Environment Current Affairs by Pmfias.com – Feb and Mar 2020

Contents

{Envi – Air Pollution – 20/03} Black carbon levels spike at Himalayan glaciers

TH | Air Pollution and Climate Change

- Black carbon concentrations near the Gangotri glacier rose 400 times in summer due to forest fires and stubble burning from agricultural waste, and triggered **glacial melt**, says a study.

- The monthly mean concentration of EBC (equivalent black carbon) was found to be minimum in August (rainy season) and maximum in the month of May (dry season).

- The presence of pollutants in glaciers (which are far from sources of pollution) is critical to establishing a baseline for pollution loads and estimating the contribution of various sources to pollution.

Black Carbon or Soot

- Black carbon (BC) is a particulate air pollutant (aerosol – suspension of fine solid particles in air).

- Black carbon results from the **incomplete combustion** of fossil fuels and biomass.

- Black carbon warms the earth by **directly absorbing light and heat** in the atmosphere.

- The fine particles absorb a million times more energy than carbon dioxide.

- Black carbon gets deposited **on snow and ice** with precipitation and darkens the surface, **thereby reducing the albedo** (the ability to reflect sunlight).

- Its presence on ice and snow greatly enhances **glacial melt**.

- Regionally, **black carbon disrupts cloudiness and monsoon rainfall**.

- India is the second-largest emitter of black carbon with the Indo Gangetic plains being the largest contributor.

In comparison with CO_2

- It is said to be the **second-largest contributor to climate change after CO_2**.

- But unlike CO2, which can stay in the atmosphere for years together, black carbon is short-lived and remains in the atmosphere only for days to weeks before it descends as rain or snow.

- Thus, the effects of BC on the atmospheric warming and glacier retreat disappear within months of reducing emissions.

Brown Carbon

- Brown carbon is a ubiquitous component of organic aerosol.

- Biomass burning is shown to be a major source of brown carbon.

- Brown carbon is generally referred for greenhouse gases and black carbon for particles resulting from impure combustion, such as soot and dust.

{Envi – Air Pollution} National Clean Air Programme (NCAP)

TH | D2E | Air pollution control measures

- MoEF has asked for city-level plans for the NCAP as these problems need to be dealt with at the local level.

- NCAP, launched in January 2019, is the first ever effort in the country to frame a national framework for **air quality management with a time-bound reduction target**.

- It proposes a framework to achieve a national-level target of **20-30 per cent reduction of PM2.5 and PM10 concentration by between 2017 and 2024**.

- NCAP has cited how Beijing has succeeded in reducing PM2.5 by 33.3 per cent in five years.

- However, NCAP is **only a cooperative and participatory initiative**.

- This will not be notified under any Act to create a firm mandate with a strong legal back up.

- NCAP only mentions that the Central Pollution Control Board (**CPCB**) will execute the programme in consonance with the Air (Prevention and Control of Pollution) Act, 1986.

- NCAP integrates health database provided by Ministry of Health with decision making.

- As part of the programme, the Centre also plans to scale up the air quality monitoring network across India.

- The plan also proposes state-level plans of e-mobility in the two-wheeler sector, rapid augmentation of charging infrastructure, stringent implementation of BS-VI norms, boosting public transportation system, etc.

Past experiences

- 11th and 12th Five Year Plans had taken on board the strategy of National Clean Air Action Plan for all major cities to meet the National Ambient Air Quality Standards.
- But that remained a non-starter as it was not backed by a clear legal mandate and a funding strategy.
- The most baffling part of NCAP is the pittance of Rs 300 crore is being earmarked.

{Envi – Conservation – 20/03} Preservation of Western Ghats and Eastern Ghats

TH | IE | IE | Biodiversity Conservation, Environment (Protection) Act of 1986

- A PIL has been filed in the Madras HC seeking a direction to the Centre and the State government to constitute a permanent body for the conservation of and Western Ghats in Tamil Nadu.
- Western and Eastern Ghats play an irreplaceable role in mediating the monsoon over the country and the forests harbour a rich biodiversity.

