maintenance.



### 5.5 AssistancetoBotanical Gardens

The scheme on Assistance to Botanic Gardens was initiated in 1992 to augment facilities for ex-situ conservation of rare, endangered threatened and endemic plants.

#### Objectives:

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

#### Progress/Achievements both cumulative and for the reference period.

- ❖ Funds worth 75 lakh approved by Ministry for 15 ongoing botanic garden already established in different phytogeographic region of the country.
- ❖ New Expert Group Committee on Assistance to Botanic Garden constituted by MoEFCC.
- ❖ Expert Group Committee meeting on Assistance to Botanic Garden(ABG) program held on 07.10.2022 for the preping the roadmap of Assistance to Botanic Garden program.
- ❖ Scientific Audit of Assistance to Botanic Garden program was successfully conducted by Director General of audit Environment and Scientific Dept., New Delhi at Kolkata.
- ❖ Inventory of 356 Botanic Gardens prepared which has been set up under ABG program from 1992 till date.

- ❖ Inspection of (04) Botanic Gardens conducted by BSI through BSI Regional Centers.
- ❖ Compendium of the Rare endangered and threatened plant species conserved under ABG program prepared.
- ❖ Revised Guidelines for Assistance to Botanic Garden prepared and approved by MoEF&CC.
- ❖ SFC/EFC prepared for converting ABG program into Scheme, to be submitted for the financial and administrative approval of MoEFCC.

#### Progress/Achievements made during 2022-23 along with photographs.

In current financial all ongoing Botanic Garden i.e. Lead Botanic Garden and Small Garden were advised to focus on ex situ conservation work and funds will be sanctioned only after successful achievement in ex situ conservation work. Many of the Botanic Garden has successfully achieved the targets and has been called for presentation of their final scientific and technical work in first week of January 2023. Some of the important RET plant sps. conserved these botanic gardens are depicted below: **PICTURES OF SOME PLANT SPECIES CONSERVED AT VARIOUS BOTANIC GARDEN IN INDIA**

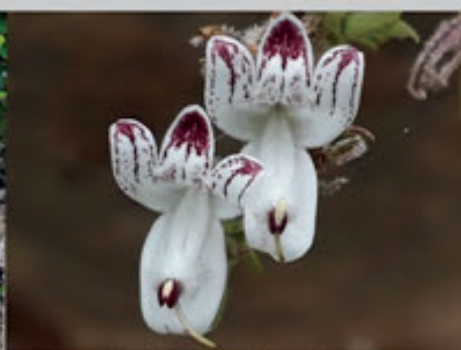




*Boswellia ovalifoliolata*



*Pimpinella tirupatiensis*



*Andrographis beddomei*



*Syzygium alternifolium*



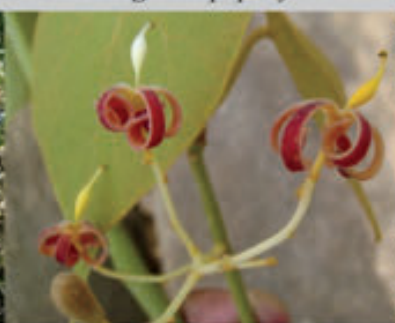
*Hildegardia populifolia*



*Pterocarpus santalinus*



*Syzygium alternifolium*



*Hildegardia populifolia*



*Cycas beddomei*



*Croton scabiosus*



*Cycas sphaerica*



*Cycas beddomei*





**Bulbophyllum manipurense syn. Bulbophyllum careyanum**  
**Hedychium speciosum Rhododendron formosum**



**Chlorophytum malabaricum a RET Orchid**



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





*Bentinckianicobarica & Dischidia bengalensis*



*Sapindusemarginatus* Vahl (Sapindaceae)

#### Grant-in-Aid released to Institutions / organizations including NGOs.

6 ongoing Botanic Gardens proposal to be cleared before March 2023 for final fund release.

### 5.6 Biosphere Reserves

The Biosphere Reserves (BRs) are internationally designated landscape/seascape units under UNESCO's flagship programme: "Man and the Biosphere (MAB)". The programme has contributed significantly towards building a harmonious balance between the human activities and ecosystem conservation. The Biosphere Reserves represent characteristic ecosystems in different biogeographic regions and consider human communities as their integral component.

#### The primary objective of Biosphere Reserves may be summed up as follows:

- conservation of large landscapes, ecosystems and genetic diversity, including management and conservation of floral and faunal diversity and cultural diversity
- Ensuring a holistic approach for *in-situ* conservation (at all levels of biodiversity ranging from genes to ecosystems) in totality as part of wider ecosystem;
- foster socio-culturally and ecologically sustainable economic and human development;
- widening the understanding (through research and monitoring) each of the



components of ecosystems and facilitation of education, and training;

- Achieving integrated development (by improving quality of life for indigenous communities living in and around) of the area by exploring livelihood options for local communities etc.

The concept of Biosphere Reserves, especially its zonation, into Core Area(s) (dedicated to conservation), Buffer Area(s) (for sustainable use) and Transition Area(s) (for equitable sharing of benefits) were broadly adopted under the Convention on Biological Diversity (CBD) and entered into force on 29<sup>th</sup> December 1993. The Network of Biosphere Reserves comprising of a dynamic and interactive landscapes of excellence and has emerged as one of the international tools to develop and implement sustainable development approaches in a wide array of context. Over the years, with experience from different regions of the world, the Biosphere Reserve concept has been refined considerably.



India, with an area of 329 million hectares, is the seventh largest country in the world. The diverse topography marked by mountainous regions covering an area close to 100 million hectares, arid and semi-arid zones spreading over 30 million hectares and long coast line of over 7500 kms, coupled with varied precipitation provides a rich landscape diversity. All these features and many more, have resulted in diversity of habitats which harbour and sustain immense biological diversity at all levels. With only 2.4% of world's land area, India accounts for 11% of

recorded species of the world. In India, the National Biosphere Reserve Programme was initiated during 1986 under the aegis of Ministry of Environment, Forest & Climate Change. The Indian National Man and Biosphere (MAB) Committee identified and recommended potential sites for designation of Biosphere Reserves, following the UNESCO's guidelines and criteria.

### Biosphere Reserves in India and their year of designation:

1) Nilgiri, Tamil Nadu Kerala-Karnataka *; 1986	10) Dehang-Dbang, Arunachal Pradesh; 1998
2) Nanda Devi Uttarakhand *; 1988	11) Pachmarhi, Madhya Pradesh *; 1999
3) Nokrek, Meghalaya *; 1988	12) Khangchendzonga, Sikkim *; 2000
4) Great Nicobar, Andaman & Nicobar Island *; 1989	13) Agasthyamala, Tamil Nadu- Kerala *; 2001
5) Gulf of Mannar, Tamil Nadu *; 1989	14) Achanakmar Amarkantak, Madhya Pradesh -Chhattisgarh *; 2005
6) Manas, Assam; 1989	15) Kachchh, Gujarat; 2008
7) Sundarbans, West Bengal *; 1989	16) Cold Desert, Himachal Pradesh; 2009
8) Similipal, Odisha *; 1994	17) Panna, Madhya Pradesh *; 2011
9) Dibru-Saikhowa, Assam; 1997	18) Seshachalam, Andhra Pradesh ; 2011

*\*included in the World Network of Biosphere Reserves (green coloured)*

### Functions:

#### Five Year Period Integrated Management Plan:

#### Name of the Scheme/ Programme:

Conservation of Natural Resources and Ecosystems (**Biodiversity Conservation**)

#### Brief Introduction and Objectives:

The Biosphere Reserve is a sub-scheme under the umbrella Scheme viz. "Conservation of Natural Resources and Eco-systems". The Scheme on Biosphere





Reserves was initiated in India with identification of 14 potential sites by a Sub-Committee of the Indian National MAB Committee in 1979. This was followed by approval of a proposal by the Committee of Secretaries in their meeting held on 12<sup>th</sup> August 1983 recommending initiation of the scheme for conservation of critical ecosystems in the country as Biosphere Reserves. The programme was initiated in 1986 and till date, 18 sites have been designated as Biosphere Reserves (BRs) in different parts of the country. The Ministry through the Centrally Sponsored Scheme of 'Biosphere Reserve' provides grant-in-aid to states on 60:40 sharing basis in case of States other than NER and on 90:10 basis in case of North Eastern Region States for conservation and management of the designated Biosphere Reserves. The Indian National Man and Biosphere (MAB) Committee constituted by the Ministry is the apex body to oversee the programme, provide policy guidelines and review the programme.

The sub-scheme of Biosphere Reserve (BR) is a continuation of the existing scheme aimed at achieving in-situ conservation of representative ecosystems of major bio-geographic zones of the country that are globally important. Under the said sub-scheme financial assistance is extended to the State Forests Departments except in respect of the State of Madhya Pradesh, where it is being implemented by Environment, Planning and Coordination Organisation (EPCO). The cost of implementation will be shared on 60:40 sharing basis between Central and State Governments, except for North East and Hill States, where it will be 90:10. In this Financial Year 2022-23, an amount of Rs.8.5 Crores have been allocated at BE Stage.

The Ministry has decided to continue with the Scheme with new changes and it was approved in the Standing Finance Committee meeting held for the financial years 2021-26 that "Biosphere Reserve Integrated Management Plan" for the five

years' period needs to be prepared for all the Biosphere Reserves in the country. The proposed integrated management plan has three components namely, (i) Management authority, (ii) Lead institution, and (iii) Local people with effective monitoring, sustainable utilization and conservation of bio resources (*diagram representation provided below*)



Guidelines on the Integrated Management Plan for Biosphere Reserves for a period of five years (IMPBR) have been approved by Hon'ble Minister for MoEFCC and it is decided that the IMPBR will be implemented in the four Biospheres (namely Dihang –Dibang Biosphere Reserve in Arunachal Pradesh, Agasthyamalai Biosphere Reserve in Kerala and Tamilnadu, Nandadevi Biosphere Reserve in Uttarakhand and Pachmarhi Biosphere Reserve in Madhya Pradesh) as a pilot project. So the funds will be released to four identified Biosphere Reserves as per the proposal received from the state Government

- Based on the outcome of the pilot projects, the Integrated Management Plan will be improvised and replicated amongst remaining Biosphere Reserves.
- Funds will be released to four identified Biosphere Reserves for habitat management, activities relating to livelihood improvement of the local communities, valuation of ecosystem goods and services, ecotourism, documenting biodiversity, conducting research in all the zones

**Important activities undertaken so far during the reference period 01.01.2022-**

**December 2022)-**

- Guidelines on the Integrated Management Plan for Biosphere Reserves for a period of five years (IMPBR) have been prepared. The implementation plan is being implemented across four Biosphere Reserves, namely, Dihang–Dibang in Arunachal Pradesh, Agasthyamalai in Kerala and Tamilnadu, Nandadevi in Uttarakhand and Pachmarhi in Madhya Pradesh as a pilot project.
- The meeting of the Man and Biosphere Committee (MAB Committee) was held on 30.09.2022.
- Based on the proposals furnished by the State Government of Madhya Pradesh, the Indian national Man and Biosphere Reserve Committee have deliberated extensively and is in the process for recommendation of two new sites for designation as Biosphere Reserves viz. Pench and Kanha areas in Madhya Pradesh. The MAB Committee is also in the process to consider inclusion of Manas Biosphere Reserve in UNESCO's World Network of Biosphere Reserves.

**5.7 Eco-Sensitive Zone**

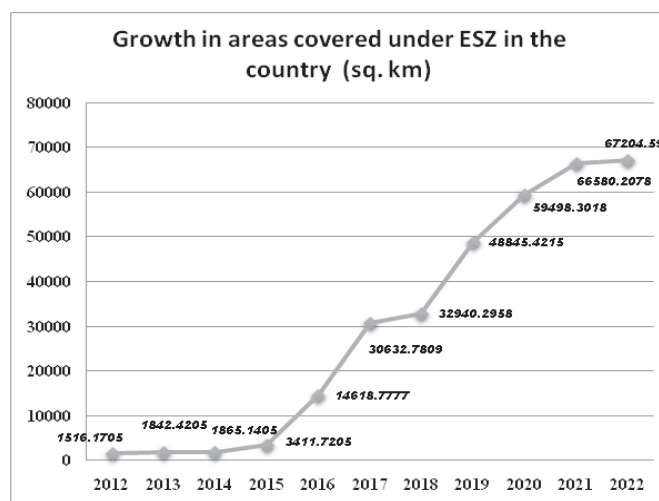
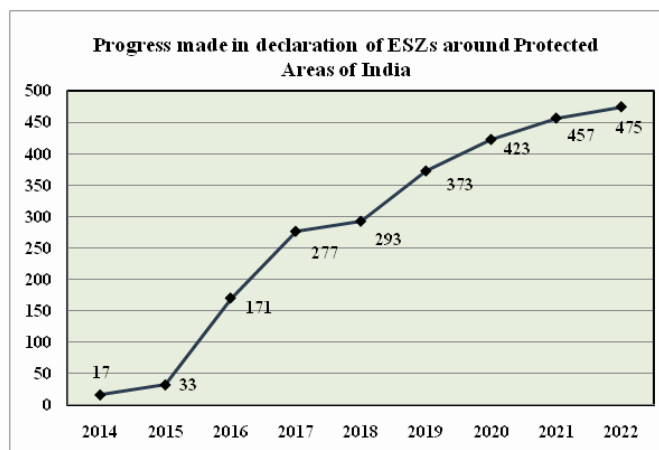
The purpose of declaring Eco-sensitive Zone (ESZ) is to create some kind of “Shock Absorber” for specialized ecosystems such as Protected Areas, which include National Parks and Wildlife Sanctuaries. The ESZs act as a transition zones for areas requiring high protection to areas where development may be permitted. There are a total of 674 National Parks and Sanctuaries (Protected Areas) declared in the country.

- Notifying Eco-Sensitive Zones around the Protected Areas is an important objective of the Ministry of Environment, Forest and Climate Change 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, Wildlife

Sanctuary, Tiger Reserve etc.) requires to be notified as Eco-Sensitive Zone for creating a buffer as an added layer of protection around Protected Areas.

- Whereas, on the other hand, Ecologically Sensitive Areas (ESA) are “areas with identified environmental resources having incomparable values which require special attention for their conservation”. The ecologically sensitive areas notified by the Ministry are Doon Valley Eco-sensitive Area, Dahanu Taluka, Eco Fragile Area' Aravalli Range, Mahableshwar-Panchgani Eco-sensitive Area, Matheran Eco-sensitive Area, Mount Abu Eco-sensitive Area and Bhagirathi Eco-sensitive Area.

A graphical representation on the progress of declaration of ESZs around Protected Areas since 2014 onwards and the areas in sq. kms covered under ESZ regulations are given below.





**Achievements:** Recently, the Hon'ble Supreme Court in I.A No. 1000 of 2003 in Crit Petition (Civil) No. 202 of 1995: T.N. Godavarman Thirumulpad Vs Union of India & Others vide Order dated 03.06.2022 have directed amongst others that each protected forest, that is National Park or Wildlife Sanctuary must have an ESZ of minimum one kilometer measured from the demarcated boundary of such protected forest in which the activities proscribed and prescribed in the Guidelines of 9th February 2011 shall be strictly adhered to. The Ministry of Environment, Forest and Climate Change have accordingly returned the proposals (for those proposals where the minimum ESZ is less than one kilometer) for declaration of ESZ around Protected Areas received from the State

Governments and for needful revision as per the order of the Hon'ble Supreme Court. On the request of various State Governments, the Ministry has filed an application for modification / clarification of the aforesaid order dated 03.06.2022. The application of the Ministry has been taken cognizance by the Hon'ble Supreme Court and is pending for disposal.

5. With the objective aimed at decentralisation of powers, the Ministry has also made amendments in a number of ESZ notifications empowering the concerned State Governments, who is the custodian of the land in the state and its management, for approval of the Zonal Master Plan/ Regional Plan / Development Plan etc. for enforcement and implementation of the ESZ/ESA notifications.

**Table 1: Final ESZ Notifications Published in the Year 2022**

S. No.	State	Name of Protected Area for which final ESZ Notification published	Date of Publication
1.	Andaman & Nicobar Islands	Mahatma Gandhi Marine National Park	28.04.2022
2.	Assam	Barail Wildlife Sanctuary	25.04.2022
3.		Panidehing Bird Sanctuary	25.04.2022
4.	Himachal Pradesh	Chail Wildlife Sanctuary	05.01.2022
5.		Dhauladhar Wildlife Sanctuary	05.01.2022
6.		Shikari Devi Wildlife Sanctuary	05.01.2022
7.		Khokhan Wildlife Sanctuary	12.01.2022
8.		Col. Sher Jung (Simbalbara) National Park	13.01.2022
9.		Tundah Wildlife Sanctuary	01.02.2022
10.		GangulSiyabehi Wildlife Sanctuary	01.02.2022
11.		Nargu Wildlife Sanctuary	25.03.2022





12.		Kibber Wildlife Sanctuary	06.05.2022
13.	Jammu and Kashmir	Surinsar-Mansar Wildlife Sanctuary	17.01.2022
14.		Kazinag National Park	25.03.2022
15.		Gulmarg Wildlife Sanctuary	06.05.2022
16.	Maharashtra	Bor Tiger Reserve	17.01.2022

5. The ESZ Division in the Ministry also administers and handles matters related to providing Grants-in-Aid to Dahanu Taluka Environment Protection Authority, constituted under the Order of

the Hon'ble Supreme Court for protection and conservation of Dahanu Taluka. The financial assistance extended in the year 2022 as on 30.11.2022 are as follows:

S. No.	Name of Organization	Purpose	Total Amount Released as on 30.11.2022	Status of third party evaluation	Remark
1.	Dahanu Taluka Environment Protection Authority (DTEPA)	Functioning of Authority	Rs. 22,50,000/-  (including carry forward of Rs. 1,57,018/- from last FY)	NIL	The funds was released from the scheme of Establishment Expenditure (EF&CC) (3493) Major Head '3435' Ecology and Environment, Grant in-aid-General (3435.01.001.04.04.31), under Demand No.28, Ministry of Environment, Forests and Climate Change during the Financial Year 2022-2023 (Plan) from the budget head of PL-Division.



**Appendix I**  
**NOVEL PLANT SPECIES DISCOVERED BY**  
**BSI DURING 2022-23 (Till 14.11.2022)**

**Plant taxa new to science: 21 taxa**

1. *Arundinellamukurthiana* (Poaceae)
2. *Aspidistra mokochungensis*  
(Asparagaceae: Nolinoideae)
3. *Brevistachysindica* (Stachybotriaceae)
4. *Cortinariusdombangensis*  
(Agaricales, Cortinariaceae)
5. *Dictyosporiummatherense*  
(Dictyosporiaceae)
6. *Elotesporamumbaiensis*(Ascomycota)
7. *Eugenia pachakumachiana*(Myrtaceae)
8. *Glycosmis albicarpa*(Rutaceae)
9. *Grewia lakshminarasimhanii*  
(Malvaceae: Grewioideae)
10. *Heteroconiumtulsense*  
(Antennulariellaceae)
11. *Impatiens jurpia* var. *ravikumareana*  
(Balsaminaceae)
12. *Impatiens keralensis* (Balsaminaceae)
13. *Impatiens kurichiarmalayana*  
(Balsaminaceae)
14. *Impatiens pasighatensis*  
(Balsaminaceae)
15. *Lactifluus tropicalis* (Russulaceae)
16. *Lasiolomakrishnasinghii*(Ascomycota:  
Pilocarpaceae)
17. *Lysionotusmetuonensis* var.  
*arunachalensis* (Gesneriaceae)
18. *Pancratium venkaiahii*  
(Amaryllidaceae)
19. *Saccogynadarjeelingensis*  
(Saccogynaceae: Marchantiophyta)
20. *Staurogynearunachalensis*  
(Acanthaceae)
21. *Striga todgarhica* (Orobanchaceae)

**Plant taxa new to India / states flora: 33 taxa**

1. *Abutilon bidentatum* (Malvaceae)
2. *Aeschynanthus monetaria*

- (Gesneriaceae)
3. *Appendicula Blume* (Orchidaceae)
4. *Benkara fasciculata* (Rubiaceae:  
Gardenieae)
5. *Boesenbergia* (Zingiberaceae)
6. *Cheilolejeuneaobtusifolia*  
(Lejeuneaceae)
7. *Daturadiscolor* (Solanaceae)
8. *Drynariapropinqua* (Polypodiaceae)
9. *Euphorbia deccanensis* var.  
*nallamalayana* (Euphorbiaceae)
10. *Euphorbia senguptae* (Euphorbiaceae)
11. *Exacumpetiolare* (Gentianaceae)
12. *Heterotis* (Melastomataceae)
13. *Heterotis* (Melastomataceae)
14. *Impatiens laticornis* (Balsaminaceae)
15. *Impatiens scapiflora* (Balsaminaceae)
16. *Leptochillus minor* Fee (Polypodiaceae)
17. *Leptochloaneesii*(Poaceae)
18. *Leptochloa panacea* (Retz.) Ohwi
19. *Leucasdiffusa*(Lamiaceae)
20. *Melhaniafutteyporensis*, (Malvaceae)
21. *Mesoptychiamorrisoncola*  
(Jungermanniaceae, Marchantiophyta)
22. *Metalejeuneasp*(Lejeuneaceae)
23. *Mimulus strictus*Benth. (Phrymaceae)
24. *Myriactis* (Asteraceae)
25. *Pavettabreviflora*(Rubiaceae)
26. *Phyllanthusnarayanswamii*  
(Euphorbiaceae)
27. *Polypogon* (Poaceae)
28. *Salomoniacantoniensis* Lour.  
(Polygalaceae)
29. *Senecio kundaicus* (Asteraceae)
30. *Sidasivarajanii* (Malvaceae)
31. *Sporobolustetragonus* (Poaceae:  
Chloridoideae)
32. *Strophanthus caudatus* (L.) Kurz  
(Apocynaceae)
33. *Wendlandiathyrsioidea* (Rubiaceae)



CHAPTER

**06**

***Wetlands & Coastal Ecosystem***





### 6.1 National Plan for Conservation of Aquatic Eco-System (NPCA)

The Wetlands Division of the Ministry of Environment, Forest & Climate Change (MoEF&CC) aims to conserve the wetlands in the country which sustain rich biodiversity and provide wide ranging ecosystem services for societal well-being. MoEF&CC is currently implementing a centrally sponsored scheme namely, National Plan for Conservation of Aquatic Eco-systems (NPCA) for conservation and management of wetlands (include lakes) in the country on cost sharing basis between Central Government and respective State/UT Governments (60:40 percentage sharing between Central Govt. and State Govt., 90:10 percentage sharing between Central Govt. and North Eastern States and 100% Central Govt. funded for Union Territories).

The scheme aims at holistic conservation and

restoration of wetlands including lakes for achieving the desired water quality enhancement, besides improvement in biodiversity and covers various activities such as interception, diversion and treatment of wastewater, shoreline protection, lake front development, in-situ cleaning i.e. de-silting & de-weeding, storm water management, bio-remediation, catchment area treatment, lake beautification, survey & demarcation, bio-fencing, fisheries development, weed control, biodiversity conservation, education and awareness creation and community participation.

In the financial year 2022-23, funds earmarked under the NPCA scheme for conservation and management of wetlands (include lakes) is Rs. 50 crore (BE) and Rs. 25 crore (RE). A total of **Rs. 30.51 crore** has been released for conservation and management of **11 wetlands** in 8 states and one externally aided project (EAP) during **01.01.2022 – 30.11.2022**

#### Amount released during 1-1-2022 to 30.11-2022 (Amt in Rs. lakhs)

Sl. No.	Name of Wetlands	State	Amount	Sanction no	Date
<b>A</b>	<b>Amount released during 1-1-2022 to 31-03-2022</b>				
1.	Tamdil	Mizoram	262.665	J-22012/19/2006-CS(W)	22.03.2022
2.	Dhar wetland	MP	540.97	W-6/8/2021-WTL	29.03.2022
3.	Jagatpur Gam Talav	Gujarat	300.00	W-6/4/2022-WTL	29.03.2022
4.	Waithou-Phumnom pat	Manipur	200.00	W-6/7/2021-WTL	22.03.2022
5.	Waithou-Phumnom pat	Manipur	1065.476	W-6/7/2021-WTL	30.03.2022
6.	Palak	Mizoram	154.212	J-22012/3/2002-CS(W)	22.03.2022
7.	Jaimeng wetland	Manipur	153.72	W-6/2/2021-WTL	10.03.2022
8.	EAP Project (WISA)	Delhi	60.00	-22012/78/2009-CS(W)	09.03.2022
	<b>Total</b>		<b>2737.043</b>		
<b>B</b>	<b>Amount released during 1-4-2022 to 30-11-2022</b>				
1.	Girwar wetland	MP	24.6535	W-6/6/2022-WTL	10.06.2022
2.	East Kolkata Wetland	West Bengal	149.925	J-22012/38/2002-CS(W) Pt. file	18.07.2022
3.	Gurudogmar	Sikkim	43.625	J-22012/6/2007-Pt. file	22.07.2022
4.	Chandotal Wetland	U.P.	35.892	J-22012/6/2006-CS(W)	13.09.2022
5.	EAP project (WISA)	Delhi	60.00	J-22012/78/2009-CS(W)	01.08.2022
	<b>Total</b>		<b>314.0955</b>		
	<b>Grand total</b>		<b>3,051.1385 OR say 30.51 crores</b>		



Sahbhagita Mission was launched in the workshop held on 21<sup>st</sup> May 2022 at Chennai for peoples and stakeholders' participation in the wetlands conservation and management and MoU was signed between MoEF&CC and Confederation of Indian Industry (CII) for

involvement of industrial communities in participatory management of wetlands including wise use. Standard Operating Procedure (SOP) for participatory conservation and wise use of wetlands finalized and shared with all States/UTs for implementation.



**HMEFCC addressing the workshop participants; Sahbhagita Workshop Chennai on 21.05.2022**

World Wetlands Day (WWD-2022) on the theme **“Wetlands Action for People and Nature”** was celebrated on 2nd February, 2022 at Sultanpur National Park in Gurgaon, Haryana under the Chairmanship of Hon'ble Minister EF&CC and in the august presence of Hon'ble Chief Minister of Haryana. A National Wetland Decadal Change Atlas prepared by the Space Applications Centre was released on 2<sup>nd</sup> February, 2022, highlighting the changes in wetlands across the country over the past decade.



Indian delegation, headed by Joint Secretary (Wetlands), participated in the COP 14 Meeting of Ramsar Convention on wetlands at Geneva which was held at Wuhan as well as at Geneva from 5<sup>th</sup>-13<sup>th</sup> November 2022. India provided the inputs and intervened on a number of Draft Resolutions and several interventions of India were included in the final text. India also took part in several side events organized during the Convention on technical aspects of wetlands management and matters relating to conservation and wise use of wetlands and also organized its own side event on 75@75 on 09.11.2022.



**KHIJADIYA BIRD SANCTUARY (Ramsar Site)**



**KARIKILI BIRD SANCTUARY (Ramsar Site)**



With the persuasion of MoEF&CC, 7 wetlands in Goa, 3 wetlands in Madhya Pradesh and 25 wetlands in Sikkim were notified by the respective State Governments under the Wetlands (Conservation and Management) Rules 2017.

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 party to the Convention on 01.02.1982 and has designated **75 wetlands** under the List of Wetlands of International Importance in the 75<sup>th</sup> year of its independence), out of which 33 wetland sites have been added to the list of Ramsar sites of the country during the year 2021 and 2022.

### LIST OF RAMSAR SITES IN INDIA

S. No.	State/UT	Wetland	Area (hectares)	Date of Designation
1	Andhra Pradesh	Kolleru Lake	90100	19-08-2002
2	Assam	Deepor Beel	4000	19-08-2002
3	Bihar	Kabartal Wetland	2620	21-07-2020
4	Gujarat	Nalsarovar	12000	24-09-2012
		Wadhvana Wetland	630	05-04-2021
		Thol Lake Wildlife Sanctuary	699	05-04-2021
		Khijadia Wildlife Sanctuary	512	13-04-2021
5	Goa	Nanda Lake	42	08-06-2022
6	Haryana	Sultanpur National Park	143	25-05-2021
		Bhindawas Wildlife Sanctuary	412	25-05-2021
7	Himachal Pradesh	Pong Dam Lake	15662	19-08-2002
		Chandertal Wetland	49	08-11-2005
		Renuka Wetland	20	08-11-2005
8	Jammu and Kashmir	Wular Lake	18900	23-03-1990
		Surinsar-Mansar Lakes	350	08-11-2005
		Hokera Wetland	1375	08-11-2005
		Hygam Wetland Conservation Reserve	802	08-06-2022
		Shallbugh Wetland Conservation Reserve	1675	08-06-2022
9	Karnataka	Ranganathittu Bird Sanctuary	518	15-02-2022
10	Kerala	Asthamudi Wetland	6140	19-08-2002
		Sasthamkotta Lake	373	19-08-2002
		Vembanad Kol Wetland	151250	19-08-2002
11	Ladakh	Tso Kar Wetland Complex	9577	17-11-2020
		Tsomoriri Lake	12000	19-08-2002



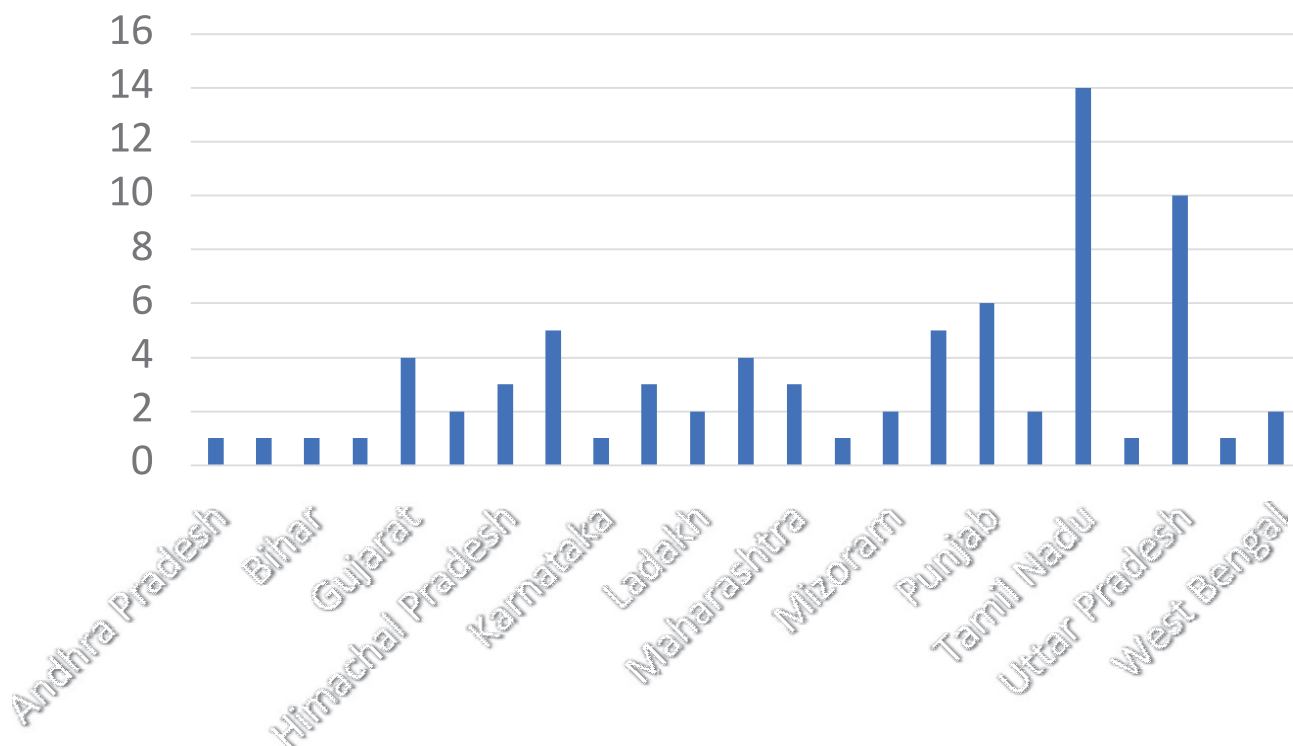


12	Madhya Pradesh	Bhoj Wetlands	3201	19-08-2002
		Sirpur Wetland	161	07-01-2022
		Sakhya Sagar	248	07-01-2022
		Yashwant Sagar	823	07-01-2022
13	Maharashtra	Nandur Madhameshwar	1437	21-06-2019
		Lonar Lake	427	22-07-2020
		Thane Creek	6521	13-04-2022
14	Manipur	Loktak Lake (MR)	26600	23-03-1990
15	Mizoram	Pala Wetland	1850	31-08-2021
16	Odisha	Chilka Lake	116500	01-10-1981
		Bhitarkanika Mangroves	65000	19-08-2002
		Satkosia Gorge	98197	12-10-2021
		Tampara Lake	300	12-10-2021
		Hirakud Reservoir	65400	12-10-2021
		Ansupa Lake	231	12-10-2021
17	Punjab	Harike Lake	4100	23-03-1990
		Kanjli Lake	183	22-01-2002
		Ropar Lake	1365	22-01-2002
		Beas Conservation Reserve	6429	26-09-2019
		Keshopur - Miani Community Reserve	344	26-09-2019
		Nangal Wildlife Sanctuary	116	26-09-2019
18	Rajasthan	Keoladeo Ghana National Park (MR)	2873	1-10-1981
		Sambhar Lake	24000	23-03-1990
19	Tamil Nadu	Point Calimere Wildlife and Bird Sanctuary	38500	19-08-2002
		Koonthankulam Bird Sanctuary	72	08-11-2021
		Chitrangudi Bird Sanctuary	260	08-11-2021
		Karikili Bird Sanctuary	58	08-04-2022
		Pichavaram Mangrove	1479	08/04/2022
		Pallikaranai Marsh Reserve Forest	1248	08-04-2022
		Gulf of Mannar Marine Biosphere Reserve	52672	08-04-2022
		Vembannur Wetland Complex	20	08-04-2022
		Vellode Bird Sanctuary	77	08-04-2022
		Udhayamarthandapuram Bird Sanctuary	44	08-04-2022
		Vedanthangal Bird Sanctuary	40	08-04-2022
		Suchindram Theroor Wetland Complex	94	08-04-2022
		Vaduvur Bird Sanctuary	113	08-04-2022
		Kanjirankulam Bird Sanctuary	97	08-04-2022



20	Tripura		Rudrasagar Lake	240	08-11-2005
21	Uttar Pradesh		Upper Ganga River	26590	08-11-2005
			Nawabganj Bird Sanctuary	225	19-09-2019
			Parvati Arga Bird Sanctuary	722	02-12-2019
			Saman Bird Sanctuary	526	02-12-2019
			Samaspur Bird Sanctuary	799	03-10-2019
			Sandi Bird Sanctuary	309	26-09-2019
			Sarsai NawarJheel	161	19-09-2019
			Sur Sarovar	431	21-08-2020
			Haiderpur Wetland	6908	08-04-2021
			Bakhira Wildlife Sanctuary	2894	29-06-2021
22	Uttarakhand		Asan Conservation Reserve	444	21-07-2020
23	West Bengal		East Calcutta Wetlands	12500	19-08-2002
			Sunderbans Wetland	423000	30-01-2019
23 States & UTs		75 Ramsar Sites		Total Area: 13,26,678 ha	

### State-wise Distribution of Ramsar Sites





Three Regional workshops at Bhopal, Chennai and Srinagar were organized since January 2022 for imparting training to various stakeholders including Ramsar site managers. About 50 participants including State Govt. officials and other Stakeholders participated in each workshop.

**ANUP** – The half yearly newsletter ANUP was published by MoEF&CC highlighting the major events, achievements and insights of conservation of wetlands during June 2022 to keep wetlands managers, Wetland authorities and other stakeholders updated on the development in this sector.

## 6.2 Sustainable Coastal Management Division

### (a) Introduction,

Sustainable Coastal Management Division was created by MoEF&CC's order dated 30<sup>th</sup> May 2022 with the following allocation of work:

- I. National Coastal Mission
- ii. Scheme on Coral and Mangroves
- iii. Matters related to Society of Integrated Coastal Management (SICOM) and National Centre for Sustainable Coastal Management (NCSCM)
- iv. Matters related to Blue Economy v. Marine litter
- vi. Potential Externally Aided Projects on Sustainable Coastal Management Division

The mandate for the Division is sustainable development and management of environment of coastal regions such as conservation of coastal and marine resources, coastal pollution abatement measures and alternative livelihood of coastal communities, adaptation strategies for climate resilience in coastal States/Union Territories of India.

The main role and responsibilities are as follows:

1. To conserve, protect and manage the fragile

coastal and marine ecosystems such as the mangroves, brackish water wetlands, coral reefs, etc;

2. To improve resilience of coastal and marine ecosystems and its services
3. To address climate change challenges on coastal and marine ecosystems and communities through a combination of adaptation and mitigation measures which include strengthening natural shields against extreme weather conditions to protect shorelines, assets and communities;
4. Conservation and Management of Ecologically sensitive area (Mangroves, Coral reefs Etc.)
5. To undertake research and development activities for coastal ecosystem and communities
6. To prevent, abate and control pollution of coastal and marine waters from land-based sources and developing infrastructure for environment protection
7. Development of Coastal Marine Spatial Planning and Integrated Coastal Zone Management works
8. To develop Integrated Coastal Zone Management Plans and Marine Spatial Plan for environment friendly management of coastal marine resources;
9. To enable climate resilient development of blue economy activity with adequate safeguard for coastal ecology and marine environment with demonstrative and pilot scale projects;
10. To create awareness among stakeholders on climate change challenges and promote adaptation and acceptance of mitigative measures.

### (b) Activities undertaken including celebrations for Azadi Ka Amrit Mohatsav.

- Brochure on **Mangroves of India** for Hon'ble Prime Minister's visit to G20 summit meeting at Bali, Indonesia was prepared.
- Scheme for National Coastal Mission under preparation
- Co-ordination of work related to *Swachh Sagar Surakshit Sagar* Campaign of Ministry of





Earth Sciences and deputation of officers from MoEF&CC all throughout India on the International Coastal Cleanup Day on 17<sup>th</sup> September 2022.

- Beach cleaning drive with community participation at Puducherry on 27<sup>th</sup> August 2022.



- National Conference on Sustainable Coastal Management in Bhubaneswar was organized on 10<sup>th</sup> - 11<sup>th</sup> September 2022
- Matter related to membership of **Mangrove Alliance for Climate** – an initiative of UAE and Republic of Indonesia was pursued.
- Beach cleaning concept note has been prepared for G20 Indian Presidency.

© **Progress/Innovations** Following work has been done under the Central Sector Scheme of Conservation and Management of Mangroves and Coral Reefs:

- I. CNA and SNA accounts were opened for all coastal States for fund transfer under National Coastal Mission. 16 out of 20 proposals on

conservation and management of Mangroves and Coral Reefs have been processed and fund released for 10 site. A total of 1.3 cr (25% of Central grant) has been released.

1. 10 Blue Flag Certification has been re-certified as Blue Flag beach for season 2023
2. beaches in Lakshadweep have been developed by local Administration for Blue Flag certification. Both beaches have been awarded the certification for season 2023

#### (d) Cumulative achievements

- Forest Survey of India (FSI) assessed Mangrove Cover of the country in three density classes i.e., very Dense, Moderately Dense and Open Mangrove Cover on biennial basis and publishes the findings in the India State of Forest Report. As per the India State of Forest Report 2021, total mangrove cover of India is 4992 km<sup>2</sup>; which is 0.15 % of the country's total geographical area. There has been a net increase of 17 km<sup>2</sup> in mangrove cover of the country as compared to 2019 assessment. The top three states showing mangrove cover increase are Odisha (8 sq km) followed by Maharashtra (4 sq km) and Karnataka (3 sq km). About 57% of the Indian mangrove is present along the east coast (Bay of Bengal); 31% along the west coast (Arabian Sea) and the remaining 12% in the Andaman and Nicobar Islands.

#### (g) National/ International Conferences

- MoEF&CC has provided financial support for organizing National Conference on Coastal Zone Management during 26<sup>th</sup> -27<sup>th</sup> July 2022 at Gandhinagar, Gujarat on International Day for the Conservation of Mangroves Ecosystem;
- National Conference on Sustainable Coastal Management was organized in Bhubaneswar on 10<sup>th</sup> - 11<sup>th</sup> September 2022.

#### (I) List of major publications

- A Booklet on Mangroves of India was circulated among G-20 countries.



**2. Scheme/Programme** Conservation and Management of Mangroves and Coral Reefs a central sector scheme being implemented by the Division. Under the Scheme, 38 mangroves and 4 coral reef sites have been identified for on-ground intervention. During the financial year 2022-23, the Ministry has provided financial support in the ratio 60:40 to the Forest Departments of the Coastal States/ UTs Govts.

### 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.

### a. Progress/Achievements

- Following work has been done:
  1. 16 proposals have been approved out of 20 received for grant of financial support under Conservation and management of Mangroves and coral reefs and an amount of Rs. 1.84 crores has been released as central grant.
  2. Rs 6.05 crores was released for 12 Management Action Plans for conservation and Management of Mangroves
  3. For FY 2023, Blue Flag certification has been renewed for all the 10 beaches. Additionally, Lakshadweep Administration has developed 2 beaches which have also been accorded Blue

Flag Certification;

4. Brochure on Mangroves of India for Hon'ble Prime Minister visit to G20 summit meeting at Bali, Indonesia was prepared
5. Draft EFC note for National Coastal Mission has been prepared and circulated to all line Ministries and State Governments.
6. Beach cleaning drive with community participation at Puducherry on 27<sup>th</sup> August 2022
7. Co-ordination work related to Beach Cleaning activities with community participation was organized at Puri and National Conference on Sustainable Coastal Management at Bhubaneswar was organized on 10<sup>th</sup> - 11th September 2022. Beach cleaning activity was cancelled due to the weather conditions;
- 8. *Work on development of beach infrastructure at Sunapur (Odisha) complete and the commissioning is under progress. Work on Tannirbhavi –(Karnataka) is under progress.*
8. India has joined the Mangrove Alliance for Climate (MAC) at COP27 which aims to educate and spread awareness worldwide on the role of mangroves in curbing global warming and its potential as a solution for climate change;
9. Beach cleaning concept note has been prepared for G20 Indian Presidency;
10. MoEF&CC has provided financial support for organizing National Conference on Coastal Zone Management during 26<sup>th</sup> -27<sup>th</sup> July 2022 at Gandhinagar, Gujarat on International Day for the Conservation of Mangroves Ecosystem;

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

S. No.	Name of Organization	Purpose	Total amount released/ concurred by the IFD (in lakhs)
1	Forest Department of Gujarat	Conservation & Management of Mangrove and Coral Reefs	7.79685
2	Forest Department of Kerala		11.76
3	Forest Department of Odisha		33.433
4	Forest Department Tamil Nadu		41.99
5.	Forest Department of West Bengal		38.47



6.	Forest Departments of State/UTs / Gujarat Ecology Commission/ National Centre for Sustainable Coastal Management	Beach cleaning activities in 7 states/Union Territories	25
7	Gujarat Ecology Commission	National Conference on Coastal Zone Management was organized during 26-27 July 2022 at Gandhinagar, Gujarat on International Day for the Conservation of Mangroves Ecosystem	10
8.	National Centre for Sustainable Coastal Management	Preparation of Mangrove Zonation Community Atlas of India	23.433
9.	Expected release for conservation and management of mangroves is approximately 1.23 crore		

### 6.2.3 National Centre for Sustainable Coastal Management

#### a. Introduction

The National Centre for Sustainable Coastal Management (NCSCM) was established under the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India, in February 2010 with the objective of developing into a leading institution for the management of coastal and marine areas with adequate human resources, research infrastructure and is a Certified Platinum Green Building. It will support the management of coastal and marine areas in India in an integrated and sustainable manner and provide guidance to the national and state governments, and other

relevant stakeholders, on matters of policy and science related to Integrated Coastal Zone Management (ICZM).

The Vision of NCSCM is to promote sustainable coasts through increased partnerships, conservation practices, scientific research and knowledge management for the benefit and wellbeing of current and future generations. The Mission is to support integrated management of the coastal and marine environment for livelihood security, sustainable development and hazard risk management by enhancing Knowledge, Partnerships and Network, Research and Advisory Support and Coastal Community Interfacing.

