



7 PM COMPILATION

1st to 15th September, 2022

Features of 7 PM compilation

- ❖ Comprehensive coverage of a given current topic
- ❖ Provide you all the information you need to frame a good answer
- ❖ Critical analysis, comparative analysis, legal/constitutional provisions, current issues and challenges and best practices around the world
- ❖ Written in lucid language and point format
- ❖ Wide use of charts, diagrams and info graphics
- ❖ Best-in class coverage, critically acclaimed by aspirants
- ❖ Out of the box thinking for value edition
- ❖ Best cost-benefit ratio according to successful aspirants

The UN Treaty on High Seas – Explained, pointwise

Topic:- International Relations

Sub topic:- Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Issues in the Real Estate Sector in India and the RERA Act – Explained, pointwise

Topic:- Economic development

Sub topic:- Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

The Electricity Amendment Bill, 2022: Provisions, Benefits and Concerns – Explained, pointwise

Topic:- Governance

Sub topic:- Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Issues in Electoral Funding in India – Explained, pointwise

Topic:- Indian Constitution and Polity

Sub topic:- Election and associated issues

ESG Framework In India – Explained, pointwise

Topic:- Governance

Sub topic:- Important aspects of governance, transparency and accountability, e-governance applications, models, successes, limitations, and potential

Precision Farming: Technologies, Benefits and Challenges – Explained, pointwise

Topic:- Economic development

Sub topic:- Major crops-cropping patterns in various parts of the country

Road Safety in India – Explained, pointwise

Topic:- Economic development

Sub topic:- Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Urban Floods: Causes, Impacts and Remedies – Explained, pointwise

Topic:- Disaster Management

Sub topic:- Disaster and disaster management.

Managing Climate Change: A Strategy for India – Explained, pointwise

Topic:- Environment and Bio-diversity

Sub topic:- Conservation, environmental pollution and degradation, environmental impact assessment.

Need for a Global Pandemic Treaty – Explained, pointwise

Topic:- Social Justice

Sub topic:- Issues relating to development and management of Social Sector/Services relating to Health

[Kurukshetra September Summary] Tribal Development Strategies – Explained, pointwise

Topic:- Social Justice

Sub topic:- Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

India Japan Relationship – Explained, pointwise

Topic:- International Relations

Sub topic:- Bilateral, regional and global groupings and agreements involving India

Climate Reparation: Loss and Damage – Explained, pointwise

Topic:- Environment and Bio-diversity

Sub topic:- Conservation, environmental pollution and degradation, environmental impact assessment.

The UN Treaty on High Seas – Explained, pointwise

Introduction

Delegates from 168 countries were involved in negotiating a legally binding treaty to conserve biodiversity in the high seas or the areas beyond national jurisdiction. However, no consensus was reached as the negotiations ended on August 26. Environmental campaigners have called it a “missed opportunity”. The UN Treaty on High Seas is being considered crucial to protect the marine biodiversity amidst rising threats due to anthropogenic activities. It is expected that the treaty will also help mitigate the impact of climate change on oceans. At present, only 1.2% of international waters fall under protected areas. In June 2022, the UN Secretary General had declared an “Ocean Emergency” at the UN Ocean Conference in the backdrop of alarming rate of extinction of marine species.

What is the current International framework regarding management of oceans?

The United Nations Convention on the Law of the Sea (UNCLOS) lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules **governing all uses of the oceans and their resources**. The convention was signed in 1982 and at present it has 168 parties. The 1982 Convention was built on the works of earlier **UNCLOS I** held in 1956 at Geneva. It had resulted in signing of 4 treaties: **(a)** Convention on the Territorial Sea and Contiguous Zone; **(b)** Convention on the Continental Shelf; **(c)** Convention on the High Seas; **(d)** Convention on Fishing and Conservation of Living Resources of the High Seas.

However, the 1956 Convention couldn't decide on the issue of breadth of territorial waters, different countries had adopted different limits (3 mile to more than 12 miles). The 1982 Convention settled the issue with comprehensive coverage of number of associated aspects like setting limits, navigation, archipelagic status and transit regimes, exclusive economic zones (EEZs), continental shelf jurisdiction, deep seabed mining, the exploitation regime, protection of the marine environment, scientific research, and settlement of disputes. The convention set the limit of various areas which include:

