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{Envi – Air Pollution – 19/08/06} Cost of coal plants complying with green norms is ₹73,000 crore

[TH](#) | 06-08-2019 | Environment > [Controlling Air Pollution](#)

- Current rules say that coal-fired power plants have to ensure that they curtail **sulphur dioxide** and **nitrous oxide** emissions from their smokestack by implementing appropriate technology.
- While this was to be in place by 2017, it has now been extended to 2022 by MoEF.
- According to the Central Electricity Authority, 166 GW of capacity requires retrofitting with **flue gas desulphurisation (to meet sulphur oxide emission norms)** and 66 GW with modifications or **enhancements to reduce particulate matter emissions**.
- The total capex required for installing pollution-control clean technology in existing and new plants is estimated to be at least ₹73,000.
- This could mean, at the minimum, a 10% hike in electricity bills for consumers.

Context

- 300,000 to 320,000 premature deaths and 5.1 crore hospital admission cases are expected due to respiratory disorders between 2019 and 2030.
- The mortality and morbidity costs attributing to PM2.5 alone were estimated to be USD 128 billion and USD 11 billion respectively during 2015-2030.

Flue Gas Desulfurization

- Lime is used to remove acidic gases, particularly sulphur dioxide (SO₂) and HCl, from flue gases (gases flowing out of vertical exhaust pipes).
- There are two main methods for cleaning flue gases from coal combustion at electric generating stations: dry scrubbing and wet scrubbing. Lime is used in both systems.
- Dry scrubbing is also used at municipal waste-to-energy plants for HCl control.

Wet Lime Scrubbing

- In wet lime scrubbing, lime is added to water and the resulting slurry is sprayed into a flue gas scrubber.
- The gas to be cleaned flows upward through a shower of lime slurry.
- The sulphur dioxide is absorbed into the spray and then precipitated as wet calcium sulphite.
- The sulphite can be converted to **gypsum** (used in cement production).
- Wet scrubbing treats high-sulphur fuels.

Dry Lime Scrubbing

- In dry scrubbing, lime is injected directly into flue gas to remove SO₂ and HCl from low-sulphur fuels.

{Envi – Air Pollution – 19/08/20} Household Air Pollution (HAP)

[IE](#) | [ET](#) | 20-08-2019 | Environment > [Air Pollution](#)

- A new study states that household fuels are the **single biggest source of air pollution** in India.
- Such household solid fuels accounts for somewhere between 22% to 52% of all ambient air pollution in India.
- The study postulates that switching to cleaner fuels such as LPG will have a dramatic impact on pollution.
- In addition to generating GHGs like **carbon dioxide** and **methane**, the household solid fuels kick out chemicals and other fine particulate matter that can stick in the lungs and trigger pneumonia, lung cancer, etc.
- Fine particulate matter refers to particles or droplets with a diameter of 2.5 microns or less (PM_{2.5}).
- Such particles can travel deep into the respiratory system and cause respiratory problems and heart disease.
- In 2015, India's annual air pollution level was **55 micrograms per cubic metre** of fine particulate matter.

- Levels in New Delhi often soared beyond 300 micrograms per cubic metre.
- Replacing household solid fuels with cleaner fuels would cut India's average annual air pollution to 38 micrograms per cubic metre.
- This would be just below the [National Ambient Air Quality Standard of 40 micrograms per cubic metre](#).
- This is still far above the [WHO standard of 10 micrograms per cubic metre](#).

Household Air Pollution

- The emissions of PM2.5 by burning of household solid fuels is termed Household Air Pollution (HAP).
- The study claims that approximately 800,000 premature deaths occur in India every year as a result of HAP.
- Around 300,000 more premature deaths per year attributable to exposure to outdoor HAP.
- The contribution of HAP to premature mortality is ~58% higher than premature mortality due to coal use, ~300% higher than that due to open burning, and ~1,000% higher than that due to transportation.

Pradhan Mantri Ujjwala Yojana to fight Household Air Pollution

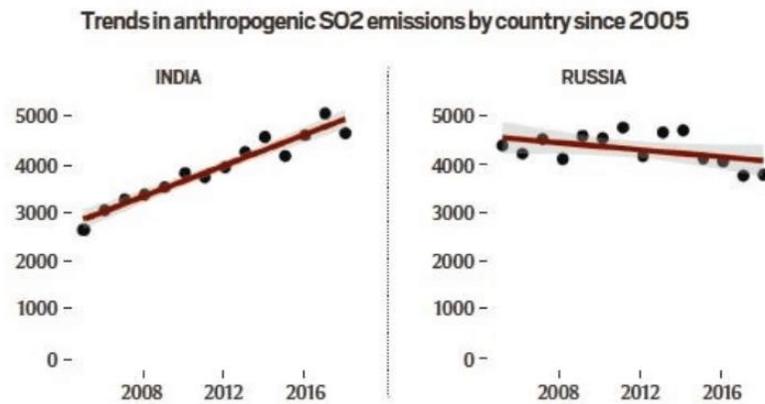
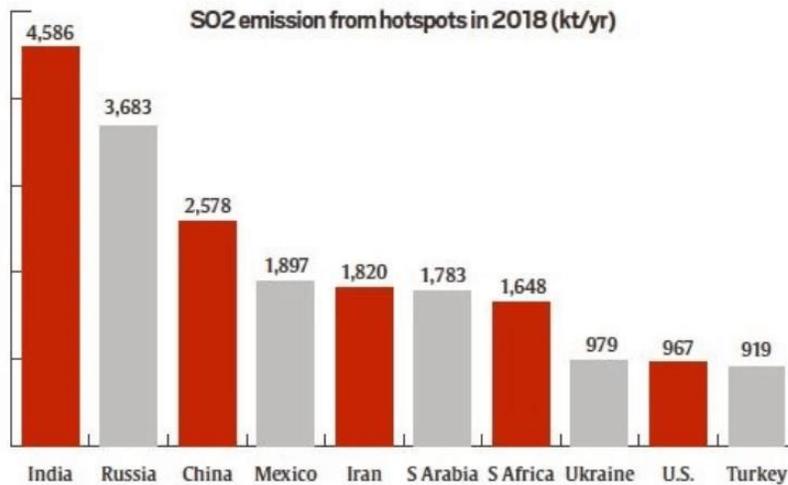
- In 2016, Pradhan Mantri Ujjwala Yojana was instituted to distribute clean burning stoves and propane (LPG).
- LPG cylinders are now used by [89% households in India](#). (56.2% on April 1, 2015)
- Northern states have the highest 99.9% LPG coverage ratio.
- Southern states together have a coverage of 99.7% while western states have 81.9%.
- Most north-eastern states have less than 80% coverage.
- The worst among major states are [Jharkhand \(65.4%\)](#), [Bihar \(67%\)](#) and [Odisha \(66.9%\)](#).
- In states such as Bihar, Uttar Pradesh, Madhya Pradesh, Orissa, Jharkhand, etc. around 72.1% of the population still regularly uses solid fuels.

{Envi – Air Pollution – 19/08/20} India is the biggest emitter of sulphur dioxide

[IE](#) | 20-08-2019 | Environment > [Air Pollution](#)

- A new report by Greenpeace India shows the country is the [largest emitter of sulphur dioxide](#) in the world.
- The report is based on NASA OMI (Ozone Monitoring Instrument) satellite data.
- India has more than **15% of all the anthropogenic sulphur dioxide hotspots** detected by the NASA OMI.
- Almost all of these emissions in India are because of **coal-burning**, the report says.
- The vast majority of coal-based power plants in India **lack flue-gas desulphurisation technology**.
- MoEF introduced sulphur dioxide emission limits for coal-fired power plants in December 2015.

- But the deadline for the installation of flue-gas desulphurisation in power plants has been extended from 2017 to 2022.
- The largest sulphur dioxide emission hotspots have been found in India, Russia, South Africa, Iran, etc.



Source and Credits: Indian Express

- The **Singrauli, Neyveli, Talcher, Jharsuguda, Korba, Kutch, Chennai, Ramagundam, Chandrapur and Koradi** thermal power plants or clusters are the major emission hotspots in India.

CHOKING THE ATMOSPHERE

India's worst emission hotspots	(kilo tonne/year)
Singrauli	507
Talcher	347
Jharasuguda	201
Chennai	215
Visakhapatnam	171
Ramagundam	157



TALCHER COAL MINE

● China's success in reducing SO2 emissions has made Russia the second highest emitter after India

Source and Credits: TOI



- Air pollutant emissions from power plants and other industries continue to increase in India, the report says.
- Of the world's major emitters, China and the United States have been able to reduce emissions rapidly.
- They have achieved this feat by switching to clean energy sources.