- a. Activities undertaken including celebrations for Azadi Ka Amrit Mahotsav

Sl. No.	Date	Programme	Organised by	Held at	Purpose
1	02-Feb-22	World Wetland Day 2022	Tamil Nadu State Wetland Authority, Government of Tamil Nadu & NCSCM	NCSCM, Chennai	Aims to raise global awareness about the vital role of wetlands for people and planet
2	29-Mar-22	Sea turtle conservation and Ghost Nets Sensitization Meeting	Tree Foundation	NCSCM, Chennai	Sharing knowledge and information on ghost gear and connecting and supporting effective ghost gear solutions





3	21-May-22	SAHBHAGITA' Workshop for Conservation and Wise-Use of Wetlands	MoEFCC	NCSCM, Chennai	Conservation and Wise-Use of Wetlands
4	22-May-22	International Day of Biological Diversity 2022	National Biodiversity Authority (NBA)	Kalaivanar Arangam, Chennai	International Day for Biological Diversity to increase understanding and awareness of biodiversity issues, celebrated under the slogan: "Building a shared future for all life"
5	29 June 2022 to 3 July 2022	Uttar Pradesh Plastic Waste Management Conclave - 2022	Department of Environment, Forest and Climate Change and Urban Development Department, Government of Uttar Pradesh in collaboration with GIZ India	Indira Gandhi Pratishthan, Lucknow	Promote unique ideas for the replacement of plastic and its usage were on display at stalls at the 'Uttar Pradesh plastic waste management conclave'. Several start-ups from across Uttar Pradesh and India attended the event
6	27-Aug-22	Swachh Sagar, Surakshit Sagar Coastal Cleanup Event & Awareness Drive, 27 August 2022	MoEFCC	Promenade Beach, Puducherry	Create awareness among the general public towards the upkeep of the beaches as per the Govt. of India through mega Coastal Clean-up Drive of covering 7500 kms stretch covering 75 beaches for 75 days which has commenced on 03 Jul 22 and culminating on 17 Sep 22 coincides the celebrations 75 years of the country's independence in the form with Azadi Ka Amrit Mahotsav.
7	17-Sep-22	Coastal clean-up activity and public awareness event	Government of Tamil Nadu, Department of Environment, Climate Change and Forests, Tamil Nadu Pollution Control Board, and GIZ India	Neelankarai Beach in Chennai.	Create awareness among the general public towards the ban on single use plastics



8	20 and 21 October 2022	Phase III - Capacity Building Program for the Scientists of MoEF&CC 20th & 21st October 2022	NCSCM	NCSCM, Chennai	Capacity Building Program for the Scientists of MoEF&CC on coastal and marine ecosystems
9	16th Aug-2022	ISO 9001 Surveillance Audit	URS Certification Limited	NCSCM, Chennai	Quality management standards for laboratories
		ISO 45001:2018 Surveillance Audit	URS Certification Limited	NCSCM, Chennai	Quality management standards OH&S management system
10	13th Oct-2022	Swachhata Campaign 2.0 Meeting	MoEFCC	Hybrid meeting	Swachhta Campaign 2.0: Focus on scrap disposal & reducing pendency in govt departments
11	16th Nov-2022	Meendum Manjappai' Scheme of Govt. of Tamil Nadu	Tamil Nadu Pollution Control Board	TNPCB	'Meendum Manjappai' scheme to promote the use of cloth bags by the public

#### a. Progress/Innovations

NCSCM is currently executing eleven (11) nationally important coastal and marine research studies. The projects undertaken under the National Coastal Management Programme (NCMP), aims to conserve, protect and manage coastal living and non-living resources, safeguarding coastal communities

by reducing climate induced-risks and vulnerabilities through a combination of climate change adaptation and mitigation measures (refer S.No. 1 to 5 in Table 1). NCSCM is also executing several applied research studies funded by (i) other Divisions within MoEF&CC; (ii) Other Ministries and (iii) externally funded agencies including international agencies (refer S.No. 6 to 11):

**Table 1: Details of progress and innovations for each of the above projects.**

S.No.	Project	Progress	Innovations
1	Assessment of Coastal Erosion and Recommendation for Suitable Interventions-Green Coastal Infrastructure	Identification of high erosion hotspots is in progress	Moving from grey to green coastal Protection using ecosystem-based approaches at highly eroding areas.
2	Benthic Ecosystem and Ocean Acidification (cost: Rs.450 Lakhs) Use: climate impacts on corals and sensitive shelled organisms	Real-time monitoring of coral habitats and benthic habitat assessment at three ecosystems i) Pulicat Lagoon; ii) Chilika Lagoon, iii) Kavaratti (coral reefs) and iv) Gulf of Mannar (coral reefs) is being undertaken at key coral reef areas.	Real-time monitoring of corals provide long-term database of climate impacts from coastal ecosystems



3	Restoration of Pulicat lagoon, Monitoring Lagoon Ecosystem Health and Lagoon Management Plan(cost: Rs.450 Lakhs) Use:	Baseline primary data collection for 8 management sub-plans is in progress.	Lagoon Use Management Plan for restoration of the Pulicat Lagoon
4	Mangrove Community Zonation Atlas of India (cost:Rs.78.11 Lakhs) Use: Conservation of mangroves by understanding species diversity, community structure under climate change	Community zonation for mangrove ecosystems of India using remote sensing. Preparation of State-wise Atlas is in progress	First atlas indicating various communities zonation of mangroves in India, which would help in the conservation of mangrove ecosystems of India
5	Development of environmentally sound beach infrastructure at Sonapur, Odisha and Thaneerbhavi, Karnataka and Safety Risk Assessment and Bathing Water Quality Testing in two Beaches of India	a) Pollution abatement in beaches and sustainable use of beach space as per international standards. Development of eco-friendly infrastructure b) Safety and Risk Assessment and Bathing water quality testing of two beaches for the tourist season is in progress for two beaches.	a) 12 clean model beaches have achieved International Standards in India. The proposed additional two beaches will increase the number of clean beaches to 14. b) Blue Flag Beach certification considering safety risk assessment (SRA) and bathing water quality assessments. Independent standards for India's beaches will be developed for the first time
6	Holistic Conservation and Integrated Management Plan of Wetlands (cost: Rs.5247 Lakhs) Use: Comprehensive wetland management, database development of all wetlands, sustainable and wise use framework	Conservation and Management activities for all wetlands of India, such as survey, demarcation, catchment area mapping, assessment of pollution and recommendations for pollution abatement, suggesting suitable recommendations for wise use of wetlands, capacity building, outreach & awareness, are in progress.	Large-scale wetland conservation and management at a country level
7	Joint study on Seaweed Cultivation, Potential and Ecological Safeguards in the Gulf of Mannar, Tamil Nadu (along with ICAR-CMFRI and CSIR-CSMCRI) (cost: Rs.38.81 Lakhs) Use:Sustainable seaweed cultivation using environmental safeguards	Assessing the culture potential of seaweeds in the Gulf of Mannar for undertaking large-scale commercial cultivation with environmental safeguards.	Preparation of a guideline on environmental safeguards for seaweed cultivation
8	Long Term Monitoring Plan for the Ecosystem based Conservation Management for Bhitarkanika Conservation Area Phase –II (cost: Rs. 200 Lakhs) Use: Ecosystem based management of Bhitarkanika Conservation Area	NCSCM has been carrying out monthly surveys at BCA since January 2018 to develop an integrated database based on time series primary data for various components as required for the preparation of a science-based management plan. These surveys focus on a holistic understanding of	Long term monitoring of Bhitarkanika Conservation area- protected area, serves as a benchmark for scientific management of any protected area in the country





		the ecosystem health, food web structure, biodiversity assessment, prevalent stress and pressures and how mangroves will respond to climate change. Capacity Building of the Forest personnel is also being undertaken.	
9	South Asia Nitrogen Hub	Nitrogen fluxes in various environmental matrices (air, water, soil) on coastal estuaries and ecosystems. Impact of nitrogen pollution and its impact on coastal ecosystems such as coral reefs, sea grass etc.	First time, nitrogen flows are determined in the Indian subcontinent, linking the fresh water and ocean modelling to arrive at a nitrogen budget for the South Asian region
10	Circular Economy Solution preventing Marine Litter in three Ecosystems	Assessment of plastic leakage hotspots at a few major cities in three States- Tamil Nadu, Kerala and Uttar Pradesh	Resource use efficiency and technological interventions to marine litter pollution in rivers and oceans
II	Enhancing Climate Resilience of Coastal Communities and Capacity Building (Annex – 6d) communities and capacity climate resilience of coastal coastal ecosystems to build Rs. 1018 Lakhs) Use: restoration of India's Coastal Communities (cost: the resilience of the lives and Assessments and surveys to enhance	progress: community-based approach is in using an ecosystem-centric and climate change and extreme events, in the coastal areas of India to populations, particularly women, livelihoods of the most vulnerable the resilience of the lives and Assessments and surveys to enhance	across all of India's coastal states coordination for addressing climate risk governance, enabling intersectoral principles into coastal planning and value chains. Mainstream EoA adopt climate-adaptive livelihoods and seagrass. Help communities ecosystems such as mangroves, corals Protection and restoration of



Pulicat Lagoon

**a. Cumulative achievements**

- Preparation of a “National Coastal and Marine Spatial Plan: A Framework and Action Plan” Submitted to MoEF&CC in July 2022
- Developed an Ecosystem Health Report Card for Bhitarkanika Conservation Area (BCA) in its 2<sup>nd</sup> series based on long term scientific assessments.
- For the conservation and sustainable development of coastal areas, NCSCM has prepared the (a) Coastal Zone Management Plans (CZMP) for 4 coastal States/ UTs as per CRZ Notification 2011 (b) preparing CZMPs for 7 Coastal States/ UTs as per the CRZ Notification 2019; (c) Island Coastal Regulation Zone (ICRZ) maps for Great Nicobar have been completed and (d) Integrated Island Management Plans (IIMP) for three islands of Lakshadweep has been completed.
- In order to achieve self-sustenance, NCSCM is undertaking preparation of local level

(1:4000) scale maps for Coastal Regulation Zone (CRZ) Projects; post-project monitoring of port projects and other studies are undertaken. During the year 2022, (a) 27 CRZ projects have been completed and 70 projects are ongoing; (b) 4 post project monitoring studies have been completed and 7 are ongoing.

- NCSCM is an ISO 9001, ISO 45001 organization. The following other accreditations have been received by the institute:
- National Accreditation Board for Testing and Calibration Laboratories (NABL)
- National Accreditation Board for Education and Training (NABET) for conducting EIA in Sector 33 [ports, harbours, breakwaters and dredging]
- Recognition of Labs (EP Act) - Central Pollution Control Board
- Atomic Energy Regulatory Board (AERB) to undertake projects related to radiochemistry

**a. Continuing committees/ commissions**

Sl. No.	Committee Details	Nature of participation and subjects
1	Member, Coastal Aquaculture Authority (2021 – Till date)	Pertains to Aquaculture Act (2005)
2	Ex-Officio, Member, Indian National Man and Biosphere (MAB) Committee	The Indian National MAB Committee identifies and recommends potential sites for designation as Biosphere Reserves, following the UNESCO's guidelines and criteria.
3	Member, Integrated Management Plan for Biosphere Reserve	Development of Guidelines for integrated management plan of India's Biosphere reserves
4	Member, National Coastal Zone Management Authority (NCZMA), Ministry of Environment, Forest and Climate Change, Government of India	Pertains to Coastal Regulation Notification (2011), (2019); Island Protection Zone Notification (2011) and Island Coastal Regulation Zone (ICRZ), 2019
5	Member, Coastal Zone Management Authority, Daman & Diu Coastal Zone Management Authority	UT-specific CRZ issues
6	Member, National Jury of Blue Flag India, Ministry of Environment, Forest and Climate Change.	Evaluation of proposed Indian beaches for Blue Flag Certification by the International Jury



7	Member, National Project Steering Committee for Green Climate Fund, Ministry of Environment, Forest and Climate Change.	Enhancing resilience of coastal communities to climate vulnerabilities
8	Nodal Officer, National Coastal Marine Spatial Planning – Promotion of Blue Carbon. [June 2021 onwards], Ministry of Environment, Forest and Climate Change.	Development of a National Coastal and Marine Spatial Plan: A framework and Action Plan document
9	Member, General Body, Salim Ali Centre for Ornithology and Natural History (SACON)	General Body of SACON
10	Member, National Committee on Mangroves and Coral reefs, MoEFCC, Government of India	Advise the Government on relevant policies and programmes regarding marine flora and fauna
11	Member, Technical and Financial Appraisal Committee (TFAC) on R&D Scheme, MoEFCC, Government of India	Review of project proposals submitted for research funding to the MoEF&CC
12	Member, National Disaster Management Authority (NDMA)	Committee to review coastal risk reduction and preparation of a report
13	Steering Committee to prepare Adaptation Communication to UNFCCC -Constitution of Working Group related to Disaster Management and Infrastructure Resilience.	Approach to adaptation that integrates climate-resilient policies
14	UNEP Expert committee member in Counter Measure II Project Meeting	Generate, share and disseminate scientific knowledge on plastic pollution in the Mekong, Ganges and selected rivers in Sri Lanka and Myanmar
15	UNFCC Adcom MoEFCC Adaptation Communication Meeting	Approach to adaptation that integrates climate-resilient policies, Sectoral Meeting of Coast and Islands
16	Member, several NGT Committees	Related to CRZ compliances, coastal and marine ecosystem conservation issues and coastal and marine pollution related aspects

#### a. National/ International Conferences

Sl. No.	Date	Programme	Organised by	Purpose
1	26-27 July 2022	National Conference on "Coastal Zone Management - Policy to Action"	Gujarat Ecology Commission and organizing partners - SICOM, MoEF&CC & NCSCM, Gandhinagar, Gujarat	Coastal Zone Management - Policy to Action
2	10 and 11 September 2022	National Conference on Sustainable Coastal Management in India	UNDP with Odisha Government, Bhubaneswar, Odisha	Focused on enhancing climate resilience of India's coastal communities and discussion on steps that shall be taken towards coastal management.





3	26 and 27 September 2022	Eco-Alternative Expo & Start-up Conference	Government of Tamil Nadu and MoEF&CC, Chennai Trade Center	To create awareness among the public on the ill effects of disposal of SUPs and the alternatives available for the banned SUPs
4	8 & 9 December, 2022	Tamil Nadu Climate Summit	Department of Environment, Climate Change and Forests, Government of Tamil Nadu, Chennai	Pioneering initiative, which takes the climate agenda on priority with district missions and climate officers already in place in the state
5	17-Nov-22	"Race" Campaign single-use plastic	Environment, Climate Change & Forest Department & GIZ, India, Lucknow	"RACE is the campaign and it stands for – reduction in plastic usage, awareness among masses, circular solution to disposal and engagement of single-use plastic
6	11-Nov-22	Roundtable discussion on "Mainstreaming circular economy approaches for plastics and packaging in India - Opportunities, challenges and way forward"	GIZ, India, New Delhi	Mainstreaming circular economy approaches for plastics and packaging in India - Opportunities, challenges
7	10-Aug-22	Planning Workshop held on "Circular Economy Solutions (CES) Preventing Marine Litter in Ecosystems"	Department of Environment & Climate Change & GIZ, India, Thiruvananthapuram	Circular Economy Solutions (CES) Preventing Marine Litter in Ecosystems and promote Resource efficiency
8	27 November to 1 <sup>st</sup> December 2022	SANH Annual Meeting	UKRI's Global Climate Research Fund, Maldives	Discussed the impact of nitrogen pollution on the greater susceptibility of corals to heat stress by increasing algal growth rates leading to increased coral mortality.
10	29-Jun-22	World Mangrove Day - Preliminary Meeting	Ecology Commission, Gandhi Nagar, Gujarat	Conference: Mangrove Conservation: Present status and Future Perspective
11	23-24, September, 2022	National Conference of Environment Ministers of all States in Ekta Nagar, Gujarat & NIRANTAR meeting for all institutions under MoEF&CC was also held under the Chairmanship of the Hon'ble Minister MoEF&CC	MoEF&CC, Kevadiya, Gujarat	Solutions to issues like the simultaneous development of ecology and economy strengthening of the environment and creation of new employment opportunities bio-diversity being a medium to increase eco-tourism, and to address how the wealth of the forest grows.

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

S. No.	Name of Organization	Purpose	Total Amount Released	Status of Third party evaluation	Remarks
1	NCSCM	Swachchh Sagar Surakshit Sagar (SSSS)	Rs 7,00,000/-	Nil	Nil
2	NCSCM	Mangrove community zonation Atlas of India	Rs 23,43,300/-	Nil	Nil





CHAPTER

**07**

*Conservation-Forest*





## 7.1 Forest Conservation

### a. **Brief introduction, objectives and functions of the Division**

- The Division implements the provisions of Forest (Conservation) Act, 1980 to ensure sustainable development in the country. This Act which came into force with effect from 25th October 1980 was enacted with a view to check further deforestation which ultimately results in ecological imbalance. Under the provisions of this Act, prior approval of the Central Government is essential for diversion of forest land for the non-forestry purposes.
- The proposals seeking prior approval of the Central Govt. for using forest land for non- forestry purposes are analyzed with due diligence and every effort is made to avoid the use of forest land or to keep it at bare minimum. Wherever the use of forest land is unavoidable, the same is allowed to be used subject to raising of Compensatory Afforestation and payment of Net Present Value as per norms. Additional mitigation measures in the form of Catchment Area Treatment Plan (CAT Plan), Wildlife Management Plan, Soil and Moisture Conservation works and maintenance of Safety Zone etc. are stipulated on case-to-case basis.

### b. **Important activities undertaken during the reference period (from January –December 2022)**

Under Swachta campaign digitization and weeding out of old files was done and importance was given to cleanliness and space management in the area allotted to division.

### c. **Progress/Innovations including (January – December 2022).**

- i. To streamline the FC process, the Ministry has notified the Forest (Conservation) Rule, 2022 on 28.06.2022.

- ii. 34 number of guidelines/clarifications were issued to streamline process of approval under FC Act, 1980

- iii. Roll out of FC module of PARIVESH 2.0 is in process.

### d. **Important Cumulative achievements including promulgation of new Acts/ Rules, if any, along with the details along with major amendments /deletions.**

- i. Draft Cabinet Note on Forest (Conservation) Amendment Bill, 2022 has been finalized in consultation with the MoL&J. Refined Cabinet Note has been submitted to the Cabinet Secretariat on 11.10.2022 for its further consideration by the Cabinet.

- ii. Rates of the Net Present value (NPV) has been revised upward by 1.51 times on 06.01.2022.

- iii. Ministry is in process of launching 'PARIVESH 2.0', 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 user friendly.

- iv. During the period from 01.01.2022 to 20.12.2022, the Ministry has accorded 'in-principle' approval in 19 proposals which relates to 15823.22 ha of forest land and has accorded Stage-II/final approval in 39 proposals which pertains to 8380.5403 ha of forest land. In lieu of the above mentioned Stage-I approvals the Ministry has stipulated an area of 28238.83 ha of land (degraded -



26950.73 ha and non-forest land-1288.10 ha) for Compensatory Afforestation and 9752.26 ha of land (degraded -6195.65 ha and non-forest land- 3556.61 ha) for Compensatory Afforestation w.r.t to Stage-II/final approval.

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

- In exercise of powers conferred under Section 3 of the Forest (Conservation) Act, 1980 read with Rule 3(1) of the Forest (Conservation) Rules 2003 and Forest (Conservation) Rules 2022, Forest Advisory Committee (FAC) was constituted by this Division.
- From 01.01.2022 to 20.12.2022, eleven FAC meetings were held. 64 proposals were discussed in FAC meetings held in between 01.01.2022 to 20.12.2022. Out of 64 cases 27 proposals were granted Stage-I approval and two proposals were rejected. During the said period 36 proposals were granted Stage-II approval.

**7.2 Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**

**INTRODUCTION**

The Compensatory Afforestation Act, 2016 (CAF Act 2016) was enacted on 3<sup>rd</sup> August, 2016. The CAF Rules, 2018 were notified on 10<sup>th</sup> August, 2018 and the date of coming to effect of CAF Act and Rules is 30.09.2018 enabling the creation of the compensatory afforestation fund as a special fund under the Public Account of India. The monies deposited in the National fund are non-lapsable and interest-bearing. The CAF Act, 2016 also provides for State Compensatory Afforestation Fund under the Public Account of the respective State/Union Territory (UT).. The CAF Act has brought transformational changes in forest and wildlife management in the country.

The CAMPA funds are being utilized by the States/UTs to carry out compensatory afforestation projects and improve the quality of forests, strengthen forest protection infrastructure and improve wildlife habitats. CAMPA Funds are utilized as per provision of CAF Act, 2016 and CAF Rules, 2018 for carrying out Compensatory Afforestation for compensating the loss of forests and trees during diversion of forest land, improvement of quality of forest, biodiversity and wildlife habitat, protection and conservation related activities including control of forest fire, soil and moisture conservation activities etc. The monitoring and evaluation of CAMPA activities is carried out both internally by the State Forest Department as well as external 3rd party monitoring and e-Greenwatch at national level by Forest Survey of India.

National Authority takes up schemes/pilot scientific research projects in areas of national and regional importance pertaining to conservation of forest, wildlife, biodiversity and enhancement of ecosystem services through its National Fund. Some of the important Schemes supported by National Authority are conservation of Endangered Species Recovery programme such as Great Indian Bustard, River Dolphin, Dugong, Manipur's brow antlered Deer (Sangai) by Wildlife Institute of India; National Tiger Conservation Authority (NTCA) for carrying out estimation of Tiger and introduction of Cheetah; Indian Council for Forestry Research and Education (ICFRE) for conservation and development of Genetic resources in forestry, estimation of economic loss of forest due to forest fire; Forest Survey of India (FSI) for Satellite survey of encroachment areas and e-Green Watch etc.

National Authority is contributing in large scale urban greening through Nagar Van/ Vatika Yojana in various cities across the country. Nagar Van Yojana aims to make the cities green, liveable, climate resilient, improve quality of life for citizens and contribution to the National Clean Air Action



Plan (NCAP) besides bringing trees in the city. National Authority also supports School Nursery Yojana for connecting students with plants and nature and greening of their minds.

### Objectives:

To ensure the following activities are carried out in the States/UTs from the CAMPA funds to compensate the developmental activities in terms of compensatory afforestation using the monies deposited by the user agencies-

- (I) Assisted natural regeneration
  - (ii) Artificial regeneration
  - (iii) Silvicultural operations in forests
  - (iv) Protection of plantations and forests
  - (v) Pest and disease control in forest
  - (vi) Forest fire prevention and control operations
  - (vii) Soil and moisture conservation works in the forest
  - (viii) Voluntary relocation of villages from protected areas
  - (ix) Improvement of wildlife habitat
  - (x) Planting and rejuvenation of forest cover on non-forest land in wildlife corridors
  - (xi) Wild animal rescue centre and veterinary treatment facilities
  - (xii) Wood-saving cooking appliances in forest fringe villages
- Management of biological diversity and biological resource



**Fig: Nurseries**



**Fig: Compensatory Afforestation activities**

### 3. Schemes supported under the CAMPA Fund for the year 2022-23

National Authority, CAMPA have released a total of Rs. 102.26 grants to various Institutions/ Implementing Agencies supporting innovative schemes in favour of National interest and promoting collaborative sustainable development.

#### I. Implementing Agency: National Tiger Conservation Authority (NTCA):

- a. “Implementation of Management Effectiveness Evaluation (MEE) of the Tiger Reserves” focusing on Management Effectiveness Evaluation (MEE), a key tool for PA managers of tiger reserves is the assessment of management of tiger reserves for their effectiveness in conserving target flora and fauna.
- b. “Assessment of Population Status of Tigers, Co-predators, Prey and their habitats in India (2021-23)” with the objective to access the status of tigers, copredators, prey, and their habitat for the period 2021-22 at country level, with scientific methodology. Development and implementation of— STRIPES phase III, development of apps and desktop software, web analytics for online reporting software user manuals and setting up database servers at NTCA & WII.
- c. “Establishing Metapopulation of Cheetahs in India (2022-23)” to establish breeding cheetah populations in safe habitats across its historical range and manage them as a metapopulation. To use the cheetah as a charismatic flagship and umbrella species to garner resources for restoring open forest and savanna systems that will benefit biodiversity and ecosystem services from these ecosystems.

#### ii. Implementing Agency: Indian Council of Forestry Research and Education (ICFRE)





- a. “Proposal for preparation of Detailed project report for Rejuvenation of Damodar and Subernarekha rivers through forestry Interventions” for reviewing and accessing the existing river basin, past river management & implications and lessons learned. The scheme also identifies and involves stakeholders and build consensus for design and development of strategies and approaches.
- b. “Strengthening Forestry Research for Ecological Sustainability and Productivity Enhancement” inclined towards research for enhancing health and productivity of natural forests and plantations for augmenting ecosystem goods and services, efficient and sustainable resource use through value addition and development of appropriate technologies.

**iii. Implementing Agency: Forest Survey of India (FSI)**

- a. “Submission of Financial Proposal for Satellite Survey of Encroachment position of Rejected claims as per Order of Hon'ble Supreme Court in Writ Petitions (civil) No(s) 109/2008 Wildlife First & Others vs. Ministry of Forest and Environment & others.” for Satellite Survey of Encroachment position of Rejected claims as per Order of Hon'ble Supreme Court.

**iv. Implementing Agency: IA Division**

- a. PARIVESH 2.0: To enhance efficiency, transparency, and accountability in the Environment, Forest, Wildlife and CRZ clearance processes. Real-time monitoring and adherence to timelines for verification.

**v. Implementing Agency: National Informatics Centre**

- a. “Project proposal for the yearly maintenance, Up-gradation and FC module and Hand holding support of PARIVESH -

NICSI 2016-17” to replace the repetitive, mechanical and routine work/ validations/ clarifications by the System.

**vi. Implementing Agency: National Afforestation and Eco-Development Board (NAEB)**

- a. “Nagar Van Yojana” for increasing green cover and biodiversity in urban areas thereby providing healthy and pollution free environment to the city dwellers.
- b. “School Nursery Yojana” to inculcate a habit of caring for the nature by creating a bonding between students and nature by greening of young minds.

**vii. Implementing Agency: Project Elephant Division**

- a. “Nationwide Census of Elephant Population in the country” with the aim to conduct elephant survey in each forest beat.

**viii. Implementing Agency: Karnataka State Authority**

- a. “Development of Sandalwood and Rosewood Estates and Management of Sandalwood Reserves” for identification and selection of superior genotypes of Sandalwood and Rosewood, Collection and distribution of seeds/ planting material from different provenances.

**ix. Implementing Agency: Goa State Authority**

- a. “Study of short- and long-term impact of Climate Change on Biodiversity of Protected area by setting up of Automatic Weather Stations” with the objective to ensure real time mapping and monitoring of various weather parameters including



temperature, humidity, wind speed, rainfall etc. through Automatic Weather Station, rain gauges for scientific management of

Forest and Wildlife Areas in Goa and to ascertain impact of climate change on biodiversity of forests in Goa.

### Annexure I

## 2.Provisional Status of CAMPA activities in States/UTs as on 31.12.2022 the year 202223 is as follows:

S. No	State/UT	Compensatory Afforestation (CA)				Catchment Area Treatment (CAT)				Integrated Wildlife Management Plan (IWMP)			
		Phy. Target (in Ha.)	Phy. Achievement (in Ha.)	Fin. Target (in crores)	Fin. Achievement (in crores)	Phy. Target (in Ha.)	Phy. Achievement (in Ha.)	Fin. Target (in crores)	Fin. Achievement (in crores)	Phy. Target (in Ha.)	Phy. Achievement (in Ha.)	Fin. Target (in crores)	Fin. Achievement (in crores)
1	Andaman & Nicobar	122.99	Nil	1.49	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2	Andhra Pradesh	2050.3	607.63	51.74	0.77	205	85	4.9	0.55	-	-	0.64	-
3	Arunachal Pradesh	-	-	-	-	-	-	-	-	-	-	-	-
4	Assam	528.27	0	9.52	2.18 (Site Nurseries)	6122	0	Yet to be approved	0	20	0	0.25	0
5	Bihar	31549	0	21.796	0	0	0	0	0	0	0	0	0
6	Chandigarh	89.63	0.14	1.45	NIL	-	-	-	-	-	-	-	-
7	Chhattisgarh	-	-	52.87	-	Nil	Nil	Nil	Nil	287 Works	-	22.78	0.23
8	Delhi	92.87	70.58	17.94	3.98	0	0	0	0	0	0	0	0
9	Goa	200	200	2.5	0.54	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
10	Gujarat	4584.5	4584.5	48.565	30.25	0	0	0	0	0	0	0	0
11	Haryana	7398.5	1423	127.07	17.72	0	0	0	0	0	0	0	0
12	Himachal Pradesh	1024	600	25	10.09	232	200	26	4.15	-	-	16.38	4.79
13	Jammu & Kashmir	1669.59	256.08	16.61	1.02	0	0	0	0	190	-	16.149	1.4975
14	Jharkhand	35971	21880	1.7739	39.07	6 division	3 division	30.13	12.15	24 division	21 division	89.628	37.951
15	Karnataka	326.73	326.73	2.73	2.73	6 Project	3 Project			40 Project	29 Project		
16	Kerala	241.5	57	255	0.17	0	0	0.63	0.12	-	-	-	-
17	Madhya Pradesh	16365	6252.55	206.81	78.69	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
18	Maharashtra	10972.6	5434.08	60.42	7.02	74456	74456	21.15	21.15	LS	LS	7.33	6.77
19	Manipur	4851.4	2370.48	2.91	1.46	782.5	61.5	14.47	0.6	0	0	0.6	0
20	Meghalaya	617.41	Nil	1.707	Nil	3875	1708.54	2.35	1.17	Nil	Nil	Nil	Nil
21	Mizoram	5146.8	Nil	7.26	Nil	353.5	Nil	1.44	Nil	19.56	Nil	2.357	Nil



22	Odisha	6263.51	4549.15	48.91	36.99	1550	Nil	0.69	Nil	-	-	-	-
23	Punjab	804.36	800.6	15.28	4.42	100	100	1.18	0.77	129 Sites	129 Sites	47.64	47.62
24	Rajasthan	700.35	444.792	27.41	9.28	-	-	-	-	-	-	-	-
25	Sikkim	94.67	56.8	6.06	4.1	-	-	1.5	Ongoing	-	-	9.01	1.72
26	Tamil Nadu	146.38	Nil	4.93	Nil	443	266	6.7	5.51	80	55	7.67	4.09
27	Telangana	2799.414	2051.2	162.59 3	24.1314	-	-	0.55	Nil	-	-	0.36	Nil
28	Tripura	684.14	615.64	6.84	1.51	50	25	7.38092	0.13622	0	0	5.42143	0.89546
29	Uttar Pradesh	Plt-1559.3516 Ha and no of plants (Other than Ha.)- 72138 Nos, Maint.-14054.316 Nos 1Ha No.o. f plants (other than Ha.)-663663	15613.6676 Ha and 735801 Nos	31.8	11.94	-	-	-	-	-	-	-	-
30	Uttarakhand	2415	In progress	49.73	Funds of Rs. 13.24 crores allotted to Implementing Agencies on 20th October, 2022, release of rest of funds for ASW, Maintenance	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
31	West Bengal	782.89	282.81	7.81	1.97	1630.72	In progress	48.85	Funds of 22.70 crores allotted to Implementing Agencies on 31st October, 2022, release of rest of funds is under process	Nil	Nil	Nil	Nil
<b>Total</b>		<b>138492.8</b>	<b>52863.8</b>	<b>1276.52</b>	<b>283.431</b>	<b>89805.7</b>	<b>76902.04</b>	<b>168.2</b>	<b>90.29</b>	<b>318.56</b>	<b>55</b>	<b>235.26</b>	<b>105.57</b>





### 7.3 Forest Establishment

#### a. Brief Introduction, objectives and functions of the Division:

The division handles the establishment matters relating to various organizations under MoEFCC and State Forest Colleges; general references relating to frontline staff of State Forest Departments including court cases, RTI requests and Parliament Matters concerning the above. The list of Organizations under FE are:

#### 1. Indian Council of Forestry Research and Education (ICFRE), Dehradun an autonomous organization under the Ministry which oversees the functioning of the following Institutes/Centers;

- 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

#### 2. Forest Survey of India (FSI),

Dehradun has following four Zonal Offices;

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

#### 3. 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

#### 4. 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)

#### 5. National Zoological Park (NZP), New Delhi

#### 6. Indira Gandhi National Forest Academy (IGNFA), Dehradun Functions:

1. Framing & amendment of Recruitment Rules of technical and Ministerial posts.
2. Constitution of Screening Committee for appointment of Joint Secretary and above level post in ICFRE.
3. ACC approval for appointment of Director General, ICFRE.
4. Consideration of proposals regarding upgradation 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.
5. Consultation with nodal Ministries in various establishment/service matters of all



Scientific/Technical/Ministerial officers/staff.

6. Recruitment/Promotion/Deputation of Group A & B officers through UPSC.
7. Appeal against penalty in disciplinary cases of Group 'A' \*B' & 'C'.
8. Appeal against adverse entries in the ACR/APAR.
9. Framing policy regarding various establishment matters of ICFRE as per extant guidelines of Govt, of India.
10. Nodal for sending requisition to Staff Selection Commission for filling up Direct Recruitment posts in Attached and Subordinate Offices of this Ministry.

**b. Important activities undertaken (1.1.2022 to 09.12.2022)**

- Vide Notification No. GSR 605 (E) dated 22.07.2022 RRs for the post of Head Constable in WCCB under the Ministry were published.
- Forwarded dossiers of 22 candidates nominated by SSC for the post of LDC - SSC, CHSL Exam 2018.
- Forwarded dossiers of 03 candidates nominated by SSC for the post of Stenographer as per revised list - SSC, Stenographer Grade 'C' & 'D' Exam 2018.
- Forwarded dossiers of 01 candidates nominated by SSC for the post of Stenographer - SSC, Stenographer Grade 'C' & 'D' Exam 2019.
- Post of Assistant Director, Group-A, in Level-10 in Forest Survey of India, Dehradun under the Ministry of Environment, Forest and Climate change was filled up in September, 2022 in consultation with UPSC.
- Post of DD (Research) in ICFRE was filled up in September, 2022.
- As on 29.11.2022 FE Section has dealt with 63 RTIs Requests 5 RTI Appeals 47 Public Grievances and 13 VIP/MP references.
- Out of total 46 cases, 7 cases were disposed of during the period (01.01.2022 to 29.11.2022) in FE Division.

## 7.4 Forest Policy

**a. Brief Introduction, objectives and functions of the Division:**

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

**b. Important Activities during the period (i.e. 1/1/2022-December 2022)**

- I. A National Webinar was organised in on 04.03.2022 by the Sectoral Group on Resources comprising of Ministries of Power; Petroleum & Natural Gas; New & Renewable Energy; Coal; Mines; External Affairs; and Environment Forest & Climate Change on “Energy for Sustainable Growth” to discuss the recent initiatives of the Government of India in the energy and resources sector including the Budget 2022 announcements and to elicit ideas and suggestions for effective implementation of these initiatives. The webinar had a Plenary Session addressed by Hon'ble Prime Minister of India followed by six breakout sessions. One of the breakout sessions was on the “Agroforestry and Private Forestry” which



was conducted by MOEFCC. The webinar was moderated by DGF&SS, MOEFCC. The key speakers/ Panellist in the webinar were DG, ICFRE Dehradun, Shri R.K Sapra, Shri Sunil Pandey, Shri Sajjan Bhajanka, Chairman FIPPI and Shri Jagdish Chander, PCCF (HoFF), Govt of Haryana. Participants gave the key suggestions on the promotion of agroforestry

- ii. International Day of Forests 2022 was celebrated in the Delhi Zoo on the theme “Forests and Sustainable Production and Consumption” with a view to raise the awareness of the people as regards protection and conservation of forests. On this occasion, the Ministry released booklet on silvicultural practices for four tree species, i.e Agarwood, Sandalwood, Red Sanders and Rosewood species which have very high commercial value. The purpose is to promote cultivation of these species outside forest areas by willing farmers and private individuals who want to grow these species in their field/private land. Hon'ble Minister of EFCC delivered the key message on the day while releasing the booklets. The ceremonial plantation of 75 tree species also took place in the zoo to commemorate 75 years of the Independence-Azadi Ka Amrut Mahotsav.
- iii. The Ministry constituted a Task Force under the Chairmanship of DGF&SS to develop synergies between the National Forest Policy, 1988; the Forest (Conservation) Act, 1980 and the National Agroforestry Policy, 2014 and to study and recommend proposed amendments in the Forest (Conservation) Act, 1980 and enactment of a draft Agroforestry Act. The Task Force has submitted the Report with major recommendations which include amendment to Forest (Conservation) Act, 1980; increasing forest and tree cover in recorded forest areas; rapid assessment of recorded forest areas by FSI presently devoid of 'forest' cover but may be suitable for ecological restoration; forest areas with Forest Development Corporations to be managed for timber production coupled with

sustainability certification; promotion of QPM; development of Indian Forest Management standard to be made part of National Working Plan Code; increasing ToF areas including under agroforestry, assessment of ToF including agroforestry once in five years by FSI, implementation of National Agroforestry Policy 2014; promotion of quality planting material, research extension, capacity building, institutional credit and insurance cover, increased participation of industries, farmers access to markets; R&D on various of AF production systems including marketing, creating a database of all trees planted and harvested outside forests and use this inventory for analysis, forecasting and demand supply management as well as issuance of certificate of ownership and origin.

- iv. The Ministry constituted two Joint working groups to recommend various measures to be taken for promotion and expansion of trees outside forests. The report of the Joint working groups has recommended the major action points which include setting up of a National Wood Council at the Centre to advise to the Central and State Government; a Pan India transit permit system for easy movement of legally procured wood and wood products etc.
- v. A meeting of the Consultative Committee of Members of Parliament attached to the Ministry of Environment, Forest and Climate Change was held on 8th August, 2022 under the Chairmanship of HMEFCC. The agenda of the meeting was “Agroforestry”. Steps have been taken on the various suggestions that emerged during the meeting for promotion of agroforestry.
- vi. A National Conference of Ministers of Environment, Forest and Climate Change was organised on 23-24 September, 2022 wherein one of the thematic session on Agroforestry was conducted. Following decisions were taken:
  - - need for transformative changes to existing policies and regulations, and





- building backward and forward linkages for the promotion of agroforestry.
- Relaxation of regulations regarding felling and transit of wood originating outside forest
  - Provision for quality planting materials
  - Promotion of wood based industries and evolution of markets value chains
  - Rolling out of National Transit Pass System (NTPS) for pan India movement of timber and forest products
  - Carbon financing and its linkages with growers
  - To prepare a draft model Act/ Rules which can be shared with all states/UTS for promotion of agroforestry
  - To involve ICFRE and other research institutions and state government representatives and experts while drafting model act/rules for promotion of agroforestry
- vii. Ministry has developed a National Transit Pass System (NTPS) for seamless inter-state and intra-state transportation of timber, bamboo and other forest produces across all states. Online portal on National Transit Pass System (NTPS) can be used for issuance, monitoring and maintaining records of transit permits. It promotes Single Pan India Permit for the transit of timber and other minor forest produce for ease of doing business. To roll out the NTPS in States/UTs, Ministry organized various meetings and training session on NTPS. Six States –Madhya Pradesh, Tripura, Jammu and Kashmir, Jharkhand, Chhattisgarh and West Bengal have amended the transit rules for adopting NTPS. Govt of Madhya Pradesh had already rolled out the NTPS. Recently, Govt of West Bengal has rolled out the NTPS on 28.11.2022.
- viii. “Trees Outside Forests in India (TOFI)” program has been launched during September 2022 for implementation in seven states. The program aims at promoting quality planting material; ensuring better alignment of state-level policies; increasing access to finance and insurance; promoting tree-based enterprises/value chains; establishing demonstration nurseries and plantations; and promoting widespread awareness to technical and market-related information. TOFI will be implemented in Andhra Pradesh, Assam, Haryana, Odisha, Rajasthan, Tamil Nadu, and Uttar Pradesh. . Recently, Govt of West Bengal has rolled out the NTPS on 28.11.2022.
- In order to facilitate implementation of Forest Rights Act, 2006 (FRA, 2006) the Ministry of Environment, Forest and Climate Change has issued numerous advisories to the States/UTs and recently an Advisory dated 21.11.2022 from DGF&SS have been issued to the Chief Secretaries and PCCF&HoFF's of all States/UTs regarding preparation of final map of the forest land so vested under FRA, 2006 by the Forest Departments to incorporate the forest rights so vested in the revenue and forest records, as the case may be, as per Rule 12 A (9) of the FRA. Accordingly, following advisories were issued: -
    - The State Forest Department should proactively coordinate with the State Tribal Welfare Department, in order to get a copy of the case record folder of each of the forest rights distributed and detailed case record folders of each of the finally rejected claims, so that the Forest Department can undertake GIS mapping and share the geo-referenced digital vector boundaries to FSI.
    - The District Forest Officer should coordinate with the respective District Level Committee and the District Welfare Officer to obtain copies of such case records.
    - The Revenue and Forest Department



should undertake correction of RoRs and maps for forest lands in their respective records, for which forest rights have been granted.

- The Revenue and Forest Department should thereafter undertake GIS survey of each of the land patch and maintain geo-referenced digital vector boundaries of the polygons.
  - The Hon'ble Supreme Court of India in the Order dated 13.02.2019 in WP (C) No. 109 of 2008 in Wildlife First & Others Vs Union of India and Others had directed the Forest Survey of India (FSI), Dehradun to undertake a satellite survey and place in record the encroachment positions, as far as possible. Accordingly, the Director General, FSI has been requesting the States/UTs to provide the geo-referenced digital vector boundaries of the finally rejected claims.
- ix. Safeguard Information System (SIS) for implementation of REDD+(Reducing Emission from Deforestation and Forest Degradation) in India has been prepared and has been submitted for uploading at UNFCCC.
- x. Adoption of Global Indicator for forestry related SDG Targets: The reporting towards progress under Sustainable Development Goals SDG 15, target 15.2 which hitherto was based on three indicators has now been upgraded to four sub-indicators under SDG 15.2.1: Progress towards sustainable forest management. With this the reporting by India under National Framework of SDG, target 15.2, is closer to the internationally adopted norms.
- xi. Comments on matters related to various bilateral cooperation between India-France, India-Germany, India-UK, India-EU, etc concerning on forests were communicated to concerned Departments/ Ministries

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

- In order to decriminalize certain minor offences under the Indian Forest Act, 1927, it was decided to amend the Act and remove the imprisonment punishment for the offences in section 26 (d) & (e) and section 33 (e), (f) & (g) of the Indian Forest Act, 1927. The changes proposed to the above sections will remove the punishment of imprisonment for certain minor offences and restrict punishments for such offences to fines only

**d. Important conferences:**

- (I) Participation at UN Forum on Forest meeting:
- Indian delegation led by DGF&SS participated in the 17th session of UNFF meeting at New York. India had taken a firm stand on the issue of Glasgow Leaders Declaration on Forest and Land use and India stand was well defended with garnering support from other countries. Indian delegation led by DGF&SS participated in the 17th session of UNFF meeting at New York. India had taken a firm stand on the issue of Glasgow Leaders Declaration on Forest and Land use and India stand was well defended. Due to India's firm and logical intervention, even the countries who have endorsed GLD, came in support of India. This included Brazil, Argentina, USA, Malaysia and Indonesia. Iran and UAE supported India as they have not endorsed GLD on FLU. Due to such kind of support and clear vision, the final outcome in the form of descent omnibus resolution incorporating India's concerns was adopted at the UNFF.
  - As a follow up meeting with UNFF Secretariat, India agreed to co-organize country-led initiatives meeting /workshop(CLI) in India.
- (ii) Focal Point from India was chosen as Vice Chair at the 29th session of the Asia Pacific Forestry Commission held virtually in 2022.
- (iii) Indian delegation participated in the 26th session of COFO of FAO virtually from 3-7 October, 2022. Various agenda points such as



forestry and agriculture linkages, forests and sustainable production of wood, forest fire and global fire platform, ecosystem restoration, etc were discussed.

#### **h. MEAs, agreement with countries, international organizations, compliance**

An MoU with Joint Declaration of Intent regarding the Cooperation in the Field of Forest Landscape Restoration between the MoEFCC and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany was signed with the following objectives:

- strengthen the political dialogue and partnership and work together on international initiatives and processes,
- restore, conserve and protect forest and tree cover contributing to the implementation of the Nationally Determined Contribution (NDC), the National Biodiversity Strategy and Action Plan (NBSAP) as well as related Sustainable Development Goals (SDGs) and the National REDD+ Strategy (Reducing Emissions from Deforestation and Forest Degradation; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries),
- strengthen conservation and restoration efforts for the provision of ecosystem services, for climate protection and the conservation of biodiversity,
- pilot forest land restoration (FLR) and trees outside forests (TOF) models, including also agroforestry and peri-urban forestry,
- encourage inclusive, participatory and equitable participation and provide socio-economic benefits for forest-dependent communities,
- develop public private partnership (PPP) models and mobilize finance for forest landscape restoration and deforestation-free value chains,
- contribute to capacity building and knowledge exchange on policies and measures.

### **7.5 Forest Protection**

#### **a. Brief introduction, objectives and functions of the Division**

Forest Protection Division deals with Forest protection-related issues like illegal felling of trees, deforestation, encroachment of forest land, invasive weeds, forest fires etc. The Division is nodal for disaster management related matters. The Division administers Forest Fire Prevention & Management Scheme (FPM) which is a Centrally Sponsored Scheme.

#### **Objective and Functions of the Division**

- Nodal division for forest fires and associated disaster management related matters.
- Implementation of National Action Plan on Forest Fire.
- 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 including control of illicit felling of trees, deforestation, and encroachment of forest land, Parliamentary matters, etc.

#### **1. Important activities during the period (January- December 2022)**

- With the help of the forest fire detection system implemented by FSI, Dehradun based on remote sensing technology around 2.23 lakh forest fire alerts have been disseminated to the states. The Ministry coordinated with the Indian Air Force and the Government of Rajasthan for dousing forest fire in Sariska Tiger Reserve.
- Around 1.5 lakh users in the State Forest Departments have been registered to receive the fire alerts from FSI.
- This Ministry has established a Disaster Management Cell for monitoring forest fire and chemical disaster related issues of this Ministry. The Cell operates a toll free





helpline number (1800119334) for forest fire and chemical disasters.

4. A Disaster Management Plan has been developed by the Ministry in collaboration with the National Institute of Disaster Management (NIDM) and submitted to National Disaster Management Authority, Ministry of Home Affairs for vetting and approval.
5. Indian Council of Forestry Research & Education (ICFRE), Dehradun has been entrusted to carry out a Study on Estimation of Economic losses in Real Term per Hectare Basis due to Forest Fire in Uttarakhand and Madhya Pradesh” in collaboration with Forest Survey of India, Wildlife Institute of India, National Institute of Hydrology and GP Pant National Institute of Himalayan Environment & Sustainable Development.
6. An Advisory on Regulation of movement of people inside the forest area has been issued to all State/ UTs to stay prepared for the upcoming Fire season.
7. An Advisory on removal encroachment of forest Land was issued to all State/ UTs, with a request to encroachment does not occur in future.

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

1. In compliance of the direction of the Hon'ble National Green Tribunal, New Delhi the Forest Protection Division has constituted a Central Monitoring Committee (CMC) under the Chairmanship of Secretary (EF&CC) monitor the implementation of the National Action Plan on Forest fire. The 5th meeting of the Central Monitoring Committee (CMC) was held on 27.10.2022 under the chairmanship of Secretary, EF&CC.

**c. Important Conferences:**

The National Disaster Management Authority (NDMA) organized a one-day Consultative workshop for 'Forest Fire Management in India' on 11<sup>th</sup> May 2022 in New Delhi in collaboration with the Ministry of Environment, Forests & Climate Change. The Workshop focused on Strengthening of Forest Fire Management in the 26 most forest fire affected districts of India spread over 11 States. Detailed Project Report on “Forest Fire Mitigation” of 26 fire prone districts has been sent to NDMA.

**1. Scheme/Programme**

- (I) The division manages Forest Fire Prevention and Management scheme which 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 with long term and short term objectives.

The Long term Objectives includes minimization of forest fire incidences, institutionalize the partnership with forest fringe communities for forest protection, prepare fire danger rating system and devise forest fire forecasting system etc. Whereas the Short term objectives includes effectively prevent and control forest fires by improving the traditional practices and employing available modern methods, develop and strengthen Forestry Infrastructure of the States and UTs that is required for effective prevention and management of Forest fire etc.

