

## Focus on Environmental Protection

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## National Green Tribunal

Established under the National Green Tribunal Act 2010.

### **National Green Tribunal Act, 2010**

- NGT is not bound by the procedure laid down under the Code of Civil Procedure, 1908
- Guided by principles of natural justice
- Speedy environmental justice (disposal of applications within 6 months)
- Reduce the burden of litigation in the higher courts
- Hears cases for acts such as Forest Conservation Act and Biological Diversity Act
- Original jurisdiction on matters of “substantial question relating to environment” and “damage to environment”

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## Powers of National Green Tribunal

Hear cases on laws listed in Schedule I of the NGT Act:

- Water (Prevention and Control of Pollution) Act, 1974;
- Water (Prevention and Control of Pollution) Cess Act, 1977;
- Forest (Conservation) Act, 1980;
- Air (Prevention and Control of Pollution) Act, 1981;
- Environment (Protection) Act, 1986;
- Public Liability Insurance Act, 1991;
- Biological Diversity Act, 2002.

NOT deal with:

- Wildlife (Protection) Act, 1972
- Indian Forest Act, 1927

## Courts versus Tribunals

- Tribunals are
  - Less formal
  - Less expensive
  - Faster way to resolve disputes
- Tribunal members have special knowledge about the topic.
- Judges have general knowledge about many areas of law, not particular expertise.

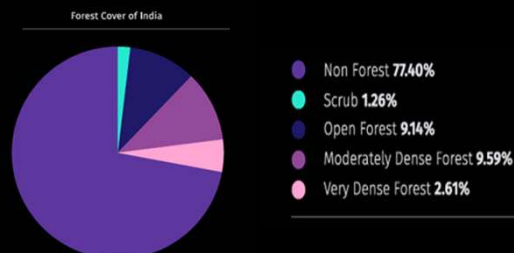
### ENVIS Portal

- New initiative under Digital India objective
- Environmental Information System (ENVIS): Central Sector Scheme of the Ministry has been implemented since 1982.
- Aim is to integrate country-wide efforts in environmental information
  - Collection
  - Collation
  - Storage
  - Retrieval
  - Dissemination
- Bringing all ENVIS Centres under one roof will also facilitate convergence in data dissemination
- Used by Govt., research Scholars & Institutes

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### India State of Forest Report (ISFR) 2015

- Total carbon stock in the country's forest is estimated to be 7044 million tonnes (an increase of 103 million tonnes)
- Majority increase in open forest (9.14% increase) category mainly outside forest areas, followed by Very Dense Forest (2.61% increase)
- 40 percent forest cover is in 9 big patches of 10000 Sq km and more
- The increase in total forest cover also includes an increase in the mangrove cover