{Envi – Biodiversity Loss – 19/08/20} Why India is vulnerable to attacks by alien species

[D2E](#) | 20-08-2019 | Environment > [Biodiversity loss](#)

- An invasive species can be any kind of living organism — plant, insect, fish, fungus, etc. — that is not native to an ecosystem and causes harm.
- When invasive species are introduced into an ecosystem, they may not have any natural predators or controls.
- Native wildlife may not have evolved defences against the invading species.
- Thus, they may grow quickly in numbers and spread aggressively.
- When pests, weeds, etc. invade, they can wipe out food crops, alter the ecology, deplete water levels, etc.

How are invasive species introduced into an ecosystem?

- Invasive species are primarily spread by human activities like transportation.
- Ships can carry aquatic organisms in their ballast water and on their propellers.
- Insects can get into wood that are shipped around the world.
- Some ornamental plants can escape into the wild and become invasive.
- Sometimes, humans voluntarily introduce an invasive species to control the population of another species.
- In addition, changes in rain and snow patterns caused by climate change will enable some invasive plant species to move into new areas.

Threats to native wildlife from invasive species

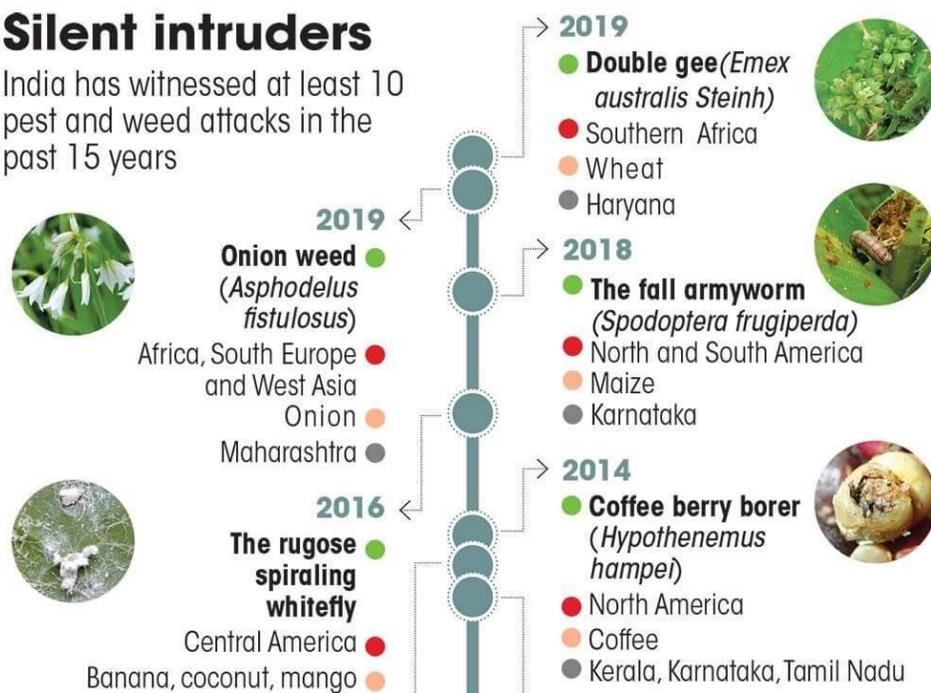
- The direct threats of invasive species include
 - ✓ preying on native species,
 - ✓ outcompeting native species for food or other resources,
 - ✓ causing or carrying disease, and
 - ✓ preventing native species from reproducing or killing a native species' progenies.
- There are indirect threats of invasive species as well.
 - ✓ They can change the food web by destroying or replacing native food sources.
 - ✓ They may provide little to no food value for wildlife.
 - ✓ Aggressive plant species can quickly replace a diverse ecosystem with a monoculture.
 - ✓ Additionally, some invasive species are capable of changing soil chemistry or the intensity of wildfires.

Invasive species in India

- In the past 15 years, India has faced at least 10 major invasive pest and weed attacks.
- The most recent was the **fall armyworm** that destroyed almost the entire maize crop in the country in 2018.

Silent intruders

India has witnessed at least 10 pest and weed attacks in the past 15 years



Source and Credits: [D2E](#)

Quarantine centres to check invasive species

- Countries have animal, plant and health quarantine facilities at all transborder entry points.
- India has 108 plant quarantine centres located at major airports, seaports and railway stations.
- The quarantine centres are under the control of the Central Board of Indirect Taxes & Customs, which works in coordination with **Directorate of Plant Protection & Quarantine Storage (DPPQS)**.
- Import of agricultural products is governed by the Destructive Insects and Pests Act, 1914.
- **Union Ministry of Agriculture & Farmers Welfare** is responsible for the control of invasive pests & weeds.
- MAFW has also prepared lists of plants whose import is allowed, restricted or banned.
- There is also a list of weeds that should not enter the country with any import.
- When an agricultural product arrives, customs officials check if it has a **phytosanitary certificate** or not.
- This certificate, showing that the product is without any pest or weed infestation, is issued by the government of the exporting country. If the product is certified, it is cleared by DPPQS after a sample test.
- If the product has not been given a phytosanitary certificate, DPPQS fumigates the product with **methyl bromide (gas fumigant for soil-borne diseases and pests)** and issues a phytosanitary certificate.
- The fumigation is for two to 48 hours. The company is charged for the fumigation.

Issues with the functioning of the quarantine centres

- Only half of India's plant quarantine centres are functional.
- Rest are shut as the import-export is negligible or because of staff shortage.

- Customs officials also often release the cargo without referring it to DPPQS.
- Corruption is pervasive in DPPQS. The officials take bribes to clear the import of products without objections.
- The security at India's animal quarantine stations is also virtually non-existent and items disappear in transit.

There is a need for stringent execution of laws

- With increasing global trade, countries worldwide are becoming serious about alien pests and microbes.
- Nepal, for instance, stopped the entry of agriculture products from India without a phytosanitary certificate on June 17 after the outbreak of acute encephalitis syndrome in Bihar earlier this year.
- There is no reason for India to be casual about its quarantine regulations, especially because its agricultural imports have seen a threefold rise in less than a decade.

{Envi – CC – 19/08/02} Food waste and climate change

[D2E](#) | 02-08-2019 | Environment > Climate change

- At present, a waste of food items is **one-third** of the global food production.
- A lot of water, especially ground water (coal electricity = more GHGs), and energy goes into food production.
- Currently, global food system is responsible for **one third of the world's gas house gas emissions**.
- How? Rotting food, animal waste, biomass, etc. release **Methane** (21-22 times greater global warming potential compared to CO₂).

{Envi – CC – 19/08/03} Harmful chemicals are melting out from Himalayas

[DTE](#) | 03-08-2019 | Environment > Climate Change > Impact

- Climate change is causing harmful pollutants trapped in the Himalayan glaciers to melt out
- Since 1940, harmful chemicals used in pesticides have been slowly accumulating in these glaciers.
- These pollutants are flowing down to Himalayan lakes, potentially threatening aquatic life and humans dependent on these water bodies.

Perfluoroalkyl acids (PFAAs)

- PFAAs have a **long life** and are one of the major pollutants that **get stored in the glaciers**.
- They don't biodegrade and are passed through several organisms and ecosystems.
- Himalayan glaciers may have higher levels of PFAAs than any other glaciers in the world.
- This is because of their proximity to south Asian countries (most polluted regions of the world).
- The glaciers are releasing PFAAs into lakes and this can lead to **bioaccumulation** of PFAAs in fish.

- The consumption of contaminated fish can prove fatal for humans.

Perfluoroalkyl acids (PFAAs) are different from Perfluoro Chlorides.

Chlorinated Hydrocarbons (CHC) (Perfluoro Chlorides)

- Chlorinated Hydrocarbons are the most damaging non-degradable pollutants that are long-lasting.
- CHCs are hydrocarbons in which one or more hydrogen atoms have been replaced by chlorine E.g. **DDT (dichlorodiphenyltrichloroethane), endosulfan, chloroform, carbon tetrachloride, etc.**

{Envi – CC – 19/08/07} Ocean warming, overfishing increase methylmercury toxin in fish

[The Hindu](#) | 07-08-2019 | Environment > Effects of Climate Change | Consequences of Overexploitation

- There is a decrease in seawater concentration of **methylmercury** since the late 1990s.
- However, amount of methylmercury in fish which are higher in the food chain have been found to increase.
- The increase is due to two reasons: — **ocean warming** and dietary shifts due to **overfishing** by humans.
- Due to overfishing, fish higher in the food chain relied more on larger fishes, which have higher concentrations of the toxin than other prey fish.
- Fish metabolism is temperature dependent. So, **as ocean temperature increases, fish experience higher metabolism and more energy obtained from food is spent on maintenance rather than growth.**
- This leads to more methylmercury getting concentrated in predatory fish (fish higher in the food chain).
- Human exposure to the toxin through fish consumption is bound to increase as a result of climate change.