Western Ghats

- Western Ghats (1.6 lakh sq km in area) run from Kanniyakumari to Gujarat, spanning **six** different States — **Maharashtra, Karnataka, Tamil Nadu, Kerala, Gujarat and Goa**.
- Western Ghats exhibits a remarkably high degree of **species endemism**.
- It is one of the eight "hottest hot-spots" of biological diversity in the world.
- It is a **UNESCO World Heritage Site**.

Eastern Ghats

- Eastern Ghats are spread across ~75,000 sq km and run from the northern **Odisha** through **Andhra Pradesh** to **Tamil Nadu** in the south passing some parts of **Karnataka** and **Telangana**.
- Unlike the western Ghats, these are discoutinuos hills as they are eroded and cut through by Godavari, Mahanadi, Krishna, and Kaveri rivers.
- Eastern ghats also boasts of tourist hotspots such as sanctuaries, national parks, hills, rivers and waterfalls.
- Deforestation have made the hills of the Eastern Ghats barren and its streams are running dry.
- Large-scale plantations of coffee, tea and orchards have been raised in these hills.
- Valuable trees like sandal (from **Seshachalam Hills**) are removed illegally.

Measures attempted to Conserve Western Ghats

Madhav Gadgil Committee

- The MoEF constituted the Western Ghats Experts Ecology Panel (Madhav Gadgil Committee) in 2010.
- The Panel submitted its report in 2011 with a stringent assessment of the condition of Western Ghats.
- The report suggested many radical changes that needs to be brought to conserve Western Ghats.
- The recommendation if implemented, would severely affect mining mafia, sand mafia and local encroachers.
- It was criticised that the committee **failed to find a balance between development and conservation**.

Gadgil Committee Recommendations

- The report had recommended **64% of the area** come under Ecologically Sensitive Area (ESA).
- Within this area, smaller regions were to be identified as ecologically sensitive zones (ESZ) I, II or III based on their existing condition and vulnerability.
- 75 per cent would fall under ESZ I or II or under already existing protected areas such as or natural parks.
- No new dams based on large-scale storage should be permitted in ESZ I.
- No new polluting industries, including thermal power plants, should be allowed in ESZ I and II.
- The existing **red and orange category** industries should be asked to switch to zero pollution by 2016.
- It asked for bottom to top approach i.e., from Gram sabhas to top, rather than a top to bottom approach.

- The committee proposed a Western Ghats Ecology Authority with statutory powers to regulate these activities in the area.

Kasturirangan Committee

- Under pressure from various stakeholders, MoEF set up the High Level Working Group (HLWG) under the Chairmanship of Dr. K. Kasturirangan to study recommendations of Gadgil Committee.
- The HLWG had diluted many recommendations of WGEEP to satisfy the interests of the various mafia.
- HLWG had suggested that **37% (60,000 hectares)** of the Western Ghats should be declared as ESA.

Recommendations of Kasturirangan Committee

- A ban on mining, quarrying and sand mining.
- No new thermal power projects, but hydro power projects allowed with restrictions.
- A ban on new polluting industries.
- Building and construction projects up to 20,000 sq m was to be allowed but townships were to be banned.
- Forest diversion could be allowed with extra safeguards.

October 2018 notification

- To protect **Western Ghats (UNESCO World Natural Heritage Site),** the MoEF has notified ~57,000 sq km of the Western Ghats spread along six states as **ecologically sensitive area (ESA)**.
- The draft notification, if it gets final clearance, will ban activities such as operation of **red category industries, construction of thermal power plants, large scale construction, mining, quarrying & sand mining**.
- However, hydropower projects, orange category industries and other existing activities will be allowed.
- Angry at repeated delays in finalising the Ecosensitive Zones (ESZ) of the Western Ghats, the NGT has set a fresh deadline of March 2020 for the MoEF.

