

# Ecology & Environment

## SESSION - 1 (Basic Ecological Concepts)

- ▶ Environment and its components
  - ▶ Abiotic Factors and role of sunlight, water, air, temperature and soil
  - ▶ Biotic Factors and their interactions like Nutrition, a) Adaptation b) Amensalism c) Commensalism d) Parasitism e) Mutualism f) Competition g) Symbiosis
  - ▶ Ecology and its Principles, Levels of organization, Ecological hierarchy,
  - ▶ Ecosystem Definitions, Properties of Ecosystem, Components of Ecosystem
  - ▶ Ecosystem Dynamics
- Food chain
  - Food web
  - Ecological pyramids
  - Energy Flow
  - Biomagnification
  - Biological control and biopesticides, organic farming
  - ▶ Biogeochemical cycles a) Nitrogen b) Sulphur c) Hydrological d) Carbon e) Oxygen f) Phosphorus
  - ▶ Population Ecology
    - Population Characteristics
    - Population Growth Models

## SESSION - 2 (Biodiversity and its Types)

- ▶ Biodiversity
    - Types of Biodiversity
    - Value of the Biodiversity
  - ▶ Types of Ecosystems
    - Terrestrial Ecosystem
    - Aquatic Ecosystem
    - Changes in Ecosystem
    - Ecosystem Conservation
  - ▶ Concept of Biomes, Ecotones
  - ▶ Species
    - Types of species
    - Extinction of species
    - Reasons for extinction
    - Vulnerability of a species
    - IUCN Red List
  - ▶ Threats to Biodiversity
  - ▶ Biodiversity Conservation
  - ▶ In-situ
  - ▶ Ex-situ
  - ▶ Species based programmes
- ▶ Conservation Strategies
    - International Conventions on Biodiversity Conservation
    - Aquatic ecosystem
  - ▶ Estuaries
    - Types of Estuaries
    - Importance of estuaries
    - Threats to estuaries
  - ▶ Mangroves
    - Mangroves in India
    - Importance of Mangroves
    - Mangroves under threats
    - Legal and Regulatory Approaches for Protection
  - ▶ Coral Polyps
    - Meaning
    - Geographical Conditions Required
    - Uses of coral reefs
    - Threat to coral reefs
    - Conservation of coral reefs



### Current Affairs List

1. Orang Tiger Reserve
2. Nilgiri Tahr
3. Tiger Numbers Going Up
4. Coral Bleaching Northern Most
5. Egyptian Vultures
6. Gaj Yatra
7. Elephant Census
8. Irrawady dolphin

9. 3 New Sites Recognized as Biodiversity Hotspots in Goa
10. Rescue Wards in Rajasthan
11. Brow-Antlered Deer in Manipur
12. Sunderban Mangroves at Risk
13. 6<sup>th</sup> Mass Extinction
14. Eco-Bridges
15. Important Bird and Biodiversity Areas (Kerala)
16. Tiger Augmentation Programme (Bura Tiger Reserve)
17. Parali-I Island
18. Mouse Deer-Amrabad Reserve
19. Snow Leopard
20. Turtle Sanctuary in Allahabad
21. Community Conserved Areas
22. Sawfish
23. Blackbuck Conservation Reserve
24. Carnivorous Plants CO<sub>2</sub>
25. New Ant Species in Western Ghats
26. Musa Paranjitiana
27. Olive Ridley Turtles
28. Gecko
29. Vulture in India (Conservation)
30. Seminary Hills Nagpur
31. Nilgiri Tahr
32. Talley Valley Wildlife Sanctuary
33. UNESCO Natural Sites at Critical Risk
34. M-Stripes
35. Bamboo Tree
36. Species: Zealous Frogs Bush Frogs
37. Great White Pelican - Great white pelican returns to Kolleru Lake
38. Plesiosaur Underwater reptile 200 mn years ago
39. Tiny Scorpion packs a punch
40. Bejjur Vultures – Adilabad
41. Vermin

## SESSION - 3 (Climate Change & Environmental Governance)

### 1. Basics of Climate Change

- ▶ Green House Effect and Global Warming
- ▶ Green House Potential
- ▶ Impact on biodiversity
- ▶ Impact on agriculture
- ▶ Impact on fisheries and Aquaculture
- ▶ Impact on demography
- ▶ Impact on glacier
- ▶ Impact on Sea level rise
- ▶ Impact on cities
- ▶ Steps initiated
- ▶ International conventions on Climate change