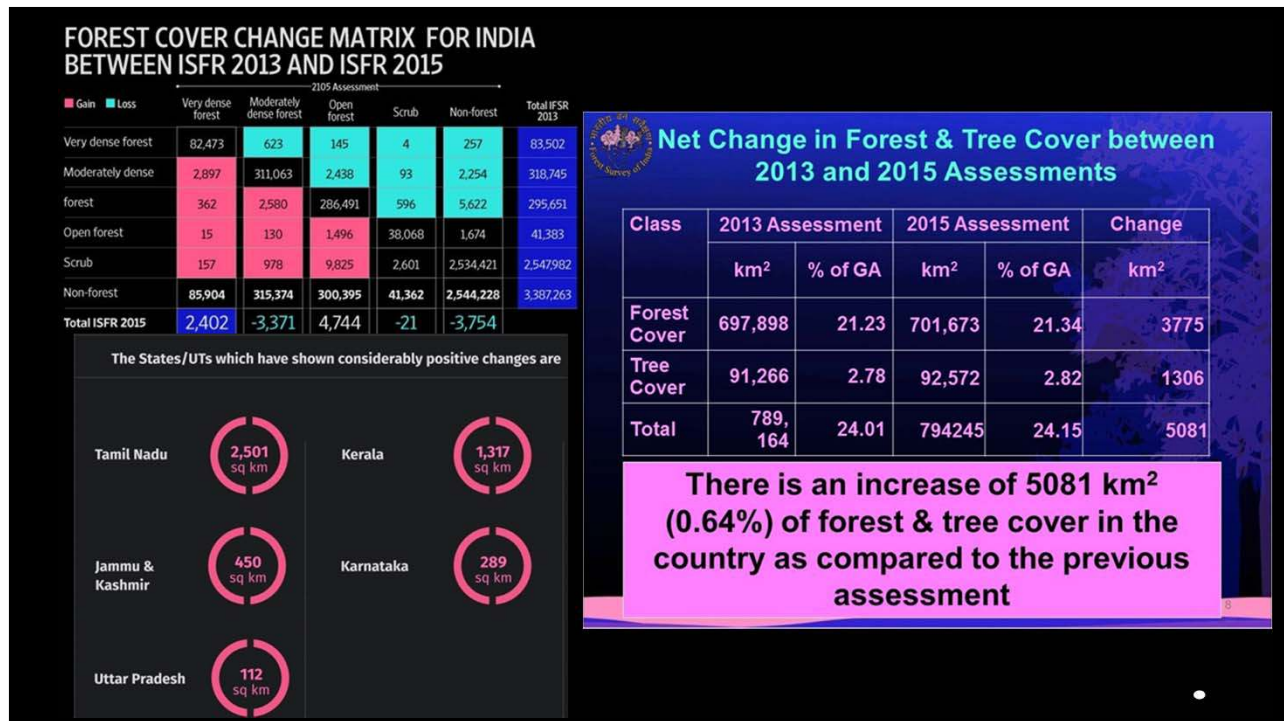


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### India State Forest Report 2015

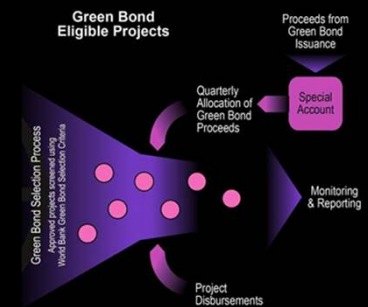
- Total forest cover in India: 7, 01, 673 sq. km (increased of 3775 sq km)
- Total forest cover as percentage of geographical area: 21.34%
- Total tree cover in India: 92, 572 sq. km (increased of 1306 sq. km)
- Total tree cover as percentage of geographical area: 2.82%
- State with largest total forest cover: Madhya Pradesh - 77, 462 sq. km
- State having highest forest cover as % of its area: Mizoram (88.93%)
- Increase in carbon sink: 103 million tonnes CO<sub>2</sub> equivalent
- Improvement in forest cover in: Tamil Nadu, Jammu and Kashmir, Uttar Pradesh, Kerala and Karnataka.

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## Green Bonds

- SEBI released Concept paper for issuance of Green Bonds
- A green bond is like any other bond where a debt instrument is issued by an entity for raising funds from investors.
- Proceeds of a Green Bond offering are 'ear-marked' for use towards financing 'green' projects
- Raising capital to fund 'green' projects, assets or business activities with an environmental benefit, such as renewable energy, low carbon transport etc.
- It will help fulfil India's Intended Nationally Determined Contributions
- It will help India reach its renewable energy target



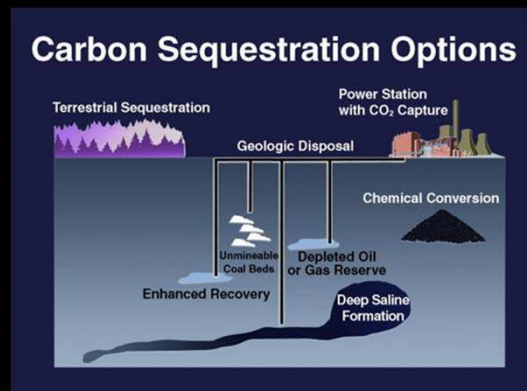
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## Carbon Sequestration