**a. Progress/Achievements both cumulative and for the reference period (January – December 2022).**

During the last Financial year 2021-22 an amount of Rs. 34.82 Crore has been released to State/ UTs under this Scheme



## 7.6 Survey and 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, Wood Based Industries, Bamboo Cell. The SU Division deals with matters relating to:-

- Forest Survey of India
- Sandalwood & Red Sanders related matters. During the year, many reference regarding export and import of red sanders and sandalwood were processed and reply furnished to Directorate General of Foreign Trade, Ministry of Commerce & Industry, New Delhi.
- State Forest Development Corporations, International Organizations like International Tropical Timber Organization (ITTO), International Network for Bamboo & Rattan (INBAR)
- Formulation of guidelines of international/domestic trade in forest produce and regulation of export & import of forest produce as per the Export and Import (EXIM) policy
- Minor Forest Produce
- All matters relating to Andaman and Nicobar Islands Forest Plantation Development Corporation Limited
- Wood Based Industries
- The Ministry has created a 'Bamboo Cell' in SU Division to deal with all matters related to Bamboo.
- Forest Certification and Sustainable Forest Management
- Revision of National Working Plan Code

### Forest Survey of India

Forest Survey of India (FSI), a premier national organization is a subordinate office of

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. 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.

### 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 an 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 organizations on project basis.

### Major activities of FSI

### FOREST COVER MAPPING & TREE COVER:

Forest Survey of India (FSI) carries out wall-to-wall forest cover assessment of the country on biennial basis through interpretation of satellite data



and publishes the information in the 'India State of Forest Report'. The results of 17<sup>th</sup> cycle of Forest Cover Mapping (FCM) were published in ISFR 2021. 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 2021, there is an increase of 1540 sq km (0.22%) in the forest cover and 721 sq km (0.76%) in the tree cover as compared to the last assessment in 2019. Thus, there is an overall increase of 2261 sq km (0.28%), forest cover and tree cover put together at national level. The forest cover mapping for 18<sup>th</sup> cycle (ISFR 2023) is under progress.

For the 17<sup>th</sup> Forest Cover Mapping cycle, scenes from LISS-III sensor of Indian Remote Sensing Satellite (IIRS) 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. Ground truthing has been carried out at 3,414 locations across the country to ensure precision and reliability of the forest cover estimates.

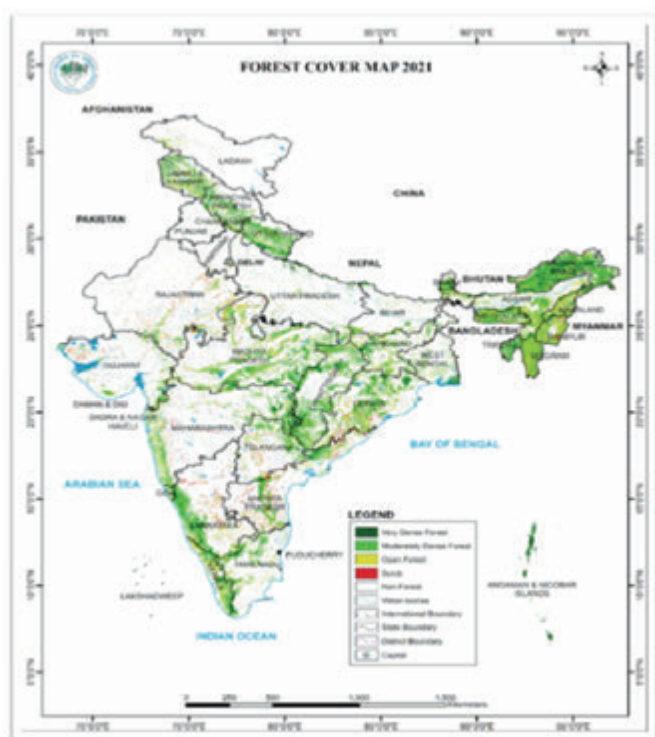


Figure: Forest Cover Mapping

#### ATLAS FOREST TYPES OF INDIA (2020):

FSI began work on the second forest type mapping exercise in 2016, a decade after the first

edition. The objectives of the second mapping were to further refine the previous mapping; identify more forest types from the 22 forest types which could not be discerned earlier; improve accuracy and update the base map to the latest forest cover of FSI.

GIS analysis of relevant spatial layers was undertaken and fresh ground truthing at more than 6,404 locations was done. The features added in this Atlas were:

1. Ten forest types which could not be identified earlier have been mapped this time, thus increasing the total forest types mapped to 188
2. 12 Grassland forest types were delineated outside the forest cover and scrub.
3. Forest Types of India was synchronized with four well established international classification systems viz Modified UNESCO, UNEP-WCMC, WWF and FAO; and maps have been generated.
4. 38 Forest Types with area less than 50 sq km at the national level, have been identified and mapped as “Last Remnant Forest Types”

Accuracy assessment has been calculated at 83.68% at the forest type level, based on observations on around 2,200 ground points.

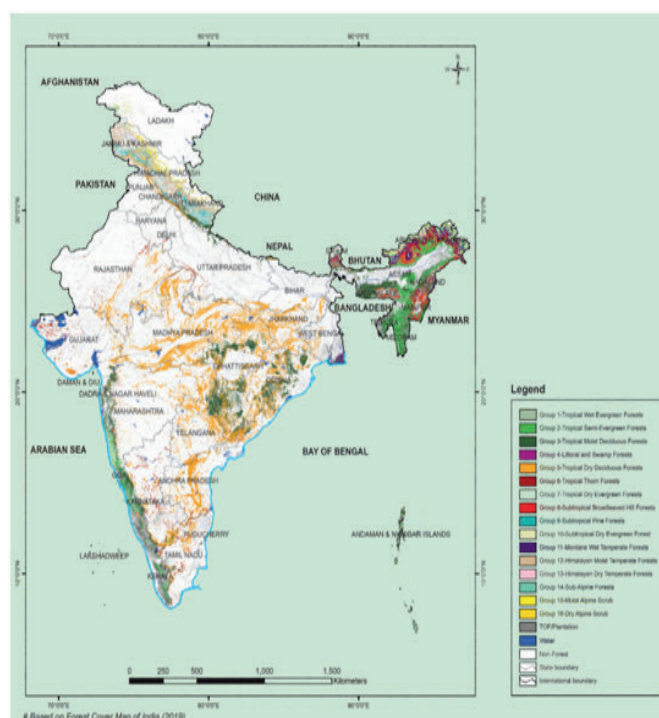


Figure: Atlas Forest Types, 2020





## FOREST FIRES

### Near Real Time Monitoring of Forest Fires:

FSI has been alerting State Forest Departments regarding forest fire locations detected by the MODIS (Moderate Resolution Imaging Spectro-radiometer) sensor on-board Aqua and Terra Satellites of NASA since 2004. A new faster, quicker and more robust version of FAST (version 3.0) was launched in 2019 by adding several new features.

The number of **Near Real Time Forest Fire Detections** for the period November 2021 to June 2022 have been 29,675 & 2,23,333 for MODIS and SNPP-VIIRS sensors, respectively. The FSI forest fire alert system is being used by more than 1,58,000 registered users across the country.

The no. of large forest fire detections during November 2019 to June 2020 were 7875; from November 2020 to June 2020 were 21,142 and from November 2021 to June 2022 were 13,555.

FSI also has a Pre-Fire Alerts based on Fire Weather Index (FWI) and an in house Forest Fire Geo-portal, VAN AGNI 2 ([http://vanagniportal.fsiforestfire.gov.in/fsi\\_fire/fire.html](http://vanagniportal.fsiforestfire.gov.in/fsi_fire/fire.html))

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

FSI carried out a study based on spatial analysis of forest fire points detected by FSI in the last 17 years to identify fire prone forest area in the country. **Extent of forest cover (excluding TOF)** under different fire prone classes (Extremely fire prone, Very High fire prone, Highly fire prone, Moderately fire prone and Less fire prone) has been determined for each State/UT. The map showing proneness of the area to forest fires an effective management tool for controlling 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 carried out for the whole country.

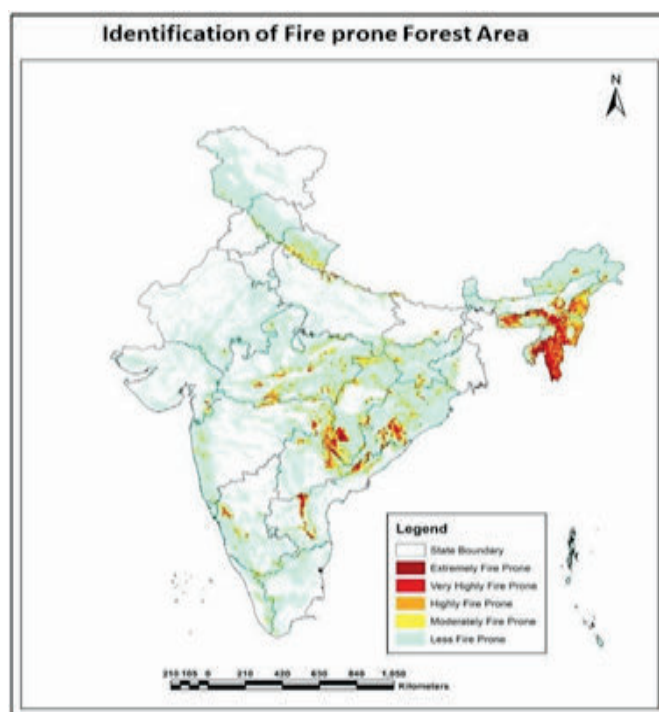


Figure: Identification of Fire Prone Forest Area

### Fire Risk Zonation for the three West Himalayan States:

A study has been carried out using Forest Fire Risk Zonation Modeling for mapping of risk areas in the Western Himalayan States comprising Himachal Pradesh, Uttarakhand, Jammu & Kashmir, and Ladakh using Geospatial Techniques. This study is an attempt to exploit the capabilities of remote sensing and GIS techniques and also to suggest an appropriate methodology for forest fire risk zone mapping of other physiographic zones as well. Such zonation will be helpful for the forest department officials, National Disaster Management Authority (NDMA), National Disaster Recovery Force (NDRF), State Disaster Management Authority (SDMA) etc. to prevent and minimize fire risk activities within the forest and take proper action when a fire breaks out.

**Decision Support System:**

With the decision of Hon'ble Supreme Court of India and Committee of MoEF&CC headed by Secretary, MoEF&CC objectives of Decision Support System were formulated the Decision Support System (DSS) *is a web based GIS tool, developed by Forest Survey of India (FSI), which provides qualitative, quantitative & administrative characteristics of forests, which help in informed, unbiased and expeditious decisions on management of forest.*

**E Green Watch:**

e-Green Watch application software was developed as an *integrated & online system that will be completely transparent, reliable and accountable.* The e-Greenwatch portal makes the data accessible in real-time to all stakeholders and public at large. At present 32 States/ UTs are linked to the e-Green Watch portal. The application is capable of monitoring of five categories of CAMPA activities: Compensatory Afforestation (CA) Lands, Diverted Lands (DL), CA Plantations, Other Planation Works (OPW) and Assets. FSI carries out analysis and monitoring of polygons uploaded by SFDs/UTs on e-Green Watch portal

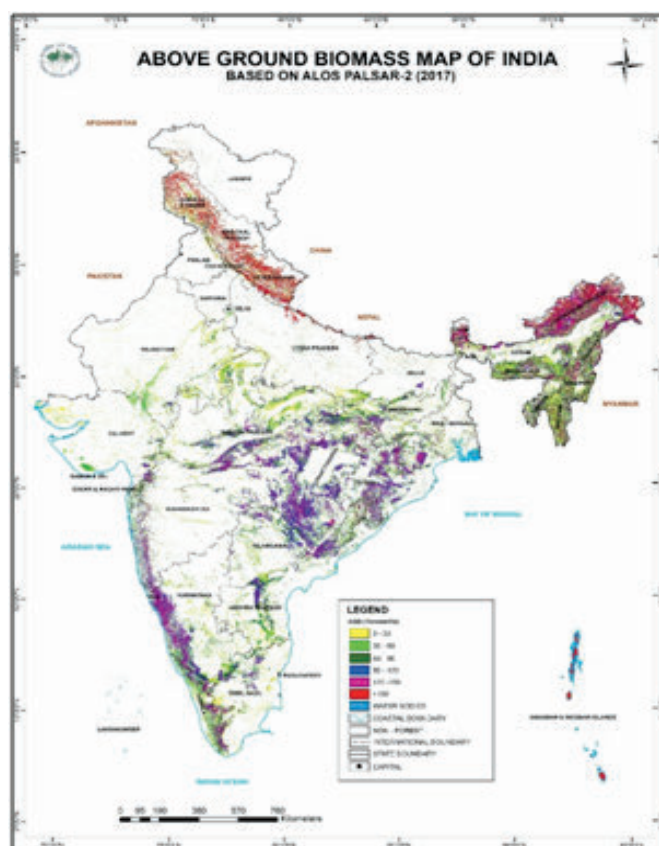
**Other activities undertaken-**

A study has been carried out using Forest Fire Risk Zonation Modeling for mapping of risk areas in the Western Himalayan States comprising Himachal Pradesh, Uttarakhand, Jammu & Kashmir, and Ladakh.

- An effort has been done in FSI to prepare country level AGB map of the pan India using SAR data. Details in ISF2 2021
- An uncertainty model has been prepared using Monte Carlo Simulation for estimation of possible error present in the AGB data.
- Till October, 2022, FSI has analyzed 1,76,192 polygons under fresh category and 1, 11,282 under revisited category, from 32 States/UTs. Out of the total no. of polygons, 40,097 are under the **correct** category, 78,947 under the **incorrect** category and 57,148 under the **unascertainable** category with the help of e-Greenwatch portal developed by FSI.

- A new methodology has been developed to estimate the Trees Outside Forest (TOF) resources and the extent of TOF area in the country, under the present National Forest Inventory (NFI) design. A total of about 18,218 plots have been inventoried in forest areas and nearly 41,630 plots have been inventoried in TOF area.
- FSI imparts training to forestry personnel working at various levels in State Forest Departments to sensitize them with the latest advancements in application of Remote Sensing & GIS for preparation of Working Plans, Forest Carbon Assessment, GPS Applications in Forest Survey and Demarcation, Application of GIS in Forest Resources Management, Applications of Drones etc.

FSI has been estimating carbon stock in the country's forests on regular basis for various National Communications (NATCOMs). At present work on NATCOM-III is going on.



Above Ground Biomass Map of India



Uncertainty Map of India

#### Activities under Azzadi Ka Amrit Mohatsav-

- “Cleanliness is next to Godliness”. With this slogan in mind and under Special Campaign 2.0 on Swachhta in Central Government Ministries/Departments and its attached/subordinate offices from 2<sup>nd</sup> October to 31<sup>st</sup> October, 2022, FSI pledged to minimize scrap and garbage from its premises.
- As part of the initiative of the Ministry of AYUSH for organising the countdown to the International Yoga Day, a practice Yoga session was organized in FSI on 06-05-2022, with all officers and staff. of FSI practising yogasanas under the guidance of Dr Shlpa, a trained yoga instructor.
- **Vigilance Awareness Week – 2022 (VAW-2022)** was observed as per the directives of Central Vigilance Commission in FSI on 31<sup>st</sup> October, 2022 to 6<sup>th</sup> November with the theme “Corruption Free India for a Developed Nation”.

The Department of Expenditure, Ministry of Finance had in principally approved the EFC submitted by FSI for National Forest Information System (NFIS) wherein activities were proposed for a total outlay of Rs.323.00 crores mainly for the following major activities:

- a. Creation of a Centre of Excellence at FSI
- b. Use of high resolution data for forest resource assessment
- c. Establishment of GIS & DSS cell in the MoEF & CC and its 10 Regional Offices

The CAMPA authority sanctioned Rs.75 crores to FSI from the CAMPA fund in 2015-16 for carrying out the following activities under the National Forest Information System (NFIS):

- a. Development of Infrastructure – modernization of the laboratories and upgradation of the facilities
- b. Capacity building–Training of the FSI staff
- c. Near Real time forest fire burnt area assessment and pre-warning system for forest fires in India using satellite based remote sensing technology
- d. Special study on production and consumption of industrial wood, fuel wood, fodder from forest and Trees Outside Forests
- e. Forest Types and species mapping at the national level using multisourced and advance classification methods
- f. Intensification of forest inventory including special study on bamboo and NTFPs
- g. Research and Development Centre at FSI
- h. Creation of DSS cell in the Ministry, Regional Offices of the MoEF & CC and Zonal Offices of FSI
- i. Use of Very High Resolution satellite data for monitoring of plantations

The above activities are being carried out since 2016 as per the availability of funds. Regular budget of FSI during the last five financial years is as follows:





S. No.	Financial Year	Budget
1.	2018-19	34.42
2.	2019-20	34.00
3.	2020-21	26.00
4.	2021-22	33.10
5.	2022-23	34.00

### Forest Carbon Projects under NATCOM

FSI has been estimating carbon stock in the country's forests on regular basis for various National Communications (NATCOMs) and providing valuable inputs to the MoEF&CC in preparation of GHG inventory of the country. FSI has estimated forest biomass and carbon stock change between 1984 and 1994 for India's Initial National Communication (INC) submitted to UNFCCC in 2004. In Initial National Communication (INC) (also referred as NATCOM -I) process, FSI estimated forest carbon of only woody growing stock as data for the other parameters was not available. For reporting for INC, the growing stock (volume) data was first converted into biomass by using species wise specific gravity of the wood. Thereafter, biomass expansion factors were used to convert woody biomass to total above ground biomass which included all other components like small wood and foliage of trees, shrub, herbs etc. Similarly, below ground biomass was computed using default root-shoot ratio given in GPG 2003. The total biomass so obtained was then converted into carbon using conversion factor.

For Second National Communication (SNC) to UNFCCC, FSI conducted 'Greenhouse gas inventory in Forest Land Remaining Forest Land & Land Converted into Forest Land for the period 1994 to 2004' under 'Land Use, Land-Use Change and Forestry (LULUCF)'. GHG fluxes in the LULUCF sector are generally estimated as net changes in carbon stocks over time. The increase in total carbon stocks over the time are equated with a net removal of CO<sub>2</sub> from the atmosphere and

decreases in total carbon stocks (less transfer to other pools such as harvested wood products) are equated with net emissions of CO<sub>2</sub>. FSI estimated carbon stock for 1994 and 2004 in respect of Forest Land Remaining Forest Land & Land Converted into Forest Land.

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

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

Methodologies for the above projects have been finalised and related available data has been organised. The field works have been completed. The analysis of data is going on for report writing and further submission.

### CENTRE FOR FOREST CARBON ASSESSMENT (CFCA)

#### Background

- Under the United Nations Framework Convention on Climate Change (UNFCCC), participating countries are required to report national inventory of greenhouse gas (GHG) emissions or uptake. The current challenge is to reduce the uncertainties in producing accurate and reliable activity data of Carbon (C) stock changes and emission factors essential for reporting national inventories. India is committed at the highest level to meet its commitments under the Nationally Determined Contributions (NDC) made to the international community under the Paris Agreement (2015). According to the forestry target under NDC, India has committed to create additional carbon sink of 2.5 to 3.0



billion tonnes of CO<sub>2</sub> eq. through additional forest and tree cover by 2030.



### Objective

- Centre for Forest Carbon Assessment (CFCA) in FSI has been established in the year 2019, to regularly assess the Forest Carbon (%) as a primary source, of collected Soil, Plant, Litter and Dead Wood sample collected from field during inventory.
- The Centre has also been responsible to take care the study of developing volume equations, forest biomass estimation and practical processing as well as analysis of soil sample.

### Present National Focus on Carbon Study

- In India, there is significant chance of creating 'Additional Carbon Stock of 2.5 to 3.0 Billion tonnes by the year 2030 by following the so far adopted methods i.e. 'Business As Usual'.
- However, in 2019, FSI has done a comprehensive study from 'CFCA' by identifying the possibilities of creating an additional carbon sink over and above 'Business As Usual'. Accordingly, FSI identified possible activities, where further emphasis could be given to raise the 'Carbon Stock' of the country.
- Under those different activities, possible land area that could be utilized had been enumerated.

### ANNEXURE A

- Faunal diversity of Biogeographic zones of India: Deccan Peninsula.
- Faunal Diversity of Satkosia and

- Baisipalli Wildlife Sanctuaries, Satkosia Tiger Reserve,
- Animal Discoveries 2021: New Species and New Records.
- Annual Report ZSI 2021-22
- Faunal Diversity of Biogeographic Zone of India: Gangetic Plains.
- A Catalogue of Amphibia in the collection of the Zoological Survey of India, Pune.
- Food and Nutrition security and Climate Change (Volume I).
- Food and Nutrition security and Climate Change (Volume II).
- Avian Forging.
- Faunal Diversity of Point Calimere Wildlife Sanctuary, Conservation Area Series.
- Beetles (Coleoptera: Scarabaeidae) of North-East India.
- Birds of India.
- Avian Fauna of Madhya Pradesh. A pictorial hand book guide.
- Challenges and Opportunities in Nutrition, Environment, and Agriculture.
- Handbook on Indian Scyphozoa, Handbook and Pictorial Guide.
- Faunal Diversity of Coringa Wildlife Sanctuary, Andhra Pradesh. Conservation Area Series.
- History of Zoology and Present Status in India.
- Fauna of Himachal Pradesh, State Fauna Series (Part-1).
- Fauna of Himachal Pradesh, State Fauna Series (Part-2).
- Threatened Animals of Kerala.
- Sustainable Materials for Sensing and Remediation of Noxious Pollutants.
- Faunal Diversity of Nauradehi Wildlife Sanctuary, Madhya Pradesh: Conservation Area Series.
- Fauna of Thattekad Bird Sanctuary, Ernakulam District, Kerala: Conservation Area Series.
- Fauna of Navegaon National Park, Maharashtra: Conservation Area Series.
- Fauna of Agroecosystem of Haryana and Punjab.



## 7.7 Forestry Research

Research & Training Division (RT) is a nodal division for a major central sector plan schemes namely **“Forestry Training and Capacity Building”**. This division looks after the administrative, financial and other matters of the research & training institutions viz. Indian Council of Forestry Research & Education (ICFRE) - Dehradun, Indian Institute of Forest Management (IIFM) – Bhopal, Indira Gandhi National Forest Academy (IGNFA)-Dehradun and Directorate of Forest Education (DFE)-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 the 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

- To undertake, aid, promote and coordinate forestry research, education and extension leading to scientific and sustainable management of forest resources in the country.
- To align forestry research programs in the council with national priorities including achievement of Sustainable Development Goals and combating climate change.
- 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.
- 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.

- To develop appropriate forest based technologies, processes and products for sustainable resource use, livelihoods and economic growth.
- To promote forestry education in the country and facilitate universities in improving quality through technical and financial support including development of uniform curricula.

### b. Important activities:

- The DPRs on Rejuvenation of thirteen Major Rivers prepared by ICFRE and funded by NAEB, MOEFCC were released.

Annual General Meeting of ICFRE Society at FRI, Dehradun was held in April 2022 . It was chaired by HMEFCC. HMoS also graced the occasion.



**28<sup>th</sup> AGM of ICFRE Society chaired by Hon'ble Minister, EF&CC, Govt. of India on 24.04.2022**

- A portal on "SLEM Knowledge Sharing & Reporting System" developed under the World Bank funded ESIP launched. It will be helpful in combating desertification & achieving land degradation neutrality.
- Safeguard Information System for REDD+ in India was published and submitted to MoEFCC for onward submission to UNFCCC.
- SLEM best practices on Integrated Farm Development, WADI- a tree-based farming





system, Improved Cook Stove were upscaled in the ESIP areas of Madhya Pradesh and Chhattisgarh.

- Bamboo Common Facility Centre at Forestry Research and Extension Centre, Jadua, Hajipur, Vaishali, Bihar was inaugurated.
- IWST, Bengaluru has recognized as a Centre of Excellence (CoE) in the field of Skilling Ecosystem in the country by Ministry of Skill Development and Entrepreneurship, Govt. of India.
- FRC-ER, Prayagraj established trial at Tamkuhi Raj, Kushinagar, UP with 17 clones of Poplar under All India Coordinated Research Project on Poplar.

**Regional Research Conferences:** Various research conference with state Forest Research Institutes on topics like Assessment of Phytodiversity and their sustainable Utilization, Bio fertilizers and Bio control Agents - Success, Challenges and Future, etc were organized during (January – December 2022)

- On International Museum Day Rotary Club Coimbatore awarded "Rotary Excellence Award - 2022" to Gass Forest Museum, IFGTB in honor of outstanding service of Imparting Knowledge to the Society.

#### Green Skill Development Programme (GSDP):

IFGTB, Coimbatore organized Green Skill Development Programme (GSDP) on "Value Addition and Marketing of NTFPs – Bamboo Crafts" and Plant Tissue Culture Techniques and its Applications "

- **Prakriti:** A scientist-student connect initiative is operational across the country through all ICFRE Institutes/Centres. During the period January, 2022 to November, 2022, 73 programmes were organized in which 8000 students and staff participated.
- ICFRE and its Institutes/Centres organized

189 activities including trainings, workshops, competitions, cycle rallies, plantation programme, cleanliness drive, etc on large scale with greater public participation under Azadi ka Amrit Mohatsav. Following officers were awarded under the ICFRE Lifetime Meritorious Service Award 2021 and 2022 and ICFRE Outstanding Employee Award 2022:

Sl. No.	Category of Awards	Name of Awardees
1.	ICFRE Lifetime Meritorious Service Award 2021	Dr. K.T. Chandrashekar, CTO, IWST, Bengaluru
2.		Sh. Kartar Singh, FRO, HFRI, Shimla
3.	ICFRE Lifetime Meritorious Service Award 2022	Sh. Rama Kant Mishra, CTO, ICFRE, Dehradun
4.	ICFRE outstanding Employee Award 2022	Sh. Sanjeev Kumar Sachdeva, Assistant, ICFRE, Dehradun

- The XXII Meeting of the Research Policy Committee (RPC) of ICFRE was held during February 2022.

#### C. Progress/Innovations:

- Received a patent (PNo 405564) on "Technology for Medium Density Fibre Board (MDF) using Rice Straw and a Method of Manufacturing the same". The implementation of the new technology will promote the efficient use of rice straw which may help in eliminating the air pollution caused by the burning of such straws.



**Technology Patent on MDF manufacture from rice-straw**



- Patents Applied:
- A method for de-acidification of oil – Application No. 202241004804, dated 28.01.2022.
- End grain drying of green turned timber – Application No. 202211034512, dated 16.06.2022
- A Box based trap for trapping longhorn beetles – Application No. 202221045727, dated 10.08.2022
- A funnel based trap for trapping longhorn beetles – Application No. 202221045676, dated 10.08.2022.
- Tree Genie - A Mobile App(Android version) and web portal developed by IFGTB to bring various stakeholders of farm forestry together into a unified platform developed for Tamil Nadu was launched.
- Agarwood, the most expensive wood in the world, is formed in *Aquilaria malaccensis* an aromatic and medicinal plant, endemic to North East India. Agarwood is mostly used in the perfume industry as fixative. In nature, only 10% of these trees are infected and, it takes more than 15 years for natural infection to occur. ICFRE has successfully developed a technology for artificial induction of agarwood in 6-7 years old trees through fungal cultures. a product in the name "Sasi Inoculant" in two forms viz. Liquid and Paste for fungal cultures. This fungal inoculum is found to be effective for artificial induction of agarwood in *Aquilaria malaccensis*.
- Established a 10-ha permanent plot in Kanha Tiger Reserve, for long term ecological monitoring, biodiversity assessment, natural regeneration status, soil carbon stock, monitoring disease, pest and pollinators and phenological studies.
- Standardized Electrical Resistance Tomography for estimating heartwood content in standing trees of *Santalum album* (Indian sandalwood) and *Pterocarpus santalinus* (Red

sanders) to a similarity extent of 90% with  $R^2 = 0.95$

- Developed 16 SSR markers for screening populations of Red Sanders from different populations of Eastern Ghats. Validated specific primers for standard chloroplast barcode regions for *Avicennia marina* and *Sonneratia alba*.

**d. Important Cumulative achievements can be highlighted:**

**Forest Research Institute (FRI), Dehradun**

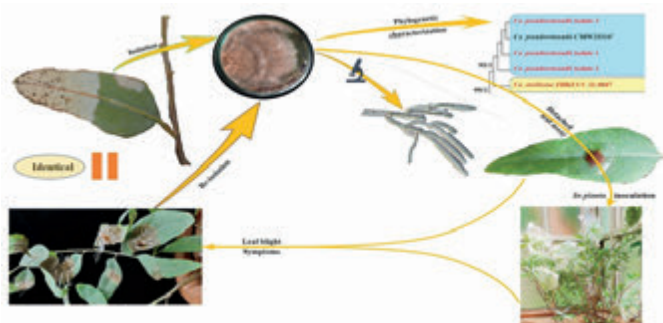
- Analysis on the essential oils of *Cupressus torulosa* D. Don, an aromatic tree done. *Cupressus torulosa* needles derived essential oil and extract appeared to be potent natural agents which can be developed into suitable formulation(s) for management of inflammation and diabetes mellitus, respectively.
- Plant functional traits data have been recorded to develop a comprehensive data base of plant functional traits (PFTs) of various dominant tree species of the temperate forest ecosystem across the Indian Himalayan region (IHR). These PFTs would be used to establish the relationship between ecosystem processes and services to predict the changes in associated ecosystem services and processes in relation to stresses, including climate change and anthropogenic pressure that these ecosystems are exposed to.
- A study was undertaken to select the superior clones of poplar (*Populus deltoides*) against poplar defoliator. Further, the effect of defoliation in poplar was assessed under field conditions and four defoliation treatments, i.e. 25%, 50%, 75% and 100%, were done in addition to control first time in India.



Neoza pine (*Pinus gerardiana*) forest, Ban oak (*Quercus incana*) forest Akpa, Kinnaur Mussoorie

- Survey was conducted to Haryana, UP, Punjab and Uttarakhand and three new parasitoid species of family Pteromalidae (Hymenoptera), sp. nov., *Halticopterellaaraecera* sp. nov., *Callituladoonensis* sp. nov. discovered for the first time from India. Additionally a new leaf vein gall causing in *Madhucalongifolia* wasp also discovered namely *Selitrichodesmadhuca* sp. nov. Eulophidae (Hymenoptera).

*Calonectriapseudoreteauidii* causing Eucalyptus blight in Northern India reported for the first time.



A self-explanatory graphical abstract representing our research on the first report of a significant pathogen *C. pseudoreteaudii* causing leaf blight of Eucalyptus in the Indian subcontinent from the northern plains of India

For



- development of Kachnar (*Bauhinia variegata*), Bhimal (*Grewiaoptiva*) and Kadam (*Anthocephaluscadamba*) based agroforestry models on farmers land under rainfed conditions in Uttarakhand, intarai area, experimentation was conducted on farmland in villages Dhaluwalamajbata and Dhaluwalakalan located in district Haridwar of Uttarakhand. The introduction of Kadam, Kachnar and Bhimal

under agroforestry on rainfed land shows that all the 3 tree species can survive in a better way in harsh conditions without showing any antagonistic effect on agriculture crops like wheat, millet, sugarcane (Drought tolerating variety-CoPant97222).

- *Anthocephaluscadamba* in agroforestry
- For development of *Gmelinaarborea* and *Emblicaoofficinalis* based agroforestry models on fallow lands in Uttarakhand and Uttar Pradesh, in this study after completion of three years growth of *G. arborea* and *E. officinalis* found maximum a 5x5m spacing of *G. arborea*(Ht. 8.76m & girth 19.9cm) in T3and *E. officinalis* (Ht. 4.75m & girth 11.7cm) in T1 at Kodapur (Prayagraj) siteand performance was better with agriculture crops on fallow lands. Aonla (*E. officinalis*) also performing well and found maximum in T1-control at both spacing in all the sites. Seven Gamhar and Aonla based agroforestry models in 8 years rotation were calculated and maximum found to be (3.29 & Rs.19,15,320) in model-1 (*Gmelina-Agri* at 4x5m) followed by model-2 (*Gmelina-Agri* at 5x5m) with (3.13 & Rs.17,54,028), model-7 (*Gmelina-Agri+Vegetables* on Bund) with (2.99 & Rs.19,09,525), model-5 (*Gmelina-Aonla-Agri* mixed at 4x5m) with (2.60 & Rs.13,46,788), model-6 (*Gmelina-Aonla-Agri* mixed at 5x5m) with (2.47 & Rs.13,15,317), model-3 (*Aonla-Agri* at 4x5m) with (1.94 & Rs.7,84,992) and model-4 (*Aonla-Agri* at 5x5m) with (1.83 & Rs.6,83,352) respectively. The present study reflects the growth performance and suitability of Gamhar and Aonla with agriculture crops on fallow lands of farmers in Uttarakhand and Uttar Pradesh states and may be promising for improvement of livelihood at short rotation.It is also found that the seasonal agriculture crops in kharif as Groundnut+Til-Vegetables and Wheat, Arhar and Mustard in Rabi are performing better with *G. arborea* and *E. officinalis* based agroforestry system at all the sites.







Wheat with Aonla at Fatehpur Pelio (Saharanpur) Wheat with Gmelina-Aonla at site Dhaluwalamajbata



Arhar with *G. arborea* in block at Kodapur (Prayagraj)

- For development of Dielectric Heating Based Processing Technologies for Solid-wood and Bamboo, drying studies of wooden logs (poplar) and large diameter bamboo (*Dendrocalamus asper*) were carried out in recently developed Microwave Vacuum Dryer. Results indicate that a log diameter of 22-28" and 6-8' long log specimens can be successfully dried from 75-80% initial moisture content to final 12-14% moisture content without any noticeable defects. The logs were later cut into two halves and turned to make products. Since, the current practice in wood utilisation is based on sawing of the logs into plank form and followed by primary processing like seasoning; the technique can help to develop products directly from plantation logs into products without sawing. Thus omitting one step (sawing) in processing. Moreover, low girth poles etc can be used to make high end products using Microwave Vacuum drying, as conventional drying is not able to dry the poles without severe defects. Similarly, mature culms of *Dendrocalamus asper* were dried in Microwave Vacuum Dryer in 30-40 hours as compared to the conventional kilns in which it takes approximately 15-17 days to bring final moisture content in the range of 8-12%. *Dendrocalamus asper* is identified and listed by National Bamboo Mission as important commercial bamboo of India. The bamboo culms were also turned to make products.
- A four point Bending Testing Machine for strength assessment of round bamboo was

developed and installed in Timber Engineering laboratory. It is fabricated in accordance to IS: 6874 (2008) and/or ISO: 22157 (2019)



Fabricated Bending Machine

- Different types of value added product like Chura butter, Lip Balm, Hand Wash, Chura Soap, Crack Cream were prepared from seed oil of *Diploknemabutyreace* under the work for sustainable management of NTFP's through conservation and value addition
- Aquilariamalaccensis* Lamk. tree is valued for its enumerable medicinal and perfumery properties, mainly distributed in north east India. Keeping in view the economic importance of species, drastic decline in natural *A. malaccensis* population and need of biological conservation, FRCER, Prayagraj has conducted a seed germination study and achieved 70% seed germination without any pre-treatment, first outside its natural habitat.



Seeds of *Aquilariamalaccensis* Seedlings of *Aquilariamalaccensis*

#### Institute of Forest Genetics & Tree Breeding (IFGTB), Coimbatore

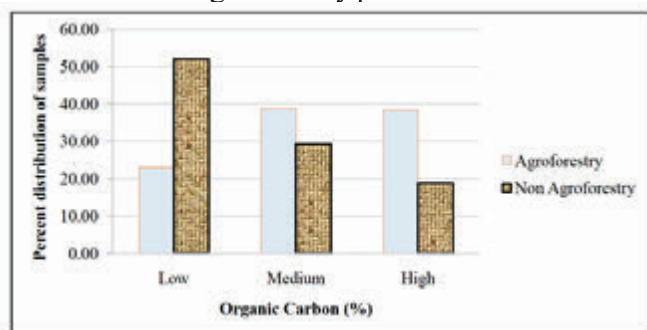
- This institute is working on the use of Agroforestry. In this regard field trials, projects have been released and assessment on land use systems have been done. At the end of three years, trees were harvested and economic productivity of all the three systems viz., i) Sole

Agriculture cropping, ii) Sole Tree plantation and iii) Paired-row agroforestry system. Important observation was that the economic productivity in terms of Net return per acre per years was greater in Paired-row agroforestry (Rs. 28,623 per acre per year) than the sole tree plantation (Rs.23,061 per acre per year). The results are encouraging for opting of Agroforestry for simultaneous production of food and wood. andopting of Agroforestry for simultaneous production of food and wood should be encouraged.

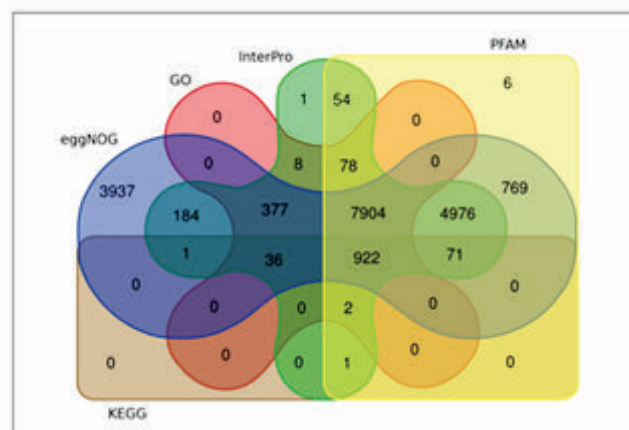


Casuarina Clone (CH2) based “Paired – row Agroforestry Trial” in Yerravaram village in East Godavari district of Andhra Pradesh

To monitor Soil Organic Carbon in Agroforestry, Natural and Conventional Farming Systems in Tamil Nadu, four different land use systems in Tamil Nadu viz., i) Agroforestry, ii) Non- Agroforestry, iii) Natural Farms and iv) Conventional Farms were selected for soil carbon analysis. Important observation states that adoption of agroforestry practices resulted in higher total mean soil organic carbon content than non-agroforestry practices



Percent distribution of organic carbon (%) in Agroforestry and Non-Agroforestry land use of Tamil Nadu



Venn diagram of the functionally annotated genes of *Calamus brandisii* using multiple public databases

- The development of genomic resources, particularly simple sequence repeat (SSR) markers, is essential for strict implementation of *in situ* conservation measures and application of DNA based red sanders genetic resource management. Venn diagram of the functionally annotated genes of *Calamus brandisii* using multiple public databases
- A study done by the institute on the endemic and precious timber tree *Pterocarpussantalinus* L. f. (red sanders) revealed that red sanders is diploid with  $2n=20$  and the  $2C$  genome size was  $0.7872 \pm 0.0561$ pg for the first time in this species. A total of 3128 EST-SSRs were detected from transcriptome and genes responsible for abiotic stress and secondary metabolite synthesis were analysed. This would provide the foundation for further research on production of medicinally important biocompounds.
- Genome sequencing, *de novo* assembly and functional annotation of *Calamus brandisii*, a cluster forming rattan was conducted and a total of 19,923 were functionally annotated and represented 7.5% of the genome. Gender linked molecular markers can be utilized for determining gender of seedlings for restoration and conservation programmes in





the identified and preferred ecological niches of the species.

- For enhancing salt tolerance in *Eucalyptus*, the salt inducible and root preferential *MsPRP2* promoter is being used for expressing *NaKA* and *CIC* genes from the crustacean animal, *Artemia*, and also for gene editing.

#### Rain Forest Research Institute (RFRI), Jorhat

- Surveyed for high yielding and fast-growing genotypes of 15 different commercially important bamboos in NE. Total 453 accessions were collected and assembled in the germplasm bank at RFRI, Jorhat.
- Under NMHS funded project titled "Promoting livelihood by bamboo charcoal making and briquetting to the forest fringe villages of KarbiAnglong District, Assam": Two Bamboo Charcoal Production Centres with Brick kiln has been established in KarbiAnglong District. The facility centres (with all the accessories/ machineries of charcoal making and briquetting) were handed over to local communities after trained for bamboo charcoal Production in an effective way. The produced charcoal is being sold to NBRC, Dimapur at reasonable price by the villagers.
- Established *Parkiaroxburghii* Seedling Seed Orchard (SSO) in 2 hectare land with 1260 seedlings at Chinkheiching Reserve Forest, Manipur.
- Five agroforestry demo plots were established for improvement of Khampti villagers of Namsai district, Arunachal Pradesh.



Agar based agroforestry models at Namti, Sivasagar, Assam

- North Eastern Coalfield areas and nearby

forest with its perfect climate are the harbor of nearly 48 genera with 111 orchid species mostly of epiphytic habit. All together twelve species which were very occasional in distribution and found only in the border of Arunachal Pradesh were propagated in the endangered orchids and re-introduced accordingly. These are *Bulbophyllum pteroglossum*, *Cleisostomalinearelobatum*, *Dendrobium cumulatum*, *D. jenkinsii*, *D. spatella*, *Eratomentosa*, *Gastrochilus obliquus*, *Micropera pallida*, *Phalaenopsislobbii*, *Pholidota pallida*, *Thelasispygmaea* and *Vanda bicolor*



Phalaenopsislobbii

Vanda bicolor

#### Arid Forest Research Institute (AFRI), Jodhpur

- A study on cross pollination was done by the institute. The main implication of this study is that the farmers would benefit from maintaining honeybee hives in fields as augmenting honeybees within field would be the easiest way to improve a low yield in the species *Prosopis cineraria*, *Capparis decidua*, *Acacia Senegal* species due to insufficient pollination.



Apisdorsata

Apisfloreana

Euremahecabae



Honey bee frames

Fruits production in *C. decidua*

Pods production in *P. cineraria*





- For development of suitable agroforestry models in IGNP command area of Western Rajasthan trials were done for various species.



Agri-silvi models

*Dalbergiasissoo* plantation on farm boundary

### E Himalayan Forest Research Institute (HFRI), Shimla

- Active ingredient (a.i.) content was the most critical factor for improvement of *Picorhiza kurroa* (Kutki), *Valeriana jatamansi* (Mushkbala) and *Sinopodophyllum hexanadrum* (Ban Kakri). Hence identification of genotype with high a.i. content and stability over environment is of paramount importance. In NMPB sponsored project, after conducting stability analysis identified the more stable genotypes owing to exhibiting more stability under different environmental conditions and could be exploited for releasing new varieties in future.
- The institute conducted a research on efficacy of different bio-control measures of insects. It was observed that formulations like Chlorpyrifos, Nimbecidine and *Boenninghausenia albiflora* extract prepared from native plant extracts have significant potential as an alternate to synthetic insecticides to control the insect pests of forest ecosystems of Indian Himalaya.
- The biodiversity studies on Micro Lepidoptera fauna of Deodar (*Cedrus deodara*) forests of Himachal Pradesh led to identification of 105 species including 37 new records. The georeferenced data of collection sites of Microlepidoptera species of

Deodar forests was used for GIS mapping to monitor their distribution pattern. The study will help in developing biodiversity conservation plans for economically important insect species.

- Needles of conifers were screened for the mass cultivation of *Trichoderma* species and got maximum sporulation ( $5.71 \times 10^6$  spores/mg) on *Pinus roxburghii* needle powder supplemented with potato dextrose broth and yeast extract.

### Tropical Forest Research Institute (TFRI), Jabalpur

- A very promising and inspiring Launch event of the Trees outside Forest (ToF) of India programme, funded by ICRAF-USAID was inaugurated on 8<sup>th</sup> September, 2022 at Ganga Hall, Indira Paryavaran Bhawan, New Delhi. Tropical Forest Research Institute was honoured to be a part of this important consortium. Dr. Nanita Berry, Scientist 'F' and Co-PI of the project had actively participated and presented TFRI's role and activities under TOFI project during discussion held with partners.
- A model plantation programme has been carried out in 22.68 ha of ravines in order to enhance vegetation cover and stop further degradation. Two sites were selected for carrying out plantation of seven tree species in Chambal ravines of Morena. One site was selected in State Forest Department's land and another was selected in the land provided by Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya (RVSKVV), Gwalior. *Acacia catechu* (Khair), *Acacia tortilis* (Tortilis), *Azadirachta indica* (Neem), *Anogeissus pendula* (Kardhai) and *Commiphora wightii* (Guggal), *Aegle marmelos* (Bael) and *Emblica officinalis* (Aonla) are planted.
- Clonal Trial of grafted Mahua trees was established at TFRI, Jabalpur.
- Two block plantations of *Litsea glutinosa* were



established in Delakheri Range, Chhindwara Forest Division

### **Institute of Forest Productivity (IFP), Ranchi**

- Survey in 10 districts namely, Simdega, Lohardaga, Hazaribagh, Ramgarh, Gumla, Khunti, West Singhbhum, East Singhbhum, Palamu and Garhwa were carried out to assess and document the sacred groves. 76 sacred groves were documented and 173 species were recorded.
- Genetic improvement of *Pterocarpus marsupium* Roxb through germplasm collection and conservation in eastern India started. Germplasm collection was done in diverse areas falling in three agro climatic zones of Jharkhand, Bihar and West Bengal. A total of 227 CPTs have been selected. The seeds were collected from the selected trees.
- The progeny trials in two localities were established comprising 40 families at Chandwa Research Station at Latehar district and Arid village in Ranchi. These trials are being maintained and survival was recorded along with growth data.
- Genetic improvement and conservation of Chironji (*Buchnanianacochinchinensis* Lour) in central and eastern India undertaken
- Collection, conservation and evaluation of *Meliadubi* germplasm from North Bengal, Odisha Hills and other parts of India for identification and release of superior clone: Developed Melia based agroforestry model in Chatra, Begusarai and Nathpur by incorporating Mustard, wheat and Maize as component crops. Developed first time and standardized ETP planting technique of Melia to reduce the grazing problem by stray animals under plantations. The developed technique utilizes one year old 12-15 feet long, bare rooted plants which reduces transportation cost and damages by animals in field. Established demonstration plots of *Meliadubia* at NB Farm Chandwa (Latehar), Rehla (Garhwa) in Jharkhand and Jadua Hajipur (Vaishali) in Bihar to showcase

the silvicultural operations and agroforestry models to the farmer. Identified 37 SSR markers through cross species transferability from *Meliavolkensii* and *M. azedarach* and estimated molecular genetic diversity present in its germplasm. Population structure of *Meliadubia* was studied and found South Indian population was highly genetically differentiated from the North Indian and Eastern Indian Population.