### 2. Environmental Laws

- ▶ Environmental Laws: Provisions in the Indian Constitution towards Environmental Protection
- ▶ Salient Features of Air (Prevention and Control of Pollution) Act, 1981\*

- ▶ Salient Features of Water (Prevention and Control of Pollution) Act, 1974
- ▶ Salient features of Forest Conservation Act, 1980
- ▶ Salient Features of Wildlife Protection Act, 1972
- ▶ Salient Features of Environment (Protection) Act, 1986
- ▶ Role of Government in Environmental Protection

### 3. Environment related Institutions and Organizations

- ▶ Pollution Control Boards
- ▶ National Green Tribunal
- ▶ National Green Tribunal
- ▶ National Board for Wildlife

### 4. Schemes

- ▶ Ecomark Scheme
- ▶ Swachh Bharat Mission

- ▶ Swachh Bharat Kosh
- ▶ Grants in Aid Scheme
- ▶ National Afforestation Program
- ▶ National River Conservation Plan
- ▶ National Mission for Clean Ganga

- ▶ National Air Quality Index (AQI)
- ▶ National Action Programme to Combat
- ▶ Pradhan Mantri Sauchalayojana
- ▶ UJALA Scheme
- ▶ Bharat Stage Norms

## *Current Affairs List*

### **Climate Change**

1. Atmospheric CO<sub>2</sub> Increased
2. Melting of Antarctic Iceberg
3. Gangotri Glacier
4. Carbon Capture
5. Black Carbon
6. 30th Montreal Protocol and World Ozone Day
7. El-Nino Caused Record CO<sub>2</sub> Spike
8. Glaciers in Asia to Sink
9. Tropic Emit more Carbon
10. Impact of Climate Change and Ill Health (Lancet)
11. Natural Heritage Sites Threatened by Climate Change
12. CC Impact on Sunderbans
13. Marine Diversity in Antarctica under Threat
14. Concept of Carbon Credit
15. 2nd Kyoto Protocol
16. Delhi Metro – Green Metro System
17. First Assessment Report
18. Negative Emissions
19. Geo-engineering Climate Change
20. Sequestering CO<sub>2</sub>
21. Environmental Kuznets Curve Hypothesis
22. Bonn Challenge
23. COP-23
24. Air Quality Index likely to be added to ‘playing condition’
25. Carbon Neutral concept
26. HFC - India to eliminate use of HFC by 2030
27. ISA
28. Kigali agreement

### **Organisations in News**

1. Environmental Impact Survey
2. Climate Change Performance Index
3. UN Emission Gap Report
4. Convention on Conservation of Migratory Species of Wild Animals
5. UN Ocean Conference
6. Green Building Rating
7. 251 List on Alien Invasive Animal Species
8. NGT to Form One Bench
9. International Conference on Climate Change
10. Certificate of Commendation by CITES
11. Operation Save Kurma
12. Talanoa Dialogue
13. NGT:
  - No Dev Zone Around Ganga
  - Manja
  - Plastic

## Schemes

1. Van Mahotsav
2. Blood Bank for Cattle
3. National Mission for Clean Ganga
4. India Signs Global Environment Facility Grant
5. Wood in Good Campaign
6. Boat Lab to Study Brahmaputra
7. Wildlife Action Plan
8. SECURE Himalayas
9. Guidelines for Compensatory Afforestation
10. Strategic Plan for Human-Elephant Conflict
11. Save the Sparrow
12. Land Degradation Neutrality
13. Biodiversity Heritage Site - Ameenpur Lake
14. Energy Conservation Building Code
15. Special Protection Force for Rhinos
16. Regional Project on Stubble Burning
17. Blue Flag Pilot Project