Methylmercury

- Methylmercury is a very poisonous form of mercury.
- It is used in **fluorescent lights, batteries, and polyvinyl chloride.**
- In the environment, methylmercury forms when bacteria react with mercury in water, soil, or plants.
- In Japan, mass mercury poisoning (**Minamata disease**) was observed in the 1960s, caused by eating fish from Minamata Bay which was contaminated with methylmercury.
- Methylmercury poisoning leads to brain and nervous system damage.
- The developing foetus is highly vulnerable to mercury exposure.

{Envi – CC – 19/08/09} Land use patterns and climate change

[IE](#) | [The Hindu](#) | 19-08-2019 | Environment > Climate Change

- The Geneva-based Intergovernmental Panel on Climate Change (**IPCC**) is the **UN body** for **assessing the science related to climate change**.
- It was created “to provide policymakers with **regular scientific assessments on climate change**, its implications and potential future risks, as well as to put forward adaptation and mitigation options”.
- This is the first time that the IPCC has focused its attention solely on the **land sector**.
- The latest report is part of a series of special reports that IPCC is doing in the run-up to the **sixth edition** of its main report called the **Assessment Reports**, that is due around 2022.
- The report presents the most recent evidence on how the different uses of land — forests, agriculture, urbanisation — are affecting and getting affected by climate change.
- Last year, the IPCC had produced a special report on the **feasibility of restricting global rise in temperature to within 1.5 degrees Celsius from pre-industrial times**.

The contribution of land use patterns to climate change

- Activities like agriculture and cattle rearing are a major source of **methane** and **nitrous oxide** (GHGs).

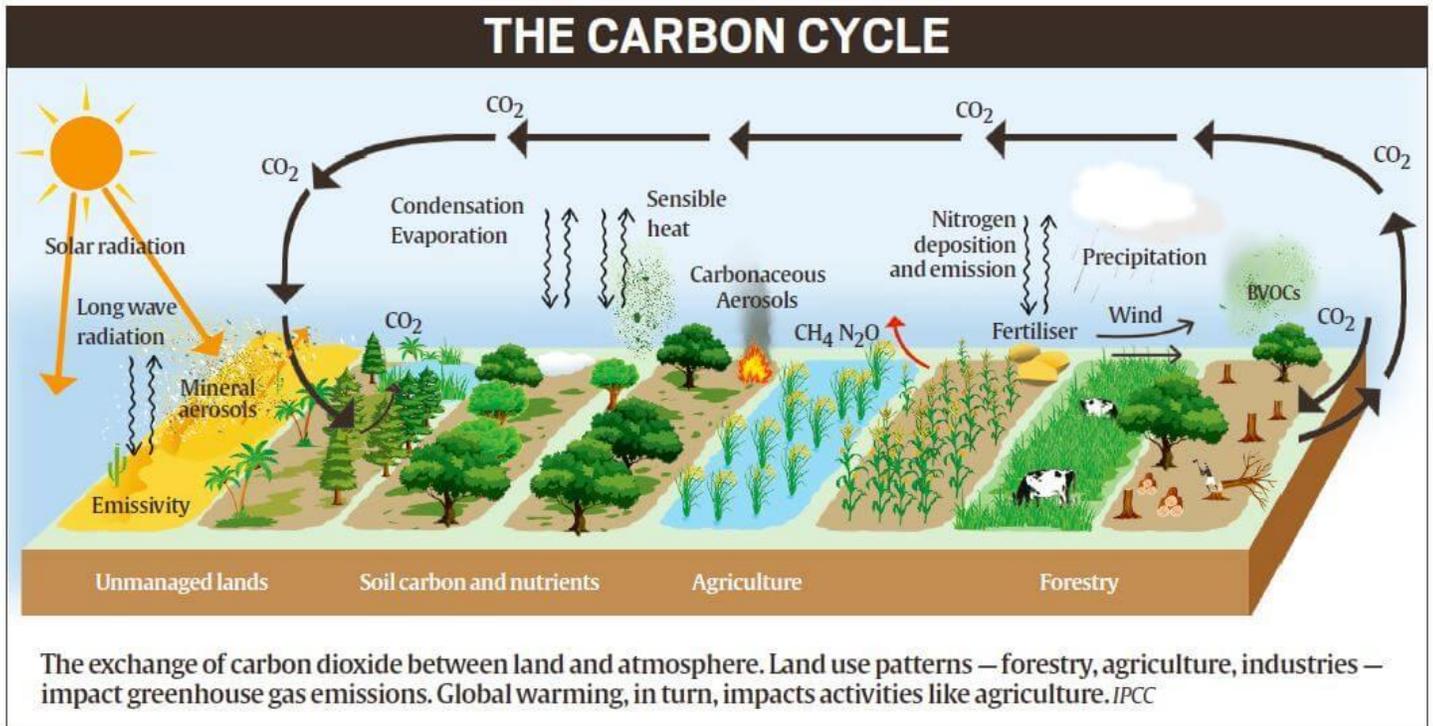
Global Warming Potential (GWP) & Lifetime of Green House Gases		
Gas	GWP (100-year)	Lifetime (years)
Carbon dioxide	1	50-200
Methane	21	12
Nitrous oxide	310	120
Hydrofluorocarbons (HFCs)	140 -11,700	1-270
Perfluorocarbons (PFCs)	6,500-9,200	800-50,000
Sulphur hexafluoride (SF₆)	23,900	3,200

- [IE](#): If pre-production activities like cattle rearing and post-production activities like transport, food processing, is considered, then food production could contribute as much as **37% of all GHG emissions every year**.
- [The Hindu](#): Food system contributes about **half of global emissions (agriculture 15%, deforestation for food 18%, transportation, storage, processing, waste, etc 17%)**.
- IPCC has appealed access to coarse grains, legumes, fruits and vegetables, nuts and seeds will have to be increased and the **carbon footprint caused by meat has to be reduced**.
- Nearly **25% of all food produced is either lost or wasted**. The decomposition of the waste releases GHGs.
- At the same time, soil, trees, plantations, and forests absorb carbon dioxide for the natural process of photosynthesis, thus reducing the overall carbon dioxide content in the atmosphere.

- This is the reason why land use changes, like deforestation or urbanisation, or even a change in cropping pattern, have a direct impact on the overall emissions of GHGs.

Land, oceans, forests

- Land and oceans act as both the [source as well as a sink of carbon](#). **Land and ocean together absorb nearly 50 per cent of GHGs** emitted every year through natural processes in the **carbon cycle**.
- That is why afforestation, and reduction in deforestation, are vital to combat climate change.



- India's action plan on climate change too, has a very important component on forests.
- India has promised that it would create an **additional carbon sink of about 2.5 billion to 3 billion tonnes by the year 2032** by increasing its forest cover and planting more trees.

{Envi – Conservation – 19/08/01} Payment for Ecosystem Services (PES)

[The Hindu](#) | [D2E](#) | 01-08-2019 | Environment > Biodiversity Conservation

- 10 Himalayan states have been demanding a 'green bonus' for keeping critical ecosystems intact.
- These states have been getting incentives based on their forest cover under a Finance Commission formula.
- This sort of an incentive called **payment for ecosystems services (PES)** is an emerging global demand to conserve ecosystems.
- The 12th FC (2005-10), earmarked Rs 1,000 crores for five years to be given to states for preserving forests.

- The 13th FC allocated Rs 5,000 crore, based on the area under forest cover and Canopy density.
- The 14th FC included forest cover as a determining factor in a state's share.
- In the distribution of funds to states, the commission attached a 7.5 per cent weight to forest cover.
- Population, demographic change, area are the other factors that decide the share in central tax pool.
- But the Himalayan states have not been a clear winner under this arrangement.
- An assessment of individual state shares reveals that states cumulatively received only Rs 39,300 crore for forest conservation in 2015-16.

Ecological services offered by Himalayan states

- They have forest in around 41.5 per cent of their geographical area. This means a third of the country's forest cover, according to the National Mission for Sustaining Himalayan Ecosystems (sub-mission under [NAPCC](#)).
- The total value of forest ecosystem services flowing from Indian Himalayan-level, it is Rs 94,300 crore / year.
- They are one of India's major [carbon sink](#). Estimates of forest carbon pool in Indian Himalaya is about 5.4 billion tonnes (forest biomass + forest soil).
- They avert soil erosion from the world's youngest mountain range.
- These states can be termed as the water reservoir of the country. Annually, 1,200 billion cubic metres of water flow through the Himalayan rivers.

So, these states, by protecting forests (by sacrificing development), ensure life-saving services to the country. Hence, they truly deserve a **'green bonus' (payment for ecosystem services)** proportional to the economic sacrifices made and conservation costs incurred.