- Varietal development of *Flemingiasemialata* and *Flemingiamacrophylla* used for lac cultivation from identified genotypes through progeny evaluation and mass selection: Seeds have been collected from the identified plants of *Flemingiamacrophylla* accession no. FMC-5 and *F. semialata* accession no. FSC-1 for nursery raising. Based on germination of sown seeds 1541 plants raised of 10 identified plants of FSC-1 and 1188 plants of 10 identified plants of FMC-5 for the establishment of individual plant progeny trials. Four individual progeny trials of FMC-5 and FSC-1 have been established in Khunti and Ranchi district. The Flemingia based agroforestry models viz. Flemingia-Marigold and Flemingia-Maize have been established at Roro, Khunti. In Lalgotwa Papaya plants are being planted along with the Flemingia (Flemingia-Papaya model)
- Production of Quality Planting Material of Medicinal Plant and Creation of Herbal Garden in Northern West Bengal: Around 25000 medicinal plant saplings were raised, supplied and know how on the cultivation of provided to different stakeholder through farmers meeting and field visit. More than 300 saplings has been distributed through “AyushaapkaDwar” under Azadi Ka Amrit Mahotsav under the aegis of NMPB, Ministry of AYUSH, Government of India. Sale of Medicinal Plants in different parts of North Bengal has been initiated.

### **Institute of Wood Science and Technology (IWST), Bengaluru**

- UV Visible spectroscopy as well as NIR spectroscopy techniques have been



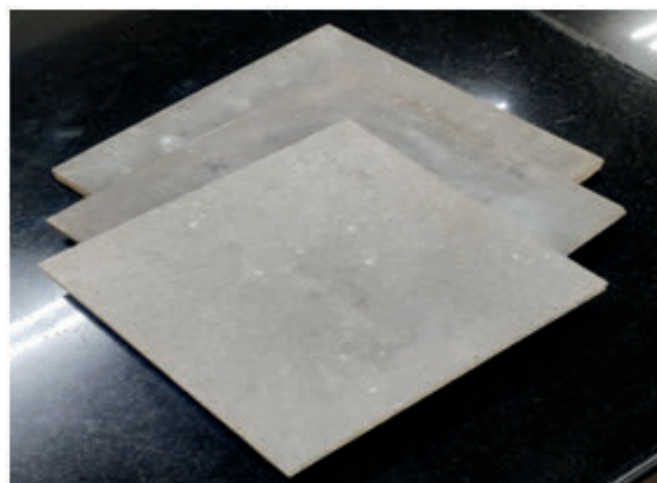
standardized and the results shows that these techniques may be applied to *distinguish Dalbergialatifolia* and *D. sissoo* wood samples.

- Moisture absorption and accelerated weathering studies on samples treated with nano-emulsion was carried out. The results indicate significant improvement in UV shielding of wood surfaces coated with nano particle dispersed oil nano-emulsion.
- Nano-wood composites (NWC) characterized with SEM showed uniform dispersion of nanoZnO inside the vessel and ray pits of treated wood. Thermal stability tests showed improved fire resistance property compared to control Plyboards were prepared by using CNFs mixed with PVAc. Addition of CNFs resulted in reduced water uptake, but the thickness swelling was marginally increased. Tensile shear strength was increased on addition of CNFs as compared to PVAc alone.
- Some of the major products/processes developed by IPIRTI are as follows:  
Study was conducted to produce face quality veneers from *Meliadubia*.



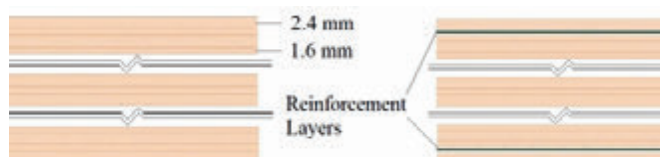
Manufacture of face quality veneer from plantation grown *Meliadubia*

- Cement bonded boards using various proportions of bamboo particles of *Dendrocalamusstrictus* and *Bambusa bamboo* species and Pozzolanaportland were developed. Physical and mechanical properties of cement bonded particle boards produced were evaluated as per the relevant Indian Standards. Ratios of 2.5:1.0 and 3.0:1.0 cement: bamboo particle ratios performed best and also met the requirement specified in IS: 14276.



Cement-bonded Bamboo particle board

- Reinforced laminated veneer lumber (RLVL) from *Meliadubia* were developed using three different reinforcement materials viz glass chopped glass fiber mat (CGM), glass fiber mesh (GM) sheet, and bamboo mat (BM). Physical, mechanical, bonding performance of RLVL were evaluated as per the BIS Standards.



Arrangements of various layers of RLVL

#### Institute of Forest Biodiversity (IFB), Hyderabad

- One progeny trial of *Casuarina equisetifolia* was established with 2352 individuals in Golapallam village, Kavali, Nellore district, A.P.
- Physico chemical screening of *Costusspeciosus* and *Gloriosasuperba* were done and qualified as per API. HPLC analysis of *G. superba* tuber revealed higher colchicines content (0.55%) in Nagarkurnool accession.
- Experimental field trial in 1 Ha for four tree fodder species and three grass species was established at Narsampet, Warangal district





of Telangana.

- A multi clonal trail of *Tamarindus indica* L has been established at FCRI, Mulugu with 15 different clones (240 Individuals).
- *Desmanthus virgatus* (Fabaceae), a fodder shrub, was found as mangrove associate and a new distribution record for the state of Andhra Pradesh.
- Experimental block plantations for mangrove were established in Appikonda (4 blocks -
- The dye extraction process from the bark of *Soymida febrifuga* & *Buchnanian axillaris* was optimized.

**Scheme on “Strengthening Forestry Research for Ecological sustainability and Productivity Enhancement” Funded by National Authority CAMPA (2019-2025)**

- A) Under Component- 1: All India Coordinated Research Projects (AICRPs) following work done-
- Compilation of existing knowledge/ data for all the projects completed and equipment's for laboratories of 9 ICFRE Institutes and 17 non-ICFRE Institutes purchased. Methodologies developed, land/sites for trials and field experiments finalized for 31 research projects.
  - Priority list of species/CPTs/locations etc for bamboo, casuarina, *Santalum album*, *Pterocarpus santalinus*, *Dalbergia sissoo*, *Dalbergia latifolia*, Eucalyptus, Poplar, *Melia Azadirachta*, *Madhuca longifolia*, *Gmelina arborea* etc. finalized
  - Studies on various plants like Sandalwood, Clonal plants completed. Further, a license agreement was signed between IFGTB and HU Gogle Biotech Pvt Ltd for commercial production of three clones of teak for 10 years
  - Documentation and analysis of current knowledge/information of 60 lesser known

forest plants (LKFPs) and key invasive species were completed.

- B) Component 2: National Program for Conservation and Development of Forest Genetic Resources: 950 FGR species prioritized based on parameters. Eco-distribution mapping initiated, GPS points of 63 priority FGRs have been recorded from different forest areas. Prepared species distribution maps for 40 study species.
- C) Component 3: Six policy studies under Center for Forestry Policy Research (CFPR) on Joint Forest Management Committees, agroforestry market mechanism, Forest Development Corporations, forest certification and grazing policies completed.
- D) Component 4: Under Capacity Building of State Forest Departments for developing “State REDD+ Action Plans” A resource manual for capacity building of State Forest Departments for developing State REDD+ prepared and published. 17 capacity building programmes for State Forest Departments organized.
- E) Component 5 “Operationalization of Human Resource Development Plan of ICFRE”: Under this component total 474 participants have been trained in scientific, technical and administrative aspects.
- F) Component 6: Under Operationalisation of Forestry Extension Strategy and Action Plan of ICFRE several VVKs, Melas/Kisan Melas, Trainings etc were organized in Jharkhand. Further, demo plots and demo trails were also established in Tamil Nadu

DG, ICFRE inaugurating

Kisan Mela at FRI,  
Dehradun on 07.09.2022





Demo cum Clonal Trail Plantation of  
Neolamarckia Cadamba by IFGTB

❖ Scheme on “**Estimation of Economic Losses in Real Term Per Hectare Basis Due to Forest Fire in Uttarakhand and Madhya Pradesh**” The study sites in Uttarakhand (U.K.) and Madhya Pradesh (M.P.) covered 42 and 49 forest fire polygons respectively.

- ICFRE estimated economic losses due to vegetation and carbon content changes as a result of forest fire, in Madhya Pradesh and Uttarakhand forest. The losses in M.P in five carbon pools for tropical moist deciduous forests the losses for severe, moderate and low burnt classes were Rs. 22254, Rs. 14621 and Rs. 6741 per ha, respectively.. In the case of Uttarakhand Forests, the losses of five carbon pools in tropical dry deciduous forest is Rs. 8,026.11/ha (low burnt), tropical moist deciduous forest are Rs. 3,179.97/ ha (low burnt) Rs. and 17,619.30/ha (moderate burnt),

subtropical pine forest are Rs. 5,287.63/ ha (low burnt) and 23,332.17/ha (moderate burnt), ToF and plantations is Rs. 22,962.41/ha (moderate burnt) and Rs. 10,020.63/ ha (low burnt) and in the Himalayan Moist Temperate Forest, at Rs. 36,126.04/ ha in moderate burnt sites and Rs. -684.06/hain low burnt sites.

- GBPNiHE, Almora worked on estimation of economic losses forest wealth. Mean value of total loss of forest wealth due to forest fire due to all tangible forest goods was estimated at Rs. 130387/ha (Rs. 9696-352752/ha) in Uttarakhand. Mean value of total loss of forest wealth due to forest fire due to all tangible forest goods was estimated Rs. 114327/ha in Madhya Pradesh
- Wildlife Institute of India, Dehradun estimated the economic losses to forest fires to wildlife. In Uttarakhand, the loss of wildlife due to low and moderate forest fire intensities annually is Rs. 5,872 per hectare in Binsar Wildlife Sanctuary and Rs. 10,048 per hectare in Nandhaur Wildlife Sanctuary. The wildlife loss due to low forest fire intensity is estimated annually is Rs. 3,369 per hectare in Ratapani Wildlife Sanctuary and Rs. 8,148 per hectare in Nauradehi Wildlife Sanctuary in Madhya Pradesh.
- National Institute of Hydrology, Roorkee estimated the economic losses due hydrological change caused by forest fire.

The study has been completed by all partner institutes and the draft report of the scheme is submitted to MoEF&CC for approval.

**g. Important Conferences organized in India or International Organizations, Conferences-nature of participation, subjects discussed, implementation-action taken**

- FRI, Dehradun organized international





seminar on 'Advances in Wood Science for Natural Resources Sustainability'

- RFRI, Jorhat organized Second National Seminar on Agarwood cum Tree Growers Mela for Agarwood Farmers from 24-25 March, 2022 at RFRI, AFRI, Jodhpur organized Online National Workshop on "Neem Seed Collection and Processing for Azadirachtin and Oil Estimation"
- ICFRE, Dehradun organized ChintanSatra- The Research Roadmap of ICFRE for next 25 years at FRI Dehradun
- TFRI, Jabalpur organized National Workshop on "Availability, Sustainability, Processing Issues and Market linkages of Medicinal Plants".
- A knowledge sharing workshop (online) on Mainstreaming Landscape Thinking for Restoration Impact in Natural Resource Management Education in BIMSTEC Region was organized by IUFRO-SPDC in collaboration with ICFRE, Global Landscape Forum, Bonn Germany and Wageningen University and Research (WUR), Netherland



ChintanSatra at FRI, Dehradun on 30.06.2022

#### **h. MEAs, Agreement with countries, international organizations, compliance**

- ICFRE has signed MoUs/Letter of Intent with

National and International Organizations for collaboration in the field of forestry research, education and extension:

- \* Central Institute of Medicinal and Aromatic Plant (CSIR-CIMAP), Lucknow.
- \* National Cooperative Development Corporation (NCDC) New Delhi
- \* Indian Institute of Remote Sensing (ISRO-IIRS), Dehradun
- \* Letter of Intent (LoI) with International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.
- ICFRE Institute has signed MoU with State Forest Departments (SFDs) for developing synergy in the field of forestry research, education and extension:
  - \* AFRI, Jodhpur with Gujarat Forest Department, Gandhinagar
  - \* IFB, Hyderabad with Telangana Forest Department
  - \* HFRI, Shimla with Jammu & Kashmir Forest Department

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

During the year, 218 research papers and 15 books have been published in various National/International Journals by ICFRE personnel.

1. RFRI, Jorhat prepared a Digital Versatile Disc (DVD) on Artificial Pollination of Orchids.
2. Report on Evaluation of the Working/ Effectiveness of Forestry Extension System through the Van Vigyan Kendras and Recommendations for its Strengthening.
3. Forestry Statistics India 2021
4. Comprehensive Plan on Research & Extension
5. A book on Butterfly-Forest Type Associations in Uttarakhand
6. A book on Teak Genome
7. A Compendium on Indian Sandalwood



**Indian Institute of Forest Management, Bhopal****a. Brief Introduction and Objectives**

IIFM has been established with the objective to provide training in NRM, climate change, sustainability and management and related subjects with a view to equip them to practice the art and profession of management of forestry development. Objective of the institute is to meet the need of Indian forestry and forest-related industry and commerce in respect of up-to-date information on forestry management through research, consulting and publication and carry out research in matters concerning the use of management and allied techniques and methods conducive to the development of forestry in the country.

**Functions of the Division** IIFM has been running Post Graduate, Doctoral and Certificate Courses.

Besides, the institute is also recognized as a Nodal Centre for Research by Forest Research Institute Deemed University (FRIDU), Dehradun for its Doctoral Program (Ph.D.)

The division also conducts research, provides Trainings & Consultancy and carries out Outreach Activities.

**1. Major achievements (Cumulative and in reference period)**

IIFM has conducted a number of contexts relevant research studies in different areas. Some of the salient research projects completed/ongoing in the current year are given below:

1. A framework for assessing the sustainability of CFR management in India
2. Designing Ease of Doing Bamboo Business Index, and Performance Dashboard: Based on MP based bamboo clusters and its benchmarking
3. Developing Climate Change Adaptation Strategies for Sal and Teak Dominated Landscape” as a part of Preparation of Third National Communication (TNC) and other new information the UNFCCC
4. Economic Services of Forest of Jharkhand
5. Suggesting mechanism for Sustainable Management of Biodiversity and Access and Benefit-sharing mechanism in the state of Madhya Pradesh
6. Developing Evaluation and Monitoring Framework for Enhancing Adaptive Capacity through Climate Smart Village of Madhya Pradesh
7. Developing Monitoring Framework (identification and estimation) for Hydrological Services of Forest landscape
8. Organizing capacity building training program for Working Plan Officers from state forest departments and C&I approach towards assessing responsible forest management at FMU level
9. A study to identify local communities' view on the mitigation of human-wildlife conflict in the wildlife sanctuaries of Madhya Pradesh
10. Long Term Ecological Observatory: (Projects on Birds /Grassland/Soil/Forest Plot/Field laboratories setup)
11. The Rural Urban Interface of Bangalore: A Space of Transitions in Agriculture, Economics and Society Phase - II
12. Understanding the Relationship between Forest and Water in the context of Changing Climate Variables of Narmada Catchment
13. Institutional Mechanism of Payment for Ecosystem Services in Watershed Area under Navnera Barrage in Kota
14. Ecosystem Services Valuation and Accounting of Madhya Pradesh Forests.
15. Rapid assessment of impact of MSP on MFP collectors in the state of Madhya Pradesh
16. Rapid assessment of production potential of MFP in Madhya Pradesh
17. Technical and Digital Infrastructure Upgradation of Centre for Climate Change Studies
18. The Institute has been undertaking consulting works to provide solutions to the sector specific challenges and regular inputs for policy making. Some of the client organisations include NTPC, NMCG, HCL, NHDC, ICFRE, Essel Mining & Industries Limited (EMIL) of Aditya Birla Group,



National Silk Board, UPPCB, MAHAGENCO and few others.

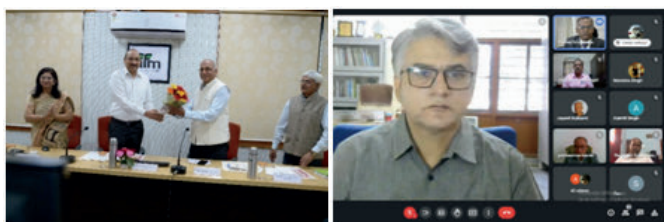
## 2. Publications

3 books 36 publications (names annexed in the online version of annual report) have been put forth by faculty of the institute in the forms of books/book chapter/reports and peer reviewed journals.



## Training / Capacity Building

17 training programmes were conducted during the year 2022 in various fields like sustainable and resilient cities, natural resource and environment management, Environment Leadership and Life Skills etc. Training for in service IFS officers was also conducted.



Environmental Leadership and Life Skills (Women Component)

National Conference on Human Wildlife Conflict – Issues, Concerns & Way Forward : Co-Exist 2021

## 1. Other significant events and events of Azadi ka Amrit Mahotsav

1. The Hon'ble Minister Shri Bhupender Yadav inaugurated the Centre for Excellence in Corporate Social Responsibility at IIFM in April, 2022.
2. Establishment of Innovation Cell (IIC) under the guidance of Ministry of Education and AICTE.
3. “Suflam 2022- Nature Based Solutions: Integrated Approach for

Conservation and Utilization of Forest Land through Farmers Participation

4. Swachhata Campaign was organized by IIFM Students and Faculty Members, Officers and Staff on 2nd October 2022 which was followed by SwachhataPakhwada
5. Plantation Drive in the month of July 2022



## Indira Gandhi National Forest Academy, Dehradun

- A. Indira Gandhi National Forest Academy (IGNFA) was constituted in the year 1987. IGNFA is currently functioning as the Staff College for the officers of the Indian Forest Service (IFS). One of the three All India Services (along with the Indian Police Service and Indian Administrative Services), the Indian Forest Service looks after the ecological security aspects of our country.

## Vision

Academy aims to develop capacities of civil services and other stakeholders in public service, institutions and organizations with a view to overcome global environmental challenges.

## Mission

To develop the individual, institutional & organizational capacities of all stakeholders & practitioners through high-quality learning solutions and knowledge products and services to overcome global challenges and





enabling two-way exchange of ideas.

### Mandate

The mandate of the Academy is to prepare a cadre of competent forest officers to manage the nation's forest resources and the wildlife, and also ensure ecological balance, and support environmental protection and safeguards. The Academy serves as the apex institution for capacity building among forestry personnel.

### B. Training Programmes

IGNFA Conducts Training Courses in three broad categories:

#### 1. Entry-level Training Programmes

- Training of IFS (Probationers)
- Training of IFS officers Inducted from SFS (Professional Skill up-gradation Course-PSUC): A mandatory 10-week course is conducted for officers promoted from State Forest Service (SFS) into IFS

#### 2. In-Service Training of IFS Officers

- a. Mid Career Training Programmes (Phase-III, IV and V)
- b. Senior Foresters' Workshops (30, 35 and 50 years in service)
- c. Compulsory Training Courses/Workshops (Theme based)

#### Activities Undertaken (Cumulative and in the reference year) (Till December 2022):

To celebrate Azadi Ka Amrit Mahotsava talks from eminent dignitaries were organized under the aegis of IGNFA officers' Club. Swachta Campaign 2.0 activities also undertaken.

- C. IGNFA LMS (Learning Mgt Sys) portal has been initiated in Aug 2022. It serves as a digital learning platform to cater to the needs of various training programmes such as IFS Professional training, MCT and PSUC training courses. It also acts as a forum for receiving feedback and conducting examinations. This was started

operationalising from 34th PSUC course and presently for the IFS (P) 2021-23 course.

- D. So far, 52 IFS Professional Training Courses (since 1968) have been completed and 3298 officers trained. 33 PSU Courses have been conducted and 861 inducted officers trained.

By 2021, 95 AFM Courses and 39 MCT have been conducted and 4668 IFS Officers trained.

- E. An expert committee has been constituted to consider and recommend on issues pertaining to Mid-Career Training programmes comprising DIG(RT), IFD representative, Prof. (IST) and a senior ret'd. IFS officer. Its recommendations are implemented to fine-tune the MCTP design.

2. a48 IFS Probationers have benefited from the Programme Dr. Hari Singh Fellowships for taking 10-month Diploma Training Courses.

#### TRAINING OF IFS (P) 2019- 2021 COURSE



#### WORKING PLAN EXERCISE



#### TRAINING OF IFS (P) 2020- 2022 COURSE



#### Jungle Survival Exercise



#### Valley of Flowers



#### Trekking to hemkund





**MCT PHASE III (10th) COURSE****MCT PHASE V (18th) COURSE****34th PSUC****Directorate of Forest Education, Dehradun****(a) Brief introduction, objectives and functions of the Division:**

DFE was created in 1953 under FRI and Colleges to assist the President, FRI. Subsequent to reorganization of Forest Research Institute and Colleges the Directorate of Forest Education was delinked from the Forest research Institute

and Colleges. The Directorate functions under direct administrative control of the MoEF&CC, Government of India

Vide order No. 15-15/2018-RT dated 03.02.2022, integration / unification of all Forestry Training Academies in the country has been carried out, Subsequently DFE, 03 Central Academy for State Forest Services ( C A S F O S ) , D e h r a d u n , Burnihat&Coimbatore and Central Academy for Forest Education (CAFE), Kurseong have been brought under the single command of Director, Indira Gandhi National Forest Academy (IGNFA) as administrative head.

**Mandates:**

- To cater to the training needs of the SFS Officers and RFOs of States / Union Territories in the Country.
- To ensure 'Standard and Quality' of Training being imparted to the Forestry personnel other than those from the Indian Forest Service.
- To augment training 'Capacity and Facility' for the Frontline Forest Staff (Forest Guards, Foresters, Dy. Rangers and RFOs).
- To develop appropriate and relevant training contents and evaluation standards for forestry training at all levels below IFS.
- To help States assess training needs of forestry personnel.
- To assist in the development of training policy for forestry personnel

The Directorate of Forest Education is mandate to prescribe training cost norms to meet substantial cost of training expenses for meeting part of the training cost. The prevailing training expenses per trainee is provided in the online version of the Annual report

**Important activities undertaken/Progress / Innovations / Important Cumulative Achievements during thereference period 01/01/2022 to 14/11/2022 including celebrations for AzadikaAmritMohatsav**



## **I. Celebration for Azadika Amrit Mohatsav**

### **1. Adoption of Swacchhta in Office premises:**

### **2. Improvement in record management:**

- Total 4976 old files and registers have been reviewed and 4966 old files and registers have been weeded out in respect of this Directorate and its constituent Academies.

### **3. Disposal of redundant /scape materials**

#### **(e) Promulgation of new Acts /Rules, if any, along with the details along with major amendments / deletions:**

- Director Forest Education prepared the amendment draft of Entrance and Training Rules for State Forest Service Officers(2004) is submitted to MoEF&CC, New Delhi.

## **Training of IFS Officers**

The Ministry of Environment, Forests & Climate Change Government of India is planning to organize 32 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 13 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 6 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 19 training courses for IFS Officers in various disciplines in various institutions in the country for these stakeholders.

## **Capacity Enhancement of Effective Forest Management**

The component is an externally aided component aimed at to enhance the capacity of forest personnel for implementation of forest policies through research and development, implementation of pilot projects, improvement of training systems and institutional strengthening in the area of forest and biodiversity conservation and climate change,



thereby contributing to sustainable development in India. The Project will be implemented in all states/UTs through State Forest Departments, Central Training Institutes and Indian Research Institute. The total cost of the component is Rs. 867.00 Crore for a period of ten years is funded by the Japan International Co-operation Agency (JICA). The loan component is of Rs.708.00 Crore and the rest is Central Plan component. The L/A for the project is planned to be signed in March 2023.

### 7.8 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 also given by NAEB to the regeneration of degraded forest areas and lands adjoining forest areas, national parks, sanctuaries and other protected areas as well as the ecologically fragile areas like the Western Himalayas, Aravallis, and Western Ghats etc.

The following are projects/schemes operated in NAEB:

#### 1. Nagar Van Yojana

The Nagar Van Scheme was initiated during June, 2020. The Scheme focuses on peoples' participation, and is to be implemented in collaborative mode by various agencies. The primary objective is to create forest/green spaces in urban areas by developing Nagar Van/Vatikas, with a view to protect forest land within cities/towns or its fringes from degradation and encroachment.

##### Progress:

- Total 270 projects are sanctioned and First instalment of Rs. 16,766.38 Lakhs has been released.
- On the occasion of 'Hariyali Mahotsav' ceremonial inauguration of 75 Nagar Vans was done on 8<sup>th</sup> July, 2022.

#### 2. School Nursery Yojana

3. The Ministry is making all efforts to improve and increase green cover in the country with peoples' participation. The Ministry is implementing a scheme 'School Nursery Yojana' in the country. to create awareness and inculcate a habit of caring for the nature by creating a bonding between students and plants, Around 5000 school nurseries are proposed to be developed in five years from 2020-21 to 2024-25. The scheme is being funded from CAMPA. An amount of Rs.49.50 crore has been allocated tentatively for the period of five years (2020-21 to 2024-25) for implementation of SNY in the country.

5. The School Nursery Yojana aims to provide an environment for the students to understand and appreciate the significance of plants in maintaining and sustaining the natural eco-system. The Scheme will be implemented for a period of five years and all public and private schools recognized by State Boards /Central Government Boards shall be eligible to implement the scheme. Students of class Sixth, Seventh and Eighth may be actively involved in developing nursery, raising and planting seedlings as part of extra-curricular activities. However, schools may also engage a mali (gardener) for various supporting activities. Every year 1,000 schools will be selected and each school will raise 1000 seedlings.

##### Progress:

- Ministry has approved sanction and release of Rs. 5.78 crores to 892 School Nursery projects in 21 States of the country. In addition, 223 new proposals from 6 states have also been approved for fund release.

##### Study initiatives:

#### 1. DPR for rejuvenation of 13 Rivers through forestry interventions

The Ministry released the Detailed Project Reports (DPR) prepared by Indian Council of Forestry, Research and Education (ICFRE),





Dehradun for Rejuvenation of 13 Major Rivers namely Sutlej, Beas, Ravi, Chenab, Jhelum, Luni, Yamuna, Mahanadi, Brahmaputra, Narmada, Godavari, Krishna and Cauvery through Forestry interventions, in March, 2022. The programme interventions include tree plantation, soil and moisture conservation works in the catchment area and river front development to increase green cover and carbon sink, reduce silt load & flooding and enhance ground water recharge etc., besides generating employment. The total financial requirement to the interventions proposed in these thirteen DPRs for five years is Rs. 19,342.62 crore under 4 major components viz. (a) Implementation of Forestry Interventions, (b) Strengthening Knowledge Management and National Capacity Development, (c) Maintenance Phase including Scaling Up and Replication of Successful Models, and (d) National Coordination for Forestry Interventions and River Conservation.

The DPRs have been forwarded to concerned State Governments for implementation with multi-departmental participation. The State Forest Departments together with concerned Departments namely Agricultural & Horticulture Department, Urban Municipal Bodies, Department of Rural Development etc. are envisaged to implement the DPRs with the funding sources under various Central and State Government schemes.

### Progress

- MoEF&CC has recently released DPRs for Rejuvenation of 13 major rivers.
- 2. NAEB is implementing a pilot project **“Enhanced Capacity building of Stakeholders and State Governments on Forest Landscape Restoration and Reporting Mechanism on Bonn Challenge”** in consultation with IUCN which is compiling the data for reporting the achievements under Bonn Challenge Commitments. The project aims to develop and adapt best practices and monitoring protocols for the

Indian States, and build capacity within five pilot States (identified as Haryana, Madhya Pradesh, Maharashtra, Nagaland and Karnataka).

The objectives of the project are:

- Collation of data from all the States and UTs of India to aid in the reporting of India's achievement towards Bonn Challenge commitment.
- To provide support and develop capacities in the identification, prioritization and monitoring of landscapes for Forest Landscape Restoration (FLR) using the Restoration Opportunities Assessment Methodology (ROAM) and building capacities on the same, in five identified pilot states.
- Jointly work with MoEFCC in the preparation of India's second progress report on Bonn Challenge.
- With the Government of India, organize the second chapter of the South Asia regional consultation on FLR and Bonn Challenge in India and create a platform for best practices on FLR from the region.

The Project period is 3.5 years with a total cost of Rs.5.9 crores. The project cost will be met from National CAMPA Fund. The project was initiated in 2019 and is ongoing.

### 3. LiDAR technology for Watershed Management-

The Ministry has commissioned a project for survey of degraded forest area in about 10000 ha each in 25 States, using Light detection and Ranging (LiDAR) technology and preparation of DPRs for Soil Moisture Conservation (SMC) works. DPRs pertaining to Assam, Bihar, Chhattisgarh, Goa, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Tripura, Gujarat, Rajasthan, Odisha, Mizoram, Himachal Pradesh, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Punjab, Kerala, Uttar Pradesh, Uttarakhand, Haryana and West Bengal States have been finalized and shared with the States.

**Progress:**

- DPR of 25 States have been received and forwarded to the respective states for implementation

**4. Eco Development Forces(EDF)**

Eco-Development Forces Scheme was established in 1980s. The scheme 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 (MoD) is reimbursed by MoEFCC while the inputs like sapling, fencing, etc. and also professional and managerial guidance is provided by the State Forest Departments. In ETF battalions, MoD deploys its ex-servicemen, preferably from within the area of operation, whereas the nuclear core of the force is constituted of regular servicemen. Presently there are six ETFs operating in 4 states of India. These are 127 Inf. Battalion in Uttarakhand, 128 Inf. Battalion in Rajasthan, 129 Inf. Battalion in Jammu & Kashmir, 130 Inf. Battalion in Uttarakhand and 134 Inf. Battalion & 135 Inf. Battalion in Assam. The ETFs are being implemented in collaboration with three agencies namely, MoD, MoEFCC and the concerned State Government where the ETF Battalions are functioning. So far, an amount of Rs. 70 Crores has been released under the scheme by the Ministry in the year 2022-23.

**7.9 National Green India Mission****a. Introduction:**

National Mission for a Green India (GIM) is one of the eight Missions outlined under the National Action Plan on Climate Change which aims towards protecting, restoring and enhancing India's forest cover and responding to Climate Change. The National Afforestation Programme (NAP) has been merged with GIM.

**Objectives**

- Increased forest cover and improved quality of the existing forest cover.
- Improved ecosystem services including biodiversity, hydrological services and carbon sequestration.
- Increased forest-based livelihood income.
- Enhanced annual CO<sub>2</sub> sequestration.

**(b) Activities undertaken during the period 01-4- 2022-till date:**

- o GIM activities were started in year 2015-16 and so far, a sum of Rs. 690.39 Crores have been released to sixteen States and one union territory for undertaking afforestation activities over an area of 222062 ha and livelihood improvement activities of forest dependent communities.
- o Fund amounting to Rs. 78.20 crore has been released to six States namely Madhya Pradesh, Manipur, Mizoram, Punjab, Sikkim and West Bengal, for carrying out the afforestation activities over 13678 ha.
- o GIM is implementing Ecosystems Services Improvement Project (ESIP), in 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.
- o Project Steering Committee (PSC) of ESIP in its 5<sup>th</sup> Meeting has approved the Annual Plan (APO) of Operations at a cost of Rs. 56.47 Crores for undertaking activities like Sustainable Land Ecosystem Management (SLEM) Practices, training on forest carbon stock measurement and monitoring, sustainable utilization of NTFPs for local communities, etc.
- o Apart from afforestation activities taken up under GIM, various livelihood improvement activities like fish farming, Mahua collection, Lac cultivation, making of incense sticks, computer trainings, driving, Sitafal processing, Sewing, beekeeping, poultry, Processing and packaging of NTFPs, etc. has also been taken up by members of JFMCs.
- (c ) The National Executive Council (NEC) has



approved APOs for carrying out the GIM activities in 17 States (including Uttar Pradesh) and one Union Territory for the FY 2022-23 and balance work of FY 2021-22.

## 2. Progress:

A sum of Rs 681.92 Crore has been released to 16 states and one Union Territory from the year 2015-16 to 2022-23.

S. No.	Name of the State	Afforestation	Funds Released (Rs. in crore)
		Targets (in ha.)	
1	Andhra Pradesh	4,393	6.19
2	Arunachal Pradesh	10,777	13.43
3	Chhattisgarh	24,610	72.75
4	Haryana	6,174	9.55
5	Himachal Pradesh	5,480	17.09
6	Jammu & Kashmir	5,680	25.73
7	Karnataka	2,435	13.41
8	Kerala	12,298	25.47
9	Madhya Pradesh	35,617	91.03
10	Maharashtra	6,766	10.30
11	Manipur	19,976	53.75
12	Mizoram	20,643	139.08
13	Odisha	20,772	75.78
14	Punjab	7,454	21.57
15	Sikkim	6,981	22.98
16	Uttarakhand	13,340	82.09
17	West Bengal	18,666	10.19
<b>Total</b>		<b>222062</b>	<b>690.39</b>

- (3) Funds released to the State Forest Development Agencies (SFDAs) for carrying out GIM activities during the FY2022-23 from 01.04.2022 to till date:

S. No.	Name of Organization	Purpose	Total Amount Released (Rs. in Crore)	Status of third-party evaluation
1	SFDA, Madhya Pradesh	Advance, Creation and Maintenance Work	17.93	Third Party evaluation of Green India Mission has been completed by NITI Aayog.
2	SFDA, Mizoram	Creation and Maintenance Work	36.27	
3	SFDA, Manipur	Advance and Maintenance Work	5.45	
4	SFDA, Punjab	Advance, Creation and Maintenance Work	2.74	
5	SFDA, Sikkim	Advance, Creation and Maintenance Work	6.57	
6	SFDA, West Bengal	Maintenance Work	0.76	
7	SFDA, Odisha	Advance, Creation and Maintenance Work	8.48	
<b>Total</b>			<b>78.20</b>	





CHAPTER

**08**

*Conservation - Wildlife*



## 8.1 Wildlife Conservation

### Introduction

The Wildlife Division of the Ministry is the nodal Division which deals with the policy, law and finances for the conservation of wildlife in the Country. The Wildlife wing is headed by the Additional Director General of Forests (Wildlife) who is also designated as the Director, Wild Life Preservation under the Wild Life (Protection) Act, 1972. The Division also provides financial support to the States/ UTs for conservation of wildlife and their habitats through the Centrally Sponsored Scheme – Development of Wildlife Habitats (CSS-DWH).

#### a. Activities undertaken by Wildlife Division during the period January-December 2022:

- Amendment to WildLife (Protection) Act, 1972
- Increase in Protected Area Network in the Country
- Project Dolphin
- Project Lion
- Achievements in CITES-CoP19
- Wildlife Week, 2022 celebrations
- Human Wildlife Conflict Management
- Indo-German Technical Cooperation Project on Human-Wildlife Conflict Mitigation in India
- GoI, UNDP-GEF SECURE Himalaya Project
- MoEFCC-GEF funded 'Small cats Project'

#### b. Progress/Achievements during the period January-December 2022:

- **Amendment to WildLife (Protection) Act, 1972:** The Wild Life (Protection) Amendment Bill, 2022 was passed by Lok Sabha on 2<sup>nd</sup> August, 2022 and by Rajya Sabha on 8<sup>th</sup> December, 2022.
- **Protected Area Network in the Country:** Presently, there are 989 PAs in the Country, amounting to 5.26% of the country's total geographic area. In September, 2022, the country's first 'Dugong Conservation Reserve'

was declared by the state of Tamil Nadu in Palk Bay covering the coastal waters of Thanjavur and Pudukottai districts with an area of 448 km<sup>2</sup>. It is a great milestone in the marine conservation history of the Country.

- **Project Dolphin:** Hon'ble Prime Minister, in his address on 74<sup>th</sup> Independence Day on 15<sup>th</sup> August 2020, had announced 'Project Dolphin' for conserving the riverine and marine Dolphin in the country. The Project Dolphin is envisaged to bring both River and Marine Dolphins under its conservation programme. The following activities have been initiated under the project during 2022:
  - a. The Governments of Assam, Rajasthan, Madhya Pradesh, Punjab and UT of Lakshadweep have identified dolphin hotspots.
  - b. Species conservation and habitat improvement; monitoring and patrolling; facilities for staff and awareness generation programmes have been initiated as part of Dolphin conservation.
  - c. A Comprehensive Action Plan for Project Dolphin (2022-2047) has been finalized and shared with the concerned line Ministries with a request to initiate actions.
  - d. The estimation of riverine dolphins is complete and report is under finalization.
  - e. The estimation of marine dolphins (Humpback Dolphin and Indo Pacific Finless Porpoise) has been started in coastal areas of Maharashtra by the State Forest Department through Coastal Conservation Foundation. All the coastal states have been requested to estimate dolphin population in their respective states.
- **Project Lion:** Hon'ble Prime Minister, recognizing the best interest of Asiatic Lion, in his address on 74<sup>th</sup> Independence Day on 15<sup>th</sup> August 2020, had announced 'Project Lion' for securing the future of Asiatic lions. The 'Project Lion' envisions a long term conservation of Asiatic Lions and empowerment of the stakeholders in adopting sustainable and alternate livelihood options for their well-being and sustenance. The



following activities have been undertaken in the Project Lion during 2022:

- a. Blueprint for Establishment of All India Wildlife Disease Diagnostic Research and Referral Centre has been prepared and sites identified.
- b. The document titled 'Project Lion: Lion @47 vision for Amrutkal' has been prepared and shared with the State Government of Gujarat for further action.
- c. Works undertaken by Gujarat Forest Department in the State:
  - Habitat improvement
  - Monitoring through radio-collaring, camera trap, telemetry, SIMBA and patrolling through e-Guj
  - Human–Wildlife Conflict Management
  - Eco-development works
  - Awareness generation and sensitization
- **Wildlife Week, 2022 celebrations:** To instil the conservation ethos amongst the general public, Shri Narendra Modi, Hon'ble Prime Minister of India delivered a message on the

occasion of Wildlife Week, 2022. Activities like painting competition, webinars, documentaries, wildlife photography competition, etc. aiming at generating awareness amongst the people, especially students were taken up during the entire week in the Country.

- **CITES-CoP19:** An Indian delegation participated in CITES CoP19 held at Panama City from 14 to 25 November 2022. During the CoP19, two faunal species namely *Batagur Kachuga* (Red-crowned Roofed Turtle) and *Nilssonialeithii* (Leith's Softshell Turtle) endemic to India were transferred from Appendix II to Appendix I prohibiting their international trade for commercial purposes on the basis of India's proposals. Another species, *Cyrtodactylus jeyporensis* (Jeypore Hill Gecko) also endemic to India was listed in Appendix II of CITES based on a proposal from India regulating its international trade. India has been elected as an alternate member of the Standing Committee of the CITES from Asia region which will help India in highlighting its concerns and giving boost to voices of parties of South Asian region.







- **Human Wildlife Conflict Management-** The Ministry has issued guidelines to States/UTs on 03.06.2022 on managing Human-Wildlife conflict, including damage to crops caused by wild animals. The guidelines advise States/UTs to utilize the Pradhan Mantri FasalBimaYojna (PMFBY).
- **Ease of doing business -** Ministry has issued revised guidelines dated 21<sup>st</sup> July, 2022 for consideration of projects/activities within Protected Areas, Eco-Sensitive Zones, Tiger Reserves, Tiger Corridors and provided exemption for those located within Conservation Reserves. This will facilitate ease of doing business.
- Ministry has initiated a MoEFCC-GEF funded project titled '**Strengthening conservation and resilience of globally-significant wild cat landscapes through a focus on small cat and leopard conservation**' for conservation and development of meso-predators in three landscapes in India, viz., Dudhwa in Uttar Pradesh, Pakke-Eagle Nest landscape in Arunachal Pradesh and Ranthambore landscape in Rajasthan. The project aims to secure population and habitats of wildcats by addressing habitat Encroachment, human-wildlife conflict, poaching and illegal trade in priority tiger landscapes of northern, north-eastern and western India through engagement with local communities and other stakeholders.



- **Indo-German Technical Cooperation Project on Human-Wildlife Conflict Mitigation in India:** An Indo-German Technical Cooperation Project on “Human Wildlife conflict mitigation in India (2017-23)”, supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) is being implemented by the MoEF&CC and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) together with States of Uttarakhand, West Bengal and Karnataka. As part of the project, drafts of ten (10) species-specific and four (4) issues-specific HWC mitigation guidelines have been developed by following the



participatory approach. These guidelines are being finalized by Ministry. The project conducted two national workshops in 2022 bringing together experts and field practitioners to develop an Implementer's Toolkit to facilitate the effective implementation of these guidelines. The project has drafted sub-zero drafts of the state HWC Mitigation Strategy and Action plans for Karnataka, Uttarakhand and West Bengal, together with the officials from the respective State Forest Departments and other experts. The prototype of a national web-based knowledge platform containing the national HWC mitigation database and monitoring portal has been developed under the Project, discussed with key stakeholders including the Chief Wild Life

Wardens, and was approved by the Ministry to use by the States. At the field level, the project is supporting 27 rapid response teams and 73 village Panchayats, through equipment and training on early warning and rapid response, preventing accidental encounters, alternative crops and value chain promotion, and inter-agency coordination. The project has further facilitated the development of the One Health curriculum together with the cross-sector group of training institutions from the forest, agriculture and public health sector experts and institutions. Good and innovative practices in Human-Wildlife Conflict mitigation across the country are also being compiled.



- Under **GoI, UNDP-GEF SECURE Himalaya Project**, several High Conservation Value (HCV) areas have been identified across Ladakh Himachal Pradesh, Uttarakhand and Sikkim. Of these HCVs, 3 Biodiversity Heritage Sites (BHS) namely Sural Bhatori, Hudan Bhatori and Naingahar covers a total area of approx. 21.68 haa have been notified by Himachal Pradesh Biodiversity Board. Comprehensive human-wildlife conflict management strategy in selected

districts/landscapes has been prepared. Further, construction of corral pens, solar fencing, Animal Intrusion Detection and Repellent System (ANIDERS), bio-digester plant in Army Camps for management of solid waste and control of feral dog population, etc have been demonstrated, scaled up and replicated across the landscapes to address HWC. These measures have been effective in reducing the instances of HWC.





#### a. Promulgation of new Acts/Rules

- **The Wild Life (Protection) Amendment Bill, 2022** was considered and passed by Lok Sabha on 2<sup>nd</sup> August, 2022 and by Rajya Sabha on 8<sup>th</sup> December, 2022. The Bill proposes to amend the Wild Life (Protection) Act, 1972 so as to incorporate the necessary changes to appropriately implement CITES in India. In addition to this, certain other amendments have also been proposed so as to make the Act more comprehensive including rationalizing the Schedules, statutory requirement for preparation of management plans for National Parks and Sanctuaries, regulation of invasive alien species, etc.
- The proposal of the Ministry for signing an Memorandum of Understanding (MoU) with the Government of Nepal on biodiversity conservation, with a view to strengthen cooperation in the field of forests, wildlife, environment, biodiversity conservation and climate-change was approved by the Union Cabinet, in August, 2022.
- A (MoU) to work towards conservation of the Great Indian Bustard and Lesser Florican birds was signed between Wildlife Institute of India, Dehradun and International Fund for Houbara Conservation (IFHC), Abu Dhabi on 1<sup>st</sup> September, 2022 at Abu Dhabi.

**Financial assistance under Centrally Sponsored Scheme-Development of Wildlife Habitat:** The Ministry provides financial assistance to the State/ UT

Governments for conservation and protection of wildlife and its habitat. Approximately 35% of the allocated funds were disbursed to the States/Union Territories under CSS-DWH till November, 2022. The scheme has following three components:

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

The management and conservation efforts of the Government are discernible in the population increase of key stone species.

### 8.2 Wildlife Crime Control Bureau

The Wild Life Crime Control Bureau (WCCB) was constituted by the Government of India on 6<sup>th</sup> June, 2007 under Section 38 Y of the Wild Life (Protection) Act, 1972, and it became operational in the year 2008.

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

- a) Collect and collate intelligence related to organized wildlife crime activities.





- b) Co-ordination of actions by various State Governments and other authorities in connection with the enforcement of the provisions of this Act.
- c) Assistance to concerned authorities in foreign countries and concerned international organizations to facilitate co-ordination and universal action for wildlife crime control;
- d) 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:

- Collection of wildlife crime data from 36 agencies of the States/UTs by creation of online data management system in WCCB website.
- Detection/ search/seizures/apprehensions – 93 Wildlife Crime cases detected in Joint Operations conducted by Bureau with other State/ central Enforcement Agencies during the period.
- Assistance to the State authorities in investigation was provided in 31 new cases during the year.
- Capacity building in dealing with wildlife crimes and investigation of wildlife offences:-
  - Conducted 15 two days capacity building training courses on investigation of wildlife offences and intelligence tradecraft for 749 Police and Forest officials.
  - Conducted 81 Sensitization programmes/ workshops/ online webinars for the Central and State agencies on issues related to wildlife crimes.
  - Conducted 8 PRI Sensitization programmes.
- Coordination and cooperation to combat

organized wildlife crimes with trans-border ramifications: -

#### Within country: –

- Conducted 46 Joint operations for prevention of wildlife crime.
- Three Special Enforcement Operations coordinated by WCCB were launched with a focus on specific species related crime as well as on online illegal wildlife trade.

#### International cooperation:-

- Participated in UNODC “Combating Wildlife Trafficking in South Asia open-source investigation training was held from 27<sup>th</sup> to 29<sup>th</sup> April 2022 at New Delhi.
- Participated in SAWEN Training on Standard Enforcement on Wildlife Crime was held from 23<sup>rd</sup> to 27<sup>th</sup> May 2022 at Kathmandu, Nepal.
- Participated in INTERPOL training on Wildlife crime investigation was held from 20<sup>th</sup> to 23<sup>rd</sup> September 2022 at Singapore.
- Participated in the Executive Committee Meeting of SAWEN at Male, Maldives on 2<sup>nd</sup> and 3<sup>rd</sup> November 2022.
- Participated ICCA Training conducted by US Embassy was from 3<sup>rd</sup> to 13<sup>th</sup> October 2022 at West Virginia USA.
- Participated in course on Wildlife Trafficking cyber crime instructor program (WTCIP) which was held from 17<sup>th</sup> to 21<sup>st</sup> Oct 2022 conducted by US embassy at New Delhi.
- Participated in 19<sup>th</sup> COP of CITES in Panama City from 14<sup>th</sup> to 25<sup>th</sup> November, 2022.
- 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. Such inspections resulted in detection of 33



WLPA, CITES and EXIM policy violations at various exit points across the country during this financial year.