{Envi – In news – 20/03} United for Biodiversity

D2E | In News Topics for Prelims | Convention on Biological Diversity

- The European Commission (EC – executive branch of EU) has launched the 'United for Biodiversity' coalition.
- It was launched on World Wildlife Day 2020 — 3rd of March.
- The coalition is made up of zoos, aquariums, botanical gardens, national parks, and natural history and science museums from around the world.
- The coalition offers the opportunity for all such institutions to "boost public awareness about the nature crisis, ahead of the **COP-15** of the **Convention on Biological Diversity in Kunming, China in Oct 2020**.

- The coalition adopted a common pledge, citing the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment.

Suggested Reading: {Envi – Biodiversity – 19/05/10} 1 million species at risk of extinction (IPBES report) Need for this coalition

{Envi – International Laws – 20/02} CMS COP13

TH | Environment > Global measures for protecting wildlife

- India will be moving to include the **Asian Elephant** and the **Great Indian Bustard** in global conservation list.
- Global conservation list is a list of species that merit heightened conservation measures.
- The list was debated at the 13th Conference of Parties (COP) of the **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**.
- Having the elephant and the Great Indian Bustard in the list — more formally known as Appendix 1 — would coax countries neighbouring India to direct more resources and attention to protecting them.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS)

- Convention on Migratory Species or the **Bonn Convention or Global Wildlife conference**.
- It is an international treaty, concluded under the aegis of the **United Nations Environment Programme**.
- The Convention was signed in 1979 in Bonn, Germany and entered into force in 1983.
- The CMS is the only global and UN-based intergovernmental organization established exclusively for the conservation and management of terrestrial, aquatic and avian **migratory species throughout their range**.

Classification of species

- Under this convention, migratory species threatened with extinction are listed on **Appendix I** and Parties strive towards strictly protecting these animals.
- Migratory species that would significantly benefit from international co-operation are listed in Appendix II.

CMS COP13

- The COP13 was organised from February 17 to 22 in **Gandhinagar, Gujarat**.
- **India** has been designated the President of the COP for the next **three years**.
- Ten new species were added to CMS Appendices at COP13.
- Seven species were added to **Appendix I**, which provides the strictest protection: the **Asian Elephant, Great Indian Bustard, Bengal Florican**, Jaguar, Little Bustard, Antipodean Albatross & Oceanic White-tip Shark.

- CMS COP13 also adopted the Gandhinagar Declaration, which calls for 'ecological connectivity' to be integrated in the new Framework, which is expected to be adopted at the UN Biodiversity Conference in October.

Asian Elephant

- Habitat: forest of South Asia (Bangladesh, Bhutan, India, Nepal and Sri Lanka) and Southeast Asia (Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Thailand and Vietnam).

- IUCN Red List Status: Endangered
- It is also listed in **Appendix I of CITES** and **Schedule I of the Wildlife (Protection) Act, 1972**.
- Threats: habitat loss, poaching for ivory (used in Chinese traditional medicine).

Great Indian Bustard

- It is one of the heaviest flying birds in the world.
- It is the State bird of Rajasthan.
- Habitat: large expanses of dry grassland and scrub.

- Its largest populations are found in the Indian state of Rajasthan (Jaisalmer).
- IUCN Red List Status: Critically Endangered
- Once common on the dry plains of the Indian subcontinent, as few as 150 individuals survive today.
- It is also listed in Appendix I of CITES andSchedule I of the Indian Wildlife (Protection) Act, 1972.
- Threats: Habitat loss, hunting, mortality due to collision with power lines (they have a poor frontal vision).

Bengal Florican

- IUCN Red List Status: Critically Endangered
- A rare bustard species that is very well known for its **mating dance**.
- Habitat: Grasslands occasionally interspersed with scrublands.
- Distribution: Native to only 3 countries in the world – Cambodia, India and Nepal. In India, it occurs in 3 states, namely **Uttar Pradesh, Assam and Arunachal Pradesh**.
- Threats: Ongoing conversion of the bird's grassland habitat for various purposes including agriculture is mainly responsible for its population decline.
- The bird is listed under **Schedule I of the Wildlife Protection Act of India**, 1972 and **Appendix I of CITES**.