Global scenario

- Globally, the services an ecosystem provides are getting increasing policy attention.
- In 2010, the Conference of Parties to the **Convention on Biological Diversity** held in Nagoya accepted **'environmental goods part of the national accounts** (the monetary value of ecological services).'
- PES is fast turning into a mode of conservation, even though not that wide in India.
- At present, ecological services payment schemes cover carbon sequestration and storage, watershed development and protection, non-domestic biodiversity protection and forest protection.

Incentivising climate-resistant agriculture

- In the climate change regime, carbon emission reduction activities make huge businesses.
- But agriculture has been kept out of the formal carbon market that is worth more than \$100 billion.

- Farmers, particularly those practicing traditional farming including in Himalayan states, have been rarely considered eligible for payment for their ecological services.
- Now, it is being felt that farmers (practising climate-resistant traditional farming) should be rewarded for their ecological services.

Amazon Fund

- Globally, there is tremendous momentum to save the Amazon forests.
- There is a billion-dollar Amazon Fund backed by **Norway** (petroleum exporter) and **Germany**.
- The Amazon Fund is a [REDD+](#) mechanism created to raise donations for investments in efforts to prevent, monitor and combat deforestation, as well as to promote sustainable use in the Brazilian Amazon.
- The Amazon Fund is managed by Brazilian Development Bank.

In news recently

- Brazilian government wants to alter the governance model for the Amazon fund and wants to exploit forest resources and use forest land for economic development.
- Norway and Germany are against such a decision.

{Envi – Conservation – 19/08/07} Centre unveils plan for Integrated Coastal Zone Management

[The Hindu](#) | [The Hindu](#) | 07-08-2019 | Environment > Conservation > CRZ norms

- **MoEF** has unveiled a draft plan that will dictate how prospective infrastructure projects situated along the coast ought to be assessed before they can apply for clearance.
- The draft **Environmental & Social Management Framework** is part of a **World Bank-funded** project.
- The draft plan was prepared by the Society for Integrated Coastal Management, a MoEF-affiliated body.
- The document lays out guidelines for coastal States to adopt when they approve projects in coastal zones.
- The project seeks to assist GOI in
 - ✓ enhancing **coastal resource efficiency and resilience**,
 - ✓ by **building collective capacity** (including communities and decentralised governance)
 - ✓ for adopting and implementing **integrated coastal management** approaches.
- So far, Gujarat, Odisha and WB, have prepared ICZM Plans with support from the World Bank.
- The key activities proposed for coastal zone development include:
 - ✓ mangrove afforestation/shelter beds,
 - ✓ habitat conservation activities such as restoration of sea-grass meadows,

- ✓ eco-restoration of sacred groves,
- ✓ development of hatcheries,
- ✓ rearing/rescue centres for turtles and other marine animals,
- ✓ creation of infrastructure for tourism,
- ✓ restoration and recharge of water bodies,
- ✓ beach cleaning and development, and
- ✓ other small infrastructure facilities.
- Livelihood improvement projects include:
 - ✓ demonstration of climate resilient or salinity resistant agriculture,
 - ✓ water harvesting and recharge/storage,
 - ✓ creation of infrastructure and facilities to support eco-tourism,
 - ✓ community-based small-scale mariculture,
 - ✓ seaweed cultivation,
 - ✓ aquaponics, and
 - ✓ value addition to other livelihood activities.
- The plan describes how “environmental and social aspects” ought to be integrated into the planning, design, implementation of projects.

Why there is a need for ICZM?

- Inadequate planning has often obstructed coastal zone development projects.
- In June, the Bombay HC struck down the Coastal Regulation Zone (CRZ) clearance for ₹14,000-crore Coastal Road to be constructed between South Mumbai and Western suburbs.
- This was on the grounds of an inadequate scientific study by the Maharashtra CRZ and lapses by the MoEF.

Mumbai’s Coastal Road Project

- Being constructed on 90 hectares of land from the sea.
- The project will extend tens of meters into the sea.



- Very expensive project that costs around 1000 crore per kilometre.
- [1,000 mangrove trees will be cut for the project.](#)
- There is a huge opposition from environmental activists and the general populace.

Consequences of cutting mangroves

- Change in tidal pattern will lead to erosion of beaches.
- Blockage of the city's natural drainage systems.
- Exacerbates flooding situation (heavy rains + high tide) during s-w monsoon season.

Criticism

- Public money is being squandered to serve the tiny car owning population.
- The same amount of money spent on public transportation would serve a lot more people.
- [Corruption, crony capitalism](#): spurious (bogus) budgets passed.

EIA rules flouted

- Public hearing before planning the road never happened.
- Latest environmental impact report has not yet been made public.

Diluting CRZ rules

- Till 2011, CRZ rules allowed roads on coastlines only in the form of bridges on stilts.
- Bridges on stilts will not affect the **flow of tidal waters**.
- However, a 2011 CRZ notification allowed reclamation-based roads in "exceptional cases".

Titbit: Mumbai was formerly a group of seven thickly forested islands. They were joined during the British rule.

Major Citizen Movements to protect the environment

Chipko movement

- The word 'chipko' [means to hug](#).
- In the 1730s, a group of **Bishno** people in Rajasthan laid down their lives to protest the felling of trees.
- The **first Chipko movement in independent India** took place in April 1973 in Garhwal Region, Uttarakhand (back then it was UP) when the government had allotted land inside forest territory to a manufacturer.

Sunderlal Bahuguna

- He is a Gandhian and the pioneer of **grassroots environmental activism** in India.
- He spearheaded the **Chipko movement** in the Garhwal Region of Uttar Pradesh.
- He was Instrumental in garnering the support of GOI, in enacting a law to ban the felling of trees in ecologically sensitive forest lands.
- He was also instrumental in protests against the construction of **Teri Dam** (Garhwal region, Uttarakhand).
- He coined the Chipko slogan: '**ecology is permanent economy**'.

⇒ **Titbit:** Teri dam is [2,400-megawatt dam](#) on the **Bhagirathi river** (tributary of the Ganga).

⇒ **Titbit:** According to the **biennial State of Forests Report 2017**, India registered a [marginal increase](#) in forest cover between 2015 and 2017.

⇒ **Titbit:** According to the **State of Forests Report 2017**, land under forest cover in India amounted to **7,08,273 km² (21.53% of the geographical area)**.

{Envi – Conservation – 19/08/21} More than 5,000 gharials born in Chambal sanctuary

D2E | [21-08-2019](#) | Environment > Conservation

- 5,000 gharials and 400 mugger crocodiles were born in the latest hatching season (June-July 2019) at the **National Chambal Sanctuary** on the **tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh**.
- The number of gharials was 905 in 2012 and increased to 1,896 in 2019.
- The number of mugger crocodiles was 205 in 2012 and increased to 706 in 2019.
- The Chambal, which is roughly 1,000 kilometres long, originates in western Madhya Pradesh and meanders its way through Rajasthan and Uttar Pradesh before joining the Yamuna in Jalaun district.
- The course of the Chambal was through forests or ravines or scrubland, away from human settlement.
- The forest departments of the three states are responsible for the sanctuary.

- Gharials and mugger crocodiles build nests on the banks to lay eggs. The nests are intruded by wild animals or human beings. Wild pigs, dogs and predatory birds often prey on the baby reptiles.
- The topography of the course of the river is changing because people have started cultivation on what was considered a natural [ravine or a wasteland](#).

Gharial



- IUCN Red List Status: [Critically Endangered](#)
- Habitat: Clean rivers with sand banks.
- Distribution: viable population in the **National Chambal Sanctuary**.
- Small non-breeding populations exist in Son, Gandak, Hoogly and Ghagra rivers.
- Now extinct in Myanmar, Pakistan, Bhutan and Bangladesh.
- Threats: The combined effects of dams, barrages, artificial embankments, change in river course, pollution, sand-mining, riparian agriculture and ingress of domestic and feral livestock.

Q. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?

(2017)

- a) Bhitarkanika Mangroves
- b) Chambal River
- c) Pulicat Lake
- d) Deepor Beel

Mugger (marsh crocodile)



- IUCN Red List Status: [Vulnerable](#)
- Habitat: native to **freshwater** habitats of Indian subcontinent. It is extinct in Bhutan and Myanmar.
- Threats: habitat destruction, humans' encroachment into their habitat, entangled in fishing equipment.

Saltwater crocodile



- IUCN Red List Status: Least Concern
- Habitat: saltwater habitats and brackish wetlands of India's east coast, Southeast Asia, Northern Australia.
- A large population is present in **Odisha's Bhitarkanika Wildlife Sanctuary**.
- Threats: Once hunted intensively for their skin, hides. At present, loss of habitat to human development and saltwater incursion or inundation, illegal killing are the greatest threats.