- WCCB Issue Alerts and Advisories to the stakeholders on the issues pertaining to wildlife crime enforcement, policy and legislations: During the year 04 advisories on

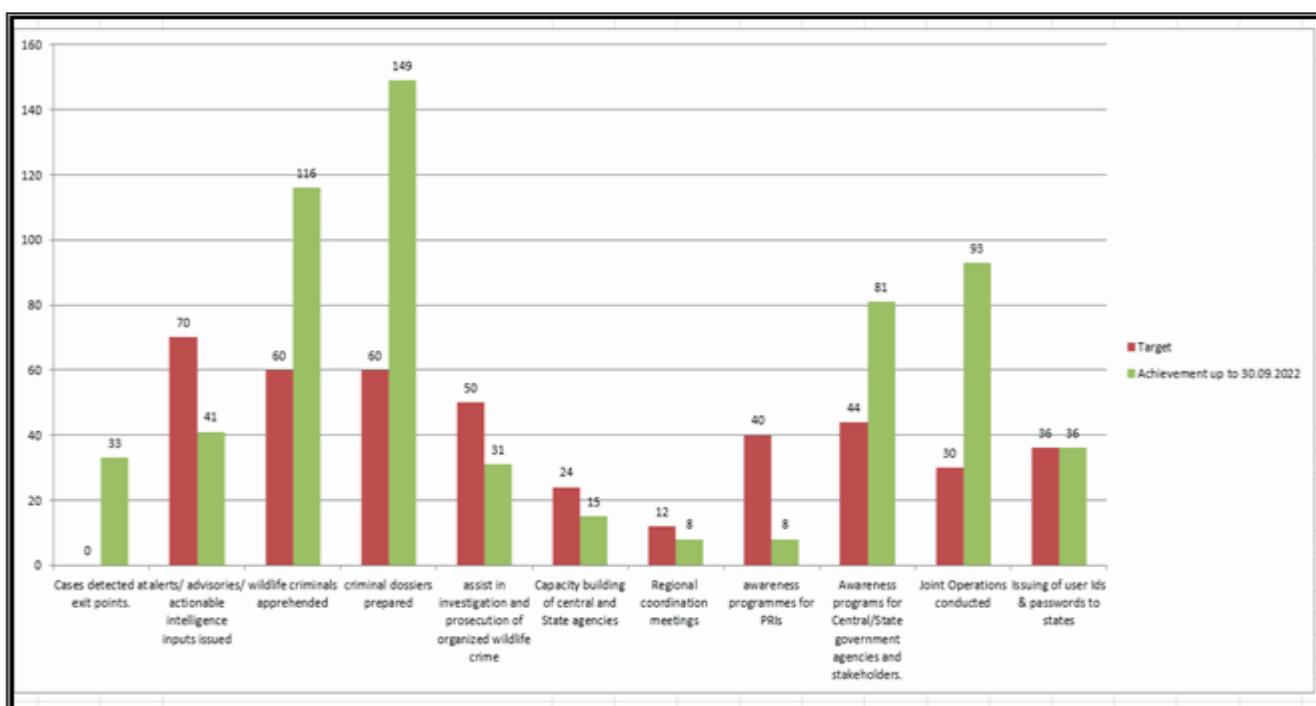
modus operandi, trade route and trend of wildlife crime to sensitize enforcement agencies across the country and 105 actionable Alerts/Inputs were issued to the concerned authorities on wildlife crime related issues that resulted in seizures of various wildlife articles/protected animals and arrest of accused

### Photographs of WCCB achievements during 2022:



*Detection & seizures*

### Bar Chart of Progress/Achievements made during 2022 (up to 30.09.2022)





**Note:**

- a) No target fixed for detection at exit points as the same depend on the nos. of cases referred by Customs.
- b) 749 Forest & Police officials trained during capacity building of Central & State agencies.
- c) 384 PRI members sensitized during awareness programmes for PRIs.
- d) 4817 officials/persons sensitized during awareness programmes for Central/State government agencies & stakeholders.

**Special Operations conducted by WCCB:****a) OPERATION “WILDNET -V” (1<sup>st</sup> July 2022 to 31<sup>st</sup> August 2022):**

44 cases registered and 98 accused arrested.

**b) Collaboration with Online Trade Portal**

Online wildlife crime patrolling, conducted by WCCB, has started yielding results. In a recent such case, over 300 advertisements for sale of Sea Cucumbers on online portals were detected and taken off the website by WCCB. It was noticed that the Sea Cucumber, which is listed under Schedule-I

of the Wild Life (Protection) Act, 1972, was offered for sale on an online portal “Exportersindia.com”. Evidences were gathered by Cyber Cell of WCCB and details of such sellers/persons were collected from the company “Weblink.InPvt. Ltd”, which owns and manages “Exportersindia.com”. WCCB also ensured that the web company Weblink.InPvt. Ltd. takes down/removes advertisements for sale of Sea Cucumbers from their website. There were a total 335 listings on the portal out of which 22 listings were from India. Besides this, Weblink.InPvt. Ltd. has added Sea Cucumber to negative list on their “Exportersindia.com” portal which will not allow further advertisement of Sea Cucumber for sale on their portal. Sea cucumbers are seabed cleaners and are food for others marine species. They have complex symbiotic relationships with other organisms. Sea cucumbers are essential for preserving seabed ecology of our Indian Ocean.







### The Introduction of Volunteers

**WCCB Volunteers Scheme for enrollment of volunteers to assist WCCB in collection of information on wildlife crime, capacity building, awareness generation, achieving mandated objectives. In every two years, WCCB invites applications from citizens with an inclination towards wildlife conservation to become Volunteer with WCCB.**

### WCCB's participation in the 'Cheetah Reintroduction' programme

WCCB team participated in the historical Cheetah reintroduction' programme held on 17<sup>th</sup> September, 2022, to bring Cheetahs back to India. WCCB team provided support in seamless passage of the big cats to India by acting as Assistant CITES Management Authority. WCCB assisted in import clearance of Cheetahs from Namibia at the Gwalior Airport. WCCB also issued necessary CITES Import permit & 'Wildlife



NOC' to the import consignment carrying 08 Cheetahs.

### Activities related to CITES and e SANCHIT:

- a) As per the recommendation of the Working Group on National Committee on NCTF on

PGA regulations and procedures, WCCB has prepared a Questionnaire for Chatbot for trade facilitation for making it functional on the official website of WCCB. A comprehensive Chatbot has been submitted to the ADG & MA, CITES for approval.

- b) WCCB is in the process of launching Digital Import Clearance System (DICS) integrated to SWIFT platform of Customs and Central Board of Indirect Taxes & Customs (CBIC) and User Acceptance Test (UAT) for the same have been completed.

### 8.3 Central Zoo Authority

#### Introduction:

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:



a)	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: 1. Recognition of Zoo Rules 2. Guidelines for the Scientific management of zoos
b)	To evaluate and assess the functioning of the zoos with respect to the Prescribed standards or norms;	During the reporting period, the Central Zoo Authority has physically evaluated 64 zoos.
c)	To recognize or derecognize zoos;	The CZA granted recognition/ renewal of recognition to the 55 zoos. Besides, approval for establishment of 2 new zoos was provided. At present there are 150 recognized zoos in the country.
d)	To identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo;	<p>individuals. The goal is to have these populations as an ‘insurance’ (maintaining a viable ex situ population of the species to prevent predicted local, regional or global species extinction and preserve options for future conservation strategies) in case species restoration is planned. Broadly, the establishment of these populations broadly 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>Catreus wallichii</i>), Western Tragopan ( <i>Tragopan melanocephalus</i>), White -backed Vulture ( <i>Gyps africanus</i>) have fared well in captivity.</p> <p>In addition to 152 individuals released previous year 52 more number of individuals of Indian Chevrotain have been released in the wild. Similarly, reintroduction was attempted for Western Tragopan &amp; Cheer Pheasant by releasing 4 &amp; 18 individuals respectively. 11 more individuals of White rumped vultures were released from the Jatayu Conservation and Breeding Centre at Pinjore Haryana.</p>



e)	To coordinate the acquisition, exchange and loaning of animals for breeding purpose;	During the reporting period, CZA has approved 68 animal exchange proposal between Indian Zoos and 9 exchange proposal between Indian & Foreign Zoos.
f)	To ensure maintenance of studbooks of endangered species of wild animals bred in captivity;	Out of studbook of 34 identified species of captive wild animals housed in Indian Zoos, Studbook for 5 captive animal species were updated during the reporting period. The program is currently being updated using the global standards including the IUCN- Conservation Planning Specialist Group - One Plan Approach.
g)	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 3 zoos and approved the Master Plan of 6 zoos.
h)	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.
i)	To coordinate research in captive breeding and educational programmes for the purposes of zoos;	During the period, CZA has granted NOC to several research projects that have zoo/ ex-situ linkage. However, financial assistance was not provided to any research project as no such request was received.
j)	To provide technical and other assistance	MoEF&CC has allocated an amount of Rs. 9.00 Crores during the reporting period out of which CZA has received
	to zoos for their proper management and development on scientific lines;	an amount of Rs. 5.7517 Crores. The same has been utilized and released to the zoos/ organization for approved items of the works and operational cost of CZA
k)	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, 2 meeting of the Technical Committee of CZA, 1 meeting of Administrative Committee & 3 Meeting of Expert Group on Zoo Designing, CZA to finalize the various Technical and Administrative issues.





**a. Important activities undertaken during the reference period (i.e., 1/1/2022-31/12/2022)**

- The Central Zoo Authority celebrated “Azadi ka Amrit Mahotsav”

Commemoration of 75 Years of India's Independence by a unique initiative “Conservation to Co-existence: The people connect” with selected #75zoos for #75weeks of #75 native captive animal species for maximum awareness and outreach of the masses.

- Capacity Building Programme (In-person, hybrid mode and virtually) were organized for Indian zoos professionals.
- Implementing the MEE (Management Evaluation Effectiveness) of zoos-Pioneer

in world to adapt this.

- Initiating an integral Species Recover Plan for 20 species of threatened fauna.
- Focus on emerging infectious diseases & National Referral Centre for wildlife disease monitoring and prevention.
- Preparation of 10-year Vision Plan for up-gradation of 15 zoos to Global Standards.
- Important Conferences organized in India or international conferences - nature of participation, subjects discussed, implementation-action taken.

During the reporting period, 2 in-person capacity building programme, was organized. The details are tabulated below:

Topic	Date of organization	Participation	Participants benefitted	Theme
National Conference of Zoo Directors	September 10-11, 2022	Zoo Directors from all over country	100	--
Capacity Building Workshop for Zoo Biologists	November 23-25, 2022	Zoo Biologists from all over country	30	Data Management for endangered species and Environment Enrichment planning

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

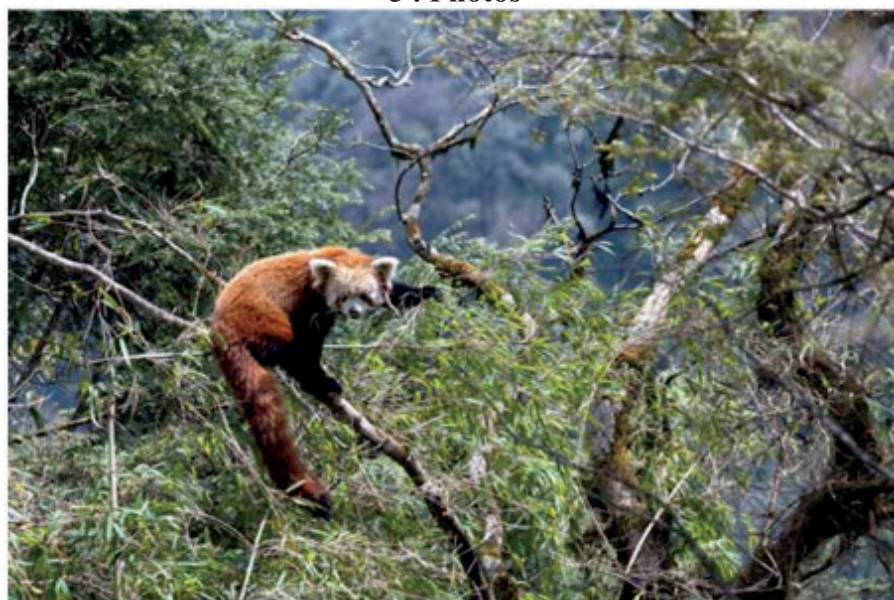
- Ex-Situ Updates Vol 3 Issue 1.
- National Studbook for Snow leopard
- MEE-ZOO
- Azadi ka Amrit Mahotsav, Vol. II.
- Azadi ka Amrit Mahotsav- Conservation to

Co-existence: The People Connect

Details - Quarterly newsletter styled for outreach to the general reader with the primary aim to create conservation awareness and outreach. All the above publications are regarding the management of the zoos on scientific basis covering the related topic including management of Zoo, Conservation and education awareness etc.

**1. 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	342.48 lakhs	To be taken up	Total Amount received has been utilized as on 17.01.2023
2.		Salary and Operational cost	247.18 lakhs		

**5 . Photos****Red Panda at Padmaja Naidu Himalayan Zoological park, Darjeeling, West Bengal****39<sup>th</sup> meeting of the Central Zoo Authority**





Publication Release during the National Conference of Zoo Directors at Bhubaneswar, Odisha



Visit of Hon'ble Minister MoEF&CC at Nandankan Biological Park, Bhubaneswar, Odisha





## 8.4 Project Elephant



As the largest of all land mammals, elephants play an important role in balancing natural ecosystems. They are an integral component of the biome and play a crucial role in maintaining forest ecosystems and biodiversity. They are referred to as “keystone species” as it disperses seeds and supports large assemblages of invertebrates.

India has 60% of the global population of Asian elephants and as per the last census conducted in 2017, 29,964 elephants were enumerated to be extant in the country. To ensure the long-term survival of the population of elephants in their natural habitats, Government of India launched Project Elephant (PE) 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 captive elephants

The implementation of Project Elephant is through the C.S.S. Plan Scheme with the grant to State Governments with a funding pattern ratio of Central: State share to 60:40 and 90:10 for North East and Himalayan states). 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. The current budget outlay of the Scheme for the FY 2022-23 is 33.00 crores. To give a

concerted thrust to the conservation of the species, Govt. of India has also declared the elephant as the National Heritage Animal of India.



### b. Activities undertaken from 01/01/2022-up- to date) including celebrations for Azadi Ka Amrit Mahotsav.

#### DNA sampling of captive elephants

- Orientation workshop on “Biological sampling for developing a genetic database of captive elephants across India” was held on 10<sup>th</sup> February, 2022. Completed sample collection from captive elephants of Haryana, Delhi, Uttarakhand, Chhattisgarh, and Rajasthan and is ongoing in Tamil Nadu.
- Gajah Suchana App was developed for collation of data on captive elephants and their owners.

#### Ground truthing of elephant corridors

- Field ground truthing of elephant corridors completed in Uttar Pradesh, Assam, Arunachal Pradesh and Tamil Nadu. A total of 46 elephant corridors (52%) have been ground truthed. Field ground truthing of elephant corridors for the State of Chhattisgarh undertaken from 14<sup>th</sup> to 21<sup>st</sup> October, 2022 and consent of the State FD on the report prepared is awaited.

#### Steering Committee meeting of Project elephant:

- The Steering Committee of Project Elephant was reconstituted with the



approval of Hon'ble Minister in March 2022. The 16<sup>th</sup> meeting of the Steering Committee was held under the Chairmanship of Hon'ble MEF at Dehradun on 29<sup>th</sup> April, 2022. The 17<sup>th</sup> meeting of the Steering Committee was held under the Chairmanship of Hon'ble MEF at Periyar Tiger Reserve, Kerala on 12<sup>th</sup> August, 2022.

### **Central Project Elephant Monitoring Committee (CPEMC) and Captive Elephant Healthcare and Welfare Committee (CEHWC)**

The CPEMC and CEHWC were reconstituted with the approval of Hon'ble Minister in March 2022. Fourth meeting of the CPEMC and first meeting of CEHWC was convened under the Chairmanship of ADG (PT/FC) on 13<sup>th</sup> August, 2022 at Periyar Tiger Reserve, Kerala. A Subcommittee under the CEHWC has been constituted for developing the ROP on elephant postmortem and disposal of elephant carcass.

### **Release of publications**



- On International Day of Forests on 21<sup>st</sup> March, 2022, the fifth issue of the newsletter Trumpet was released by the Hon'ble MEF and Hon'ble MoS in the presence of Secretary, MoEF & CC and DGF & SS, MoEF & CC. The sixth issue of the newsletter "Trumpet" was released by Hon'ble MEF during the 16<sup>th</sup>

meeting of the Steering Committee on 29<sup>th</sup> April, 2022.

- "Human - elephant conflict in select states of India: A preliminary report" and Field manual for managing HEC" was released by Hon'ble MEF during the 16<sup>th</sup> meeting of the Steering Committee on 29<sup>th</sup> April, 2022.
- The World Elephant Day, 2022 was celebrated on 12<sup>th</sup> August, 2022 at Periyar Tiger Reserve, Kerala. During the celebration, following documents were released by the Hon'ble Minister, EFCC
  - Elephant Reserves of India: An Atlas.
  - Land Use Land Cover (LULC) map for Elephant Reserve of India.
  - Special Edition of Trumpet Quarterly newsletter.
  - Caring For Elephants: Managing Health & Welfare In Captivity

### **Multilateral environmental agreements and International meetings**

- IGF & Director (PE) participated as the Head of Delegation of India in the third Asian elephant range states meeting held from 27<sup>th</sup> to 29<sup>th</sup> April, 2022 at Kathmandu, Nepal.
- MIKE and ETIS data of Govt. of India submitted to CITES and TRAFFIC respectively.
- Interventions made during the 19<sup>th</sup> Meeting of COP to CITES and 75<sup>th</sup> & 76<sup>th</sup> meeting of CITES Standing Committee held from 13<sup>th</sup> to 25<sup>th</sup> November 2022 at Panama City, Panama.





### New Elephant Reserves

- Agasthiyarmalai Elephant Reserve in Tamil Nadu declared as 32<sup>nd</sup> Elephant Reserve in the country. The Ministry has communicated and accorded the consent of Government of India to the proposal for setting up Terai Elephant Reserve in Uttar Pradesh over an area of 3049.39 Sq. Km

### Management Effectiveness Evaluation (MEE)

- MEE plan was drawn up and approved by the Hon'ble MEF for implementation during the 16<sup>th</sup> meeting of the Steering Committee of Project Elephant. First Meeting of the Committee for Developing Criteria and Indicators for MEE of Elephant Reserves (ER) was held on 29.6.2022 at MoEF&CC. One day stakeholder workshop held on 30.11.22 for finalizing the Zero Draft for Management Effectiveness Evaluation of Elephant Reserves (MEE).

### Capacity building workshops

- Workshop on “Welfare and health management of captive elephants” from 12<sup>th</sup> to 14<sup>th</sup> February, 2022 at Agra, Uttar Pradesh.
- A three days Orientation workshop for the elephant handlers was conducted from 3<sup>rd</sup> to 5<sup>th</sup> December 2022 at Dudhwa Tiger Reserve, Uttar Pradesh



### Gaj Gaurav Award.



- To recognise the good practices adopted and outstanding work done by Forest guard/ Watchers/ Trackers/ Zoo Keepers/ Mahouts of FD/Forest Vet **and communities for protection and conservation of elephants and its habitats**, Gaj Gaurav awards was given to Mahouts community on 12<sup>th</sup> August, 2022 during the World Elephant Day by the Hon'ble Minister, EFCC.

### Meeting

- Meeting of All-India Synchronized Elephant and Tiger Population Estimation of 2022, was held on 8th October, 2022 at WII, Dehradun.

### c. Progress/Innovations

- Nationwide population estimation exercise for wild elephants is conducted every 5 years and elephant data has been compiled since 1993. In 2017, an all India synchronized elephant census was carried out to avoid errors in estimation arising from significant movement of elephants between different states. The Ministry has decided to converge the elephant census with that of the Tiger census 2022. The Hon'ble Minister EF & CC had released the All India synchronized census methodology for Elephant and Tiger 2022 during World Elephant day celebration 2021.

### d. Important Cumulative achievements

- Advisory issued to all the States/UTs on Postmortem of elephants by panel of 3 veterinarians on 30<sup>th</sup> August, 2022.
- Advisory on implementation of measures to mitigate the impact of power transmission lines and other power infrastructure on elephant and other wildlife issued by Ministry of Power to all DISCOMs and TRANSCOs has been circulated to all States/UTs on 16<sup>th</sup> September, 2022.
- An advisory for DNA profiling of captive elephants during transit from one place to another was issued to all elephant range States/UTs on 28.10.2022





### 8.5 Project Tiger/National Tiger Conservation Authority (NTCA)

The National Tiger Conservation Authority (NTCA) was constituted by 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.

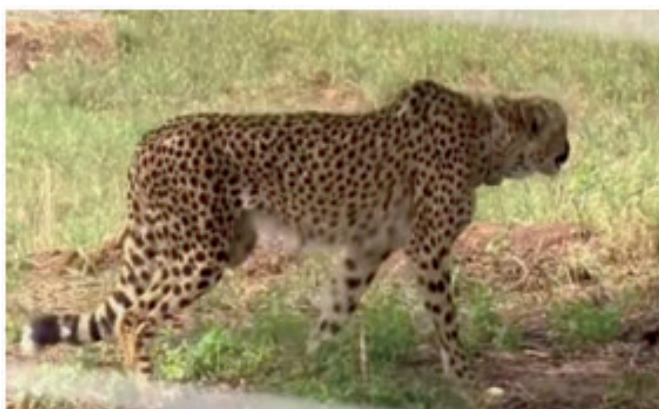
#### Activities & Achievements (between 01.12.2021 to 30.11.2022)

- Initiation of the 5<sup>th</sup> cycle of the Management Effective Evaluation Exercise in the Tiger reserves

Celebration of Global Tiger Day at Tadoba Tiger Reserve/Chandrapur Forest Academy, Maharashtra



Translocation and successful release of eight Cheetahs from Namibia to Kuno National Park, Madhya Pradesh, India. Post mandatory quarantine period, all the eight Cheetahs have been shifted to the larger enclosures and are being monitored regularly.



- Hosted the Pre-Tiger submit meeting of the Tiger range countries of the globe at New Delhi.
- Released the Fire Audit Protocols, and SOPs such as Tiger Reintroduction in the wild



- Release of the quarterly newsletter, "Stripes".
- Approval and processing of Tiger Conservation Plans of Kamlang, Indravati, Periyar and Parambikulam Tiger reserve.
- International award to Tiger Reserves: -The Pilibhit Tiger Reserve in Uttar Pradesh and Manas Tiger Reserve in Assam have been conferred with the inaugural Tx2

international award constituted by a consortium of international organizations namely GEF, UNDP, IUCN, WWF and GTF.

- Attainment of Global Conservation Assured|Tiger Standards (CA|TS) accreditation standards by 17 Tiger Reserves in India.



- Release of funding support to agencies/institutions to carry out research pilot projects related to Tigers and associated aspects in the country. The areas covered are in the field of Tiger Movement ecology, the use of drones and other advanced technologies, the Integration of locals in conservation, and the Documentation of efforts of ethnic communities in conservation, to name a few.
- Ramgarh Visdhari Tiger Reserve, Rajasthan also added to the Project Tiger which sums up the total number of Tiger Reserves to be 52 across India. The reserve lies in the southeastern part of Rajasthan in Bindi district.
- The Ranipur Tiger Reserve in Uttar Pradesh has been declared as the 53<sup>rd</sup> Tiger Reserve of India.
- Final approval has been accorded to Dibang Wildlife Sanctuary, Arunachal Pradesh to be declared as a Tiger reserve.
- Release of Postage Stamp with the Postal department to commemorate the Second International Tiger forum.





### Major conferences/ Seminars/ Collaborations

- Project in collaboration with The Energy and Resources Institute (TERI) for developing voluntary carbon market projects to benefit Tiger Conservation Foundations and Tiger Reserves in India was initiated.
- Visit of India Delegation to Vladivostok, Russia.
- Meeting of Global Tiger Recovery Program (GTRP), at New Delh



- To strengthen landscape-level conservation of tigers, a project with the FAO at no cost was initiated to ensure inter-departmental coordination with all stakeholder agencies.
- An Assessment of Status, Density and Change in Forest Cover in and around tiger reserves of the Shivalik Gangetic Plain Landscape done in collaboration with the Forest Survey of India.
- The signing of MoUs with the following

- Government of Cambodia, for “cooperation in biodiversity conservation and sustainable wildlife management recovery strategy of tiger and its habitat”.
- Government of Namibia for intercontinental Transportation of Cheetahs to India
- Indian oil corporation for partnering with respect to the Cheetah conservation efforts.
- General Insurance Corporation of India (LoU) for supporting Equipment/ Accessories procurement in Tiger conservation.
- Scientific co-operation agreement in the field of camera trap data management with Russia: An MoU was signed with the Land of the Leopard National Park (LLNP) in Russia, for sharing the technical knowhow in the field of camera trap based monitoring. Under the MoU, the NTCA and WII will provide technical assistance to LLNP to use CaTRAT (Camera Trap Data Repository and Analysis Tool). The tool was developed through joint collaborative efforts of NTCA, WII and IIIT.
- Collaborative study on Forest Cover: - An Assessment of Status, Density and Change in Forest Cover in and around tiger reserves of the Shivalik Gangetic Plain Landscape done in collaboration with the Forest Survey of India.

### 8.6 Wildlife Institute of India

Wildlife Institute of India (WII) was established at Dehradun in 1986 as an autonomous institute of the Ministry of Environment, Forest & Climate Change, Government of India. 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.

#### 1. 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, 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 ensuring that research conforms to the national conservation priorities.

#### **Some Major Research Projects during 2022-23**

##### **Causes and Remedies for Man and Animal Conflict in Uttar Pradesh**

The report provides insight into the Human-Wildlife Conflict (HWC) scenario in the state pertaining to species such as the common leopard, tiger, elephant, crocodile (mugger), sloth bear, grey wolf, and wild pig in the state during the past 11 years (2010-2021). Secondary data revealed 1,606 conflict cases across the state during this period. The majority of cases were due to leopards (N=616), followed by elephants and tigers. Other species, viz. crocodile, sloth bear, Indian grey wolf, and wild pig, accounted for only 128 cases. Most of the cases (94.6%) were from the Terai Arc Landscape (TAL) region of the state and were largely recorded during the monsoon. The seasonal trend of the HWC patterns revealed that monsoon had the highest number of conflict incidents and human deaths throughout the state. The report also highlighted the importance of drivers/causative factors impacting the

HWC.

##### **Uttarakhand State Wildlife Population Estimation for the Himalaya Zone (>1,000 m and <3,500 m)**

Fieldwork pertaining to Phase I (Occupancy and relative abundance surveys) and Phase II (Population estimation) of the project has been completed. From January to July of 2022, sampling for Phase II was conducted. Sampling using camera traps was carried out in representative habitat blocks of ~200 km<sup>2</sup> using 5 km<sup>2</sup> grids with two sampling frameworks: (i) For species that can be individually identified, camera traps were deployed in each grid in locations likely to be used by animals; (ii) camera trap distance sampling method was used to estimate the abundance of species that can be individually identified, where camera traps were deployed at the centroid of each grid. Three blocks were sampled in the sub-tropical habitats (1,000–2,000 m) of the Rudrapur, Pithoragarh, and Tehri Divisions. Similarly, four blocks of temperate and sub-alpine (2,000-3,000m) habitats were sampled in Bageshwar, Nainital, Kedarnath, and Pithoragarh Divisions. In addition, transects (N = 162; 450.4 km) and scat sampling were conducted to determine ungulate densities and carnivore presence. For the first time, a large-scale status survey of mountain ungulates is being conducted.

##### **Assessment of Wildlife Values and Land Tenure for Planning Rationalization of Boundaries for Changthang and Karakoram Wildlife Sanctuaries, Ladakh**

Interim report with progress on assessment of wildlife values and framework for rationalization, methodology for various HCVAs, collection of existing information and compilation for Changthang Wildlife Sanctuary (WLS). This interim report comprised progress on the assessment of wildlife values and framework for rationalization, Methodology for identifying HCVAs, and compilation of existing information on various biological and social



aspects of PA management in Changthang WLS. Project personnel worked on secondary data collected from various government departments and agencies, a compilation of existing published literature on various biodiversity and human-nature linkages, and conducted a rapid field survey in the Changthang landscape in August-September 2021. The team identified High Conservation Value Areas in six categories and prioritized different areas of landscape with respect to these categories. Based on the priorities given to HCVAs in each category (1-6), the research team identified and demarcated 17 High Priority HCVAs (HPHCVAs). Each of these areas is significant for one, or a combination of the HCVs and protection measures should be taken to sustain local wildlife.

## 2. Academic Programme

### XVIII M.Sc. (Wildlife Science)

XVIII M.Sc. (Wildlife Science) course commenced on 22 August 2022 with a full capacity of 20 students. During the first semester of the M.Sc. (Wildlife Science) course, a field tour, *i.e.* Orientation Tour, was conducted in the Lansdowne Forest Division during 19-23 September 2022. Three faculty members and all 20 students participated in the tour. The next field tour, *i.e.* Technique Tour, is being conducted from 3-15 December 2022 in Pench Tiger Reserve, Maharashtra.

## 3. Training Programmes

### XLII Post-Graduate Diploma in Advanced Wildlife Management Concluded, 31 August 2022.

The XLII PG Diploma course concluded on 31 August 2022. During the reporting period, an International Wildlife Management Study Tour to South Africa was organized during 17-30 August 2022 for the trainees of the XLI & XLII Batches of Post-Graduate Diploma Course in Advanced Wildlife Management at Wildlife Institute of India, Dehradun. The

tour was attended by 27 Diploma trainee officers of both batches and three faculty members.

The following awards and prizes were won by the participants of the 42<sup>nd</sup> PG Diploma course: Shri N Jeykumaran won Institute's Gold Medal for the Top Trainee; and Silver Medal for the Best All Round Wildlifer. Shri Piraisoodan B bagged Wildlife Preservation Society Silver Medal for the SECOND IN MERIT; NR Nair Memorial Silver Medal for BEST MANAGEMENT PLAN; and Top Trainees in Wildlife Biology (Book Prize). Shri Amarakshar VM was given the Best Management Term Paper A K Chatterjee Silver Medal.



### XLIII Post Graduate Diploma in Advanced Wildlife Management Commenced, Dehradun, 1 October 2022 to 31 July 2023.

The Post-Graduate Diploma Course in Advanced Wildlife Management for in-



service Forest/ Wildlife Officers who are engaged in managing natural forest resources, particularly wildlife and protected areas, commenced on 1 October 2022 at Wildlife Institute of India. This 10-month course is designed to enhance the capacity of forest officers to effectively manage Protected Areas (PAs), wildlife related issues outside PAs and the conservation of endangered species. The course would provide abreast the participants in modern tools and techniques of Wildlife Management, including the preparation of 'Scientific Management Plans for Protected Areas and Forested Landscapes. Further, the course will provide a foundation of modern concepts in wildlife science and provide an understanding of the relevant global, regional, national and state-level conservation policies and legislation and their enforcement. Wildlife Orientation Tour for the participants was conducted in Koluchaur Forest Division, Uttarakhand, during the reporting period.

#### **XXXVI Certificate Course in Wildlife Management Concluded, Dehradun, 1 December 2021 – 28 February 2022.**

The XXXVI Certificate Course in Wildlife Management started on 1 December 2021 with sixteen officer trainees of Range Forest Officers and equivalent levels at WII. The Management tour was conducted in Assam, Arunachal Pradesh, West Bengal and the Andaman Islands during 5-22 February 2022.

All the officer trainees have completed the certificate course, with eight receiving honours certificates for securing 70% and above marks. Smt. Shivangi Dimri, a Range officer trainee from Uttarakhand state, received a Gold medal for the "Institute's Best Trainee" award and Smt. Smriti Suman Jha, Range Officer from Madhya Pradesh, received the Silver medal for the "Best All-round Wildlifer" performance.



#### **4. Workshops, Seminars, Meetings and Other Activities**

- *WII participated in an Exhibition themed 'Vigyan Sarvatra Pujyate', New Delhi, 22-28 February 2022*
- *One-week course on "Health Management of Captive Wild Animals", Dehradun, 21-25 March 2022.*
- Certificate Course on "Bird Identification and Basic Ornithology" under Green Skill Development Programme at Wildlife Institute of India, Dehradun, 21 March 2022 to 4 April 2022.
- Certificate Course on 'Wildlife Management using Geospatial Techniques' Under Green Skill Development Programme of the Ministry of Environment, Forest and Climate Change, Dehradun, 7 April 2022 to 4 May 2022.
- The Hon'ble Minister, Ministry of Environment, Forest and Climate Change, Govt. of India, Shri Bhupender Yadav visited WII, Dehradun, 29 April 2022.
- One-Week Compulsory Training Course on Addressing Challenges and Managing Human-Wildlife Conflict in India, Dehradun, 16-20 May 2022.
- Capacity Building Workshop on 'Management of Human-Leopard Conflict' for the Officers and Frontline Staff of Bhagirathi Circle, Uttarakhand Forest Department, Dehradun, 28-30 June 2022.
- State Level Spearhead Training Programme for Bal Ganga Praharis on Biodiversity Conservation of the Ganga River and its Tributaries', Dehradun, 12-14 July 2022.





- Transboundary Training Course on Diversified Agriculture for Farmers of Communities adjoining Protected Areas of India and Nepal, Pantnagar, 4-6 August 2022.
- Trans-Boundary Training Course in Wildlife Conservation & Management for Protected Area Managers of India and Nepal, Dehradun, 8-12 August 2022.
- Capacity Building workshop for Nature Guides of Nandhaur landscape, Dehradun, 24-30 August 2022.
- National Spearhead Training Workshop for Ganga Task Force & Eco Task Force on Conservation & Management of the Gangetic Dolphins & Other Aquatic Macro Fauna of the Ganga Basin, 21-26 September 2022.
- One-Week Special Course in Wildlife

Protection, Law and Forensic Science for the 73<sup>rd</sup> Batch Officer Trainees of Indian Revenue Service (Customs and Indirect Taxes) Group-'A', WII, Dehradun, 3-9 October 2022.

- National Programme for Training of Women Scientists and Technologists working in Government Sector on Biodiversity Conservation, WII, Dehradun, 14-18 November 2022.

### 5. Major Achievement

WII and the Academy of Scientific and Innovative Research (AcSIR) signed an academic agreement

- , Dehradun, 7 March 2022.  
Foundation Day of the Institute Celebrated, Dehradun, 23 May 2022.



CHAPTER

**09**

*Climate Change*



## 9.1 Climate Change

### a. Introduction

Climate change is a global challenge and requires collective global action to avert and minimize the impacts of climate change. The National Action Plan on Climate Change (NAPCC) provides an overarching policy framework for climate actions in the country and outlines a number of steps towards achievement of India's climate change related objectives of adaptation and mitigation. It comprises, *inter alia*, of national missions on climate change in specific areas of solar energy, enhanced energy efficiency, water, agriculture, Himalayan eco-system, sustainable habitat, green India and strategic knowledge on climate change. These Missions are institutionalized and implemented by the respective nodal Ministries. Out of these, five missions focus on adaptation in sectors like Sustainable Agriculture, Water, Sustainable Habitat, Himalayan Ecosystem and Forestry. States and Union Territories (UTs) are being supported in respect of their respective State Action Plans on Climate Change (SAPCC). Prepared in line with the strategy outlined in the NAPCC to address State specific actions, these SAPCCs, *inter-alia* indicates regional climate vulnerability and state level actionable strategies for mitigation and adaptation.

In addition, Government has launched many schemes and programs to scale up India's action on adaptation, and to support projects that build climate resilience in the priority areas identified under the missions of NAPCC and SAPCCs. Appropriate measures are being taken under these schemes and programs across many sectors including water, agriculture, forest, energy and enterprise, sustainable mobility and housing, waste management, circular economy and resource efficiency, etc.

International efforts to address climate change are guided by the United Nations Framework Convention on Climate Change (UNFCCC) and its two instruments,

namely the Paris Agreement and the Kyoto Protocol. India is party to UNFCCC and its instruments.

MoEFCC is designated as the nodal Ministry for coordinating India's domestic as well as international actions through its Climate Change Division. The Division through its NATCOM Cell is also responsible for undertaking specific studies and submit National Communications (NATCOM) and the Biennial Update Reports (BUR) to UNFCCC.

### b. Activities undertaken

COP 27 was held in Sharm El Sheikh, Egypt during 6-20, November, 2022. An inter-Ministerial delegation led by Hon'ble Minister for Environment, Forest & Climate Change participated in COP 27. COP 27 resulted in countries delivering a package of decisions that reaffirmed their commitment to limit the global temperature rise to Paris alignment temperature goals. The package also has action by countries to cut greenhouse gas emissions and adapt to the inevitable impacts of climate change, as well as the support of finance, technology and capacity building needed by developing countries. COP 27 reached an agreement to provide "loss and damage" funding for vulnerable countries hit hard by climate disasters. COP 27 Decision calls to establish new funding arrangements, as well as a dedicated Fund, to assist developing countries. The countries also agreed to establish a 'transitional committee' to make recommendations on how to operationalize both the new funding arrangements and the Fund at COP 28 next year. COP 27 saw progress on adaptation, with governments agreeing on the way to move forward on the Global Goal on Adaptation, which will conclude at COP 28 next year and inform the first Global Stocktake to take place in 2023, improving resilience amongst the most vulnerable. The cover decision, known as the Sharm el-Sheikh Implementation Plan, highlights that a global transformation to a low-carbon





economy is expected to require investments of at least USD 4-6 trillion a year..At COP 27, deliberations continued on setting a 'new collective quantified goal on climate finance' in 2024, taking into account the needs and priorities of developing countries.

COP 27 saw the launch of a new five-year work program at COP 27 to promote climate technology solutions in developing countries.. A mitigation work programme was launched in Sharm el-Sheikh, aimed at scaling up mitigation ambition and implementation. The work programme will start immediately following COP 27 and continue until 2030, with at least two global dialogues held each year.



India hosted a pavilion at COP 27 venue with the theme of LiFE- Lifestyle for Environment. The Pavilion was designed to send out the message of LiFE through various audio-visuals, Logo, 3D models, set up, décor and side events.

*(Photo: Hon'ble Minister Shri Bhupender Yadav, with the theme of LiFEat India Pavilion at COP 27, Egypt)*

India, towards its obligations under the Paris Agreement had submitted its initial Nationally Determined Contribution (NDC) in 2015 comprising of eight contributions for 2021-2030. India updated its NDC and communicated to the United Nations Framework Convention on Climate Change (UNFCCC) in August, 2022. The updated NDC seeks to enhance India's contributions towards achievement of the strengthening of global response to the

threat of climate change, as agreed under the Paris Agreement. Such action will help India usher in low emissions growth pathways. India now stands committed to reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. The other targets pertain to sustainable lifestyles; climate friendly growth path; climate change adaptation; mobilisation of climate change finance; capacity building and technology. India submitted its Long-Term Low-Carbon Development Strategy to UNFCCC in November 2022 and the document was released by Hon'ble Minister Environment and Forest on 14<sup>th</sup> November 2022 at the India Pavilion at COP27. In this document India lays out its approach to its low-carbon development pathway, taking note of the development challenges facing it in the context of climate change and cognizant of its historical traditions and culture that seeks harmony and balance between human society and nature.

India's NDC now translates the 'Panchamrit' announced at COP 26 into enhanced climate targets. The update is also a step towards achieving India's long term goal of reaching net-zero by 2070. India's NDC is currently being implemented over the period 2021-2030 through programs and schemes of relevant Ministries /Departments and with due support from States and Union Territories.





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*(Photo: Hon'ble Union Minister for EFCC Shri Bhupender Yadav on the release of document 'India's Long-Term Low-Carbon Development Strategy at India Pavilion', at COP 27, Egypt.)*

India, as a Party to the Paris Agreement, has decided to convey an Adaptation Communication, which may include its priorities, implementation and support needs, plans and actions. The objective of the proposed submission is to raise the profile of India's adaptation action before the global community and also to consolidate India's climate action on adaptation. Preparation of Adaptation Communication was commenced during the year and now the work is under finalisation.

All the eight Missions under NAPCC have been updated and revised to align with India's NDC and emerging scientific knowledge. The Government also initiated work related to inclusion of two new missions under NAPCC i.e. Mission on Sustainable Transport and the National Coastal Mission.

To support the objectives of NAPCC, as on date 34 States and Union Territories have already prepared their State Action Plans on Climate Change to address State specific actions. The task of SAPCC revisions is being supported through a grant of rupees twenty lakh per State/ Union Territory through the scheme- Climate Change Action Plan.

The National Adaptation Fund for Climate Change (NAFCC) was established to support adaptation activities in the States and Union Territories of India that are vulnerable to the adverse effects of climate change. NAFCC is implemented in project mode and till date, 30 projects were sanctioned in 27 States/UTs with total project cost of Rs 847.48 crores. NAFCC supports adaptation actions, in, inter alia, agriculture, water, forestry, livestock and ecosystems. At present, 28 projects are being implemented.

Green Climate Fund (GCF) is one of the operating entities of the financial mechanism of UNFCCC. It aims to deliver a 50:50 balance between mitigation and adaptation allocation in its portfolio. So far, four (04) projects have been approved for India with USD 314.82 million of GCF funding. The total value of these four (04) projects is 1491.07 million USD to address both adaptation and mitigation actions.

Government has launched the "India Climate Change Knowledge Portal" to disseminate information among citizens about the Government's steps to combat climate change.

. The portal contains information regarding, inter alia, India's climate profile, National policy framework, NDC, mitigation and adaptation actions, etc.

#### c. Continuing committees/commissions

For the preparation of India's Adaptation Communication to be submitted to the UNFCCC, Ministry has constituted a National Steering Committee on 11<sup>th</sup> February, 2022 and Seven (07) Working Groups on 18<sup>th</sup> February, 2022; namely fo (i) Agriculture, (ii) Water, (iii) Coastal and Islands, (iv) Himalayan Eco-system, (v) Disaster Management and Infrastructure Resilience, (vi) Adaptation Resourcing, (vii) Forestry and Biodiversity.



On 3<sup>rd</sup> March 2022, the revised SAPCCs submitted by the States/UTs were reviewed in the 9<sup>th</sup> Meeting of the Expert Committee on Climate Change. Further the reviewed SAPCCs of four States were approved in the 16<sup>th</sup> Meeting of the National Steering Committee on Climate Change conducted on 24<sup>th</sup> August 2022. Out of the four States, Goa has submitted the SAPCC for the first time whereas three States Gujarat, Odisha and Himachal Pradesh submitted the revised State Action Plans on Climate Change.

**d. National and international Conferences**

Ministers of Brazil, South Africa, India and China representing the BASIC Group met on 15<sup>th</sup> November 2022 at the 27<sup>th</sup> Conference of Parties to the UNFCCC (COP 27) in Sharm el-Sheikh, Egypt. Ministers highlighted that despite the enormous developmental challenges and pressures of poverty eradication at a time of global economic downturn and economic recovery, the BASIC countries continue to lead from the front on climate change actions, in the context of their overarching sustainable development imperatives.

During the second Quad Leaders' Summit held in Tokyo, Japan on 24 May 2022, a Quad Climate Change Action and Mitigation Package (Q-CHAMP) was announced to strengthen efforts towards green shipping, clean energy including green hydrogen and climate and disaster resilient infrastructure.

**e. List of major publications**

At United Nations Climate Change Conference (COP-27) held in Sharm El Sheikh, Egypt, a book titled “PRAYAAS SE PRABHAAV TAK” *from mindless consumption to mindful utilization* was shared with global community. This compendium on LiFE highlights how equitable, pro-planet lifestyle choices made by billions of people every day can be a game-changer in our fight against climate

change.

**f. Scheme/Programme**

Climate Change Action Plan: The objective of the Plan is to advance India's development and climate change targets through effective implementation of eight Missions under National Action Plan on Climate Change (NAPCC).

National Adaptation Fund - The objective of the programme is to provide financial assistance to the States/ UTs as Grants-in-aid for increasing resilience and adaptive capacity of vulnerable areas and ecosystems against climate change impacts as well as livelihood and source of income of vulnerable people in targeted areas.

**g. Progress/Achievements**

Under CCAP, two Research programmes viz. National Carbonaceous Aerosols Programme (NCAP) a multi-institutional programme being implemented by a consortium of 17 institutions led by IIT Bombay and Long Term Ecological Observatories (LTEO) which requires all India Coordination are under implementation.

Under NAFCC, 30 projects in 27 States/UTs have been approved so far. Meanwhile, one project titled 'Scaling-up Resilient Agriculture Practices towards Climate Smart Villages' in Haryana and another Regional Project 'Climate Resilience Building among Farmers through Crop Residue Management' implemented in the States of Punjab, Haryana, UP and Rajasthan are closed and the remaining 28 projects are in various stages of implementation.



**f. Grants-in-aid released to Institutions/organizations including NGOs**

The details of grants-in-aid released under the NAFCC and CCAP during 01.01.2022 to 05.12.2022 are given as under:

S. No.	Name of Organisation	Purpose	Total Amount Released (Rs.)	Remarks
1	Department of Environment, Chandigarh Administration	Capacity Building on Climate Change in Union Territory	10,00,000/-	
2	Environmental Planning & Coordination Organisation (EPCO), Madhya Pradesh	For the Demonstration Project “Enhancing Adaptive Capacity to Climate Change through Conservation of Traditional water Supply sources of Burhanpur city”.	2,00,00,000/-	
3	Environment Protection Training and Research Institute (EPTRI), Telangana	Capacity Building on Climate Change in the State	10,00,000/-	
4	Environmental Management & Policy Research Institute (EMPRI), Karnataka	Revision of State Action Plan for Climate Change	8,00,000/-	2 <sup>nd</sup> instalment out of total approved cost of Rs.20,00,000/-
5	Department of Environment and Climate Change, Manipur	Revision of State Action Plan for Climate Change	8,00,000/-	2 <sup>nd</sup> instalment out of total approved cost of Rs.20,00,000/-
6	Consortium Partner Institutions	Implementation of “National Carbonaceous Aerosols Programme (NCAP) under Climate Change Action Plan (CCAP)	7,50,00,000/-	
7	Consortium Partner Institutions	Implementation of “Long Term Ecological Observations (LTEO)” under Climate Change Action Plan (CCAP)	2,36,00,000/-	
8	Department of Environment, Chandigarh Administration	Capacity Building on Climate Change in Union Territory	6,00,000/-	2 <sup>nd</sup> instalment out of total approved cost of Rs.10,00,000/-
9	Bihar, NAFCC	For implementation of the project “Scaling up climate smart agricultural through mainstreaming climate smart villages in Bihar”.	6,29,38,941/-	
10	Karnataka, NAFCC	For implementation of the project “Conservation and Management of Indigenous varieties of livestock	6,53,83,533/-	



		(Cattle and Sheep) in the Wake of Climate Change in Karnataka”		
11	Odisha, NAFCC	For implementation of the project “Conserve Water through the Management of runoff in the River basin to improve ground water recharge to reduce vulnerability and enhance resilience for traditional livelihood in Nuapada”	3,99,96,869/-	
12	Punjab, NAFCC	For implementation of the project “Towards Climate Resilient Livestock Production System in Punjab”.	1,51,09,994/-	
13	Multi State Project (Maharashtra, Rajasthan, Telangana)	For implementation of the Multi State Project “Restoration of Degraded Landscapes to Natural State of Ecosystems for Climate Resilience and Livelihood Improvement of Vulnerable Communities”	7,21,00,000/-	
14	Puducherry	For implementation of the project “Integrated Surface Water Management through rejuvenation of 20 tanks and 32 village ponds for Climate Change Adaptation in Puducherry”	3,46,34,141/-	
15	Tamil Nadu (SCSP)	For implementation of the project “Climate Proofing of Rainfed Watersheds in Salem & Virudhunagar Districts of Tamil Nadu”	2,97,53,206/-	
16	Jammu & Kashmir	For implementation of the project “Climate Resilient Sustainable Agriculture in Rain – Fed Farming (Kandi) Areas of Jammu & Kashmir”	2,75,79,085/-	

## 9.2 Ozone layer Protection

The stratospheric ozone layer is present from 10 to 50 kms above the Earth's surface and acts as a shield and protects us from harmful ultraviolet-B (UV-B) radiation from the sun. Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Halon, Carbon Tetrachloride (CTC), Methyl Bromide, Bromofluoromethane (BFM) etc. are recognised as Ozone Depleting Substances (ODSs). 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 of 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.