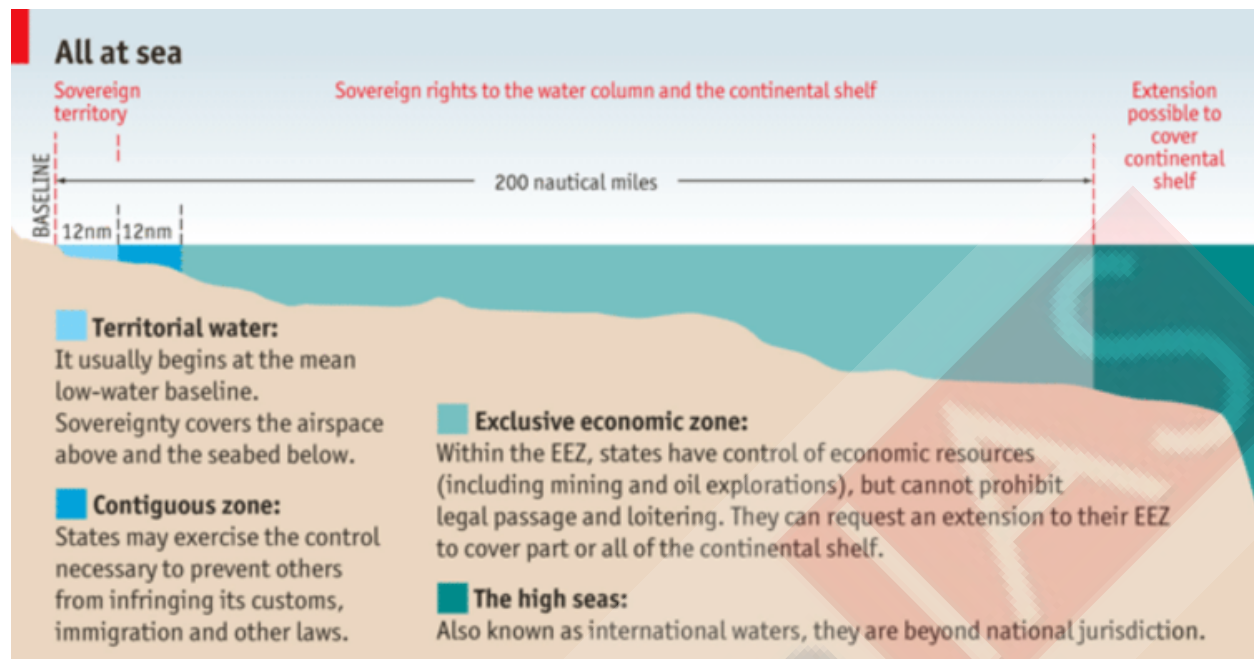
Internal Waters: Covers all water and waterways on the landward side of the baseline. The State is free to set laws, regulate use, and use any resource. **Foreign vessels have no right of passage within internal waters.**

Territorial Waters: Extend up to 12 nautical miles (22 kilometres; 14 miles) from the baseline, the coastal state is free to set laws, regulate use, and use any resource. Vessels have the right of innocent passage through any territorial waters (Passage is not prejudicial to the peace or security of the coastal State, Fishing, polluting, weapons practice, and spying are not innocent).

Contiguous Zone: Extends further 12 nautical miles beyond the territorial waters. The state can enforce laws in four specific areas – customs, taxation, immigration, and pollution.

Exclusive Economic Zones (EEZs): EEZs extend up to 200 nautical miles (370 km; 230 mi) from the baseline. Within this area, the **coastal nation has sole exploitation rights over all natural resources.**

There is no formal definition of International Waters or High Seas in international law, but seas beyond EEZ are called as High Seas.



Source: *The Economist*

The UNCLOS helped in creation of regulating authorities; (a) The International Tribunal for the Law of the Sea; (b) The Commission on the Limits of the Continental Shelf; (c) The International Seabed Authority. It has also outlined general responsibilities towards limiting marine pollution and preserving marine resources.

What is the proposed UN Treaty on High Seas?

The treaty is being referred to as the '**Paris Agreement for the Ocean**'. It is being negotiated under the UNCLOS.

In 2015, the United Nations General Assembly (UNGA) had passed a resolution to develop an **international legally binding instrument** under UNCLOS on the **conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction**. In 2017, the UNGA, decided to convene an intergovernmental conference (IGC), with a view to develop the instrument as soon as possible. The negotiations have been going on since 2018 through a series of intergovernmental conferences.

The new treaty will establish a **global framework to conserve and manage biodiversity of the High Seas**. High seas constitute ~65% of surface and ~95% of volume of oceans.