{Envi – IUCN – 19/08/10} India to seek boost to protection status of 5 species at CITES

[The Hindu](#) | 10-08-2019 | Environment > [IUCN](#)

- India has submitted proposals to the [CITES](#) regarding changes to the listing of various wildlife species.
- CITES (Convention on International Trade in Endangered Species on Wild Fauna and Flora) is an international treaty to ensure that **trade in wild animals and plants do not threaten their survival**.
- The proposals submitted are regarding changes in the listing of the **smooth-coated otter, small-clawed otter, Indian star tortoise, Tokay gecko, wedgefish** and **Indian rosewood**.
- The country seeks to boost the protection of all the five animal species as they are facing a **high risk of international trade**.
- For the Indian rosewood, the proposal is to remove the species from CITES Appendix II.
- The species covered by CITES are listed in three appendices on the degree of protection they require.
- India is among the parties proposing the re-listing of the star tortoise from CITES Appendix II to Appendix I.
- The species faces two threats: loss of habitat to agriculture and **illegal harvesting for the pet trade**.
- With regard to the two otter species, India, Nepal and the Philippines have proposed that the listing be moved from CITES Appendix II to Appendix I for the more endangered species.

- A similar proposal has been made to include the Tokay gecko in Appendix I.
- India is also supporting proposals, such as the boosting of protection status for **tarantulas (large hairy spiders)**, made by other countries.

Smooth-coated otter



- IUCN Red List Status: [Vulnerable](#)
- Habitat: Eastern parts of India and South East Asia.
- Threats: loss of wetland habitats, reclamation of wetlands for agriculture, poaching, etc.

Oriental small-clawed otter/ Asian small-clawed otter



- IUCN Red List Status: [Vulnerable](#)
- Semiaquatic mammals which feed on fish, amphibians, birds and small mammals.
- Habitat: **Freshwater wetlands ad forests of Himalayas, Western Ghats and Southeast Asia.**
- Threat: habitat loss, pollution and hunting.

Star Tortoise



Indian Star Tortoise ([IUCN](#))

- IUCN Red List Status: **[Vulnerable](#)**
- Habitat: Eastern parts of India below West Bengal and Gujarat.
- Threats: traded for meat and pet trade (superstitious people pet them as they believe that the reptile brings prosperity).

Tokay Gecko



Tokay Gecko ([Wikipedia](#))

- IUCN Red List Status: **[Least Concern](#)**
- Habitat: North-East India and South-East Asia.
- Threats: used in traditional medicine in South East Asia and China.

Whitespotted wedgefish



- IUCN Red List Status: **Critically Endangered**
- Habitat: Red Sea, Persian Gulf, and western Indian Ocean.
- Threats: High levels of exploitation for its flesh and fins.

Indian rosewood



- IUCN Red List Status: **Vulnerable**
- Habitat: Native to the foothills of the Himalayas
- Threats: Logging & wood harvesting.

{Envi – Laws – 19/08/27} Regulating Trade in Wildlife

[The Hindu](#) | [D2E](#) | [D2E](#) | D2E | 27-08-2019 | Environment > [IUCN](#) | Environment > Conservation > National and International Architecture for regulating trade in wildlife.

Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES)

- CITES is also known as the **Washington Convention**.
- It is an international agreement (multilateral treaty) between governments.
- It was drafted as a result of a resolution adopted by members of [IUCN](#) in 1963. It entered into force in 1975.

- Its aim is to ensure that **international trade in specimens of wild animals and plants does not threaten their survival.**

Parties to CITES

- States that have agreed to be bound by the Convention are known as Parties.
- **CITES is legally binding on the Parties. However, it does not take the place of national laws.**
- It only provides a framework to be respected by each Party. The parties need to adopt their own domestic legislation to ensure that CITES is implemented at the national level.

Q. With reference to the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which of the following statements is/are correct?

- 1) IUCN is an organ of the United Nations and CITES is an international agreement between governments
- 2) IUCN runs thousands of field projects around the world to better manage natural environments.
- 3) CITES is legally binding on the States that have joined it, but this Convention does not take the place of national laws.

Select the correct using the code given below.

- a) 1 only
 - b) 2 and 3 only
 - c) 1 and 3 only
 - d) 1, 2 and 3
- IUCN is an NGO. CITES is an international agreement between governments (multilateral treaty).
 - Answer: b) 2 and 3 only

Conference of Parties to CITES (CoP)

- The CITES CoP is where governments around the world convene every two to three years to review and make decisions on the regulation of trade in endangered species.
- Representatives of the Parties to CITES, NGOs, and others attend CoP meetings.
- However, only CITES Parties can vote on decisions at the CoP.

The CoP will decide on:

- Proposals to **list, remove, or change the listing of species on the CITES appendices.**
- Policy and implementation measures to improve the effectiveness of the Convention.

Functioning of CITES

- CITES works by subjecting international trade in specimens of selected species to certain controls.
- All import and export of species covered by CITES has to be authorized through a **licensing system**.
- Each Party designates
 - ✓ one or more **Management Authorities** in charge of administering the licensing system and
 - ✓ one or more **Scientific Authorities** to advise them on the effects of trade on the status of the species.
- Management Authority in India: **Director of Wildlife Preservation, MoEFCC**.
- Other Management Authorities competent to grant permits: **Wildlife Crime Control Bureau (WCCB)**.
- Scientific Authorities: Zoological Survey of India, Botanical Survey of India, **Wildlife Institute of India**, etc.

Protection offered to species by CITES

- CITES accords varying degree of protection to more than 35,000 species of animals and plants.
- The species covered by CITES are listed in three Appendices, according to the degree of protection they need.

Appendices I and II

- Appendix I includes **species threatened with extinction**.
- Trade in specimens of these species is **permitted only in exceptional circumstances**.
- Appendix II includes species **not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival**.
- At each regular meeting of the CoP, Parties submit proposals to amend these two Appendices.
- Those amendment proposals are discussed and then submitted to a vote.