- Carbon Sequestration is the process by which CO<sub>2</sub> is captured from the atmosphere for long term storage to slow down the accumulation of greenhouse gases
- Gujarat Ecological Education and Research (GEER) has prepared a hierarchy of local trees in India on the basis of their capacity for carbon sequestration
- Teak has the highest capacity: Absorb 3.70 lakh tones of CO<sub>2</sub> from the atmosphere in its life-time
- Fast Growing
- Long Lived
- Large Leaves
- Native Species
- Low Maintenance, Disease Resistant

Best ones:

- Yellow Poplar
- Silver Maple
- Oak
- Chestnut
- Red Mulberry



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## Compensatory Afforestation Fund Bill

**For:** Establishment of funds under the public accounts of Centre and each State towards compensatory afforestation

**Provides for:** Additional afforestation and penal compensatory afforestation to regulate collected funds

**Features:**

- Established under Public Account of India, and State Compensatory Afforestation Fund under Public Account of each state
- Payments into the funds include compensatory afforestation, net present value of forest (NPV), and any project specific payments
- National Fund will get 10% of funds collected and the remaining 90% will go to Respective State Fund
- Funds to be used for afforestation, regeneration of forest ecosystem, wild life protection and forest related infrastructure development
- Determination of NPV will be delegated to an expert committee constituted by the central government

## National Hydrology Project

**Aim:** To collect hydro-meteorological data across India and use it for efficient water management in the country

**Features:**

- In Situ Hydromet Monitoring System and Hydromet Data Acquisition System.
- Setting up of National Water Informatics Centre (NWIC).
- Water Resources Operation and Management System
- Water Resources Institutions and Capacity Building
- Cover the entire country, unlike earlier hydrology projects that covered only 13 states
- Funding pattern -50% would come from World Bank loans while the rest would be given as budgetary support

### National Offshore Wind Energy Policy

- Aim: To promote electricity generation from offshore wind mills in the Exclusive Economic Zone (EEZ)
- **Nodal Ministry:** Ministry of New & Renewable Energy (MNRE)
- **Nodal Agency:** National Institute of Wind Energy
- Set up of offshore wind power projects and research and development activities, in waters, in or adjacent to the country, up to the seaward distance of 200 Nautical Miles (EEZ) from the base line.
- It would help us achieve the target of 60,000 mw of wind energy by 2022
- Large Power Plants with capacity up to 1000MW could be built with no need for diversion of land

### Coastal Regulation Zone Notification, 2011

- It gives powers to States to check commercial development along coasts
- Protection of livelihoods of traditional folk communities
- Preservation of coastal ecology
- Promotion of economic activity that have necessarily to be located in coastal regions

Mithivirdi Nuclear Power Plant in Bhavnagar: Got coastal regulatory zone (CRZ) nod from Ministry of Environment, Forests & Climate Change (MoEFCC)

**Shailesh Nayak Review Committee:** Relaxes curbs on coastal zone constructions

- Give greater powers and responsibilities to coastal states to regulate development, maintain and conserve ecologically fragile zones
- Local town planning regulations be preferred over CRZ restrictions

### Coastal Regulation Zone (CRZs)

**CRZ I –Ecologically Sensitive** - National parks/marine parks, sanctuaries, reserve forests, wild habitats, mangroves, corals/coral reefs – B/w HTL & LTL, no new construction except by Dept. of Atomic Energy and Pipelines