Suggested Reading: {Envi – Laws – 19/08/27} Regulating Trade in Wildlife https://www.pmfias.com/cites-mike-traffic-cites-in-india/

{Envi – IUCN – 20/03} Gaur (Indian Bison)

D2E | Environment > IUCN Red List India

- Gaurs had shifted out of Bihar's Valmiki Tiger Reserve (VTR) due to grassland destruction.
- Now they are returning back to VTR due to an increase in grassland cover.

- IUCN Red List Status: [Vulnerable](#)

- Habitat: evergreen forests, semi-evergreen, and deciduous forests of South and Southeast Asia.

- Diet: forage in the form of grasses, bamboo and shrubs.

Valmiki Tiger Reserve (VTR)

- It is located at the **India-Nepal border** in the West Champaran district of Bihar.

- Valmiki Tiger Reserve comprises the Valmiki National Park and Valmiki Wildlife Sanctuary.

- It is an excellent example of **Himalayan Terai landscape**.

- **River Gandak** forms the western boundary of Valmiki wildlife sanctuary.

- It enters in India at Valmikinagar. The river is called '**Narayani**' in Nepal.

- A river system originates from the Valmiki Forests and forms **Burhi Gandak River** down south.

- Fauna: Bengal tiger, Indian rhinoceros, Indian flying fox, black bear, Indian sloth bear, Indian leopard, barking deer, spotted deer, hog deer, Sambar, flying squirrel, Clouded Leopard, Indian gaur, etc.

- **'Tharu'**, a scheduled tribe, is the dominant community in the landscape.

{Envi – IUCN – 20/03} Red Panda

[TH](#) | Environment > [IUCN Red List India](#)

- IUCN Red List Status: Endangered

- Red panda is endemic to the temperate forests of the Himalayas.

- It is the state animal of **Sikkim**.

- Habitat: temperate forests of the Himalayas — Nepal, Bhutan, India, China and Myanmar.

- Habitat in India: Arunachal Pradesh, Meghalaya, Sikkim, and West Bengal.

- **India** (5,000-6,000 red pandas) has the second-largest population after China (6,000-7,000).

- Threats: habitat loss and fragmentation, poaching, and inbreeding depression.

- Red Panda is falling to traps laid for other animals, such as the musk deer and wild pigs.

- The animal has been hunted for meat and fur, besides illegal capture for the pet trade.

- Red Panda is is a very selective feeder and survives on selected species of bamboos which are fast depleting.

{Envi – Laws – 20/02} Green India Mission

[D2E](D2E) | India's National Action Plan On Climate Change (NAPCC)

- A sum of Rs 343.08 crore has been released under the Green India Mission (GIM) for undertaking afforestation activities over an area of 126,916.32 hectare (ha) in 13 states, according to the Economic Survey 2019-20.

Green India Mission (National Mission for A Green India)

- GIM is one of the eight missions launched under the National Action Plan on Climate Change (NAPCC).

- The **Green India Mission** aims to **sequester 2.523 billion tonnes of carbon by 2020-30**, and this involves adding **30 million hectares** in addition to existing forest.

- GIM, launched in February 2014, is aimed at
  - ✓ protecting; restoring and enhancing India's diminishing forest cover and
  - ✓ responding to climate change by a combination of adaptation and mitigation measures.
  - ✓ Enhanced annual CO_2 sequestration by **50 to 60 million tons in the year 2020**.

- The mission will be implemented on both public as well as private lands.

- The mission will local communities in planning, decision making, implementation and monitoring.

UPSC Prelims Question: Which of the following best describes/describe the aim of 'Green India Mission' of the Government of India?

1) Incorporating environmental benefits and costs into the Union and State Budgets thereby implementing the `green accounting'

2) Launching the second green revolution to enhance agricultural output so as to ensure food security to one and all in the future

3) Restoring and enhancing forest cover and responding to climate change by a combination of adaptation and mitigation measures

Select the correct answer using the code given below.

a) 1 only

b) 2 and 3 only

c) 3 only

d) 1, 2 and 3

Answer: c) 3 only

{Envi – LBT – 20/02} Pakke Tiger Reserve, Wildlife Sanctuary

TH | Environment > Protected Area Network > Tiger Reserves

- A 40km road proposed to connect Pakke Kessang district and West Kameng district of the Arunachal Pradesh passes through Pakke Tiger Reserve.
- Recently, the government of Arunachal Pradesh has suspended the survey work for the road.