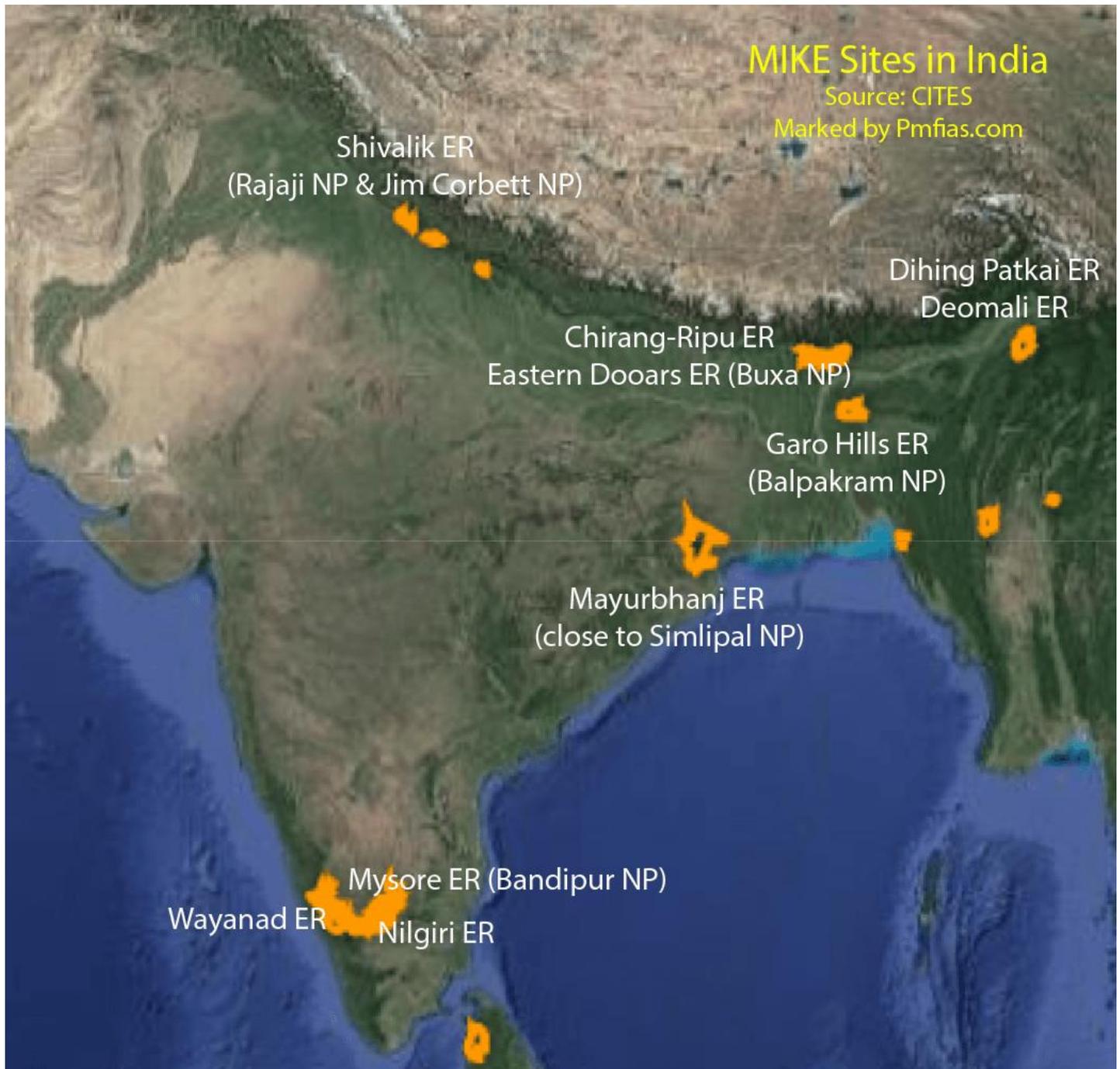
Appendix III

- This Appendix contains species that are **protected in at least one country**, which has asked other CITES Parties for assistance in controlling the trade.

Monitoring the Illegal Killing of Elephants (MIKE)

- The MIKE Programme was established by a **CITES Resolution adopted at the CoP10 in 1997**.
- MIKE is an international collaboration that measures the levels, trends and causes of elephant mortality.
- MIKE's information base is used to support international decision-making related to **conservation of elephants in Asia and Africa**.
- The information and analyses are also presented at annual **CITES** meetings and meetings of the CoPs.
- One of the core mandates given to the MIKE Programme is to build capacity in **elephant range States**.

- There are currently 28 sites participating in the MIKE programme in Asia, distributed across 13 countries:
- **India has 10 sites**, followed by two sites each in Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar and Thailand, and one site each in Bangladesh, Bhutan, China, Nepal, Sri Lanka and Viet Nam.



- In 2017, **IUCN** was engaged by CITES to implement the **MIKE Asia programme** in two sub-regions:
 - ✓ South Asia – Bangladesh, Bhutan, India, Nepal and Sri Lanka
 - ✓ Southeast Asia – Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Thailand and Viet Nam.

- MIKE is entirely dependent on donor support. The **European Union** has been the most important donor for the MIKE programme in Africa since 2001, and in Asia since 2017.

The Wildlife Trade Monitoring Network (TRAFFIC)

- TRAFFIC is an **NGO (CITES on the other hand is a multilateral treaty)** working globally on trade in wild animals and plants in the context of both **biodiversity conservation and sustainable development**.
- TRAFFIC is a **joint programme of World Wide Fund for Nature (WWF) and IUCN**.
- Traffic is complimentary to CITES.
- The programme was founded in 1976, with headquarters now located in Cambridge, United Kingdom.
- TRAFFIC's mission is to ensure that **trade in wild plants and animals is not a threat to the conservation of nature**.
- It investigates and analyses wildlife trade trends, patterns, impacts and drivers to provide the leading **knowledge base on trade in wild animals and plants**.

Q. Consider the following statements in respect of Trade Related Analysis of Fauna and Flora in Commerce (TRAFFIC): (2017)

- 1) TRAFFIC is a bureau under United Nations Environment Programme (UNEP).
- 2) The mission of TRAFFIC is to ensure that trade in wild plants and animals is not a threat to the conservation of nature.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: 2 only

World Wide Fund for Nature (World Wildlife Fund)

- It is an international **NGO** founded in 1961.
- It works in the field of the wilderness preservation, and the reduction of human impact on the environment.
- WWF aims to "**stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.**"

- The **Living Planet Report** is published every two years by WWF since 1998.
- WWF has launched several notable worldwide campaigns including **Earth Hour** and **Debt-for-Nature Swap**.

Policy and Laws Concerning CITES in India

- International trade in all wild fauna and flora is regulated jointly through the provisions of the
 - ✓ Wildlife (Protection) Act 1972,
 - ✓ Foreign Trade (Development Regulation) Act 1992,
 - ✓ Foreign Trade Policy of Government of India and
 - ✓ Customs Act, 1962.

Wildlife (Protection) Act, 1972

- **Harming endangered species listed in Schedule I of the Act is prohibited throughout India.**
- Hunting species that require special protection (Schedule II), big game (Schedule III), and small game (Schedule IV), is **regulated through licensing**.
- A few species classified as **vermin (Schedule V), may be hunted without restrictions**.
- The Act **prohibits the trade in specified plants (Schedule VI)** from an area specified by notification by GOI.
- The Schedule VI of the Act lists all the six plants of Indian origin included in CITES appendices.
- **Trade in Scheduled animals (Schedule I and Part II of Schedule II) are prohibited** under the act.
- Similarly, the Act **disallows trade in all kinds of imported ivory**, including that of African elephant.
- The Act has been amended in 2006 leading to the establishment of the **National Tiger Conservation Authority** and the **Wild Life Crime Control Bureau (WCCB)** with a statutory backing.

Foreign trade (Development and Regulation) Act 1992

- No export or import should be made except in accordance with the provisions of this Act.
- The act empowers GOI to order or make provision for prohibiting/regulating the import or export of any class of goods, which includes wildlife specimen and their products.

Foreign Trade Policy (2009-2014)

- Foreign Trade Policy announced periodically by the **Ministry of Commerce** contains information regarding the wildlife and wildlife products which are either prohibited or permitted for the purpose of import or export.
- The policy is decided in consultation with the Management Authority for CITES in India as far as matter relating to wild fauna and flora are concerned and is enforced through the **Customs Act, 1962**.

EXIM Policy

- Export or import of wild animals and plants, their parts and products is allowed for the purpose of research and exchange between Zoos, subject to licensing by the **Director General of Foreign Trade** (DGFT).
- The current policy does not permit commercial import of African ivory in view of the ban imposed by CITES.
- Import of other derivatives of wildlife is restricted and can be made only with prior permission of DGFT.
- Import of wild animals as pets is also subject to the provisions of CITES.

Enforcement: Wildlife Crime Control Bureau (WCCB)

- Considering the seriousness of organised Wildlife Crime and illegal trade of Wildlife parts and products, the Wildlife Crime Control Bureau was created in 2007 under the provisions of the **Wildlife Protection Act 1972**.
- Wildlife Crime Control Bureau is **designated nodal agency for CITES related enforcement**.
- WCCB is a **statutory** multi-disciplinary body under the MoEFCC.
- The Bureau has its
 - ✓ five regional offices at Delhi (headquarters), Kolkata, Mumbai, Chennai and Jabalpur; and
 - ✓ five border units at Ramanathapuram, Gorakhpur, Motihari, Nathula and Moreh.
- Under the **Wild Life (Protection) Act, 1972**, WCCB is mandated to
 - ✓ collect and collate **intelligence related to organized wildlife crime**;
 - ✓ disseminate the same to State and other enforcement agencies so as to apprehend the criminals;
 - ✓ to establish a **centralized wildlife crime data bank**;
 - ✓ **co-ordinate actions** by various agencies in connection with the enforcement of the provisions of the Act;
 - ✓ **assist international organizations & foreign authorities** to facilitate wildlife crime control;
 - ✓ capacity building of the wildlife crime enforcement agencies;
 - ✓ assist State Governments to **ensure success in prosecutions related to wildlife crimes**; and
 - ✓ **advise** the Government of India on issues relating to wildlife crimes.
- It also assists and advises the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of Wild Life Protection Act, CITES and EXIM Policy governing such an item.

The 18th Conference of the Parties to CITES (CoP18)

- CoP18 was originally planned to be held in Colombo, Sri Lanka, in May and June of 2019.
- Due to the terrorist attacks, CoP18 has been rescheduled to August 2019, in **Geneva, Switzerland**.
- The last CITES CoP (CoP17) was held in 2016 in Johannesburg, South Africa.

Major developments in CITES CoP18

- Zambia floated a proposal to downlist its elephants to Appendix II of CITES, which in effect would have meant resuming the sale of its ivory stockpile.
- Governments rejected the proposal to resume international sales of ivory stockpiles.
- Elephants from the wild will no longer be shipped to zoos and circuses around the globe.
- A resolution calling for Japan and the European Union to close their legal domestic ivory markets was not adopted at the CoP18. (At least 20,000 elephants are being illegally killed each year in Africa for their ivory.)