**CRZ II –Developed Areas** - Built up cities and towns

**CRZ III –Undisturbed Areas** - Rural areas (No development zone 200 m HTL)

**CRZ IV** -12 nautical miles into the sea

## Focus on Climate Change



## National Action Plan on Climate Change (NAPCC)

- Addressing **climate mitigation and adaptation**.
- The plan **identifies 8 core “national missions”** running through 2017.
- **8 Core Missions are:**
  - National Solar Mission
  - National Mission for Enhanced Energy Efficiency
  - National Mission on Sustainable Habitat
  - National Water Mission
  - National Mission for Sustaining the Himalayan Ecosystem
  - National Mission for a “Green India”
  - National Mission for Sustainable Agriculture
  - National Mission on Strategic Knowledge for Climate Change

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## National Solar Mission

- Launched in 2010
- Target 20,000 MW of grid connected solar power by 2022
- Reduce the cost of solar power generation by
  - Long term policy
  - Large scale deployment goals
  - Aggressive R&D
  - Domestic production of critical raw materials, components and products

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### **National Mission for Green India (GIM)**

- GIM is one of the 8 key missions outlined under National Action Plan on Climate Change (NAPCC)
- Protecting, enhancing and restoring India's decreasing forest cover
- Responding to climate change by mitigation and adaptation measures
- Decentralized participatory approach
- Grass root level communities and organizations

### **National Mission for Enhanced Energy Efficiency (NMEEE)**

- Strengthen the market for energy efficiency by creating conducive regulatory and policy regime
- Foster innovative and sustainable business models to the energy efficiency sector.
- 4 initiatives to enhance energy efficiency :
  - Perform Achieve and Trade Scheme (PAT): Regulatory instrument to reduce specific energy consumption in energy intensive industries.
  - Market Transformation for Energy Efficiency (MTEE): Accelerate shift to energy efficient appliances in designated sectors by innovative measures to make the products more affordable.
  - Energy Efficiency Financing Platform (EEFP): Create mechanisms that would help finance demand side management programs in all sectors by capturing future energy savings.
  - Framework for Energy Efficient Economic Development (FEEED): Develop fiscal instruments to promote energy efficiency.

## National Mission on Sustainable Habitat

Cities sustainable by:

- Improving energy efficiency in buildings
- Managing solid waste & recycling
- Shift to public transport

## National Water Mission

5 Goals for the mission are:

- Comprehensive water database in public domain and assessment of impact of climate change on water resource
- Promotion of citizen and state action for water conservation, augmentation and preservation
- Focused attention to vulnerable areas including over-exploited areas
- Increasing water use efficiency by 20%
- Promotion of basin level integrated water resources management.

## **National Mission For Sustaining The Himalayan Ecosystem**

- Sustainable development
- Management and Policy Actions
- Sustain ecological resilience
- Ensure continued provisions of key ecosystem services in Himalayas

## **National Mission on Strategic Knowledge for Climate Change**

- Aimed at networking existing knowledge institutions
- Capacity building
- Improving understanding of key climate processes and climate risks
  
- Protecting, enhancing and restoring India's decreasing forest cover
- Responding to climate change by mitigation and adaptation measures
- Decentralized participatory approach
- Grass root level communities and organizations

## National Mission For Sustainable Agriculture (NMSA)

10 key dimensions:

- Improved crop seeds, livestock and fish cultures
- Water Use Efficiency
- Pest Management
- Improved Farm Practices
- Nutrient Management
- Agricultural insurance
- Credit support
- Markets
- Access to Information
- Livelihood diversification

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## 2016 Was India's Warmest Year Ever: India Meteorological Department