List of Tiger Reserves: https://www.pmfias.com/protected-areas-of-india-national-parks-tiger-reserves/

- Pakke Tiger Reserve (altitude varies from 150 to 2,000 m) is in the Pakke Kessang district of Arunachal Pradesh.
- It is bounded by **Kameng River** in the west and north.
- Towards the south and south-east, it adjoins **Assam's Nameri National Park**.
- Vegetation: Eastern Himalayan broadleaf forests.
- Major Fauna: Bengal tiger, Indian leopard, elephant, barking deer, gaur, and sambar.

{Envi – Pollution – 20/03} Categorisation of Industries

TH | PIB | GS3 > Environmental Pollution and Degradation

- Industries are categorised based on their pollution load by the MoEF.
- Re-Categorisation of Industries was done in 2016 based on their pollution load.

Need for recategorization

- The old system of categorization was not reflecting the pollution load of the industries.

- 25 industrial sectors which were not critically polluting were earlier categorized as Red.
- This was creating problems in getting environmental clearance (EC) for those industries.

Pollution Index

- MoEFCC has developed the criteria of categorization of industrial sectors based on the Pollution Index which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources.
- The Pollution Index PI of any industrial sector is a number from 0 to 100 and the increasing value of PI denotes the increasing degree of pollution load from the industrial sector.

MoEFCC has finalized the following category of industries

- **Red category:** Industrial Sectors having Pollution Index score of 60 and above. (60 industries)
- **Orange category:** Industrial Sectors having Pollution Index score of 41 to 59. (83 industries)
- **Green category:** Industrial Sectors having Pollution Index score of 21 to 40. (63 industries)
- **White category:** Industries with Pollution Index score including and upto 20. (36 industries)

The salient features of the 'Re-categorization' exercise are as follows

- Newly-introduced **White category industrial sectors are practically non-polluting**.
- They will **not require Environmental Clearance (EC) and Consent to Operate**.
- White category industrial sectors have to just intimate SPCB and CPCB.
- **No Red category of industries shall normally be permitted in the ecologically fragile/protected area**.

Examples of category of industries

- Red category: Cement, Petrochemicals, pharmaceuticals, sugar, paper and pulp, nuclear power plants, organic chemicals, fertilizers, firecrackers, etc.
- Orange category: Coal washeries, glass, paints, stone crushers, aluminium and copper extraction from scrap.
- Green category: aluminium utensils, steel furniture, soap manufacturing and tea processing.
- White category: air cooler or air conditioning units, chalk factories, biscuit tray units, etc.

{Envi – Water Pollution – 20/02} Swachh Bharat Mission

PIB | PIB | Environment > Water Pollution

- GOI has approved the second phase of the Swachh Bharat Mission (SBM II).

- The estimated central and state budget for SBM II is ~Rs 52,000 crore.

- The second phase will be implemented between **2020-21 and 2024-25**.

- The second phase will focus on **Open Defecation Free Plus (ODF Plus)**, which includes **ODF sustainability** and **solid and liquid waste management (SLWM)**.

- The ODF Plus will converge with MGNREGA, especially for grey water management, and will complement the newly launched **Jal Jeevan Mission**.

- The fund sharing pattern between the Centre and States will be
    - ✓ 90:10 for North-Eastern States and Himalayan States and UT of J&K;
    - ✓ 60:40 for other States; and
    - ✓ 100:0 for other Union Territories.

Swachh Bharat Mission

- SBM was Launched on 2nd October 2014.

- It seeks to achieve universal sanitation coverage by making Gram Panchayats Open Defecation Free (ODF).

- SMB is implemented by the **Ministry of Drinking Water and Sanitation**.

- Incentives as provided for all BPL Households and Above Poverty Line (APL) households restricted to SCs/STs, physically handicapped and women headed households for the construction of household latrines.