India sought to boost the protection status of 5 species at CITES CoP18

- India has submitted proposals to the [CITES](#) regarding changes to the listing of various wildlife species.
- The proposals submitted are regarding changes in the listing of the **smooth-coated otter, small-clawed otter, Indian star tortoise, Tokay gecko, wedgefish** and **Indian rosewood**.
- The country seeks to boost the protection of all the five animal species as they are facing a **high risk of international trade**.
- For the Indian rosewood, the proposal is to remove the species from CITES Appendix II.
- India is among the parties proposing the re-listing of the star tortoise from CITES Appendix II to Appendix I.
- The species faces two threats: loss of habitat to agriculture and **illegal harvesting for the pet trade**.
- With regard to the two otter species, India, Nepal and the Philippines have proposed that the listing be moved from CITES Appendix II to Appendix I for the more endangered species.
- A similar proposal has been made to include the Tokay gecko in Appendix I.
- India is also supporting proposals, such as the boosting of protection status for **tarantulas (large hairy spiders)**, made by other countries.
- **27/08/2019: Star tortoise, Asian small-clawed and smooth-coated otters were included in Appendix I.**
- A complete international ban will be enforced on their trade as part of efforts to boost numbers.

Smooth-coated otter



- IUCN Red List Status: [Vulnerable](#)
- Habitat: Eastern parts of India and South East Asia.
- Threats: hunting for their skins and for pet trade, loss of wetland habitats, reclamation of wetlands for agriculture, poaching, etc.

Oriental small-clawed otter/ Asian small-clawed otter



- IUCN Red List Status: [Vulnerable](#)
- Semiaquatic mammals which feed on fish, amphibians, birds and small mammals.
- Habitat: **Freshwater wetlands and forests of Himalayas, Western Ghats and Southeast Asia.**
- Threat: hunting for their skins and for pet trade, habitat loss, pollution.

Star Tortoise



Indian Star Tortoise ([IUCN](#))

- IUCN Red List Status: [Vulnerable](#)
- Habitat: Eastern parts of India below West Bengal and Gujarat.
- Threats: traded for meat and pet trade (superstitious people pet them as they believe that the reptile brings prosperity).

Tokay Gecko



Tokay Gecko ([Wikipedia](#))

- IUCN Red List Status: **Least Concern**
- Habitat: North-East India and South-East Asia.
- Threats: used in traditional medicine in South East Asia and China.

Whitespotted wedgefish



- IUCN Red List Status: **Critically Endangered**
- Habitat: Red Sea, Persian Gulf, and western Indian Ocean.
- Threats: High levels of exploitation for its flesh and fins.

Indian rosewood



- IUCN Red List Status: [Vulnerable](#)
- Habitat: Native to the foothills of the Himalayas
- Threats: Logging & wood harvesting.

{Envi – Plastic Pollution – 19/08/20} Microplastics are now an atmospheric pollutant

[The Hindu](#) | [IE](#) | [TH](#) | Environment > [Solid Waste](#)

- The researchers found huge amounts of microplastics in the Arctic snow; their study claims to be the first that contains data on contamination of snow by microplastics.

Plastic problem

- Up to 12 million tonnes of plastics are thought to enter the world's oceans every year.
- Plastic fragments were found even in the guts of animals living more than 10 km below the ocean surface.
- Several recent studies have established the presence of microplastics in groundwater in the US.
- A study estimated that the average human ends up consuming at least 50,000 particles of microplastics in food every year.

Microplastics

- Microplastics are defined as shreds of plastic less than 5 mm in length.
- Microplastics come from a variety of sources, including from larger plastic debris.
- **Microbeads**, a type of microplastic (tiny pieces of polyethylene), are very tiny pieces of plastic that are added to health and beauty products, such as some cleansers and toothpastes (cooling crystals).
- Even so, manufactured microbeads are not a major contributor to microplastic pollution.
- One of the main contributors to this pollution, instead, is plastic waste, 90% of which is not recycled.

Microplastics in drinking water not a health risk for now: WHO

- In its first report into the effects of microplastics on human health, WHO said the level of microplastics in drinking-water is not yet dangerous for humans but called for more research into potential future risk.
- WHO said that microplastics larger than 150 micrometres are not likely to be absorbed by the human body but the chance of absorbing very small microplastic particles, including nano-sized plastics, could be higher.

{Envi – Tiger – 19/08/03} Tigers face threat from Canine Distemper Virus (CDV)

[TH](#) | 03-08-2019 | Environment > [Wildlife Conservation](#)

- **Canine Distemper Virus (CDV)** can be transmitted to wildlife from CDV-infected dogs living in and around wildlife sanctuaries.
- Canine distemper is a contagious and serious disease caused by a virus that attacks the respiratory, gastrointestinal and nervous systems of puppies and dogs.
- 86% of the tested dogs around Ranthambhore National Park in Rajasthan carried CDV antibodies.
- That is, the dogs are either currently infected or have been infected sometime in their life.
- This finding points out that there is an increased risk of disease transfer from the dogs to tigers and leopards.
- Last year, over 20 lions from the Gir forest succumbed to the viral infection.
- NTCA has prepared guidelines to prevent the spill over of the disease to tigers and other wild animals.

Prevention is better than cure

- Managing any disease in a wildlife population is extremely difficult.
- The main aim should be to vaccinate the free-ranging and domestic dogs in the area around national parks.

{Envi – UNFCC – 19/08/21} Climate finance commitments of developed countries

[TOI](#) | 21-08-2019 | Environment > International Conventions > [UNFCCC](#)

- BASIC nations (Brazil, South Africa, India and China) urged developed countries to fulfil their **climate finance** commitments of mobilizing **\$100 billion annually by 2020** for developing countries.
- The issue of finance is a major sticking point in negotiations ahead of **UNFCCC COP 25, Santiago, Chile**.
- Under the [Green Climate Fund](#), the developed countries are expected to mobilize **\$100 billion per year by 2020**, from a variety of sources, to address the mitigation & adaptation needs of **developing countries**.
- As of January 2019, the Green Climate Fund has raised \$10.3 billion in pledges from 48 countries/regions.
- Keeping in view low contributions to the GCF, the BASIC nations urged the developed nations to make adequate provision of finance to facilitate effective implementation of [Kyoto Protocol](#) and [Paris Agreement](#).
- [Kyoto Protocol](#): *fight global warming by **reducing greenhouse gas concentrations** in the atmosphere to “a level that would prevent dangerous anthropogenic interference with the climate system.”*
- [Paris Agreement](#): *keeping global temperature rise this century **well below 2 °C above pre-industrial levels** and to pursue efforts to **limit the temperature increase even further to 1.5 °C**.*

Green Climate Fund

- UNFCCC COP 16 → Decision Made to Establish GCF.
- UNFCCC COP 17 → Parties approved the Governing Instrument for the GCF → Legal Approval
- UNFCCC COP 18 → **Songdo, Incheon, Republic of Korea will host GCF.**

- The Fund is in operation from 2013.
- GCF will help developing countries financially in adapting mitigation practices to counter climate change.

Q. Which of the following statements regarding 'Green Climate Fund' is/are correct?

- 1) It is intended to assist the developing countries in adaptation and mitigation practices to counter climate change.
- 2) It is founded under the aegis of UNEP, OECD, Asian Development Bank and World Bank

Select the correct answer using the code given below.