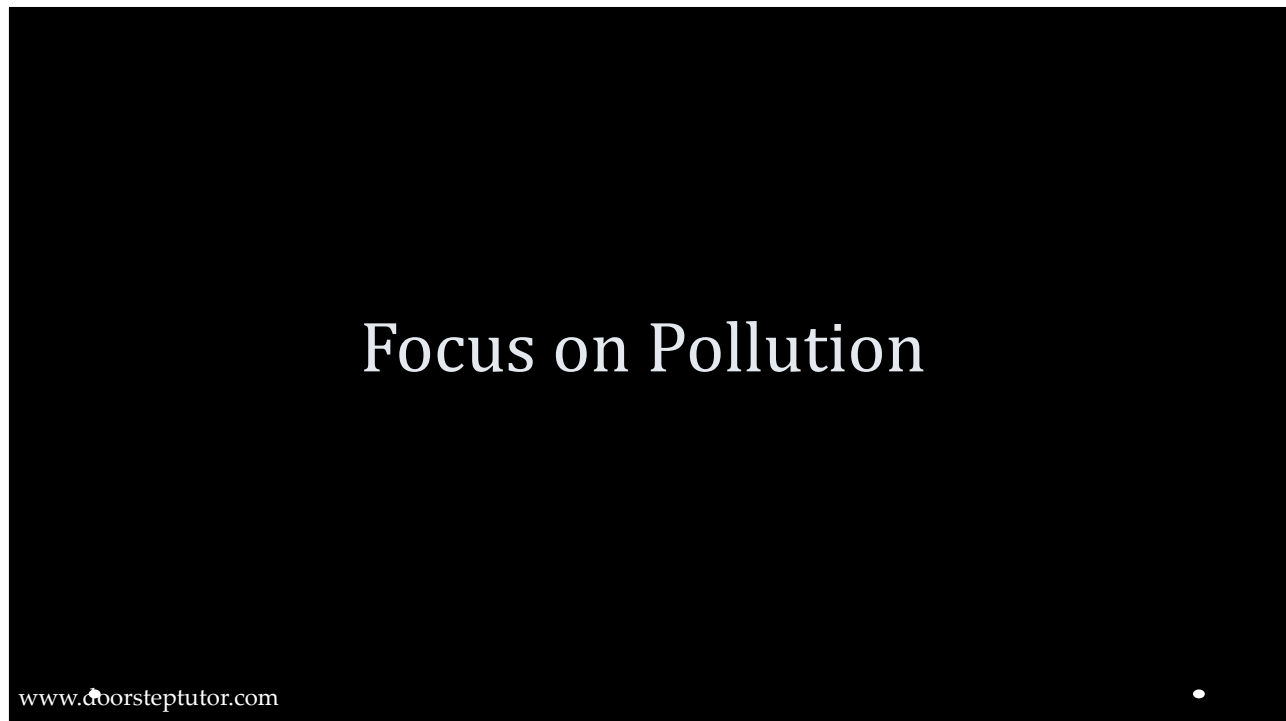
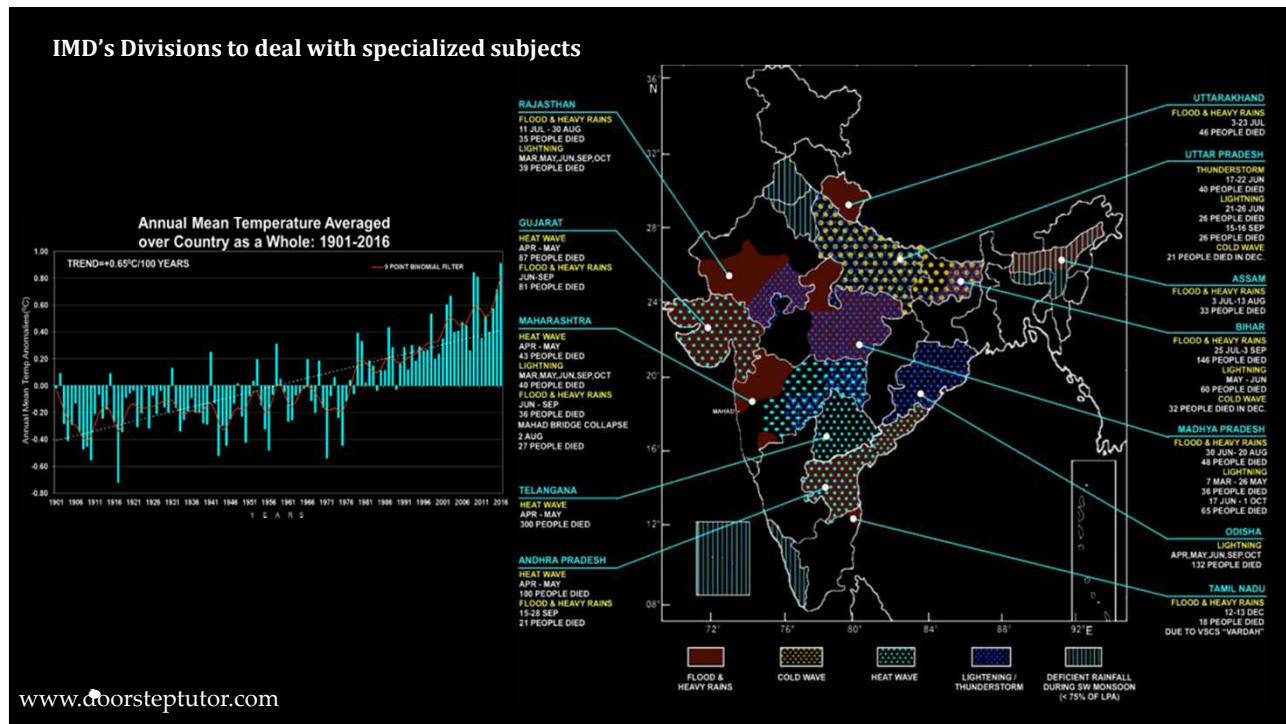
### Highlights