- The incentives are provided by the Centre and States (75% : 25%).

- Central share of incentives will be 75% while the rest is contributed by the states.

- For North Eastern State, and Special category States, the Central share will be 90%.

Performance of the mission

- In 2014, the sanitation coverage in the country was reported at 38.7 per cent.

- More than 10 crore individual toilets have been constructed since the launch of the mission.

- **Rural areas in all the states have declared themselves ODF as on 2nd October, 2019**.

Swachh Iconic Places

- Swachh Iconic Places (SIP) is an initiative of **Ministry of Drinking Water and Sanitation** under SBM.

- Aims to take iconic places and their surroundings to higher standards of Swachhata.

Implementation

- It is a collaborative project with three other central Ministries: **Urban Development, Culture, Tourism** and concerned States.

- Initiatives taken up under Swachh Iconic Places initiative are:
  - ✓ Improved sewage infrastructure,
  - ✓ improved sanitation facilities,
  - ✓ water vending machines,
  - ✓ solid and liquid waste management (SLWM)
  - ✓ lighting arrangements, beautification of parks, roads maintenance,
  - ✓ better transport facilities in approach and access areas besides at the main sites.

Places selected for implementation

Phase I

- Ajmer Sharif Dargah, CST Mumbai, Golden Temple, Kamakhya Temple, MaikarnikaGhat, Meenakshi Temple, Shri Mata Vaishno Devi, Shree Jagannath Temple, The Taj Mahal and Tirupati Temple.

Phase II

- Gangotri, Yamunotri, Mahakaleshwar Temple, Charminar, Convent and Church of St. Francis of Assissi, Kalady, Gommateswara, BaidyanathDham, Gaya Tirth and Somnath temple.

Phase III

- Raghavendra Swamy Temple (Kurnool, Andhra Pradesh);
- Hazardwari Palace (Murshidabad, West Bengal);
- Brahma Sarovar Temple (Kurukshetra, Haryana);
- VidurKuti (Bijnor, Uttar Pradesh);
- Mana village (Chamoli, Uttarakhand);
- Pangong Lake (Leh-Ladakh, J&K);
- Nagvasuki Temple (Allahabad, Uttar Pradesh);
- ImaKeithal/market (Imphal, Manipur);
- Sabarimala Temple (Kerala); and
- Kanvashram (Uttarakhand).

Locate these places on a Map

{Envi – Water Pollution – 20/03} Uranium Contamination in Ground Water

PIB | Water Pollution

- There is prevalence of **Uranium concentration above 30 micro-gram per litre (WHO provisional guidelines)** in some of the localized pockets in the country.
- In Rajasthan and other northwestern regions, uranium occurs mostly in **alluvial aquifers**; while in southern regions such as Telangana, crystalline rocks such as granite seem to be the source.
- When groundwater is over-extracted from such soils, the uranium is exposed to air, triggering its release.
- A report brought out by Central Ground Water Board states that most of the northwestern and peninsular states in India have localised occurrence of Uranium concentration.
- The AP government has ordered an inquiry into complaints about groundwater pollution caused by the uranium mining and processing project of the Uranium Corporation of India Limited (UCIL) in Kadapa district.

The impact of Uranium on health

- Uranium is weakly radioactive with a long physical half-life (~4.5 billion years for uranium-238).
- The biological half-life (time taken by human body to eliminate half the amount) is about 15 days.
- Elevated uranium level in drinking water may be associated with **kidney toxicity**.
- High rates of **chronic kidney disease (CKD)** in Srikakulam district in Andhra Pradesh is thought to be due to groundwater uranium exposure.

Guidelines in India

- The Indian Standard IS 10500: 2012 for Drinking Water specification has specified the maximum acceptable limits for radioactive residues as alpha and beta emitters, values in excess of which render the water not suitable.
- These requirements take into account all radioactive elements, including uranium.
- No individual radioactive elements have been specifically identified.
- Further, Bureau of Indian Standard (BIS) is working to incorporate maximum permissible limit of Uranium as **0.03 mg/l (as per WHO provisional guidelines)** in all drinking water standards.