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

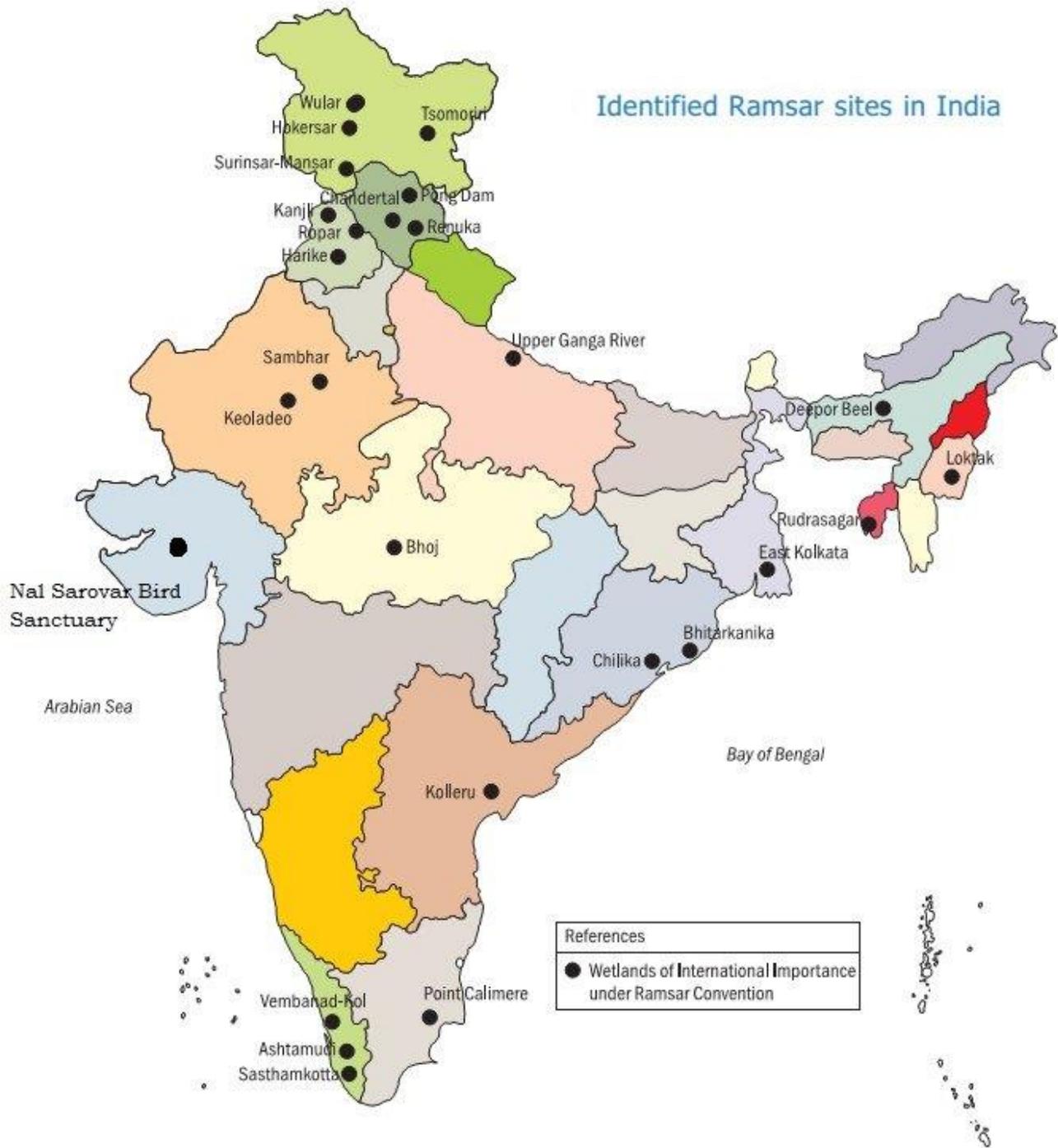
Answer: a) 1 only

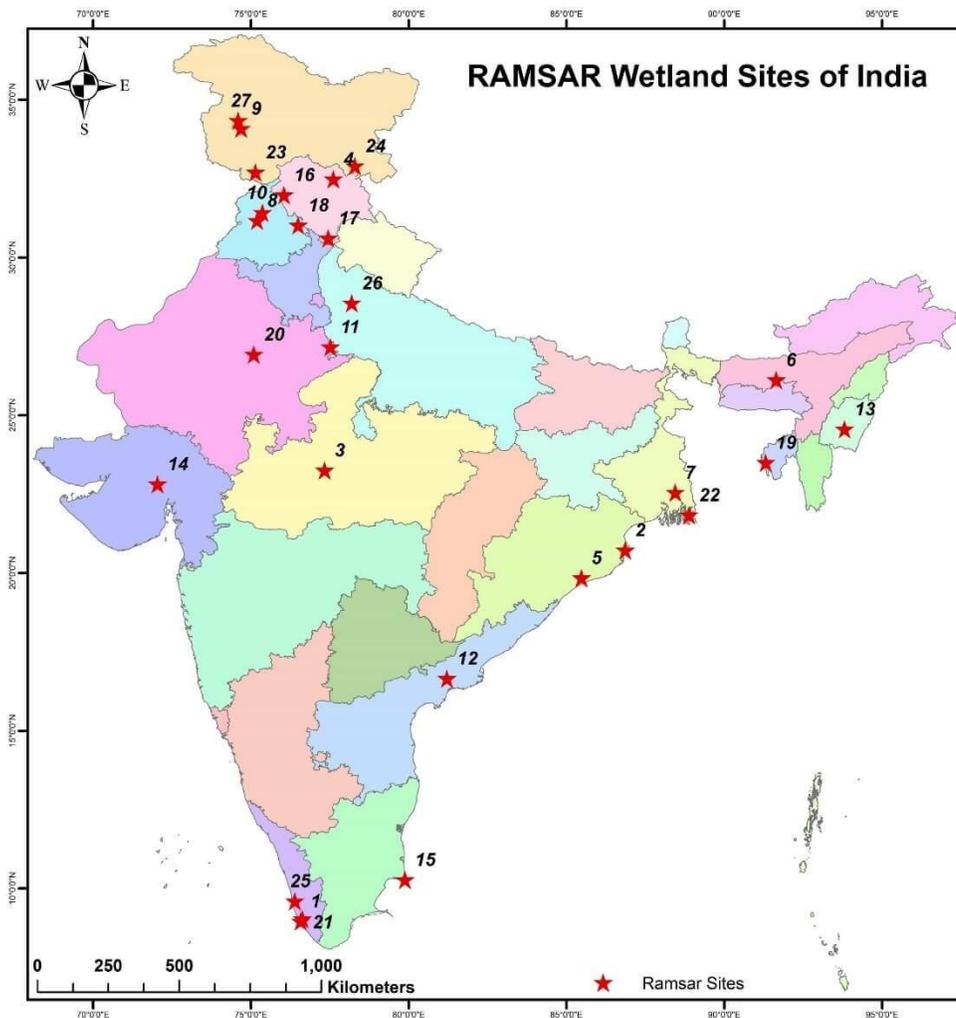
{LOC – Ramsar Site – 19/08/23} Deepor Beel

[The Hindu](#) | 23-08-2019 | Location based topics | Environment > [Wetlands](#) > [Ramsar Site](#)

- NGT has directed the Assam government to declare the area around Deepor Beel an eco-sensitive zone.
- The order of the NGT is significant as the wetland is marred by encroachments and municipal waste dumping.
- Deepor Beel is a major wetland on the western edge of Guwahati.
- It is a permanent freshwater lake, in a former channel of the Brahmaputra River.
- It is an 'Important Bird Area' and a [Ramsar Site](#) with a reserve forest nearby.

Identified Ramsar sites in India





RAMSAR Wetland Sites of India (In Alphabetic Order) Since 1981

S.No	Name
1	Ashtamudi Lake, Kerala
2	Bhitarkanika Mangroves, Odisha
3	Bhoj Wetlands, Madhya Pradesh
4	Chandertal Wetland, Himachal Pradesh
5	Chilka Lake, Odisha
6	Deepor Beel, Assam
7	East Calcutta Wetlands, West Bengal
8	Harike Lake, Punjab
9	Hokera Wetland, Jammu & Kashmir
10	Kanjli Lake, Punjab
11	Keoladeo Ghana NP, Rajasthan
12	Kolleru Lake, Andhra Pradesh
13	Loktak Lake, Manipur
14	Nalsarovar Bird Sanctuary, Gujarat
15	Point Calimere, Tamil Nadu
16	Pong Dam Lake, Himachal Pradesh
17	Renuka Wetland, Himachal Pradesh
18	Ropar Lake, Punjab
19	Rudrasagar Lake, Tripura
20	Sambhar Lake, Rajasthan
21	Sasthamkotta Lake, Kerala
22	*Sunderbans Wetland, West Bengal
23	Surinsar-Mansar Lakes, Jammu & Kashmir
24	Tsomoriri Lake, Jammu & Kashmir
25	Vembanad Kol Wetland, Kerala
26	Upper Ganga River (Brijghat to Narora Stretch) Uttar Pradesh
27	Wular Lake, Jammu & Kashmir

* Designated as RAMSAR Site on 30th January, 2019


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 ENVIS Wildlife and Protected Areas-2019

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Eco-Sensitive Zone

- The **National Wildlife Action Plan (2002–2016)** of MoEFCC stipulated that state governments should declare land falling within 10 km of the boundaries of national parks and wildlife sanctuaries as eco-fragile zones or ESZs under the **Environmental (Protection) Act, 1986**.
- Eco-sensitive zone entails a buffer zone of 10 km around a protected area **restricting industrial and other human activities**.
- The buffer area does not have legal status of being a national park and could be a reserved forest, wildlife sanctuary or tiger reserve.
- The purpose of the ESZ is to provide more protection by acting as a shock absorber/transition zone.

Q. With reference to 'Eco-Sensitive Zones', which of the following statements is/are correct?

- 1) Eco-Sensitive Zones are the areas that are declared under the Wildlife (Protection) Act, 1972.

- 2) The purpose of the declaration of Eco-Sensitive Zones is to prohibit all kinds of human activities, in those zones except agriculture.

Select the correct answer using the code given below.

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: Neither