- Climate of India was significantly warmer than normal during 2016.
- During 2016, average annual mean surface temperature in India was + 0.91°C above the average recorded between 1961 and 1990.
- The warmest year on record was 2009 when annual mean temperature was + 0.77 °C above average, before 2016.
- Annual rainfall deficiency was mainly due to significantly below average rainfall during winter and NE monsoon seasons.

### IMD

- Director General of Meteorology is the Head of the India Meteorological Department.
- Headquarters at New Delhi.

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## National Green Highways Mission (NGHM)

- Plantation drive around 1500 km of National Highways
- Launched under the Green Highways Policy, 2015 to provide a holistic vision of developing eco-friendly and green National Highways
- Aims to provide a green canopy along 100,000 km of highways and create jobs for 1 million youth
- The afforestation across National Highways is expected to help in sequestering approximately 12 lakh metric ton carbon annually
- Will be linked with the Mahatma Gandhi National Rural Employment Guarantee scheme
- Mobile App has been launched

## Bharat Stage (BS) Norms

- Emission standards decided by the government to regulate the amount of air pollutants from vehicles
- Adopted in line with European regulation standard 'Euro norms' in 2000
- 4 stages of Bharat stage (BS) norms have been issued by government
- In each stage certain limit is specified on the released pollutants and in the succeeding higher stages, the BS norms reduces the limit of pollutant emission

### Issued BS stages are –

- BS-I Euro 1 2000
- BS-II Euro 2 2005
- BS-III Euro 3 2010
- BS-IV Euro 4 2015

India to skip Bharat Stage-V

To implement Stage-VI emission norms from 2020 – Automotive Technology & Innovation

## National Air Quality Index

Published every month by Central Pollution Control Board (CPCB)

Has numerical value and a colour code to compare air pollution levels in cities

It is determined on the basis of concentration of 8 pollutants:

- Particulate Matter (PM 2.5, PM 10)
- Sulphur dioxide (SO<sub>2</sub>)
- Nitrogen dioxide (NO<sub>2</sub>)
- Carbon monoxide (CO)
- Ozone (O<sub>3</sub>)
- Ammonia (NH<sub>3</sub>)
- Lead (Pb)