## **2. Implementation of HCFC Phase-Out Management Plan (HPMP) Stage II**

The HCFC Phase out Management Plan Stage-II project for India has been approved by the Executive Committee (Ex-Com) of the Multilateral Fund (MLF) during its 77<sup>th</sup> 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.

Under HPMP Stage-II project, 160 enterprises including large number of Micro, Small and Medium Enterprises (MSMEs) have participated for technology conversion from HCFC-141b to non- ODS and low-Global Warming Potential (GWP) technologies in foam sector. Similarly, 4 enterprises in RAC manufacturing sector have been participating for conversion from HCFC-22 to HFC-32 technology.

In the foam manufacturing sector, the third

party has been onboarded, after physical site verification, confirmed that 158 out of 160 participating enterprises have phased out the use of HCFC 141b and no stocks of HCFC 141b are available at any of the manufacturing sites. Regarding the remaining two enterprises, the Memorandum of Association (MOA) could not be operationalized as the enterprises have closed their operations. In the RAC manufacturing sector, 4 enterprises have completed the technology conversion activities and have shifted to Hydrofluorocarbon (HFC)-32 technology.

A separate notification S. O. No. 4724 (E) dated 31<sup>st</sup> 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 1<sup>st</sup> January, 2020. HCFC 141 b is one of the most potent chemical involved in stratospheric ozone depletion after the CFCs.

In addition to the amendment to the Ozone Depleting Substances (Regulation and Control) Rules during 2019, the DGFT, Ministry of Commerce and Industry amended the import policy to ban the import of HCFC 141b to the country.

In a significant first, amongst the Article 5 parties (developing countries) under the Montreal Protocol, India has been able to achieve the complete phase out of HCFC 141 b in the foam manufacturing sector, as part of implementation of HPMP Stage II.

### **HCFC Reductions through HPMP Stage-II**

The required level of reduction in HCFCs consumption in the year 2021 as per the target under the Protocol and the allowable consumption of HCFCs in different years in the range of 2017 - 2023, as per the approved HPMP-II is given in table below:





S. No.	Particulars	2016	2017	2018	2019	2020	2021	2022	2023
1	Montreal Protocol Reduction Schedule (ODP tons)	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 tons)	—	—	13.75	329.78	271.53	32.50	100.94	55.54

In line with the accelerated phase out schedule of the Montreal Protocol for HCFCs, against the target of 35% reduction in the production and consumption of HCFCs from the baseline, India has successfully achieved the reduction in the consumption and production of HCFCs by 44% from the baseline.

The production and consumption of HCFCs for the controlled uses for the year 2021 were very much lower than the compliance target under Montreal Protocol. Hence, the Country was in compliance with respect to the obligation under Montreal Protocol.

#### Enabling Activities under HPMP Stage-II

Ozone Cell in association with the UN Environment Programme (UNEP) has been implementing the enabling components (Capacity Building and Awareness creation) of HPMP Stage-II. The following activities have been undertaken under HPMP Stage-II.

#### Capacity Building of Enforcement Department/Agencies

Activities relating to the capacity building of enforcement departments are being implemented in association with the National Academy of Customs Indirect Taxes and Narcotics (NACIN) by imparting training in the field of indirect taxes, drug laws and environment protection, through a MoA. The following activities have been implemented:

Online refresher course on 2<sup>nd</sup> February 2021 for trainers trained under HPMP Stage-I, to enable trainers for taking sessions as trainers under HPMP Stage-II.

Five Capacity building supervisory officers' workshops held from 23-24 March 2021 at Hyderabad, 26-27 August 2021 at Delhi, 13-14 January 2022 at Mumbai, 21-22 March 2022 at Chennai and 28-29 April 2022 at Vishakhapatnam including practical hands-on-session on identification of Refrigerants.

Train the Trainers (ToT) on combating Illegal trade in ODS from 11-13 May 2022 at Kerala.

The training programme includes sensitizing field customs formations regarding prohibition of its import of HCFC-141b in the country and towards enforcing import ban on HCFC-141b starting from 01.01.2020, a special module was introduced in customs trainings. A Country handbook on the national regulations for monitoring and controlling production and use of ODSs in India was updated by NACIN in consultation with Ozone Cell, MoEF&CC.

#### Studies on key issues relating to Montreal Protocol implementation:

Following studies have been undertaken:

Booklet on Passive & Low Energy Cooling



Strategies for Achieving Thermal Comfort In India's Upcoming Affordable Housing Study report on sensitizing building construction community on Passive Cooling design, non ODS, low GWP and energy efficient technologies.

Following are the ongoing studies:

Study on Good Management Practices for Cold Storage (warehouse) infrastructure used in e-commerce business highlighting application of non-HCFC and low GWP refrigerant based energy efficient cooling systems in association with M/s PWC.

Study on Public Procurement policies for hiring trained and certified Refrigeration and Air-conditioning (RAC) service technicians an agreement in association with TERI

#### **Development and dissemination of knowledge products**

Knowledge products comprising Booklet on good servicing practices or flammable refrigerants a quick guide has been brought out and disseminated widely.

Quarterly e-newsletter for RAC service technicians on the importance of good servicing practices including handling of different types of refrigerants, related safety issues and updates on refrigerant transition under the Montreal Protocol are being published in association with TERI.

### **3. Development of project proposal for HPMP Stage-III**

The Ex-Com of the MLF at its 87<sup>th</sup> meeting held in June 2021, approved the project preparation funding of US\$ 450,000 for preparation of Stage-III of HPMP for India. UNDP is the lead implementing agency for HPMP Stage-III and the agency for the investment component, i.e., technology conversion from HCFC to non HCFC and low GWP alternative technologies in the refrigeration, air-conditioning and

firefighting manufacturing sectors. UNEP is the implementing agency for the enabling activities and GIZ Proklima for the RAC servicing sector along with UNDP.

After approval of the project preparatory funding by the Ex-Com of the MLF, consultant has been onboarded for carrying out sectoral surveys and collect enterprise wise data, conducting awareness workshops, analysis of data and identification of all eligible enterprises to participate in HPMP Stage-III, preparation of sectoral strategy for each manufacturing sector and overarching strategy after integration of the strategies of enabling component and the RAC servicing sector. The sectoral strategies for the enabling component and the RAC servicing sector are developed by UNEP and GIZ Proklima respectively.

National stakeholder consultation workshop was held on 22<sup>nd</sup> July 2022, which was attended by about 120 participants comprising representatives from nodal and line Ministries/ Departments, CPCB, SPCBs, industry associations and the participating enterprises. Subsequently, HPMP Stage-III document, submitted to the MLF Secretariat through UNDP, the lead implementing agency for seeking funding.

### **4. Ratification of the Kigali Amendment to the Montreal Protocol for Phase Down of Hydrofluorocarbons (HFCs) by India**

The Union Cabinet in its meeting held on 18 August 2021 approved the Ratification of Kigali Amendment to the Montreal Protocol for phasedown of HFCs by India and is ratified on 27<sup>th</sup> September, 2022. After ratification, it came into force for India on 26<sup>th</sup> December 2021.

Accordingly, the deadline for India to establish the licensing system for HFCs was on 26<sup>th</sup> March 2022. Further, as per Article 7 of the Montreal Protocol, each Party shall



provide to the Ozone Secretariat, statistical data for the year during which provisions concerning HFCs entered into force. Accordingly data for 2021 must be reported by India, for which data on import and export of HFCs and blends containing HFCs is needed, for which a licensing system need to be in place.

As per the agreed phase-down of HFCs under the Kigali Amendment, India will have to complete its phase down of the production and consumption of HFCs in 4 steps from 2032 onwards with reduction of 10% in 2032, 20% in 2037, 30% in 2042 and 85% in 2047 respectively. The list of HFCs to be phase-down under the Kigali Amendment are as follows:

Sr. No.	Substance	100-Year Global Warming Potential
1.	HFC-134	1100
2.	HFC-134a	1 430
3.	HFC-143	353
4.	HFC-245fa	1030
5.	HFC-365mfc	794
6.	HFC-227ea	3220
7.	HFC-236cb	1340
8.	HFC-236ea	1370
9.	HFC-236fa	9810
10.	HFC-245ca	693
11.	HFC-43-10mee	1640
12.	HFC-32	675
13.	HFC-125	3500
14.	HFC-143a	4470
15.	HFC-41	92
16.	HFC-152	53
17.	HFC-152a	124
18.	HFC-23	14800

### **Establishment of licensing system for import and export and reporting of statistical data on consumption, production, import and export of HFCs under the provisions of the Montreal Protocol**

First stakeholder consultation meeting was held on 20<sup>th</sup> January 2022 to discuss the issues relating to establishment of licensing system, data reporting and those relating to development of national strategy for phase down of HFCs. The meeting was attended by 82 participants comprising representatives from nodal line Ministries/Departments/agencies, academic and research institutions, industry and industry associations associated with the implementation of the Montreal Protocol.

In accordance with Article 4B of the Montreal Protocol a licensing system for import and export of HFCs has been put in place by DGFT, as per which DGFT revised the import/export policy for HFCs and put HFCs in the “restricted category”. As per DGFT's policy, import/export of HFCs is permitted only under license issued by DGFT after seeking recommendation of Ozone Cell.

The development of national strategy includes outreach and awareness component, and as a part of which, 33 stakeholder consultation workshops are being organized in various parts of the country. The first stakeholder workshop was held in New Delhi on 22<sup>nd</sup> November, 2022.

### **5. India Cooling Action Plan (ICAP)**

The Ministry has developed and launched the India Cooling Action Plan during March 2019 with an aim to provide an integrated vision towards cooling across sectors encompassing inter alia reducing cooling demand, refrigerant transition, enhancing energy efficiency and better technology





options with a 20-year time horizon, i.e. 2037-38.. India is one of the first countries in the World to have a comprehensive cooling action plan.

ICAP recommends synergies with ongoing government programmes and schemes to maximize socio-economic co-benefits. The Government of India has taken steps to operationalize the recommendations given in ICAP and listed out actions for following thematic areas to be undertaken for achieving the said goals including identifying the required policy and regulatory interventions.

**Space cooling in buildings:** The action points under Space cooling in buildings have been finalized and are under implementation by the concerned nodal Ministries/Departments/agencies. Space cooling covers both passive and active cooling strategies, optimization of cooling loads, encompassing natural and mechanical ventilation in building design, thermal comfort standards specifying pre-setting of temperatures for air-conditioning equipment in commercial built spaces and promoting use of energy efficient refrigerant based appliances including not in-kind technologies.

**Cold Chain:** The action points under “Cold Chain” have been finalized and are under implementation by the concerned nodal Ministries/Departments/agencies. Cold Chain sector comprising cold storages or refrigerated warehouses, pack houses, reefer transport and ripening chambers is poised for a significant growth in the coming years. The development of uninterrupted cold chain infrastructure will be a major driver in supporting the Government's priority areas of reducing food loss, ensuring food security and doubling farmers income.

Action points for the following thematic areas are under discussion in the respective

thematic working groups:

Refrigeration and Air-conditioning (RAC) servicing sector

Indigenous Production of low global warming potential (GWP) chemicals

Research and Development of low GWP chemicals

Transport air-conditioning

The ICAP has been recognized 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.

## 6. Awareness creation and consultation activities/meetings

The following activities have been undertaken 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:

### World Ozone Day 2022:

(a) The Ministry organized World Ozone Day 2022 function at Yashwantrao Chavan Pratishthan, Mumbai, Maharashtra in collaboration with the Department of Environment, Government of Maharashtra on 16 September 2022. The theme for this year was “*Montreal Protocol@35: global cooperation protecting life on earth*”.

### (b) Major activities undertaken during the World Ozone Day 2022 are:

Industry exhibition was organized for exhibiting innovative non-Ozone Depleting Substances (ODS) and low Global warming Potential (GWP) alternative technologies/ products for creating awareness.



To create awareness among the students to protect the Ozone Layer, competitions in the categories of Poster and Slogan Writing

were organized jointly by National Museum of Natural History (NMNH) and the Ozone Cell, for school children across the country.

#### Release of Awareness Material:



Figure: The winning poster was released by the Chief Guest during World Ozone Day function.



Figure: 24<sup>th</sup> edition of “The Montreal Protocol: India's Success Story” which highlights India's achievements in the Montreal Protocol Implementation in phasing out of Ozone Depleting Substances till date.

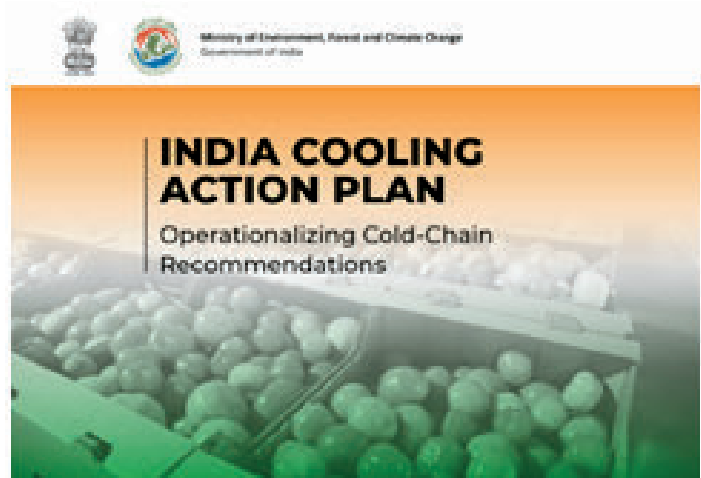


Figure: Booklet on Action Plan for implementation of the recommendations of the ICAP for Cold Chain



**Booklet on Passive & Low Energy Cooling Strategies for Achieving Thermal Comfort in India's Upcoming Affordable Housing**

**Study report on reduction in GHG emissions through ODS phase-out under the Montreal**

**Protocol implementation in India**

**Study report on sensitizing building construction community on Passive Cooling design, non ODS, low GWP and energy efficient technologies**



#### **Quarterly newsletter newsTRAC for RAC service technicians:**

thematic working groups:

- Refrigeration and Air-conditioning (RAC) servicing sector
- Indigenous Production of low global warming potential (GWP) chemicals
- Research and Development of low GWP chemicals
- Transport air-conditioning
- The ICAP has been recognized 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.

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#### (b) Major activities undertaken during the World Ozone Day 2022 are:

Industry exhibition was organized for exhibiting innovative non-Ozone Depleting Substances (ODS) and low Global warming Potential (GWP) alternative technologies/ products for creating awareness.

ODS	Production* (MT)	Export** (MT)	Import*** (MT)	Customs Purchase (MT)	Feedstock use within country * (MT)	Consumption as per definition # ODS (MT)
<b>CFC-11</b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>CFC-12</b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>CFC-113<sup>1</sup></b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>CTC<sup>1</sup></b>	27233.637	0.000	3976.51	0.000	27233.637 (Production) 3976.51(Import)	0.000
<b>Total</b>	<b>27233.637</b>	<b>0.000</b>	<b>3976.51</b>	<b>0.000</b>	<b>31210.147</b>	<b>0.000</b>
<b>Halon -1211<sup>2</sup></b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>Halon -1301<sup>1&amp;2</sup></b>	328.912 <sup>1</sup>	160.000 <sup>a</sup>	6.592 <sup>2</sup>	0.000	168.912 <sup>b</sup>	0.000
<b>Halon -2402<sup>2</sup></b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	<b>328.912<sup>1</sup></b>	<b>160.000<sup>a</sup></b>	<b>6.592<sup>2</sup></b>	<b>0.000</b>	<b>168.912<sup>b</sup></b>	<b>0.000</b>
<b>Methyl Bromide<sup>3</sup></b>	3564.228	2010.843	0.000	0.000	0.000	1553.385
<b>Total</b>	<b>3564.228</b>	<b>2010.843</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1553.385</b>
<b>HCFC-22</b>	74708.331	17337.043 <sup>c</sup>	0.000	0.000	53092.295 <sup>d</sup>	4278.993
<b>HCFC-123</b>	0.000	0.000	47.188	0.000	0.000	47.188
<b>HCFC-142b<sup>1</sup></b>	2.000	0.000	1760.008	0.000	2.000 (Production) 1760.008 (Import)	0.000
<b>HCFC-141b</b>	0.000	0.000	0.000	0.000	0.000	0.000
<b>HCFC-133A<sup>1</sup></b>	0.000	0.000	72.006	0.000	72.006(Import)	0.000
<b>HCFC-225 ca/cb<sup>1</sup></b>	0.000	254.490	0.000	0.000	0.000	0.000
<b>Total</b>	<b>74710.331</b>	<b>17591.533</b>	<b>1879.202</b>	<b>0.000</b>	<b>54926.309</b>	<b>4326.181</b>
<b>Bromofluoro-methane<sup>1</sup></b>	0.49942	0.49942 <sup>c</sup> (Producer)	0.404	0.000	0.404 (Import)	0.000
<b>Total</b>	<b>0.49942</b>	<b>0.49942</b>	<b>0.404</b>	<b>0.000</b>	<b>0.404</b>	<b>0.000</b>



1. For feedstock
  2. Recycled/ Recovered halon
  3. for Pre-shipment & Quarantine
- a. Total Export of Halon-1301 is for feedstock
  - b. Total production for feedstock of Halon-1301 is 328.912 MT out of which 160 MT exported for feedstock, and 168.912 MT is used within the country for feedstock
  - c. Including 270 MT exported to Japan for feedstock
  - d. Total production for feedstock of HCFC-22 is 53362.295 MT out of which 270 MT exported

and 53092.295 MT is used within the country for feedstock

e. to Singapore

#### Sources

\* Producers

\*\* Producer/Consumer/Directorate General of Commercial Intelligence and Statistics

\*\*\* Directorate General of Commercial Intelligence and Statistics

# As per the definition under the Montreal Protocol Consumption for controlled use= Production (for controlled use)+ Import(for controlled use)-Export (for controlled use)

HFCs	Production (MT)	Export(MT)	Import (MT)	Consumption (MT)
<b>HFC-32</b>	9598.75	3578.71	6700.24	12720.28
<b>HFC-23</b>			11.1565	11.1565
<b>HFC-125</b>	4993.53	2010.47	25.409	3008.469
<b>HFC-134a</b>	11580.59	6450.12	4911.208	10041.678
<b>HFC-227 ea</b>			157.8906	157.8906
<b>HFC-152a</b>			2672.8	2672.8
<b>HFC-245fa</b>			587.207	587.207
<b>HFC-236fa</b>			532.792	532.792
<b>R-404A</b>		188.38	820	631.62
<b>R-407A</b>		32		
<b>R-407C</b>		988.531	2266.1	1277.569
<b>R-410A</b>		5212.217	3712.285	3712.285
<b>R-507A</b>			1.2712	1.2712
<b>R-508 B</b>			1.8778	1.8778
<b>HFC-43-10mee</b>			1.901	1.901
<b>R-438A</b>			40	40
<b>R-422B</b>		77.29		
<b>R-426A</b>			60	60
<b>R-467A</b>		56		
<b>Total</b>	<b>26172.87</b>	<b>18593.718</b>	<b>22502.1381</b>	<b>35458.797</b>

\*ITC (HS) code for HFCs notified in the year 2022

### 9.3 United Nation Convention to Combat Desertification

#### Introduction:

The Desertification Cell plans, coordinates and collaborates activities for restoration of degraded land and for the achievement of

Land Degradation Neutrality (LDN) in India. The division is the focal point for addressing the issues pertaining to the United Nations Convention to Combat Desertification (UNCCD), which was ratified by India on 17 December 1996.



**Functions:**

To work in co-ordination with the Environment and Forestry wing of this Ministry for ensuring sustainable land management;

Strengthen India's position on relevant issues related to UNCCD by participating in COP Bureau meetings, inter-governmental working group meetings, G-20 meetings, scientific conferences and other important events organized by the UNCCD Secretariat from time to time.

Coordination with UNCCD for reporting the status of desertification and land degradation (DLD) every four years;

Monitoring of the status of desertification/land degradation in the country by way of mapping, survey, calculation and assessment of the drivers of degradation using Earth observation satellites in co-ordination with Space Application Centre (SAC), Ahmedabad;

Compilation, assembling and analysis of data of schemes on Restoration of degraded land in co-ordination with NAEB, GIM, CAMPA, NMHS, Bio-diversity divisions of this Ministry and other line Ministries/Departments.

- vi. The division coordinates 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) and for the work related to National State Environment Report (NSoER) for information pertaining to land Degradation Status of the Country.

**Activities undertaken :**

India participated in the 15<sup>th</sup> session of COP 15 of UNCCD in May 2022 at Cote d'Ivoire. Constitution of Inter-ministerial Working Group (IWG) to provide scientific and technical inputs and establishing necessary linkages for preparing a roadmap for

achieving LDN targets of India and combating desertification.

Ministry had observed Desertification and Drought Day on 17<sup>th</sup> June 2022.

Release of Rs.2.40 Crore to Center of Excellence (CoE) at 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 and management strategies.

The revised National Action Plan (NAP) is being tailored and draft has been prepared to suit regional and local contexts with restoration initiatives that help build ecological and social resilience and generate benefits for local people. The Draft Revised NAP for combating desertification has been prepared and got approval of HMEFCC.

On the basis of approved Terms of References, DPR for "Restoration of Degraded Land in the Aravalli Zone" has been prepared and is in process of approval

The commitment of "Restoration of degraded land" has been made a major programme from the Ministry for the PMO's Prayas Portal. Accordingly, data from NAEB for the Twenty Point Programme (TPP) has been assembled which covers the entire afforestation programme carried out by all the Ministries/State Government on public and forest lands.





CHAPTER

**10**

*International Cooperation*



## 10.1 International Cooperation

International Co-operation (IC) Division within the Ministry coordinates all issues related to international environmental cooperation. The Division also handles bilateral country to country cooperation in the areas of environment protection and supports annual contributions to various UN and other international bodies as it is a nodal agency for all the issues related to the environment within the Ministry.

**Multilateral:** The IC division coordinates with UNEP, GEF, the World Bank (WB) and regional bodies like Economic & Social Commission for Asia & Pacific (ESCAP), Brazil-Russia-India-China-South Africa (BRICS); South Asian Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Programme (SACEP), Association of South-East Asian Nations (ASEAN), Asian Development Bank (ADB), European Union (EU); Shanghai Cooperation Organisation (SCO); G20 India Presidency and United Nations Environment Assembly (UNEA).

**Bilateral:** IC division is the Nodal Division for bilateral (country-to-country) cooperation in the field of environment. The Ministry has entered into 29 Agreements/ MoUs on various environmental issues of mutual benefits. Most of the MoUs/ agreements are operated through the Joint Working Groups (JWGs).

### Important Multilateral activities

**UN Country Team (UNCT):** An introductory meeting was held between Secretary, EF&CC and Mr. Shombi Sharp, the UN Resident Coordinator on 18 Feb 2022 at Indira Paryavaran Bhawan, New Delhi. During the meeting Mr. Shombi gave an overview of the activities being undertaken by the UNDP in India and also apprised the Secretary about the UNDP Country Programme Document for their next programming cycle (2023-27), that is being formulated in consultation with the

stakeholders, including MoEFCC

**Working Group-5 "Climate Action and WASH": UNSDCF:** A meeting was held under the chairmanship of Secretary EF&CC on 30 March 2022 with the concerned Ministries and Departments in connection with the GoI - the United Nations Sustainable Development Cooperation Framework (UNSDCF). MoEF&CC is the nodal/lead Ministry for Working Group-5 "Climate Action and WASH" constituted by NITI Aayog, for which Secretary EF&CC is the Chairperson.

**United Nations Environment Assembly (UNEA 5.2):** The United Nations Environment Assembly (UNEA) is the world's highest-level decision-making body on the environment. UNEA enjoys the universal membership of all 193 UN Member States and the full involvement of major groups and stakeholders. HMEFCC participated in a two-day event on 3 and 4 March, 2022 in Nairobi, Kenya, organized by UNEP to commemorate the 50 years of UNEP. Prior to the event, Secretary, EF&CC and a delegation attended the resumed fifth session of UNEA from 28 February to 2 March 2022.

The resumed fifth session of the UNEA and the commemoration of UNEP@50, concluded with two declarations, 14 resolutions and one decision on a number of critical issues to curb pollution and to protect and restore nature worldwide. On the side-lines of the main meeting on resumed fifth session of UNEA, the HMEFCC and Secretary, EF&CC held 15 bilateral meetings with United Nations, Germany, EU, USA, GCF, UNEP, Norway, Sweden, Iran, UNCCD, UK, GEF and IUCN.

**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.

**International Union for Conservation of Nature and Natural Resources (IUCN):**

IUCN established in 1948, plays leading role in 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 for conservation of nature, natural resources and biodiversity.

**BRICS Meetings:** Shri Bhupender Yadav, Hon'ble Minister EFCC, who is also Hon'ble Minister of Labour & Employment, participated in the 8<sup>th</sup> BRICS Environment Ministers Meeting, 20<sup>th</sup> May, 2022, which was held virtually under Presidency of People's Republic of China. The theme of the Meeting was "Foster High-Quality BRICS Partnership, Usher in a New Era for Global Development". Ministers and delegates from Brazil, Russia and South Africa also participated in the Meeting.

The Joint Statement for the 8<sup>th</sup> BRICS Environment Ministers Meeting was adopted in the Meeting after deliberation amongst BRICS Nations. It was preceded by the 7<sup>th</sup> BRICS Joint Working Group Environment Meeting held on 19<sup>th</sup> May, 2022, to finalise the Joint Ministerial Statement.



*HMEFCC at 8<sup>th</sup> BRICS Environment Ministers' Meeting*

**Shanghai Cooperation Organization (SCO):**

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. 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. The Indian delegation actively took part virtually in all the meetings held under the Environmental Protection. Track under the Presidency of Uzbekistan in 2022.

India has assumed the Chairmanship of the Shanghai Cooperation Organisation Council of Heads of State (SCO CHS), as per rotation, after Uzbekistan from 17 September 2022 onwards, for a period of one year. As part of its responsibilities as Chair, India will be expected to host the regular session of the SCO Council of Ministers for Environment and the meeting of its Expert Working Group in 2023.

**Stockholm+50 and related meetings and events:**

The theme for the Stockholm+50 was "A Healthy Planet for the Prosperity of All – Our Responsibility, Our Opportunity". There were four Plenary Sessions and three Leadership Dialogues (LD), where Member States, Agencies and Organizations gave National Statements, Interventions and Presentations on various issues relating to the challenge of the triple planetary crisis and related matters.

The Indian delegation led by Shri Bhupender Yadav, Hon'ble Minister of Environment, Forest and Climate Change (HMEFCC) participated in the meetings of Stockholm+50 on 2-3 June, 2022; and in the Industry Transition Dialogue and High-level Segment of the meetings of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions, on 1 June 2022. HMEFCC delivered the National Statement during 2<sup>nd</sup> Plenary Session and also gave an intervention in the third Leadership Dialogue in the Stockholm+50 Conference.





**Bilateral Meetings:** HMEFCC held bilateral meetings and attended side events from 1<sup>st</sup> June to 3<sup>rd</sup> June, 2022 in Stockholm for the Stockholm+50, 2-3 June, 2022 with representatives of China, UK, Czech Republic, Canada, USA, and Brazil. HMEFCC also had informal meetings/discussions with Mr. John Kerry, SPEC, USA and Mr. Ovais Sarmad, Deputy Executive Secretary, UN Framework Convention on Climate Change (UNFCCC). In these meetings, issues relating to COP 26, COP 27, bio-diversity and COP 15, climate change, and other related issues like Article 6, Carbon Market, Climate Finance, etc. were discussed. During the bilateral meeting with Canada on 2<sup>nd</sup> June, 2022, both Ministers also signed a MoU on Environment and Climate Change Cooperation.

**Other events and meetings:** HMEFCC gave the Keynote Address in the event organised by CEEW and Global Challenges Foundation (GCF), Sweden on *Action agenda for sustainable development: Innovations in technology, finance and lifestyles*, in Stockholm on 1<sup>st</sup> June, 2022. On 1<sup>st</sup> June, 2022, HMEFCC also attended the United Nations Organized Public Event - High Level Panel and Concert for Peace and the Planet and High Level Reception by Sweden, and also had an interaction with Indian Diaspora at Embassy of India, Stockholm. HMEFCC also attended the High Level Receptions hosted by Swedish Ministers on 1<sup>st</sup> June, 2022 and City of Stockholm, Stockholm City Hall on 2<sup>nd</sup> June, 2022, for Heads of Member States of UNEP.

**South Asia Cooperative Environment Programme (SACEP):** SACEP was set up in 1982 with headquarters in Colombo, Sri Lanka. India is a founder member of SACEP and Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka are other 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.

### **The Global Environment Facility (GEF)**

**India:** India is a founder member of GEF. Set-up in 1991, GEF is a designated multilateral funding mechanism of 183 countries to provide incremental finance for addressing global environmental benefits that are also identified as national priorities. MoEF&CC 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 Parties of the multilateral environmental conventions namely, Convention on Biological Diversity (UNCBD), 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.

In GEF-7 cycle, the Ministry endorsed 21 national projects, which are under various stages of implementation. The Eighth replenishment cycle started from 1<sup>st</sup> July 2022, for a period of four years. The vision for GEF-8 is 'Healthy Planet, Healthy People', which will be achieved through 11 Integrated Programs across five focal areas. The Division also conducted project monitoring visits to Coimbatore, Jorhat and Surat to review GEF - 4 and 5 cycle projects implemented in MSME clusters. The Division is also implementing the GEF Seventh Operational Phase of Small Grants Programme (SGP- OP7). The Ministry convened two National Steering Committee meetings in the year and an inception meeting. A total of 11 Capacity Building Workshops were organized by SGP Team in Sindhudurg, Madurai, Ratnagiri, Bongaigon, Nalbari, Shillong, Guwahati, Damoh, Chattarpur, Barwarni and Indore with the objective of assisting the NGOs in applying for the



### Community Grants.



4<sup>th</sup> Meeting of GEF

The Fourth Planning meeting of the GEF was held in April 2022, wherein the decision on the GEF -8 replenishment cycle was finalized. GEF Operational Focal Point participated in the meeting. The 62<sup>nd</sup> and 63<sup>rd</sup> Council meetings were held in June 2022 and December 2022 respectively. Senior officials from the International Cooperation Division participated in these Meetings.

**G20 Meetings:** The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union (EU). It works to address major issues related to the global economy, such as international financial stability, climate change mitigation, and sustainable development. The Republic of Indonesia was the President of the G20 from 1<sup>st</sup> December, 2021-30<sup>th</sup> November, 2022. India is the current Chair of the G20.

An Indian delegation led by Shri Bhupender Yadav, the Hon'ble Minister EFCC participated in the Joint Environment and Climate Ministers Meeting (JECMM) held on 31<sup>st</sup> August 2022 at Bali, Indonesia. The Ministerial meeting was preceded by the 3<sup>rd</sup> meeting of Environment Deputies and Climate Sustainability Working Group meetings (3<sup>rd</sup> EDM-CSWG) held on 29-30 August 2022 at the same venue. On the sidelines, HMEFCC also had bilateral meetings with Netherland, Egypt, Japan, USA, Australia, EU, Canada, and UNCCD.



Joint Environment and Climate Ministers Meeting (JECMM) held on 31<sup>st</sup> August 2022 at Bali, Indonesia

Speaking on the concluding day of the G20 meeting on 1<sup>st</sup> September, 2022, HMEFCC underlined the need to work together for stronger recovery and resilience across globe, leaving no one behind especially most vulnerable sections of the society. He also extended heartfelt and warm invitation to all the G 20 countries for the next Environment Deputies Meeting and Climate Sustainability Working Group related events during India's G 20 Presidency.



Secretary, Environment, Forest and Climate Change, Government of India led the delegation of India to the G20 3<sup>rd</sup> Environment Deputies Meeting and Climate Sustainability Working Group Meeting (EDM – CSWG) on 29<sup>th</sup> and 30<sup>th</sup> August. The Indian Delegation led by Shri BivashRanjan, Additional Director General of Forest, MOEFCC for EDM Track





and Ms. Richa Sharma, Additional Secretary, MOEFCC for CSWG Track participated in the meetings from 19<sup>th</sup> to 22<sup>nd</sup> June 2022 Jakarta, Indonesia.



*G20 3<sup>rd</sup> Environment Deputies Meeting and Climate Sustainability Working Group Meeting (EDM-CSWG) on 29<sup>th</sup> and 30<sup>th</sup> August*

### **Important bilateral activities**

**France:** HMEFCC, Mr. Bhupender Yadav had a meeting with Mr. Emmanuel Lenain, French Ambassador on 12<sup>th</sup> January, 2022 on an online platform to discuss issues relating to One Ocean Summit; Cooperation on Plastic Pollution, Global Treaty on Plastics; High Ambition Coalition on Biodiversity beyond National Jurisdiction (BBNJ); and Conference on Biodiversity (CBD COP15).

**Denmark:** The 2<sup>nd</sup> India - Denmark Joint Working Group on Environment (JWGe) was held on 22 February, 2022 through virtual format, discussed the transition to a circular economy with focus on plastic, UNEA 5.2 and global agreement to prevent plastic pollution.

**Meeting with ADB:** A Meeting was held between Secretary, EF&CC and DG, ADB, South Asia Regional Department team on 08.04.2022 in New Delhi and discussed issues relating to ADB's engagement with various sectors in climate change mitigation and adaptation; Climate Change Adaptation Program of GOI; Air pollution in NCR and other cities; and Extending ADB support to

strategic knowledge work needed by the Ministry. Later on, a Meeting was held between MoEFCC led by Ms Leena Nandan, Secy and ADB team led by Mr. Sameer Kumar Khare, Executive Director for Afghanistan, Bangladesh, Bhutan, India, Lao PDR, Tajikistan, Turkmenistan on 31 October, 2022 in New Delhi.

**International Renewable Energy Agency (IRENA):** HMEFCC had a meeting with Mr Francesco La Camera Director General, International Renewable Energy Agency (IRENA) on 2<sup>th</sup> April, 2022 on how IRENA can contribute in G-20 during India's Presidency, and also deliberated on other issues of mutual interest including strengthening engagement between IRENA and India. Both sides also discussed the importance of providing means of implementation including finance, technology transfer and capacity building support for achieving enhanced climate goals by the developing countries like India.



*HMEFCC meeting with Director General, IRENA*

**Republic of Maldives:** HMEFCC met Ms Aminath Shauna, Minister of Environment, Climate Change and Technology, Republic of Maldives on 26<sup>th</sup> April, 2022. During the Meeting, they discussed issues relating to vulnerabilities of climate change, cooperation on climate actions, and follow-up to COP 26. Both sides agreed to further strengthen ongoing bilateral cooperation between India





and Maldives not only for combatting environmental issues and climate change, but also explore for enhancing cooperation for greater economic integration.



**HMEFCC meeting with Minister of Environment, Climate Change and Technology, Republic of Maldives**

**United Arab Emirates (UAE):** A meeting between HMEFCC, Shri Bhupender Yadav and H.E. Dr Sultan Al Jaber, UAE Climate Envoy and Minister of Industry and Advanced Technology took place on 26 May 2022 for the discussion relating to issues on climate change, hosting of COP 28 and other related matters. Prior to the bilateral meeting, a MoU on Climate Action was also signed by the Hon'ble Ministers. The basic objective of this MoU is to establish a framework to facilitate and enhance bilateral cooperation on climate action, and also contributes towards implementing the Paris Agreement.



**HMEFCC Meeting with UAE on Climate Change and related matters**

**Germany:** The Joint Declaration of Intent (JDI) on Forest Landscape Restoration between India and Germany was signed virtually between HMEFCC Shri Bhupender Yadav and Her Excellency Ms. Steffi Lemke, Minister for Environment, Nature Conservation, Nuclear Safety and Consumer Protection of the Federal Republic of Germany on 02.05.2022. It is one of the deliverables of the 6<sup>th</sup> India - Germany Inter-Governmental Consultations (IGC).



The Joint Declaration of Intent (JDI) on Forest Landscape Restoration between India and Germany, Shri Bhupender Yadav, HMEFCC also had a meeting with the Committee on Environment of German Federal Parliament headed by



Honourable Member of Parliament (MdB) Mr. Harald Ebner on 27 October 2022 at Indira Paryavaran Bhawan, New Delhi and discussed Indo-German Partnership on Green and Sustainable Development; Biodiversity and Forest protection; Marine litter and Plastic, Consumer protection and Producer responsibility; COP26, COP27; G20 Agenda during Indian presidency; etc

**NORWAY:** The Indian delegation led by Ms. Leena Nandan, Secretary, MoEFCC participated in the 9<sup>th</sup> meeting of the Indo-Norwegian joint working group on environment, which was held on 6- 7 October, 2022 in Oslo, Norway. Major takeaways from the Meeting include (i) expanding areas of cooperation between Norway and India; (ii) follow-up visits to Oslo by India along with officials of the States/UTs to replicate Recycling Hub at Oslo in India; (iii) explore cooperation at the global level on issues of climate change, biodiversity, plastics, etc.



9<sup>th</sup> Meeting of Indo Norwegian JWG on Environment in Norway

**SWITZERLAND:** The 2<sup>nd</sup> meeting of India-Switzerland joint working group was held on 14 October 2022 in New Delhi. During the update on SDC activities in Climate Change and Environment in India, highlighting recent achievements/outputs were discussed and also update on India's climate change outlook

and its alignment with country's developmental priorities were highlighted.



The 2<sup>nd</sup> meeting of India-Switzerland Joint Working Group in N Delhi

**IUCN, Regional Director, Asia Regional office, Bangkok, Thailand:** A Meeting was held between Secretary, EF&CC and Dr. Dindo Campilan, IUCN, Regional Director, Asia Regional office, Bangkok, Thailand on 27 October, 2022 New Delhi and discussed on how to work together by focusing on the areas mentioned with coherent plan of action, and following a convergent approach with existing schemes, programmes and activities.

## 10.2 Externally Aided Projects

### Introduction

Externally Aided Projects (EAP) Division of the Ministry deals with Forestry, Biodiversity and Natural resource management related EAPs in coordination with the State Governments, donor agencies (JICA, French Development Agency (AFD), GIZ, KfW, World Bank etc.) and other line ministries in the Government of India such as Ministry of Finance, Ministry of Home Affairs, Ministry of External Affairs, NITI Aayog, Ministry of Development of North Eastern Region, etc.

The broad objectives of these forestry projects are increasing forest cover, biodiversity conservation, rehabilitation of degraded forest areas, Soil & Moisture Conservation measures, Agro-forestry component, Capacity Building of Forest Officials and other stakeholders,



creation of income & livelihood opportunities to fringe area forest village people, other measures for Sustainable Management of Forest and its resources and climate change impacts for sustainable livelihoods.

At present, there are 14 Externally Aided

Projects dealt by this division which are under implementation in 12 States viz. Assam, Sikkim, Manipur, Nagaland, Tripura, Meghalaya, Odisha, Uttarakhand, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh and Tamil Nadu.

### Externally Aided Projects in MoEFCC

S. No	Name of the project	States	Project Duration	Doner Agency
1.	Uttarakhand Forest Resources Management Project/ Japanese Technical cooperation Project for Natural Disaster Management in Forest Areas of Uttarakhand	Uttarakhand	2014-15 to 2023-24	JICA
2.	Himachal Pradesh Forest Ecosystem Management & Livelihood Project	Himachal Pradesh	2018-19 to 2030-31	JICA
3.	Odisha Forestry Sector Development Project Phase- II	Odisha	2017-18 to 2026-27	JICA
4.	Nagaland Forest Management Project	Nagaland	2018-19 to 2026-28	JICA
5.	Sustainable Forest And Catchment Management in Tripura	Tripura	2018-19 to 2027-28	JICA
6.	Project for Community-Based Forest Management and Livelihoods Improvement in Meghalaya	Meghalaya	2020-21 to 2033-34	JICA
7.	Tamil Nadu Biodiversity and Greening Project for Climate Change Response	Tamil Nadu	2022-23 to 2032-33	JICA
8.	Sikkim Biodiversity Conservation and Forest Management Project	Sikkim	2010-11 to 2023-24	JICA
9.	Assam Project on Forest and Biodiversity Conservation	Assam	2019-20 to 2024-25	AFD
10.	Component—Community-based Sustainable Forest Management for Water Resources Conservation in Manipur (COSFOM- KfW)	Manipur	2018 - 2025	KfW
11.	Climate Resilience of Forest Landscape Ecosystems, Biodiversity and Adaptive Capacities of Forest Dependent Communities, Tripura (CREFLAT): Climate change adaptation in the Himalaya -Component II	Tripura	2020-2027	KfW
12.	Forest and Biodiversity Management in the Himalaya – Nagaland	Nagaland	2020-2027	KfW
13.	Himachal Pradesh Forest Ecosystem Climate Proofing project	Himachal Pradesh	2016-17 to 2020 -21 till December 2022.	KfW
14.	Sustainable Management of Forest Ecosystem Services	HP, UK, UP and MP	2021-2024	GIZ





### Activities undertaken including celebrations for Azadika Amrit Mohatsav.

National Workshop was held at Bhopal on “Agroforestry for Sustainable Livelihood: Understanding Priorities, Innovative Applied Approaches, Challenges, and Opportunities in India” which was chaired by Additional Director General of Forest, MoEF&CC.

### Progress/Innovations

**MOD has been signed between Tamil Nadu and MOEFCC March 2022** “Tamil Nadu Biodiversity Conservation and Greening for Climate Change” JICA.

A project Steering Committee under the Chairmanship of DGF&SS to oversee the implementation of the project on Sustainable Management of Forest ecosystem Services in the Western Himalayas and monitor its progress in the four project partner States viz. Uttarakhand and Himachal Pradesh, Uttar Pradesh and Madhya Pradesh.

Under Sustainable Management of Forest ecosystem Services Project of GIZ added Agroforestry component for two states UP and MP.

### Cumulative achievements

DPR of following projects to be implemented in Rajasthan, Meghalaya, Manipur and West Bengal have been reviewed and comments have been furnished.

The Project for Forest & Biodiversity Conservation for Climate Resilience Enhancement in West Bengal Phase II for JICA ODA Loan".

Protection of Vulnerable Catchment Area in Meghalaya seeking Financial Assistance from KFW".

Community-based Sustainable Forest Management for water Resources Conservation in Manipur (COSFOM) Phase II" from Government of Manipur to be funded by KFW.

Rajasthan Afforestation and Biodiversity Conservation Project (RABCP) funded by JICA.

Rajasthan Forestry and Biodiversity Development Project Funded by French Development Agency (AFD).

# Research



CHAPTER

**11**

*Research*



## 11.1 Research in Environment

### Environmental Research and Development Programme

#### A. Introduction

The Environmental Research and Development Program supports and funds research projects for building database, generate information and knowledge for finding practical solutions to problems of environmental conservation and management and for developing policies, strategies, action plans for better management and conservation of natural resources. The Environmental Research and Development Program is open to all institutions including NGOs with expertise in identified thematic areas to undertake projects on specific areas related to environmental conservation and conservation of natural resources in the country. Institutions availing such funding under the Scheme are provided a Grant for the Project duration. The major thematic areas for funding are:

- I. Biodiversity Conservation including Issues of Alien and invasive species and 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 Minimization

and Management, etc.

- viii. Use of remote sensing technology for inventorisatation, assessment and monitoring of country's natural resources such as land, water, forests, wetlands, glaciers etc. and for environmental conservation and protection on areas given above.
- ix. Taxonomy.

#### B. Major objectives of Environmental Research and Development Program

- I. The Environmental Research and Development Program is an important Decision Support System for Policy and Planning of the Ministry's programmes 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.
- ii. Promotion of Research & Development in various facets of ecology and environment for the conservation and protection of environment and natural resources of the country. To plan, support and coordinate environmental research in public interest for enhancing the understanding of environment and ecology and devising strategies and solutions for environmental protection and management for achieving the overarching objectives of sustainable development.

The research projects will enable the Ministry to build database of research projects and their findings in identified problem areas for finding practical





solutions to issues concerning environmental protection and management and to generate information and knowledge from outcome of R&D projects for developing policies, strategies, action plans, and integration of such outputs in Ministry's on-going Schemes and Programmes and in better management and conservation of natural resources.

### C. Activities undertaken

Organised Technical and Financial Appraisal Committee (TFAC) meetings wherein 15 ongoing research projects were appraised.

### D. Progress/Achievements in

The SFC and guidelines of the revamped scheme Environmental Research and Development Program have been approved.

## 11.2 G.B.Pant National Institute of Himalayan Environment and Sustainable Development

### 1. CS-I (Mountain) Division

#### a. Introduction

The CS-I (Mountain) Division has been established in MoEF&CC to ensure better coordination on issues for conservation of mountain ecosystem and ensuring sustainable livelihood options for communities in the region and beyond along with effective networking/collaboration with relevant organizations. The major activities under this Division are as follows:

- Coordination of activities (administrative/ establishment matters) for G.B. Pant National Institute of Himalayan Environment (GBPNIHE) to achieve physical and financial targets.
- Monitoring of physical and financial targets for successful implementation of the

National Mission on Himalayan Studies (NMHS) along with organising consultations/ review meetings under guidance of Scientific & Technical Advisory Group (STAG)/ Steering Committee (SC).