## SESSION - 4 (Environmental Pollution & Degradation)

- ▶ Air Pollution
  - Sources of Air Pollution
  - Effects of Air Pollution
  - Classification of Air Pollutant
  - Control Measures of Air Pollution
  - Air Pollution Disasters
  - Long Range Transport of Gaseous Air Pollutants
  - National Ambient Air Quality Standards
- ▶ Water Pollution
  - Sources of Water Pollution
  - Types of Water Pollutants
  - Effects of Water Pollution
  - Water Quality Standards
  - Control of Water Pollution
- ▶ Thermal Pollution
  - Sources of Thermal Pollution
  - Effects of Thermal Pollution
  - Control of Thermal Pollution
- ▶ Soil Pollution or Land Degradation
  - Sources of Soil Pollution
  - Effects of Soil Pollution
  - Control Measures
- ▶ Solid Waste Management
  - Meaning
  - Sources
  - Issues in India
  - Steps for solid management
  - Solid Waste management rules
- ▶ E-waste management
  - Meaning
  - Sources
  - Challenges
  - E-Waste management rules
  - Strategy for e-waste management
- ▶ Plastic waste pollution
  - Meaning
  - Sources
  - Challenges
- ▶ Biomedical waste pollution
  - Meaning
  - Sources
  - Challenges
- ▶ Water Resource degradation
  - Surface water source
  - Groundwater resource
  - Causes of water pollution
  - Water resource management
  - Water treatment mechanism
- ▶ Land degradation
  - Meaning
  - Causes of Land degradation
  - Impact of Land degradation
  - Sustainable Land management
- ▶ Soil erosion
  - Meaning
  - Types of soil erosion
  - Causes
  - Harmful impact
  - Soil conservation
  - Soil Health Card scheme
- ▶ Deforestation
  - Meaning
  - Causes
  - Consequences
  - Remedial measures
  - Government initiatives
  - Agro-forestry
  - Social forestry
- ▶ Noise Pollution
  - Sources of Noise Pollution
  - Effects of Noise Pollution
  - Control Measures

### **Pollution**

1. Mobile Tower Radiation
2. Sensor N/w to Map Pollution Effluents
3. Shrinking of Cauvery Delta
4. Airplanes Effect Ozone
5. Use of Garbage to Construct Road
6. Sensor N/w for Pollution in Godavari
7. Firecrackers and Pollution
8. Moss as Pollution Monitor
9. Graded Plan for Air Pollution
10. Pollution Linked Death-Report
11. Petcoke and Furnace Oil
12. Air Quality Index
13. Polluter Pay Principle
14. Delhi Smog
15. Pesticide Poisoning
16. Emission Norms for Power Plants in India
17. Aerosols and Indian Monsoon
18. Idol Immersion Pollution
19. Stubble Burning
20. Indoor Air Pollution
21. ANTI SMOG guns
22. Particulate matter

### **Waste Management**

1. National Capacity Building Project for Waste Management]
2. NGT Bans Plastic
3. Mission Innovation
4. Tribunal – Dumping Waste in Ganga
5. Eases Norms for Sewage Plants
6. Organic Waste to Make Green Fuel
7. New Technologies for Waste Management

### **Natural Resource Degradation**

1. Nalanda Model of Water Conservation
2. Wetland Rules, 2017
3. Chilka Lake
4. Permaculture and Monoculture
5. Sand Mining Guidelines
6. Coastal Erosion (Parali Island)
7. Dam and Fishing
8. Bottom Trawling to Deep Sea Fishing
9. Restoring Vaan Island in Gulf of Manner
10. Farmer Managed Natural Regeneration System
11. 'Wadi' Model
12. Re-greening of Village Commons Project
13. Restoration Opportunities Assessment Methodology
14. Warsaw International Mechanism for Loss & Damage
15. Powering Past Coal Alliance
16. Ganga River
  - ▶ Namami ganga
  - ▶ River Ganga (Rejuvenation, Protection and Management) Authorities Order,

- 
- ▶ 2016.
  - ▶ Smart Ganga City Scheme
  - ▶ Ganga Task Force
  - ▶ Ganga, Yamuna termed 'living persons'
  - ▶ Cabinet gives clean ganga mission power
  - ▶ The Union Water Resources Ministry has signed Memorandum of Understanding (MoU) with the Union Agriculture Ministry for speedy implementation of NamamiGange programme.
  - ▶ The Union Government has launched the first ever across-the-river survey in River Ganga to determine the population of aquatic life

*Current Affairs Topics will be Updated Till April, 2018*