## Particulate Matter (PM)





AQI Category, Pollutants and Health Breakpoints								
AQI Category (Range)	PM <sub>10</sub> 24-hr	PM <sub>2.5</sub> 24-hr	NO <sub>2</sub> 24-hr	O <sub>3</sub> 8-hr	CO 8-hr (mg/m <sup>3</sup> )	SO <sub>2</sub> 24-hr	NH <sub>3</sub> 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1- 10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430 +	250+	400+	748+*	34+	1600+	1800+	3.5+

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## Four-colour Classification Scheme

### Based on Pollution Index (PI)

It is a function of:

- Emissions
- Effluents
- Hazardous wastes generated and
- Consumption of resources

### Red category:

- PI score of 60 and above
- These are severe polluting industries with 60 industries including sugar, thermal power plants, paints

### Orange category:

- PI score of 41 to 59
- They are moderately polluting industries with 83 industries like coal, washeries and automobile servicing

### Green category:

- PI score of 21 to 40.
- They are significantly low polluting industries with 63 industries

### White category:

- PI score below and upto 20
- They are non-polluting industries with 30 industries
- These industries are exempted from requirement of environmental clearance

## New Standards for Genesets

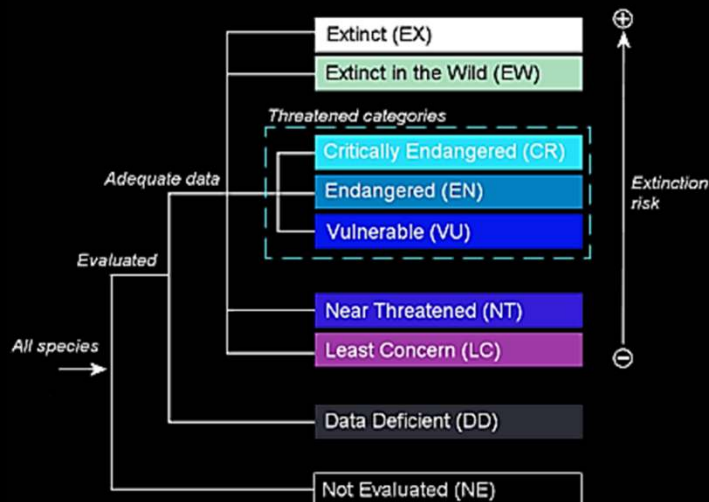
MoEFCC Genesets running on Liquid Petroleum Gas (LPG) / Natural Gas (NG), Diesel with LPG / NG and Petrol with LPG / NG.

**Aim:** To control air and noise pollution emanating from the operation of Genesets

Standards for Genesets:

- Running on LPG / NG, or in combination with diesel/petrol have been notified for the first time.
- In all, the three fuel modes of operation a three-tier classification has been adopted
- Control the air and noise emission profile across different category of Genesets and would be revisited in 4-5 years once air and noise emission quality data and technological details pertaining to Genesets are available.
- Standards have mandated in terms of 'Type approval' and 'Conformity of Production'
- Certification for engine products by empanelled agencies which will help in regulating the unorganized sector
- Curb illegal import of Genesets in the country, which were observed to have higher air and noise emission values.
- Improved environmental standards for Thermal Power Plants (TPPs) and Common Effluent Treatment Plants and Sugar Industries (CETPs).

## Focus on Flora & Fauna (IUCN)



### Discoveries & Inventions

#### **Zinnia**

- The first flower ever grown in space
- Part of an experiment on how plants grow in microgravity
- Flowers were grown inside the Veggie lab aboard International Space Station (ISS)
- Red, blue, and green LED lights used to simulate sunlight - growth of the flower



#### **Himalayan Forest Thrush**

- Has close similarity to plain-based thrush, renamed now as alpine thrush.
- New bird species named Himalayan Forest Thrush in NE India and China
- Named *Zoothera salimalii* after Salim Ali
- Fourth bird species to be discovered in India since 1947



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