- Coordination with International Centre for Integrated Mountain Development (ICIMOD) for their activities in India along with support in preparation of ICIMOD's Strategy and Action Plans in consonance with MoEF&CC's mandate; organising consultations for monitoring their work in India.

#### b. Activities undertaken for celebrating Azadi Ka Amrit Mohatsav under NMHS and GBPNIHE:

- Workshops on water security, climate change, air pollution, community driven eco- smart villages, honey bee cultivation, poultry farming, horticulture, etc. were organized across the Indian Himalayan Region (IHR) during the celebrations of Azadi ka Amrit Mahotsav.
- A Science Expo in Gangtok, Sikkim was organized jointly with DST, Govt. of Sikkim on the theme – *Vigyan Sarvatra Pujiyate*.
- A National webinar on 'Sequestering carbon in soil is the way forward to climate-smart agriculture' was organized at GBPNIHE.
- A total of 23 training and awareness programmes were organized covering 1301 beneficiaries from the IHR including 813 females and 488 males.
- A total of 102 people (61 female and 41 male) from the SC/BPL category were trained under two low-cost, environment-friendly technologies for livelihood generation in the Almora district.
- Webinars on the management of invasive species and promoting conservation education in 112 schools of Uttarakhand were organized. A total of 914 students and teachers from 108 schools in Uttarakhand participated.

**c. Progress/Innovations:****1 GBPNIHE:**

- Pine needles-based adsorbents having very high surface area and adsorption capacity for targeted removal of contaminants from domestic wastewater were developed.
- The first-ever spring revival project in the cold desert region of India (Lahual and Spiti district of Himachal Pradesh) was initiated.
- A data-driven model for predicting joint-fracture and depression-type spring high-flows of the Kosi watershed, Uttarakhand, was developed and expected to be beneficial for long-term sustainable water management of the region.
- A total of 49 Biodiversity Management Committees and 49 People's Biodiversity Registers were facilitated.
- Propagation protocols of 16 spp. standardized (HQs – 6; HRC-5; SRC – 3; GRC – 2). These include *Rhododendron dalhousieae*, *Rhododendron maddenii*, *Paris polyphylla*, *Malaxisacuminata*, *R. australe*, *Saussureacostus*, *Allium stracheyi*, *Paeoniaemodi* & *Myricaesculenta*, *Sassureaovballata*, *Polygonatumverticillatum*, *Taxuswallichiana*, *Zanthoxylumaramatum*, *Angelica glauca*, *Aconitum heteterephyllum*, and *Swertiachirayita*.
- A total of 628 distribution records of 198 RET and endemic plant species were compiled (SRC). Location-specific data of 288 endemic species were collected from various published literature and the herbarium of BSI, Dehradun, and a grid-based map is prepared.
- A climate change vulnerability assessment framework was developed for the IHR, having 37 indicators related to environmental, socioeconomic and livelihood, institutional and infrastructure, and biophysical parameters representing three dimensions of vulnerability with 89 sub-indicators, viz. exposure (12), sensitivity (24) and adaptive capacity (53).
- Environmental Plans of all the 13 districts of the Uttarakhand state-s and a draft thematic document on "High Altitude

Wetlands of Sikkim: Status, Issues & Policy Perspectives" prepared

- Established state chapter of "Himalayan Knowledge Network" all across the Indian Himalayan region.
- GLORIA and long-term ecological monitoring sites established in Himachal Pradesh and Leh for vegetation response towards climate change.
- A Genetic Resource Centre (GRC) has been established for germplasm conservation of the medicinal plant species, i.e., *Picrorhizakurroa*, *Swertiachirayita*, *Rubiacordifolia*, and *Nardostachys grandiflora*, at Himachal Regional Centre of the Institute.
- Developed custom-made (low-cost) mini-hydroponics system at RTC (NERC) to explore the cultivation of state-specific important wild edible and medicinal plant species.

**2 NMHS:**

- The 16<sup>th</sup> Scientific and Technical Advisory Group (STAG) meeting was organized under the Chairship of the Joint Secretary, MoEF&CC through hybrid Mode on June 8, 2022 at MoEF&CC, New Delhi. During the meeting, two new projects were recommended along with approval of the Final Technical Reports (FTRs) of 24 projects, 4 fellowships, 1 NLC-Assam and 1 SGP-Uttarakhand.
- The 7<sup>th</sup> Himalayan Researchers Consortium was organized through Hybrid Webinar Mode on October 31, 2022. Under the guidance of the Joint Secretary, MoEF&CC and other invited Chair and eminent members, the fellowship progress of 15 researchers from 7 universities/institutions were evaluated under Technical Session "Himalayan Natural Resource Management".

**3 ICIMOD:**

- The 53<sup>rd</sup> meeting of Board of Governors of ICIMOD was held during 6-7 September 2022 in Kathmandu, Nepal with representation from all Regional Member



Countries including India. The Medium Term Action Plan-V, Annual Plan and Budget for 2023, etc were finalized during the meeting.

- The India Country Consultation for developing the MTAP-V was held on 04th July 2022 in MoEF&CC with wide stakeholder representation.

#### **d. Cumulative achievements:**

##### **1 GBPNIHE:**

- A centralized spring database of the Indian Himalayan Region is developed (<https://nmhs-himal.res.in>). A total of 4987 springs were geo-tagged and primary data were compiled in the HIMAL portal.
- A total of 332 participants were trained as 'Para-hydrogeologists', and a total of 7 'Village Water Security Committees' were formed across 7 states of the IHR.
- An integrated eco-tourism model was developed through the strengthening of homestays (5 nos.), capacity building and distribution of river rafting boats (2 nos.) and fishing equipment to the stakeholders of Changlang district.
- Technology Incubation Centre was established in the tribal district of Lahaul and Spiti, Himachal Pradesh for the primary processing of the Seabuckthorn (*Hippophae rhamnoides*). Currently, 7 Gram Panchayats of the district are accessing the center for the primary processing of their raw material at the center.
- The Institute developed a policy brief on "Sustainable Mountain Tourism in Ladakh" (2022) along with the Ladakh Autonomous Hill Development Council, Leh (LAHDC-Leh) and the Department of Tourism, Ladakh UT.
- Two New species including, one holomycotrophic terrestrial orchid (*Gastrodia Kalimpongensis*) and one wild Balsam species (*Impatiens yangyangensis*) have been discovered in Sikkim Himalaya. In addition, 2 species of orchids (*Thrix per mum form o san um* and *Taeniophyllum glandulosum* have been

discovered as new records for the orchid flora of Sikkim.

##### **2 ICIMOD:**

- An extraordinary meeting of the Board of Governors was held on 28<sup>th</sup> April 2022 for finalization and approval of ICIMOD Strategy 2030. The Strategy 2030 document got approved during the meeting with endorsement of all Regional Member Countries including India.

##### **e. List of major publications brought out by GBPNIHE: (given in the online version of annual report)**

#### **11.3 National Mission on Himalayan Studies (scheme) 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.

##### **a. Progress/Achievements:**

The Hon'ble Union Minister of EF&CC Shri Bhupender Yadav along with the Hon'ble Minister of State Shri Ashwini Kumar Chaubey during the launch event of "Prakriti" mascot inaugurated the "Green Initiatives on Plastic: Process for Manufacturing Graphene from Waste Plastic" under NMHS-supported project at CPCB, Parivesh Bhavan, New Delhi on April 5, 2022 (Fig. NMHS-01).





**Fig. NMHS-01.HMEFCC along with HMoS inaugurated the “Green Initiatives on Plastic: Process for Manufacturing Graphene from Waste Plastic” .**

On May 9, 2022, the above machine prototype was also inaugurated by the Hon'ble Minister Shri Nitin Gadakari in the presence of the Hon'ble Minister Dr.Jindendra Singh and the

Hon'ble Minister General V.K. Singh at Central Road Research Institute (CRRI), New Delhi (**Fig. NMHS-02**).



**Fig. NMHS-02.** A machine prototype “Mobile Cold Mixer-cum-Paver and Patch Fill Machine for Pothole Repair” inaugurated by the Hon'ble Minister Shri Nitin Gadakari in the presence of the Hon'ble Minister Dr.Jindendra Singh and the Hon'ble Minister General V.K. Singh at CSIR-CRRI, New Delhi.



- The eminent scientists of the Zoological Survey of India (ZSI) identified 37 mammal species from the six study sites in the IHR and studied 13 species for their Genetic Make- up and Population Structure under the NMHS-funded project. It was shared by the Director, ZSI with great satisfaction that no such parallel work has ever been done in India under one single project, published online in “*Science of the Total Environment*”.
- Besides 354 research publications with Impact Factor 648.19, an extensive database of the IHR is being updated, inclusive of (i) 4987 Springs inventory online database; (ii) 11157 (1274 Online) Floral species and 30377 (214 Online) Faunal species database; (iii) 210(?) Geospatial database; (iv) DNA Barcoding database of 122 threatened flora and 75 faunal species among others.

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

S. No	Name Of Organisation	Purpose	Total Amount Released	Status of third party evaluation
1	GBPNIHE	To fulfil the above mentioned objectives	Rs. 13.19 crores	--
2	GBPNIHE (For Implementation of NMHS Scheme)	To fulfil the above mentioned objectives	Rs. 11.60 crores	The Third Party Evaluation has been carried out by M/s CS Datamation Pvt. Ltd. The scheme is recommended for continuation.



CHAPTER

**12**

*Environmental Information,  
Education and Awareness*





## 12.1 Environment Education Division

### a. Introduction

The Environment Education Division implements the 'Environment Education Programme (EEP)' - one of the components of the revamped Central Sector Scheme - 'Environment Education, Awareness, Research and Skill Development (EEARSD)'. This Scheme was approved for continuation till the year 2025-26. Additionally, the Division acts as a link between the various Divisions of this Ministry and the Eco-club network for facilitating organization of educational activities for children. The Division also acts as the Nodal Division in the Ministry for matters related to National Education Policy (NEP), 2020.

### Environment Education Programme

The Environment Education Programme aims to supplement the efforts of Ministry of Education in the formal education front, through varied pedagogical initiatives to impart nonformal environmental education. This programme intends to leverage on the key sectoral strength of Eco-clubs already formed under National Green Corps programme, in addition to targeting Youth Clubs and other such clubs/ units/ groups formed under various programmes/ schemes of the Government. Psychological interventions to change behaviour like education, enablement, incentivization, modelling, persuasion, training, etc. would be the building blocks of this programme laid on the foundation of principles envisaged in the National Education Policy, 2020

The objective of the programme is to sensitize children/ youth on issues related to environment and to motivate them to adopt sustainable lifestyle through varied pedagogical initiatives like workshops, projects, exhibitions, campaigns, competitions, nature camps, summer

vacation programmes, etc.

The Implementing Agencies of this Programme could be either at Central or State level, such as

- Any agency or autonomous body/ institutes of Central or State Government/ UT Administration having a mandate related to education/ environment and are nominated by the respective Central or State Government.
- Nehru Yuva Kendra Sangathan or any such body under Department of Youth Affairs, Kendriya Vidyalaya Sangathan, Navodaya Vidyalaya Samiti or other such body under Ministry of Education, National Museum of Natural History under this Ministry, Panchayati Raj institutions/ Urban Local Bodies, etc.

Sustainable Lifestyle Workshops/ Projects/ Exhibitions/ Campaigns/ Competitions/ Nature Camps/ Summer Vacation Programmes, etc. would be organized by the Implementing Agencies for children/ youth. These workshops/ projects give target beneficiaries a platform for developing scientific temper and critical thinking, display creativity and nurture values like compassion and empathy, in addition to strengthening of concepts and opportunity to experiment and experience sustainable solutions, which use minimal resources, cause minimal pollution and generate minimal waste. . Detailed Guidelines of the Programme was issued in October 2022.

### b. Activities undertaken

EE Division worked in co-ordination with other Divisions of this Ministry for reaching out to school students through the Eco-club network to spread awareness about the Cheetah reintroduction project. More than 1 lakh students from various States actively participated in week-long (12.9.2022 – 16.9.2022) webinar series on Cheetah Reintroduction Project organized by this Ministry



*Figures above: School Children participating in live webinar on Cheetah Reintroduction Project hosted by MoEF&CC*



### c. Budget Allocation and Financial Performance

“The total budget allocated to EEP for Financial Year 2022-23 is Rs. 55 Crore (Budget Estimate) and Rs. 10 Crore (Revised Estimate). As on 03.02.2023, grants-in-aid amounting to Rs. 9.20 Crore have been sanctioned and released. Of these, expenditure of Rs. 3.05 Crore has been incurred on reimbursements under erstwhile Environment Education, Awareness and Training (EEAT) Scheme.”

S.No	State/ UT	Grant Released as on 03.02.2023 (in Rs.)	
		EEAT	EEP
1	Karnataka	44,81,521	8,00,000
2	Assam	42,90,500	1,05,00,000
3	Odisha	46,25,000	89,50,000
4	Himachal Pradesh	1,89,863	36,00,000
5	Mizoram	8,28,000	46,00,000
6	Telangana	17,64,500	16,00,000
7	Kerala	20,79,000	44,00,000
8	Punjab	28,55,000	79,00,000
9	Sikkim	4,38,000	31,00,000
10	Rajasthan	44,38,160	16,00,000
11	Tripura	9,92,000	22,68,600
12	Gujarat	20,02,326	1,21,00,000
13	Nagaland	9,02,000	-
14	Uttar Pradesh	5,86,847	-
<b>Total</b>		<b>3,04,72,717</b>	<b>6,14,18,600</b>

## 12.2 National Museum of Natural History (NMNH)

The National Museum of Natural History, a subordinate office of MoEFCC, was open to public on 5th June, 1978 at Mandi House, aiming to create environmental awareness on nature and environment through non formal medium such as thematic galleries, exhibitions, film shows and educational activities to all masses of society in respect of to promote environmental awareness.

NMNH, New Delhi has its four Regional Museums of Natural History (RMNH) located at 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.

### The objectives of NMNH is:

- To develop the NMNH so as 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 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 research (museological and collection based) consonant with the scope and resources of the museum;
- To extend professional help to other agencies/organizations regarding Natural History collections/museums,
- To develop national and international cooperation / collaboration with other organizations/professional bodies/museums related to natural history/EE.

### Activities undertaken

The NMNH and its Regional centres has been undertaking day related educational programmes through online programmes/workshops round the year to all masses of the society to enhance knowledge on environmental awareness such as thematic Exhibitions (Nos.04), Temporary/Online Exhibitions (Nos.20), Summer Nature Programme (Nos.07), Teachers Training Programme (Nos.05), Online Competitions (Nos.15), Online Talks/Lectures (47), Development of New Popular Publications/Table Calendar (Nos.13), Mass Awareness Campaign (Nos.27), Programme for Children with Special Needs (No.09), Campus Bird Count Programme (Nos.04), Programme/Guided Tour of IPB Visits (Nos.39).

### EDUCATIONAL PROGRAMMES/ ACTIVITIES:

The Flagship programmes of NMNH were organised such as Earth Day, World Environment Day, Van Mahotsav Week, Wildlife Week, International Tiger Day, Summer Vacation Programme, Winter Nature Programme, Teachers Orientation Workshops, and programme for under-





privileged children.

Collaborative programmes were organised with different institutions/organisations such as Government departments, UNDP India, GIZ India and State Universities, etc. through online/offline competitions, lectures and workshops. The Resource persons and experts were invited from different institutions, organisations, universities, NGOs, Government departments to interact with students, teachers and common masses during online/ offline programmes. Social media platforms such as official website, Facebook, Instagram, Twitter were used for wide publicity of the programmes. YouTube Channel of NMNH was utilized to upload and share the educational videos. At the 27th session of Conference of Parties of the UNFCCC (COP 27) in Sharm El-Sheikh, Egypt, National Museum of Natural History and GIZ India hosted a side event at the India Pavilion on "Transformative Green Education: Experiences from India and launched a campaign for youth 'In Our LiFEtime' in collaboration with UNDP India. Assisted Ministry of Environment, Forest and Climate Change, in successfully organising mass awareness programmes such as Hariyali Saptah, Cheetah Awareness, Ayurveda Medical Camp and Fit India Run. Special groups were attended to during guided tour to Indira Paryavaran Bhawan to study the green features of Green Building.

### 12.3 Media Cell

MoEFCC is the nodal ministry in the administrative structure of the Central Government for planning, promotion, coordination and overseeing the implementation of environmental and forestry programs and policies.

The Ministry's main activities include conservation and survey of flora, fauna, forests and wildlife, prevention and control of pollution, afforestation and regeneration & restoration of degraded areas, protection of the environment, ensuring welfare of animals 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.

#### Objectives of Media, Publicity and Information:

- I. Creation of Environment awareness at all levels.
- I. Information dissemination about all Environment and Forest programmes and Biodiversity conservation.
- II. 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, 2022. This year, the theme was "Only One Earth" with the focus on living sustainably in harmony with nature. It highlights the need to reset the balance with nature through transformative changes.

##### 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. Launch of Mascot 'Prakriti'

The mascot 'Prakriti' of the Ministry was launched during an event of CPCB on 05.04.2022. 'Prakriti' is a messenger of hope sent amongst us by the Mother Earth to renew our hope that all is not lost and together we can save the environment. Prakriti will make everyone aware about small changes we should adopt in our lifestyle for a better environment.

To help her in these efforts, she has been



gifted the following:

- i) The Tiara of flowers – The flowers have the unique quality to sense her mood and change color and fragrance to make her happy and energetic at all times.
- ii) She also has a Locket, which is a display of the Ministry's LOGO giving the message that 'Nature protects when she is protected'. She will present the locket to people who bring a change in their lifestyles.
- iii) She also carries a bag of Hope from which she gives eco-friendly alternatives to help save the environment.

#### **D. Azadi ka Amrit Mahotsav:**

The various events/ activities undertaken during the celebrations of AKAM by the Ministry and its organizations were publicized through social media platforms viz. Twitter, Facebook, Instagram, Koo, YouTube, etc.

#### **E. Social Media:**

Ministry has social media accounts on Twitter, Facebook, Instagram, YouTube, Koo and LinkedIn with the number of followers as follows:

S. No.	Social Media Handle	Followers till 7 <sup>th</sup> December, 2022
1	Facebook	1,83,000
2	Instagram	91,700
3	Twitter	2,46,200
4	YouTube	8,715
5	Koo	65,000
6	LinkedIn	4000

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.

## **12.4 Swachh aur Swasth Bharat Cell**

### **Programme: Swachhta Action Plan (SAP)**

#### **A. Introduction**

- i. To accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation, the Prime Minister of India had launched the Swachh Bharat Mission on 2<sup>nd</sup> October 2014. The mission was implemented as nation-wide campaign/ Jan andolan which aimed at eliminating open defecation in rural areas during the period 2014 to 2019 through mass scale behaviour change, construction of household-owned and community-owned toilets and establishing mechanisms for monitoring toilet construction and usage. Department of Drinking Water and Sanitation, Ministry of Jal Shakti has been entrusted to build bio-toilet and solid waste management facilities in rural areas and Ministry of Housing and Urban Affairs for urban areas respectively.
- ii. Swachhta Action Plan (SAP) is an inter-Ministerial initiative of Government of India, it was initiated in the year 2017-18 on the directions received from Cabinet Secretariat and Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti (MoJS). Accordingly, all Ministries/ Departments of Government of India started preparing and implementing the Swachhta Action Plan.
- iii. A separate budget head was created for this scheme in the year 2017-18 as per the directions received from Department of Expenditure, Ministry of Finance to enable central monitoring for expenditures made under SAP. To oversee, execute and monitor the programmes under Swachhta Action Plan, the Swachh aur Swasth Bharat (SSB) Cell was established in the Ministry in the



year 2017-18.

- iv. During the period 2018-21, SAP was implemented as a non-scheme programme wherein funds were disbursed from Other Administrative Expense Object head towards meeting the expenditure incurred on SAP activities. This financial procedure required submission of each and every bill amounting to Rs 500 or more for settlement. This resulted in a humungous effort at the end of Ministry to check each and every bill.
- v. To overcome the above procedural hiccup and streamline the programme a “Grant-in-Aid-General” Object head was created in year 2021-22 and SAP was mainstreamed under the awareness component “Environmental Information, Awareness, Capacity building and livelihood Programme” of the revamped umbrella scheme -“Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation” which has been converted into a single scheme and renamed as “Environment Education, Awareness, Research and Skill Development” Scheme.
- vi. The revamped scheme consists of following components:
  1. Environment Education Programme
  2. Environmental Research & Development Programme
  3. Environmental Information, Awareness, Capacity building and livelihood ProgrammeSAP has been placed under the third component for up scaling and consolidating the awareness programmes under the Ministry for a wider outreach.

**B. Aim/Objective of Swachhta Action Plan:**

The Swachhta Action Plan has been mainstreamed under the Environmental Information, Awareness, Capacity building and livelihood Programme of the Scheme “Environment Education, Awareness, Research and Skill Development”. The scope of the Program now also includes building of bio-toilets at National Parks and Centuries to

educate visitors regarding Cleanliness. The budget for establishment of Bio-Toilet under the Swachhta Action Plan has been kept at ₹ 30.00 lakh (maximum) for each National Park/ Sanctuaries etc. as per the approved guidelines.

• **Implementation Plan**

The Swachhta Action Plan has been mainstreamed under the Environmental Information, Awareness, Capacity Building and Livelihood Program of the Scheme “Environment Education, Awareness, Research and Skill Development”.

In the current financial year, special focus of the Swachhta Action Plan is on:-

- I. To raise awareness by building Bio-Toilets at National Parks and Sanctuaries.
- ii. To educate visitors/ stakeholders regarding cleanliness and thereby encouraging citizens to use toilets which will enhance the motto of the Swachh Bharat Mission.

**C. Activities undertaken**

Organized the awareness programme under SAP, were focused on 'Awareness on curbing the single Use Plastics'. Under the SAP given below tools of awareness were used during the Swachhta Pakhwada:-

- Cleanliness Drive
- Slogan Writing
- Essay Writing
- Distribution of Mask with cotton bags.
- Prize Distribution

**D. Progress/ Achievement in 2022-23 (as on 11.11.2022):**

- I. SFC of the revamped Scheme has been approved.

Guidelines of the Swachhta Action Plan have also been approved.





## 12.5 Economic Division

### a. Introduction

Economic Division in the Ministry is responsible for the following areas of work:

1. 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.
2. Coordination of inputs/ material for the Economic Survey to the Department of Economic Affairs.
3. Nodal Division to deal with references received from M/o Commerce & Industry relating to Trade & Environment including cabinet/ Cabinet Committee/ Committee of Secretaries matters.
4. 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; Free Trade Agreements (FTA); Comprehensive Economic Cooperation Agreements; bilateral investment agreements/ investment protection agreements/ international negotiations etc.
5. 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.
6. Nodal for matters related to DBT including coordination with the DBT Mission, Cabinet Secretariat to on-board/ off-board schemes of the Ministry on DBT Bharat portal.
7. Examination of the representations received from various stakeholders on GST Rates in consultation with Divisions concerned and taking up the same with GST Council.

### b. Activities undertaken

- Preparation of CoS Note on LiFE. Also,

coordinated the Motivational Session on LiFE which was conducted by His Holiness Sri Sri Ravi Shankar and conducted as part of “National Conference of Ministers of Environment, Forest and Climate Change”, at Ekta Nagar, District Narmada, Gujarat

- Prepared comments on various themes of trade and environment of WTO and forwarded to Department of Commerce like subject of environment being used as a non-tariff measure in the forthcoming meeting of the Committee on Trade and Environment (CTE) of the WTO, comments on concerns related to Environment raised in WTO TBT Committee Meetings etc.
- Provided comments on EU's Carbon Border Adjustment Mechanism (CBAM) and US's proposal of Indo Pacific Economic Framework (IPEF) as also on Cabinet Note of IPEF.
- Prepared comments on India-Australia Comprehensive Economic Cooperation Agreement (CECA) and sent to Department of Commerce.
- Prepared comments/ inputs on various matters of Trade and Sustainable Development as part of Chapters in India UK FTA, India EU FTA, India Canada Comprehensive Economic Partnership Agreement (CEPA) and Early Progress Trade Agreement (EPTA)
- **Provided comments/ inputs to DoCon (a) India's Offer in Environmental Services and (b) India's Offer in Services Incidental to Agriculture, Hunting and Forests under ongoing FTA negotiations**
- **Furnished comments of MoEF&CC on the Draft Cabinet Notes on IPEF, District as Export Hubs Ease of Doing Business and Living, Statement on Industrial Policy 2022, Introduction of DESH Bill, 2022, stand proposed to be taken by India at the Twelfth Ministerial Conference (MC12) of the World Trade Organization etc.**
- Furnished comments on draft proposal for Joint Statement by the SCO Council of Heads of Government on “**Jointly Promoting Post-pandemic Stable Economic Recovery**” received from DoC.



- Furnished proposals of Climate Change Division and Wildlife Crime Control Bureau (WCCB) to DPIIT, Ministry of Commerce and Industry for investment by Japan under "Japan India Investment Promotion Partnership"
- Prepared material for Economic Survey 2022-23 and forwarded to Department of Economic Affairs (DEA).
- Furnished Comments of MoEF&CC on 'Action points from meeting of Hon'ble FM with Chief Ministers/ States Finance Ministers and Lt Governors of UTs to step up Investment, Infrastructure Development and Economic Growth' to Department of Economic Affairs, Ministry of Finance.
- Reported Monthly Progress and Annual Progress reports on achievements of DBT schemes to DBT Mission, Cabinet Secretariat.

## 2. Scheme/Programme

The Environmental Information System (ENVIS) came into existence as a plan programme in 1983. ENVIS is a comprehensive network of environmental information centres located, across the Country for environmental information collection, collation, storage, retrieval and dissemination to different users, which includes decision makers, researchers, academicians, policy planners, research scientists and general public, etc. The network was expanded gradually with

the involvement of thematic subject areas. The Centres are located in autonomous bodies under the Ministry and in State Government Departments/ Organisations; and notable Non-Governmental Organizations (NGOs) and institutions of excellence in higher education and research. The ENVIS Scheme which was previously under the umbrella scheme 'Decision Support System for Environmental Awareness, Policy, Planning and Outcome Evaluation' has been subsumed within the revamped scheme of Environment Education, Awareness, Research and Skill Development which has been approved for 2021-22 to 2025-26 in June 2022. The revamped scheme has three components and one of the components is Environmental Information, Awareness Capacity Building and Livelihood Programme (EIACP).

### Action taken by EIACP Programme Centers (PC) Hubs and RPs for Promotion of ban on Single Use Plastic (SUP) throughout India

All PC Hubs/RPs under the erstwhile ENVIS scheme prepared standees and banners for creating awareness on ban on identified Single use plastic items and to display them at prominent position(s) in the subordinate and attached offices, bodies and organizations of MoEFCC. A majority of the Programme Centres took part in the event.



Single use plastic banner displayed at PC Hub EPTRI    Single use plastic banner displayed at PC RP DZUM







### Reintroduction of Cheetah in India Campaign

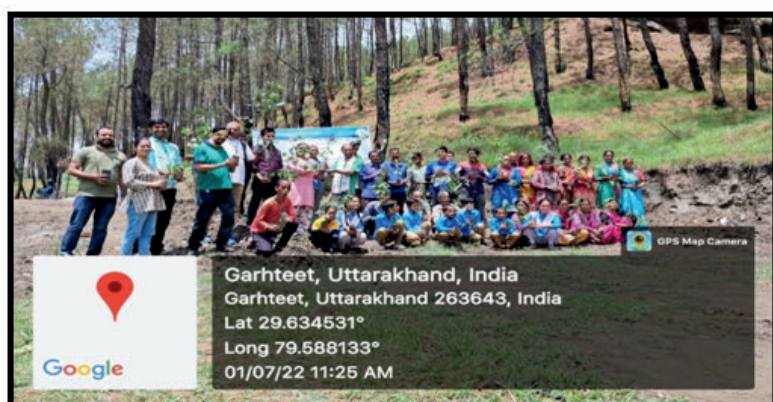
In order to contribute to the initiative of MoEF&CC for “Reintroduction of Cheetah in India”, a week long outreach program from 12-16 September 2022 to create awareness among school students was organized under ENVIS Scheme both physically as well as virtually. Thematic webinars were conducted for disseminating various interesting facts about

participation of 97,527 students from 1470 schools across 15 States and Union Territories over the week.

During this campaign, various experts from different Programme (ENVIS) Centres visited schools across the country. They sensitized students about the fastest land animal. The physical outreach involved participation of 64,899 students from 362 schools across 27 States over the week.



*EIACP PC RP CERC organized a Plantation drive at Shri New Vidya Vihar School for Girls, Ahmedabad*



*Geo-tagged Photographs during van mahotsav-2022 by ENVIS RP G.B. Pant National Institute of Himalayan Environment (GBPNIHE), Kosi-Katarmal, Almora*

### Celebration of World Environment Day, 2022

To mark World Environment Day i.e. 5 June 2022, Pan India network of EIACP Programme Resource Partners and Hubs organized various activities namely mass

plantation drive, awareness rally, campaigning, poster publication, environment quiz, webinar, workshop etc. under the headings Awareness Activity, Knowledge Product, Contests and Webinars.





Mass Rally in World Environment Day 2022

Sit & Draw Competition of Group-C (9+ to 12 yrs.)

### World Ozone Day 2022

The theme for the World Ozone Day 2022 marked on 16 September was Montreal Protocol @35: global cooperation

protecting life on earth. EIACP Programme Centres Hubs and RPs created awareness about Ozone and its importance on World Ozone Day 2022.



Ozone day celebrated by EIACP PC at Lakshadweep, Department of Environment and Forest UT of Lakshadweep

Shri Pravir Pandey, Additional Secretary & Financial Adviser, MoEF&CC visited HIMCOSTE and met various team members. Various knowledge products prepared by the HP Hub were also showcased. Thereafter, a tour providing the

glimpses of outreach activities, certificate courses/training programmes conducted under GSDP, offline and online competitions, webinars, workshops was conducted.





**Knowledge products released during the year** 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.



Release of Knowledge product  
published by ENVIS PC RP-BSI

- IFGTB ENVISRP developed an interactive, real time Mobile Application **“Forest Seed Science and Technology”** in which seed handling techniques and useful information for 100 forest tree species under the category: 1. Plantation Species, 2. Tree Born Oil Seeds, 3. Non Timber Forest Products (NTFP) Species, 4. Medicinal Species, 5. Rare, Endangered and Threatened (RET) Species and 6. Shola Species has been compiled. Information such as the seed collection, processing of seeds, storage, testing, breaking of dormancy, and different methods of seed treatment to enhance germination of the respective species is detailed in this Mobile Application.
- BNHS ENVIS RP has developed a mobile application on Avian Ecology for “Effective field data collection and data entry”. Researchers can easily add their observations using tabs in the app. It automatically captures the date/ time, latitude and longitude at the time of entry. BNHS ENVIS RP has also

- Hon'ble Minister of MoEF&CC, Shri Bhupender Yadav and Hon'ble Minister of State, MoEF&CC, Shri Ashwini Kumar Choubey accompanied by Mrs. Manju Pandey, Joint Secretary, MoEF&CC released the book **'The Wild Orchids of Goa'**. The book was published by BSI ENVIS RP on 01.07.2022 at Kolkata. Hon'ble Cabinet Minister, MoEF&CC, Shri Bhupender Yadav visited and interacted at the stall of BSI EIACP RP publication during his visit to Central National Herbarium, BSI, Howrah on 01.07.2022.



Poster displayed at Haryali  
Saptah prepared by ENVIS RPSACON

- developed a mobile application on “Bird Identification” for amateur birdwatchers and students. Classification of birds is based on their habitats – Urban, Forest, Grassland and Wetland.
- ENVISRP at School of Planning and Architecture (SPA), New Delhi and IIHH (Sulabh) ENVIS RP organized round table event on "Urban Waste Management & its Implications on LiFE (Lifestyle for Environment)" on 20 October 2022.
- ENVISRP at School of Planning and Architecture (SPA), New Delhi and IIHH (Sulabh) ENVIS RP organized round table event on "Urban Waste Management & its Implications on LiFE (Lifestyle for Environment)" on 20 October 2022.
- Gujarat Ecology Commission (GEC) ENVIS Hub for the Gujarat State, organized a two-Day National conference on “COASTAL ZONE MANAGEMENT – POLICY TO ACTION” during 26-27 July, 2022 at Mahatma Mandir, Gandhinagar, Gujarat.





*EIACP PC-RP developed real time mobile application*



*EIACP PC RP SPA and IIHHorganized round table event on "Urban Waste Management & It's Implications on LiFE*

### Inauguration of India's first GSDP Marketing Outlet in Sikkim

The Hon'ble Forest Minister Shri Karma LodayBhutia, Government of Sikkim and Shri Arun Kumar, Senior Economic Adviser, MoEF&CC Government of India inaugurated India's first GSDP marketing outlet of Sikkim ENVIS Hub at Forest Secretariat premises in Deorali, Gangtok on March 7, 2022.

### Inauguration of India's first Marketing Outlet in Sikkim







### Green Skill Development Programme (GSDP)

*Interpretation on Bee Keeping and Handling  
by Resource Person at Sikkim ENVIS Hub*

*Dahanu GSDP program-Lantana training-  
pictures of certificate distribution.* Green Skill Development Programme was launched in June 2017 on pilot basis to skill youth in environment, forest and wildlife sectors and enabling them to be gainfully employed or self-employed. The programme was expanded to an all India level with 43 Courses offered in 2018-19. During 2019-20, 140 training

programmes were conducted at 46 locations throughout the country covering diverse fields and 2,655 youth joined the 'Green Skilled Workforce'. During 2020-21, 48 training programmes were conducted at 28 locations throughout the country covering diverse fields and 960 youth joined the 'Green Skilled Workforce'. During 2021-22, 96 training programmes were conducted at 35 locations throughout the country covering diverse fields and 1928 youth joined the 'Green Skilled Workforce'. The training involves almost 70% skilling in the form of practical training and around 30% theory component.



*Interpretation on Bee Keeping and Handling  
by Resource Person at Sikkim ENVIS Hub*



*Dahanu GSDP program-Lantana  
training-pictures of certificate distribution.*

### 12.6 Statistics Division

Statistics Division in the Ministry of Environment, Forest and Climate Change liaisons with all divisions of the Ministry and, where necessary, its subordinate offices and autonomous institution to strengthen the process of collection, validation processing and interpretation of statistical data. Statistics Division also works as SDG coordination Unit in the ministry.

Statistics Division of the Ministry undertakes various tasks under following component:

#### I. Activities undertaken in respect of Environmental Statistics:

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. Annual Report of the Ministry for the year 2021-22 was compiled and submitted to the Parliament.
- iii. 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. The division coordinates with the States for preparation of SoER for States and UTs and undertakes the process



for preparation of SoER at National level. The work of SoER at National level and for Chandigarh UT and states of Uttarakhand and Punjab is under progress.

- iv. 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); The division supported the Ministry of Statistics and Programme Implementation (MoS&PI) for publication of 'EnviStats' I publications on Environment Statistics. Statistics Division coordinated with the Divisions to provide inputs on behalf of the Ministry for the publication on data related to forests, climate change, wild life and pollution.
- v. The Global Environmental Outlook is a comprehensive assessment of the State of the World Environment under review. In this context a Steering Committee had been constituted to deliberate on the mandate of GEO 7 Report and provided inputs to upcoming UNEA in this regard. DDG(S) was nominated as representative of MoEFCC in Steering Committee and has attended all the virtual meetings held in this regard and provided inputs. Future and Options document for UNEA was finalized by the Steering Committee. Thereafter DDG(S) has provided inputs for Scoping Document of GEO-7
- vi. Inputs were provided to finalize the Report of Committee on Energy Data Management constituted by NITI Aayog. Also, participated in the Steering Committee of the Ministry of Power for data gaps in the Energy Sector and official mechanisms to redress the same.
- vii. Inputs were furnished to sub- group on Agriculture set up for Climate Change Adaptation for the National Adaptation Plan.

## II. Activities undertaken in respect of Sustainable Development Goals, SDGs in the Ministry

MoEF&CC is implementing Sustainable Development Goals (SDGs) relevant to the Ministry and is in particular responsible for SDG Goals 12,13 and 15. Statistics Division acts as the nodal division for SDG and coordinates for the implementation of SDGs and related frameworks in the ministry. The following is the role of SDG Coordination unit-

- I. Coordination with NITI Aayog, MoSPI and Custodian Agencies of SDG Global Indicators.
- ii. The division coordinates with the divisions and various line ministries for the metadata, baseline data and data flow.
- iii. Works on the data gaps and suggests alternate methodology for computation of various indicators for SDGs
- iv. Presents Ministry's consolidated proposals in High Level Committee of MoS&PI (HLSC) for SDG indicator refinement.
- v. Provides technical support for metadata and refinement of indicators.
- vi. The following work was undertaken in respect of the National Indicator framework of the SDGs-
  - a. The national indicator was finalized against the global SDG indicator 12.1.1 after consultation with various line ministries and departments.
  - b. The national Indicator SDG 11.6.3: The number of good air days when the Particulate matter level is below country standards for PM 10 was finalized and the metadata and data was shared with M/O Statistics and Program Implementation to add in the latest NIF as released in June 2022.

The indicator 15.2.1: Progress towards sustainable forest management was finalized and the metadata along with partial data was shared with M/O Statistics

**15.2.1: Progress towards sustainable forest management**

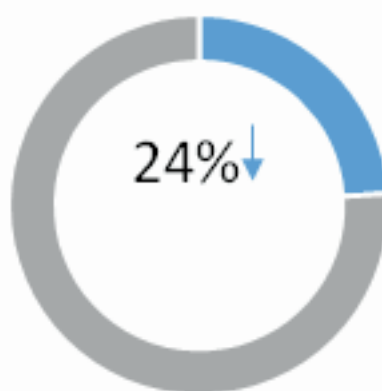
Component	2017	2019	2021
Net change in area under forest and tree cover (in sq. Km)	Net change in forest cover:6778 Net change in Tree cover: 1243	Net change in forest cover:3976 Net change in Tree cover: 1212	Net change in forest cover:1540 Net change in Tree cover: 721
Above-ground biomass in forest ('000 tonnes)	2237549.00	2256533.00	2319910.00
Proportion of geographical area under legally established protected areas (in percent)	4.93	5.01	5.26

- a. The consent to the indicator 15.8.1: *“Whether the country has adopted relevant national legislation and is adequately resourcing the prevention or control of invasive alien species”* was given and the indicator was adopted in the NIF against the global indicator in order to align the NIF with global frame

work

- ii. India has shown reduction of 24% in Emission intensity of GDP over 2005 level. The corresponding NIF is SDG 13.2.1: Pre 2020 action: Achievement of pre-2020 goals as per country priority (percentage reduction in emission intensity of GDP, over 2005 level)

**Achievement of pre-2020 goals**  
**India achieved reduction in Emission Intensity of GDP over 2005 level**



**III. Activities pertaining to Environmental Accounting**

- a) The Division provided comprehensive comments on the Compendium of Asset Accounts for Mineral and Energy of the States 2020-21 released by GASAB (Government Accounting and Standards

Advisory Board) under CAG in 2022.

- b) The division 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. The division provided inputs on various Global Consultations like *Inputs for Treatment of Emission Trading Schemes in System of National Accounts due for revision in 2025*.

- c) The division supported the Ministry of Statistics and Programme Implementation (MoSPI) for publication of 'EnviStats' II 2022 publication on Environmental Accounts focussing on Solid Waste Account, Wetlands Ecosystem, Forest Ecosystem etc. Statistics Division coordinated with the Divisions to provide inputs on behalf of the Ministry for the publication.
- d) The division also provided the inputs to MoS&PI on the Ocean Account Diagnostic Tool Template for India.

#### IV. 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).

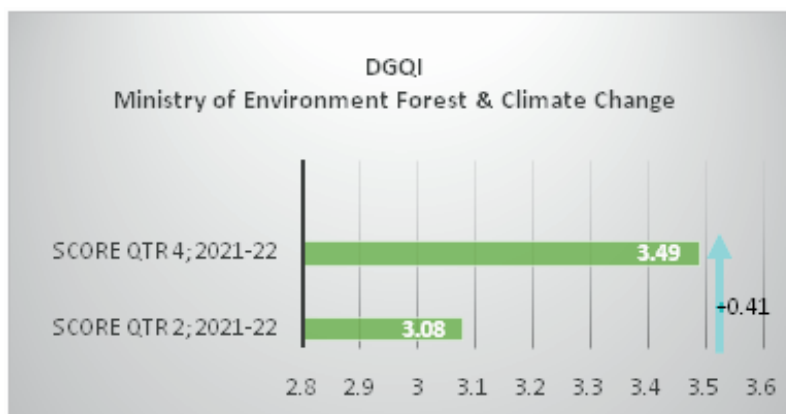
In this regard a dashboard has been prepared for the monitoring exercise of global indices by NITI Aayog. DDG (Stats) has been nominated as the nodal Officer for the GIRG in respect of EPI and CCPI. Accordingly, the Division coordinated with the relevant Divisions of the Ministry and other line ministries to obtain information pertaining to the various parameters in the indices.

Analysis of global data sets being used for EPI 2022 was undertaken and Indian data sources being used for these datasets were examined in terms of their linkages to Indian data sets, time lag of publication and data transformations

The analysis for the data sets used in CCPI was done and the points observed were shared with the publishing agency. CCPI 2023 report was released recently and India secured 8th position in the index which is 2 positions up from the last edition. CCPI has 4 components under which 14 indicators are identified which are used to rank 63 countries. Since no country was strong enough in all index categories to achieve an overall very high rating, thus the top three places i.e 1-3 are vacant. Thereafter India is amongst the top 5 countries. With India (8th), the United Kingdom (11th), and Germany (16th), only three G20 countries are among the high performers in CCPI 2023. Thus India's rank is the best amongst the G 20 countries.



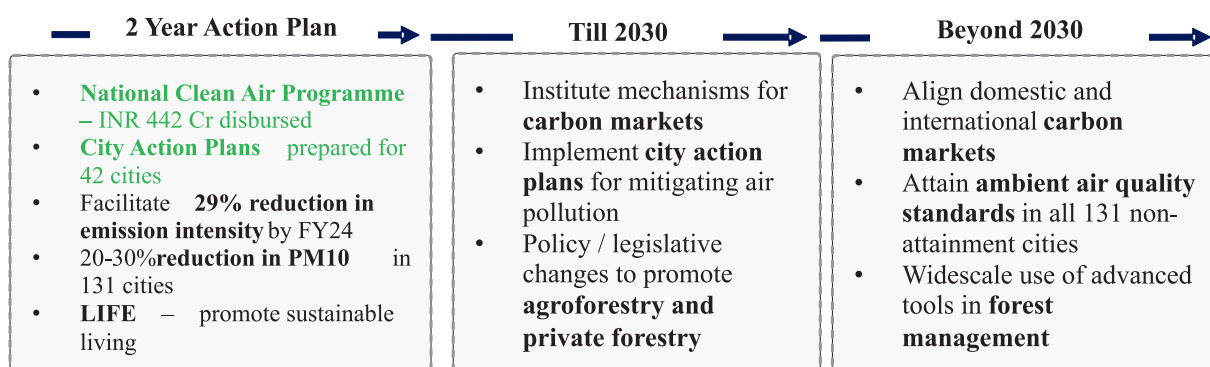
DGQI is built by DMEO for ranking the ministries on the basis of level digitization, security, quality and sound use of data generated and handled under Central Sector Schemes, Centrally Sponsored Schemes and Non Scheme Interventions. A dashboard is prepared wherein the schemes of the ministry are pre populated. The division in coordination with other divisions of ministries has submitted the filled in questionnaire for CS/CSS schemes and Non-scheme interventions of the ministry on the dashboard of DMEO. The score of the ministry has improved to 3.49 in the fourth quarter of 2021-22 from 3.08 in the second quarter of the same year.



## VI. Vision 2047 and Vision 2024 under SGoS 3(Sectoral Group on Secretaries-Resources)

DDG(S) in coordination with Economic Advisor coordinated with all Divisions of the Ministry through SGoS Cell for preparing

part of Vision for Sectoral Group of Secretaries 3 on Resources . The Cell also enabled regular monitoring of Key Performance Indicators of MoEF&CC derived from recommendations of 5 Year Vision 2024 of SGoS-3.



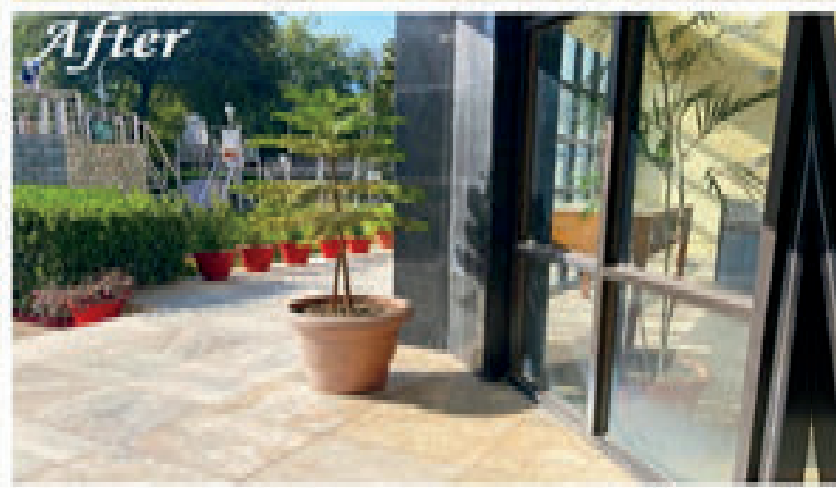
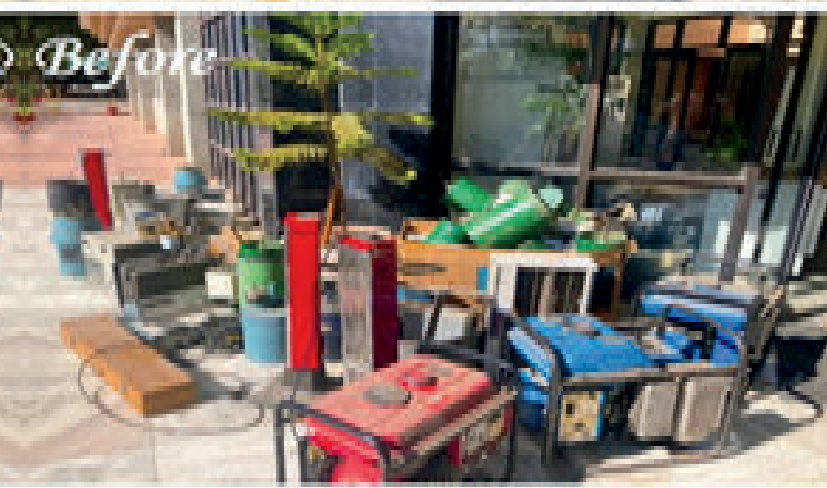
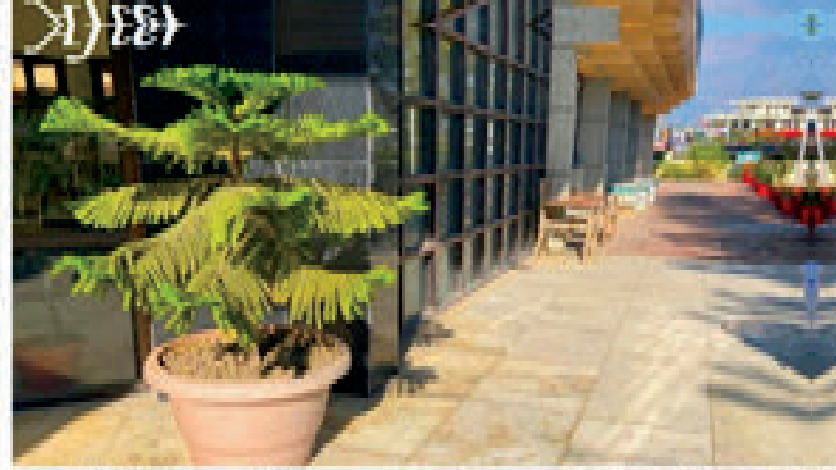
## 12.7 Non-Governmental Organization (NGO) Cell

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.

Major functions of the NGO Cell are:

1. Liaison with NITI Aayog and other Government Ministries in respect of various guidelines/ directions concerning NGOs.
2. As per directions of NITI Aayog, a portal for applications for sanction/ release of grants/ financial assistance to NGOs is being 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. Further, as per directives of NITI Aayog and their proposed Darpan 2.0 version, NIC has been requested to provide some additional features in this portal to ensure that NGOs who are participating in CS/CSS Schemes, and taking grants, are spending the grants for the purpose for which the grant was given. GIS or other appropriate technologies are required to 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. Further, the portal is to have added features to check milestones for each scheme, so provided by different PDs, and mandatory linkage with PFMS to have /capture information about the payment(s) made till the last point/ beneficiary.



CHAPTER

13

*Administration and Civil Construction*





### 13.1 Administration

#### Introduction

- A. There are three sections in Administration viz. P-I, P-II and P-III. Section-wise brief description is given hereunder:

#### PI Section

Cadre Management of Scientific posts of the Ministry and 19 Integrated Regional Offices, creation of Scientific posts of Ministry. Establishment/service matters of all Scientific posts of the Ministry (Main) viz. appointment, promotion, work allocation, court cases, leave cases and retirement benefits (only of those posted in Ministry Main). Disciplinary proceedings of Group 'A' 'B' and 'C' officials of Ministry other than IFS officers under Central Staffing Scheme of the Ministry;

Cadre management of Technical posts of the Ministry viz. creation, appointment, promotion, work allocation, establishment/service matters, Recruitment Rules, court cases, retirement benefits and leave cases (only of those posted in Ministry Main);

Cadre management of Canteen staff of the Ministry viz. creation, appointment, promotion, establishment/service matters Recruitment Rules, leave cases, retirement benefits, court cases, etc.;

Maintenance of ACRs/APARs of Group 'A' 'B' and 'C' officials of MoEF&CC other than IFS officers of the Ministry;

Processing of LTC, GPF, House Building Advance, Computer Advances of all personnel of the Ministry;

Issue of Foreign Deputation Orders in respect of Environment Wing of the Ministry;

Processing of medical advance and

reimbursement cases of Scientific, Technical and Canteen staff;

Recruitment & Framing of Recruitment Rules of technical posts of the Ministry;

Processing and finalization of complaints, suspension cases and disciplinary proceedings having administrative angle;

Internship Scheme of Ministry of Environment, Forest and Climate Change; and Review of services under FR 56(j).

#### PII Section

Cadre management of CSSS/CSS/CSCS, Central Staffing Scheme, IES and ISS officers posted in MoEF&CC;

Establishment/service matters of Secretariat Group 'A', 'B' & 'C' posts (except officers working on the strength of IFS and NAEB) viz. appointment, review cases, leave cases, retirement and retirement benefits, medical claims, tuition fee reimbursement, leave encashment, children education allowance, court cases, etc.;

Recruitment & Framing of Recruitment Rules of non-technical ex-cadre posts of the Ministry (E&F) Wing;

Training Programme of AIS and all Secretariat officers;

Matters relating to Minister's staff;

Outsourcing (deployment and policy matters);

Election Work;

Work Allocation among all officers/staff other than Scientific/Technical officers; and Nodal Division of MoEF&CC of eHRMS.

Updation of AVMS portal.



Monitoring of filling up of vacancies by all organizations of Ministry of Environment, Forest and Climate Change under Mission Recruitment Mode.

Processing of Pension cases and disbursal of retirement benefits.

### **PIII 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 MoEF&CC, Group 'A' Scientific Posts; and Policy matters of Group 'A' Scientific Posts in connection with Flexible Complementing Scheme.

### **B) Activities undertaken during the reference period (i.e. 01.01.2022 to 31.12.2022):**

During the period, the major activities undertaken by Administration division are as under: -

Promotion of 15 Scientists to the next higher grade under Flexible Complementing Scheme.

Promotion of 1 Research Officer (Environment) Grade I to the post of Scientist B.

Recruitment of 04 Scientists in various grades on direct recruitment basis.

Recruitment of 01 Research Investigator (Environment) on direct recruitment basis.

Requisition for recruitment of 08 Research Assistants (Environment) sent to SSC.

Monitoring and timely disposal of RTI applications and PG portal cases received during the period.

Timely processing of retirement benefits.

Cadre restructuring of Technical Cadre (Forestry)

### **Promotion**

Total 87 cases were assessed by various Committees viz. Internal Screening Committees (ISC), Departmental Assessment Committees (DAC) and Departmental Peer Review Committees (DPRC) for promotion of Scientists of the Ministry including its subordinate offices under Flexible Complementing Schemes as on 01.07.2021, 01.01.2022 and 01.07.2022. Out of 87 Scientists 76 have been promoted to the next higher grade.

### **Recruitment:**

Following Scientists have been appointed in this ministry and its subordinate office -  
01 Posts of Scientist 'E' in MoEF&CC.  
02 Posts of Scientist 'B' in MoEF&CC.  
10 Posts of Scientist 'C' in Botanical Survey of India

### **13.2 Indian Forest Service (IFS) Cadre management**

#### **Mandate**

Ministry of Environment Forest and Climate Change is the Cadre Controlling Authority for the Indian Forest Service (one of the three All India Services).

IFS division deals with all cadre Management related matters of the service.

The total authorized cadre strength of the Indian Forest Service as on 1<sup>st</sup> January, 2022 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 36 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 States and at the Centre.

#### **Activities of IFS Division**



Appointment of Direct Recruit Indian Forest Service Officers recommended by Union Public Service Commission.

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 22 cadres during the year 2022.

Cadre review of Indian Forest Service in respect of States of Bihar, Uttar Pradesh and Kerala have been proposed which is under consideration in DOP&T.

Smart Performance Appraisal Report Recording Online Window (SPARROW) implementation for online filing of PAR in respect of IFS Officers has been generated.

Up-to-date Civil List of IFS officers as on 01.01.2022 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-MoEFCC) circulars, training programme circulars, Rules and Regulations concerning IFS. Further, website also has Performance Appraisal Report (PAR) availability status of IFS officers which can be accessed by concerned officer. Each and every members of the Service have been provided facility to have Unique Email account through NIC on this site and members of Service have been provided facility to update data relating to their posting details online for periodical upgradation.

23 IFS officers selected at various levels under the Central Staffing Scheme of the Ministry and 52 IFS officers were empanelled /appointed at various level under the Central Staffing Scheme of Department of Personnel & Training.

Around 20 Court Cases pending in various Courts across the Country were disposed off.

A total of 160 RTI application and 92 CPGRAM applications were disposed-off





during year 2022.

### 13.3 Vigilance Division

Disciplinary proceedings (involving vigilance angle) against all serving and retired IFS officers of AGMUT Cadre and other Officers and officials under the MoEF&CC. 4 (Four) 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. 2 (two) Appeals were disposed of during the period.

Conducting and appointing of Inquiry Officer (I.O.) and Presenting Officer (P.O.) for Preliminary Information and Inquiry.

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 01.01.2022 to 20.12.2022, Approx. 101 complaints were received from CVC/CVC portal and directly in the Ministry and examined and 117 complaints were closed/filed including old ones.

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. 2 (two) cases of sanction for prosecution were granted during the period.

Interacts with Central Bureau of Investigation (CBI) in various matters and facilitates for obtaining the information/documents from various Divisions of the Ministry.

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.

Receipt and Scrutiny of Annual Immovable Property Returns (AIPRs) of Ail Officers and officials (including IFS officers) of MoEF&CC.

According clearance from vigilance angle in respect of officers and officials of the Ministry. 1240 vigilance clearance were accorded during the period.

All Court cases having vigilance angle.

Permission/ Intimation of Movable/ Immovable property under Conduct Rules, 1964 and All India Service (Conduct) Rules, 1968.



### 13.4 Parliament Section

#### Introduction:

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).

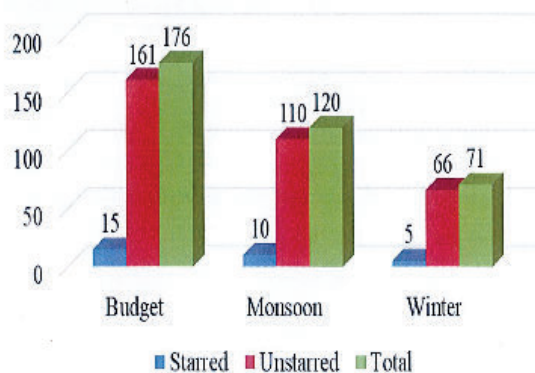
### I. Parliament Questions:

During the year 2022, at the end of the Winter Session on 23<sup>rd</sup> December, 2022, 806 Parliament Questions were answered by the Ministry pertaining to various aspects of Environment, Forest and Climate Change. 367 Questions were replied in the Lok Sabha, out of which 30 were Starred and 337 were Un-starred. In the Rajya Sabha, total 439 Questions were replied, out of which 39 were Starred and 400 were Un-starred.

The Questions covered a wide range of issues with which this Ministry is concerned with and prominent among them were the Questions relating to Forest Conservation, Pollution, Wildlife Management, Climate Change, Bio-safety, Environmental Conservation, Environment Impact Assessment, Freshwater and Marine Conservation, Environmental Education, Agriculture, Energy Studies, Environment and Forest Trade Issue, Water Management, Health and Sanitation, Disaster Management, Alternative Technologies and Medicinal Plants etc.

#### 1. Lok Sabha

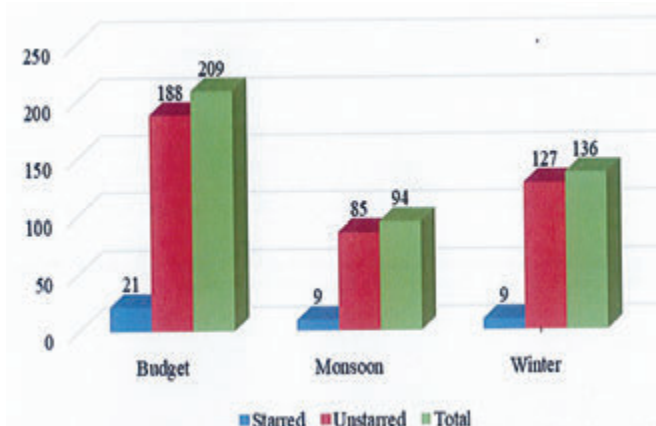
Type	Budget	Monsoon	Winter	Grant Total
Starred	15	10	5	30
Unstarred	161	110	66	337
Total	176	120	71	367



**FIGURE A NUMBER of Questions replied by the MoEF&CC in all Sessions of Lok Sabha during 2022**

#### 2. Rajya Sabha

Type	Budget	Monsoon	Winter	Grand Total
Starred	21	9	9	39
Un starred	188	85	127	400
Total	209	94	136	439



**FIGURE 'B' Number of Questions replied by the MoEF&CC in all Sessions of Rajya Sabha during 2022**

### Parliamentary Standing Committee and Consultative Committee Meetings:

Parliament Section of the Ministry, during the year 2022, coordinated five meetings of the Department related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change and four meetings of Consultative Committee of the Ministry.

The following subjects were discussed in the Department Related Parliamentary Standing Committee of Science and Technology, Environment, Forest and Climate Change:

1. "The Wild Life (Protection) Amendment Bill, 2021"
2. Demands for Grants (2022-23)
3. Climate Change and Agriculture.
4. (i) Preparation for dealing with winter pollution in north India; and (ii) Review of National Clean Air Programme (NCAP).
5. Critically Endangered Flora and Fauna in India: Review.



pollution in north India; and (ii) Review of National Clean Air Programme (NCAP).

5. Critically Endangered Flora and Fauna in India: Review.

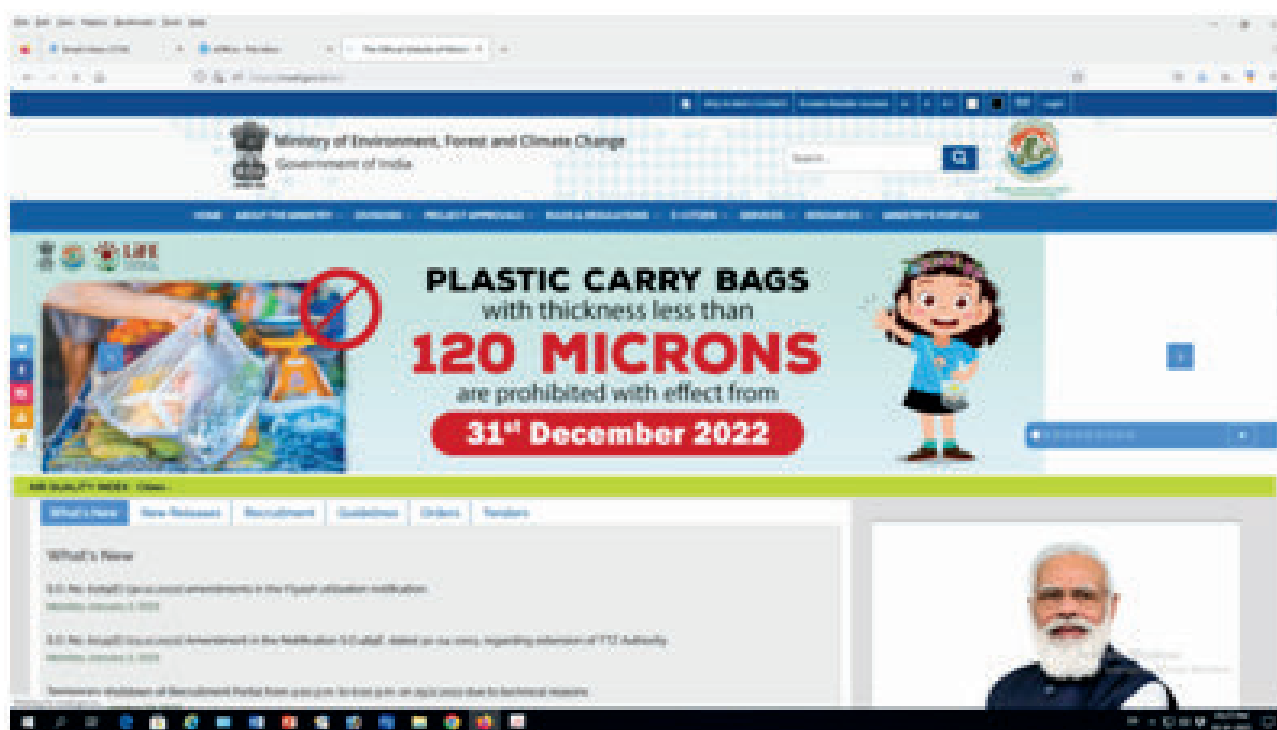
The subject matter of four Consultative Committee meetings were: -

1. Parivesh
2. Extended Producer Responsibility (EPR) Rules
3. Agro Forestry
4. India at CITES - COP 19

### 13.5 Information Technology and E-Governance

#### a. Introduction

Government working is based on intensive knowledge and information sharing. Effective communication and sound Information and Communication Technology (ICT) go hand in hand. For speedy implementation and monitoring of various programmes/ schemes and to make most of ICT to secure efficiency in working, Ministry has embarked up on a comprehensive exercise to implement various e-Governance activities/projects.



#### b. Activities undertaken including celebrations for Azaadika Amrit Mahotsava

Successfully migrated from eOffice Ver.6.0 to eOffice Ver.7.0.

Implemented eOffice in Forest Survey of India, National Zoological Park and Wildlife Crime Control Bureau and provided offline training.

VPN Access provided to all eOffice users in the Ministry and its attached/ sub-ordinate offices (as per request).

All meetings are organised through Video Conferencing (VC)/Hybrid including EAC

meetings.

Creation of Meeting IDs and moderated Video Conferencing System using Webex VC System.

Created email IDs in @gov.in domain for all the users of eOffice.

#### c. Progress/Achievements

Continued the implementation of e-Office in the Ministry under Digital India Programme (collected details of officers and staff, registered 1995 Users in eOffice portal, Posting and Promotion, Role Post, Setting of Workflow, Updation of Leave Balance details, Provided Training, updation in





Notice Board).

Provided training for Reskilling/upskilling of the existing support Staff under the Increasing Efficiency in Decision making in Government' programme.

Digital Signature Certificate (DSC) made for 280 Access provided all eOffice users in the Ministry and its attached/ sub-ordinate offices.

Handle IT Related Services in National Conference of Ministers of Environment, Forest and Climate Change held during 23rd - 24th September, 2022 at Ekta Nagar, District Narmada, Gujarat.

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.

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 and Scientists in the Ministry.

Continued the implementation of SPARROW for online recording of APARs in r/o IFS officers.

Continued the Management of Website, Internship, eSamiksha, PRAYAS, eVisitor and various other portals in the Ministry..

Examination of all policy issues pertaining to Information Technology.

### **Online Consent Management & Monitoring System (OCMMS):**

**The OCMMS** is 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.





OCMMS has been implemented in 26 States/UTs viz. Arunachal Pradesh, Andhra Pradesh, Bihar, Chhattisgarh, Chandigarh, Daman & Diu, Haryana, Jharkhand, Jammu & Kashmir, Kerala, Meghalaya, Odisha, Punjab, Puducherry, Telangana, Tripura, Tamil Nadu, Uttar Pradesh, Sikkim, Delhi, Goa, Himachal Pradesh, Assam, Uttarakhand, West Bengal and Andaman & Nicobar. The OCMMS is integrated with DIPP / State Government Single Window System for Twelve (16) States viz. Andhra Pradesh, Assam, Chhattisgarh, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Odisha, Puducherry, Punjab, Tamil Nadu, Telangana, Uttarakhand, Uttar Pradesh and West Bengal. The mobile version of OCMMS is implemented in Eight (12) States viz. Andhra Pradesh, Assam, Bihar, Chandigarh, Delhi, Haryana, Jharkhand, Kerala, Punjab, Tamil Nadu, Chhattisgarh and Himachal Pradesh the same are made available under Play Store. The mobile app for Public Grievance System has been developed for the 5 State of Bihar, Chandigarh, Delhi, Jharkhand and Punjab.

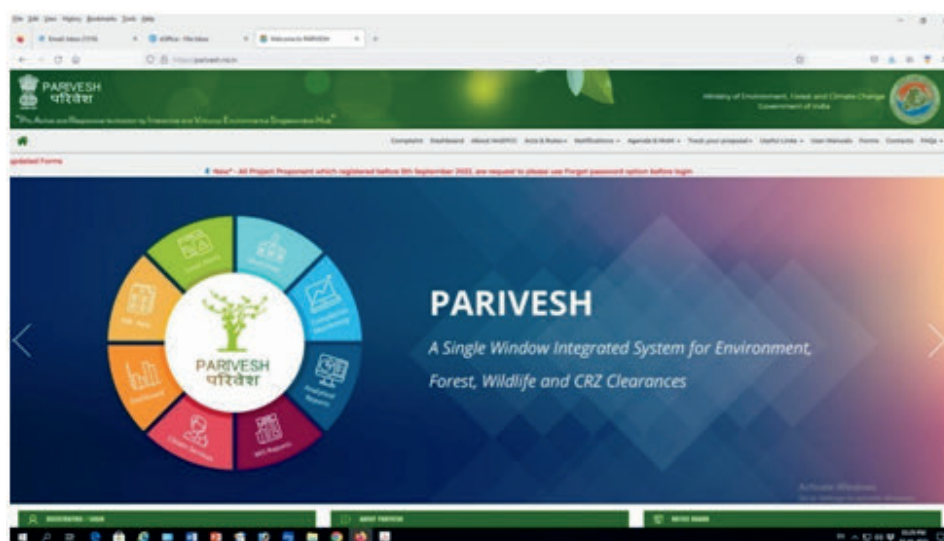
**PARIVESH:** In pursuant to the spirit of 'Digital India' initiated by Shri Narendra Modi, Hon'ble Prime Minister of India and capturing the essence of Minimum Government and Maximum Governance, a Single-Window Integrated Environmental

Management System named PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single window Hub) has been launched by the 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 MOEFCC, 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.

Enhancements and revamp of PARIVESH, to meet the evolving needs of the Ministry and the stakeholders is in progress.





### 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:

#### For Project Proponent/User Agency:

Single registration using NSDL PAN services and single sign-in for all types of clearances (i.e. Environment, Forest, Wildlife and CRZ)  
KYC Authentication for Existing proponent  
Unique-id for all types of clearances required for a particular project  
Single Window interface for the proponent to submit applications for getting all types of clearances (i.e. Environment, Forests, Wildlife and CRZ clearances)  
Helps the user to apply, view, track, interact and respond to the queries whenever he wants and wherever he is through web-based system. No physical interaction with the officers  
Facility to download the e-signed approval letter

Supplemented by mobile app “PARIVESH” for Android and iOS based smart phones. The status of the application, replies to queries, agenda & minutes of meetings, approval letters can also be accessed/ downloaded anytime on a smart phone through this App  
Dashboard for accessing various analytical reports including charts/ graphs indicating pendency of information, time taken by processing authorities at each level, etc.  
SMS and email alerts at all levels of application processing  
Facility for uploading the compliance reports for clearances. Facility for uploading of geo-tagged images on GIS maps  
Alerts through SMS and emails in case of non-compliances. This will help ensuring timely compliance of clearance conditions  
Improved public image through improved environmental compliances  
Form Rationalization - Elimination of duplicate and erroneous entries and Reduce effort for validation of same information at multiple points  
Know Your Approval and DSS module has been launched  
Standardization of Agenda & MoM templates  
- Time reduction in Agenda & MoM finalization and thus in clearance  
Change in registration process of applicants - Ability to map multiple projects to a unique business entity  
Enhancement has been done in all Forms  
Integration of PARIVESH with NSWS is in progress

#### For Processing Authorities:

A Single Window System for Central, State and District level clearances Auto generation of agenda (based on first come first served principle), minutes of the meetings and online generation of approval letters through digital signatures/e-Sign by competent authorities resulting in ease and uniformity in processing of clearance applications  
Accessing of information about the pendency and timeline fulfilments of various applications under consideration Online





submission and monitoring of compliance reports including geo-tagged images of the site by regulatory body / inspecting officers even through the Mobile App for enhanced compliance monitoring Integration with single window clearance systems launched by DIPP and various other state governments Processing of files through mobile app will facilitate for expeditious decision-making Geographic Information System (GIS) interface for the Appraisal Committee, to help them in analysing 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 Enhanced system generated Agenda for EC has been developed and made live New authority process workflow for FC has been made

#### 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 Know Your Approval (KYA) & Decision Support System (DSS) module to

get better understanding of approvals required

#### Modules of PARIVESH:

Online Registration of Proponent/User Agency Workflow / file processing and approval management E-File Noting Alerts& Notification (SMS and email)GIS based Appraisal and Geo-tagging Compliance Monitoring for project proponents and regulatory authorities Analytical Reports Online Agenda Management Online Minutes of Meeting Query Module for Essential/Additional Details Sought (EDS/ADS) Generation of Approval letters for TOR / EC / FC / Wildlife / CRZ clearances Dashboard for project proponents, processing authorities and citizens E-Green skilled jobs Audit Trail FAQ KYA&DSS

**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 Cell (RTI)

As per the RTI-MIS portal, the MoEF&CC has received 3218 RTI applications and 303 RTI appeals under RTI Act, 2005 during the year 2022 (01.01.2022 to 21.12.2022) The Ministry has 80 CPIO's and 63 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.

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

#### a) Introduction

“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 new building at JorBagh Road, New Delhi which is a green building. It has the unique distinction of getting LEED India Platinum & GRIHA-5 Star Green Building ratings.”

b) Activities undertaken and achievement including celebrations of Azadi Ka Amrit Mohatsav.

- Cleanliness of the premises of Indira Paryavaran Bhawan during Special Swachhta Abhiyan 2.0.

- **Special Swachhta Campaign 2.0:** The Special Swachhta Campaign 2.0 was observed from 2<sup>nd</sup> October, 2022 to 1<sup>st</sup> November, 2022

- **Papers/ files/ documents shredded:** about 750 Kg. Vacating an area of about 25 sq ft.

- **Online Auction: E-Waste:** 2000 kg of E-waste was disposed off vacating an area of about 120 sq ft. which included 35 printers, 35 CPUs, 35 TFT/ CRT monitors, 5 Laptops, scanners, keyboards etc.

- **Misc. furniture items:** 4000 kg absolute/non-repairable furniture's items were disposed off vacating an area of about 275 sq ft. which included 5 sofa seats, 60 defunct chairs and many wooden/Steel Almirahs and wooden racks etc. auctioned online.

A total of 1500 kg of Garbage was disposed off from the premises of Indira Paryavaran Bhawan vacating an area of about 144 sq ft.







- Indira Paryavaran Bhawan got FIRST position in Swachhta ranking in NDMC area in the OFFICE category for the month of December, 2022.
- Seven Vaccination programmes arranged for Covid-19 for the employees of the Ministry and 425 officers/staff of the ministry were given vaccination doses.



- Pursuant to the directions of the Hon'ble Minister, EF & CC, seating arrangement of officers/staff was reviewed and was streamlined to the maximum possible extent ensuring that the officers and staff of various divisions function in proximity

#### Innovative work on cleanliness activities

Scanning facilities were provided at IPB, Old CBI Building (Campa office & NMNH) as well as Pandit Din Dayal Upadhyay Bhawan, CGO Complex (SAICOM & NATCOM offices).

Old records of IA & FC Divisions were transferred from Old CBI Building to record room of IPB.

Agency selected through Tender process for uploading the digitized files into e-office.

Special care was taken on cleaning of entire premises (Washrooms, corridors, atrium, Canteen area, Terrace Garden, Record Room, basement) of IPB.

#### Compilation & Updation of data on daily basis on Special Swachhta Campaign 2.0

A google sheet was created and circulated to all Divisions of the Ministry and its subordinate offices/attached offices for compilation of data in respect of Special Swachhta Campaign 2.0 on daily basis.

The data were compiled from the google sheet and uploaded in the portal (<https://pgportal.gov.in/SCDPM2.2>) on





daily basis.

### GeM Expenditure: -

As per the instructions of Department of Commerce to increase the expenditure for procurement through Government E-Market (GeM) place, efforts were made to increase the expenditure for process through GEM.

### 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, Pollution, wildlife, forestry and other environmental matters.

Shri Satyajit Joint Secretary is the Nodal Public Grievance Officer for General Public Grievance & COVID-19 related cases.

Smt. Rita Khanna, Scientist-'G' is the Nodal Appellate Authority for appeal raised against disposed Public Grievances of the Ministry.

During the period 1<sup>st</sup> January, 2022 to 15<sup>th</sup> December, 2022 the PG Cell had received total 5,060 grievances, which includes 197 PGs bought forwarded from last year. Among this, 44 grievances are related to COVID-19.

During the Period, 728 Appeals have been received in the Ministry and out of these 698 Appeals have been disposed off.

The rate of disposal of Grievances and Appeals received is 95% (approx.)

Efforts are being continued by the PG Cell to strive towards Zero pendency of grievances. Weekly review meetings are being conducted regularly by both Hon'ble Minister and Secretary, EFCC for the quick redressal of all Public Grievances, and Appeals.

### 13.9 Implementation of Official Language Policy

Official Language Division implements Official Language Policy of the Union as prescribed in the Constitution of India, Official Language Act, 1963 (as amended 1967), Official Language Rules, 1976 (as amended 1987, 2007 and 2011), Annual Program and orders issued by the Government of India from time to time to ensure proper compliance. This includes translation of documents and implementation of Official Language policy in the Ministry.

#### Details of Activities undertaken (1.1.2022 to 15.11.2022):

**Meeting of Official Language Implementation Committee** – During the said period, two quarterly meetings of the Official Language Implementation Committee were held to review the status of implementation of Official Language Policy in the Divisions/Sections of the Ministry as well as in the Subordinate Offices of the Ministry located in Delhi-NCR.

**Hindi Workshops**- During the period 02 Hindi workshops were organized to enable the officers and employees of the Ministry and offices under its control to do their day-to-day work in Hindi.

**Inspections**-The Parliamentary Committee on Official Language conducted official language inspection in the Ministry as well as its 09 attached/subordinate offices. The officers/officials of the Official Language Division of the Ministry has also conducted official language inspection of 12 regional/subordinate offices.



Hon'ble MPs of Parliamentary Committee on Official Language and officers of the Ministry during Inspection of the Ministry

**Medini Puraskar Yojana:** To encourage writing books originally in Hindi on environmental topics, the awards under

Medini Puraskar Yojana 2020-21 of the Ministry were presented with prizes and citations by the Hon'ble Minister of State for Environment, Forest and Climate Change, Shri Ashwini Kumar Choubey in a function organized on 30th September, 2022.



Hon'ble Minister of State for Environment, Forest and Climate Change, officers of Official Division and distinguished guests with the Winners of Medini Puraskar

**Publication of Paryavaran magazine:** The 70th issue of the Ministry's 'Paryavaran' magazine has been published and articles have been invited for its 71st edition.

**Organisation of Hindi Mah:** Like every year this year Hindi Mah was also organized in the ministry from 01.09.2022 to

30.09.2022 for the officers and staff of Ministry, NAEB and CCU jointly. During this period, 07 Hindi competitions were organized. The citations were presented to Winners in presence of Hon'ble Minister of State for Environment, Forest and Climate Change, Shri Ashwani Kumar Choubey.

**13.10 Civil Construction Unit (CCU)**

The Government of India decided that each major scientific department with substantial annual civil work budget should have a civil engineering unit of its own for expeditious implementation of works connected with plan schemes. Accordingly, Civil Engineering Wing (now CCU) was created in March, 1987 in Ministry of Environment, Forests & Climate Change. CCU headed by Chief Engineer is a division under the administrative control of the MoEF&CC. 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 matter are submitted to the Secretary, MoEF&CC.

**Functions of the Division:** The CCU is engaged in execution of Civil & Electrical works of the MoEF&CC, its attached, subordinate and autonomous offices. These include BSI, FSI, ZSI, DFE, NMNH, IGNFA, ICFRE, NZP, IIFM, GBPIHED, IPIRTI, CPCB, WII and CZA. Most of the construction works where CCU has its own set up are executed by CCU. However, construction works at other locations are got executed through CPWD. The co-ordination and budget management of works executed by CPWD is being done by CCU.

**Activities Undertaken:****Works in Progress:**

S. No	Name of Work	A/A & E/S Amount (In Lakhs)	% Progress
1	C/o RMNH at Gangtok.	5759	87%
2	C/o National Museum and State of Art Auditorium, EBRC, ZSI, Gopalpur.	1108	95%
3	C/o Addl. building for lab cum training center, ZSI, Chennai.	686	50%
4	C/o Multipurpose hall for IGNFA, Dehradun	531	20%
5	C/o residential quarters at AZRC, Jodhpur	520	70%

**C.Works Completed.**

S. No	Name of Work	A/A & E/S Amount (In Lakhs)
1	C/o All Weather Swimming Pool, IGNFA, Dehradun.	1500
2	C/o residential quarters for CASFOS, Burnihat.	1143
3	C/o Ganga Aqualife Knowledge Management Centre, WII, Dehradun.	542





**Swimming Pool, IGNFA, Dehradun**



**Ganga Aqualife Centre, Dehradun**



**Badminton Court, CASFOS, Dehradun.**





CHAPTER

**14**

*Development Monitoring and  
Evaluation, Budget and Accounts*



## 14.1 Development Monitoring and Evaluation Division

### Introduction

The work of Development, Monitoring and Evaluation Division (DMED) is associated with the Development Monitoring and Evaluation Office (DMEO) in NITI Aayog. The Division function towards convergence of efforts through Government Funded Programmes to achieve Sustainable Development Goals (SDGs) and Nationally Determined Contributions (NDCs).

The work of DMED is detailed as under:

To carry out monitoring and impact Evaluation of the Ministry's funded schemes.

To focus on outcomes and take them into account during appraisal for continuation of the ongoing schemes.

To constitute Evaluation Monitoring Committee (EMC)

Coordination with NITI Aayog

Nodal Division for coordination with Ministry of Panchayati Raj (MoPR)

that the progress report of quarterly targets for FY 2022-23 in respect of schemes under OOMF are sent to NITI Aayog. the quarterly break-up of targets in respect of schemes is coordinated with schemes/programme divisions for uploading the quarter-wise progress on the OOMF dashboard of NITI Aayog.

DMED collected information from scheme/programme division for preparation of OOMF for FY 2022-23. Compiled OOMF 2022-23 has been prepared in respect of MoEFCC and sent to NITI Aayog and the same was submitted to Rajya Sabha Secretariat and Lok Sabha Secretariat for circulation to respective Members of the Committee.

DMED has also provided the inputs from various divisions in respect of the Action Taken Report of this Ministry w.r.t. OOMF review meeting held under the chairmanship of Hon'ble Vice Chairman NITI Aayog.

## IV. Progress in the FY 2022-23

NITI Aayog in collaboration with respective Ministry/Department has been preparing **Output-Outcome Monitoring Framework (OOMF)** for all CS/CSS schemes, with a view to bring focus on outcomes in addition to output and same has also been institutionalized through its incorporation in Union Budget since financial year 2019-20.

To facilitate the monitoring of progress of all Schemes, NITI Aayog had developed a dashboard and its online access had been given to all Ministries/ Departments in May, 2018 to regularly update the progress against the targets.

DMED coordinates with Scheme/Programme Divisions to ensure

## 14.2 Budget and Accounts

**Office of Chief Controller of Accounts** 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 various accounts of the Ministry viz. Finance Accounts, Appropriation Accounts and monthly account as well, monitoring expenditure to ensure adherence to Month/Quarterly Expenditure Plan, conducting Internal Audit and Scheme Audit, and monitoring of





compliance to the instructions issued by Ministry of Finance from time to time, has been ensured.

**The Internal Audit Wing (IAW)** conducts Internal Audit of PAOs, DDOs, Autonomous Bodies and performance audit of schemes of the Ministry. In the Financial Year 2021-22, regular audit of 13 units, E-Audit of GPF Module of 1 unit and 1 Scheme Audit was conducted despite of COVID – 19 pandemic, lockdowns and travel related restrictions. During the FY 2021-22, a number of 201 audit paras were settled whereas 140 fresh paras were raised. Out of these fresh paras, 21 paras involving *n o n - r e c o v e r y / o v e r - p a y m e n t / i n f r u c t u o u s / i r r e g u l a r* expenditure/irregular purchase/non-adjustment of contingency advance/blocking of government money amounting to Rs.28.69 crores.

The PAO is responsible for processing payments while ensuring adherence to budgetary and expenditure ceiling and norms of financial propriety. It is also responsible for ensuring just-in-time release of funds digitally through PFMS to all beneficiaries/vendors/agencies, while ensuring that no idle money remains parked with grantee bodies. PFMS has also been implemented in all CDDOs of the Ministry. Further, online collection on non-tax receipts through Non-tax Receipts portal (NTRP) has eliminated delay and digitized the receipts.

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 accounts by subscriber themselves.

The roll-out of Expenditure, Advance & Transfer (EAT) module for implementing agencies receiving Grants –in-aid, has enabled better monitoring of unspent balances and outstanding UCs.

State/UT share of more than Rs. 54,000 Cr. of CAMPA fund have been transferred to respective state/UT Government accounts up to the financial year 2021-22. During COVID-19 pandemic and lockdown period, Pay and Accounts Office, being an essential service, worked daily to ensure that all payments were disbursed timely.

In order to minimize the risk posed by physical papers/files, and to enable Work from Home, relaxations made by Controller General of Accounts, Ministry of Finance, in the Receipt and Payment rules, 1983, were followed by this office.

**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 Explanatory Notes on Saving/ Excess within the Grant.

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 2022-23**

The Ministry has been allocated an outlay of Rs3030.00 crore in the Budget Estimates (BE) for the Financial Year 2022-23.

The financial outlays and expenditure during 2022-23 is given in the following table:

### **Umbrella Scheme-wise Allocation (2022-23)** (Rs in crore)

Sl. No	Name of the Scheme	BE 2022-23	AE 2022 -23 (upto 31.10.2022)
1	Environmental Knowledge and Capacity Building (CS)	78.62	32.75
2	Environment Protection, Management and Sustainable Development (CS)	142.50	24.90
3	National Coastal Management Programme (CS)	195.00	0.45
4	Decision Support System for E nvironmental Awareness, Policy, Planning and Outcome Evaluation (CS)	86.95	1.91
5	Control of Pollution	460.00	124.65
6	National Mission for a Green India (CSS)	361.69	19.37
7	Integrated Development of Wildlife Habitats(CSS)	510.00	19.70
8	Conservation of Natural Resources and Ecosystems (CSS)	58.50	2.78
	<b>Total</b>	<b>1893.26</b>	<b>226.51</b>

### **Umbrella Non Scheme-wise Allocation (2022-23)** (Rs in crore)

Sl. No	Name of the Scheme	BE 2022-23	AE 2022 -23 (upto 31.10.2022)
1	Secretariat	168.74	93.83
2	Attached/ Subordinate offices	517.05	255.47
3	Assistance to Autonomous Bodies	287.45	200.35
4	Statutory & Regulatory Bodies	154.50	74.28
5	Others Bodies	9.00	4.75
	<b>Total</b>	<b>1136.74</b>	<b>628.68</b>
	<b>Grand Total (Scheme + Non Scheme)</b>	<b>3030.00</b>	<b>855.19</b>

**List of pending C&AG Paras (up to 30<sup>th</sup> November, 2022)**

<b><i>SL.No.</i></b>	<b><i>Report No. &amp; Year</i></b>	<b><i>Para No.</i></b>	<b><i>Brief Subject</i></b>
1	21 of 2012-13	1-7	<b><i>Compensatory Afforestation in India</i></b>
2	27 of 2014	6.3	<b><i>Wasteful expenditure on hiring of office accommodation</i></b>
3	39 of 2016	Entire Report	<b><i>Environment and Sustainable Development</i></b>
4	4 of 2022	Entire Report	<b><i>Conservation Coastal Ecosystems</i></b>





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## Summary of the important audit observations on

Report no. 4 of 2022-Union Government (Civil)-Report of the Comptroller and Auditor General of India on Conservation of Coastal Ecosystems (Performance Audit), Union Government, Ministry of Environment, Forests & Climate Change was tabled in both houses of Parliament on 08.08.2022.

This report of the Comptroller and Auditor General of India contains the observations of Performance Audit on Conservation of Coastal Ecosystems for the period 2015-20 as well as those which came to notice in earlier years but could not be reported in previous Audit Reports; matters relating to the period subsequent to 2019-20 have also been included, wherever necessary. The key audit findings of this report are mentioned below:

### Key Audit Findings

#### Chapter 2: Institutional Framework

MoEF&CC has not notified NCZMA as a permanent body with recommended members. NCZMA is reconstituted every few years and in the absence of defined membership, it was functioning as an ad-hoc body, devoid of permanent members. Further, the composition of NCZMA has not been uniform over these years, indicating a lack of continuity of approach towards coastal conservation issues.

(Para 2.1 a)

Instances were observed where Expert Appraisal Committees (EAC) granted clearances, though domain experts were not present during the project deliberations. Also, cases were noted where the members of EAC were less than half of the total strength during the deliberations as there was no fixed quorum for EAC members.

(Para 2.1 b)

SCZMA was not reconstituted in the state of Karnataka and there was delayed reconstitution in the states of Goa, Odisha and West Bengal. SCZMAs held meetings without fulfilling the quorum requirements and lacked representation from relevant stakeholder bodies. SCZMAs in the states of Andhra Pradesh, Karnataka, Goa, Tamil Nadu, Odisha and West Bengal did not have sufficient manpower to perform their mandate.

(Para 2.1 c & d)



DLCs of Tamil Nadu lacked participation from local traditional communities. In Andhra Pradesh, DLCs were not established in all the nine coastal districts as on March 2021. In Goa, DLCs were formed in 2017 after delay of six years of promulgation of the CRZ notification. DLCs are yet to be reconstituted in two coastal districts of Karnataka as on March 2021.

(Para 2.1 e)

Absence of any active and functional website to disseminate the information related to NCZMA such as the agenda notes, minutes of the meetings was against the mandated responsibilities of the institution.

(Para 2.3)

### Chapter 3: Project Clearances under CRZ Notification

Project Clearances under CRZ Notifications Projects were approved despite inadequacies in the EIA Reports which included non- accreditation of the consultant involved with the preparation of the EIA Report, usage of outdated baseline data, non- evaluation of environmental impacts of the project, non- addressal of disasters which the project area was prone to.

(Para 3.1)

Activities forming a part of the mitigation plans like mangrove conservation/ replantation, biodiversity conservation plan, rainwater harvesting plan failed to be included in the Environment Management Plan as the same was left to the project proponent (PP) to be carried out.

(Para 3.2)

Projects were approved where MoEF&CC failed to make independent efforts to verify the veracity of the information given by private consultants and merely relied on the information submitted by the Project Proponent with respect to potential ecological risks due to the project activities.

(Para 3.4)

Instances were observed where the SCZMA usurped the powers of clearance granting authorities and granted clearance to the projects. Further, there were cases of project approvals where the SCZMAs recommended the projects without the submission of mandatory documents.

(Para 3.7)

Modification of CRZ notifications for approval of specific projects defeated the efforts to conserve the coastal ecosystems.

(Para 3.8)

Cases were observed where projects were approved without undergoing the multistage process of EIA as major infrastructure projects are not comprehensively covered under the EIA Notification 2006.

(Para 3.9)





## Chapter 4: Post clearance monitoring and enforcement of CRZ Notifications

Instances were observed where the Project Proponent failed to comply with conditions mentioned in the Clearance and did not submit the mandatory half yearly compliance reports to the Regional Offices of MoEF&CC. There were cases where the projects commenced without obtaining any CTE or CTO from the concerned State Pollution Control Board.

(Para 4.1)

The enforcement of CRZ provisions by SCZMAs and DLCs were reviewed and instances were observed where SCZMAs failed to take action against CRZ violations and the DLCs too failed to identify violations and report the same to SCZMAs.

(Para 4.2)

## Chapter 5: Conservation of Coastal Ecosystems

Despite serious reduction and degradation of the live coral cover in the Gulf of Mannar Islands, no viable strategy to mitigate the propagation of the invasive species had been devised by the Department of Forest, Tamil Nadu. Issues such as absence of a monitoring system for coral reefs, and non- preparation of management plans for turtle nesting sites in Goa were observed. Instances were observed where prohibited activities like infrastructure development in areas of coastal sand dunes were observed in Goa. Gaps in the efforts to conserve mangroves in Goa and Gujarat were noticed. Instances were observed where the sewage treatment plants were either altogether absent or were functioning without any monitoring leading to discharge of harmful effluents into coastal waters.

(Para 5.1 and 5.2)

## Chapter 6: Integrated Coastal Zone Management Project

Although the entire work of mapping of Hazard Line was completed in August 2018, the ground demarcation of the Hazard Line was yet to be done by MoEF&CC. The Integrated Management Plans (IMPs) for Critically Vulnerable Coastal Areas (CVCAs) were yet to be prepared by the coastal states.

(Para 6.1)

In the marine field stations at Mandvi and Jamnagar in Gujarat, it was observed that out of 40 instruments installed under the project at these two places, 33 instruments were operated only for checking and calibration and were never used for the intended purpose i.e., to study the physiochemical parameters of soil and water of the intertidal area of the Gulf of Kutch.

(Para 6.2)

Insufficient capacity building measures at Odisha State Pollution Control Board (OSPCB) were noticed as Against the targets set for the collection and analysis of samples there was a huge shortfall ranging from 33% to 59%. Further, the Centre was working at 55 % of the required manpower and this resulted in non- operation of the equipment procured for the analysis of the samples.

(Para 6.3.2)



We observed that even after the incurring an expenditure of Rs. 6.23 crore, the objective of effective sea patrolling in Gahirmatha Sanctuary remained unachieved. A research laboratory at Dangmal, Kendrapara District, Odisha constructed in 2016 could not be made functional till date. We observed Idling of infrastructure created under the activity relating viii Report No. 4 of 2022 Hygienic drying of fish at Gopalpur in Odisha where the solar dryers could not be made functional enough to provide livelihood support to the community, the expenditure of Rs. 6.72 crore on creation of facilities under the ICZMP.

(Para 6.3.3 and 6.3.4)

## Chapter 7: Sustainable Development Goals

Audit examined the stakeholder map and found that a few significant stakeholder organisations like the Indian Coast Guard and Ministry of Ports, Shipping and Waterways were not included in the map. We observed that the indicators do not holistically address the SGD target and do not conform to global indicators, as the indicator essentially measured only the output of the programmes developed for management of mangrove ecosystems. The list of activities planned to achieve the target should have also formed the sub-indicators and biodiversity, fisheries indices etc., should have ideally formed the output indicators for the target. We observed that the State Indicator frameworks were not prepared by the states of Maharashtra and Kerala. It was observed that with the exception of Gujarat, all other coastal states adopted the national indicators as developed by MoSPI without adapting them to the state specific environmental aspects. Also, in the states where SIFs had been formulated, further localization to District levels was done only by the State of Karnataka by notifying District Indicator Framework (DIF).

(Para 7.1, 7.2 and 7.4)