The treaty is focused on key areas: (a) The conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (BBNJ); (b) **Marine Genetic Resources** (MGRs: biological material from plants and animals in the ocean that can have benefits for society, such as pharmaceuticals, industrial processes and food), including questions on benefit-sharing; (c) Area Based Management Tools (ABMT), including **Marine Protected Areas** (MPAs); (d) Environmental Impact Assessments (EIA); (e) Capacity-building and the Transfer of Marine Technology (CB&TMT) (ensuring less-industrialized countries can meet treaty objectives through a mechanism for sharing marine technology and knowledge).

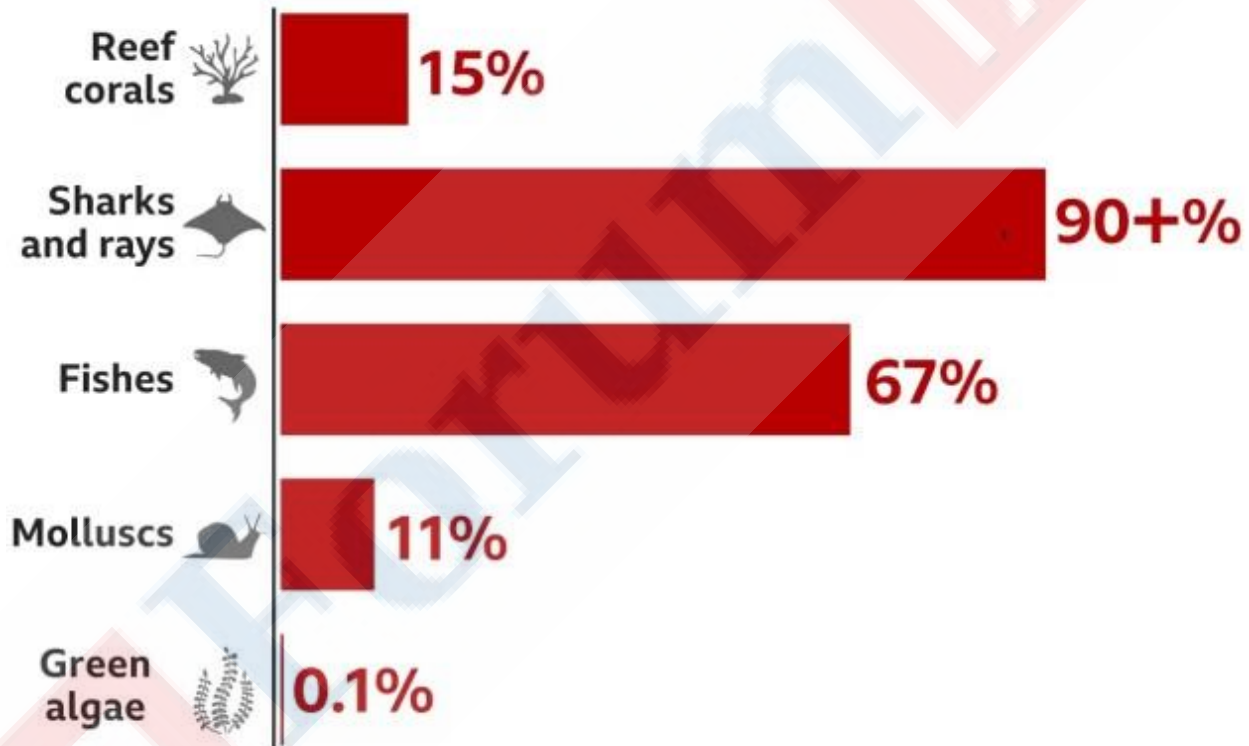
What is the need for the Treaty on High Seas?

Part XII of UNCLOS (1982) contains special provisions for the protection of the marine environment. However, there are many governance gaps and shortcomings that do not address contemporary challenges e.g., there is no comprehensive, agreed-upon **framework governing resource extraction or conservation in the international waters** (high seas).

The oceans are facing several challenges: **(a)** Technological advances enabling greater access to high seas resources are exposing marine ecosystems to severe impacts from fisheries and other extractive industries; **(b)** Marine life living outside of the 1.2% of protected areas are at risk of exploitation from the increasing threats of **climate change**, **acidification**, **overfishing** and **shipping traffic**; **(c)** Chemical, noise and plastic pollution is rising unabated in the seas; **(d)** According to NASA, 90% of global warming is occurring in the oceans.

The greatest threat is to the marine biodiversity. According to a study commissioned by the National Oceanic and Atmospheric Administration, between 10% and 15% of marine species are already at risk of extinction. Sharks and rays are among the species set to lose out from the failure to pass the treaty. According to the IUCN they are facing a global extinction crisis – and are one of the most threatened species groups in the world. Many migratory species such as turtles and whales move through the world's oceans interacting with human activities like shipping which can cause them severe injuries and death.

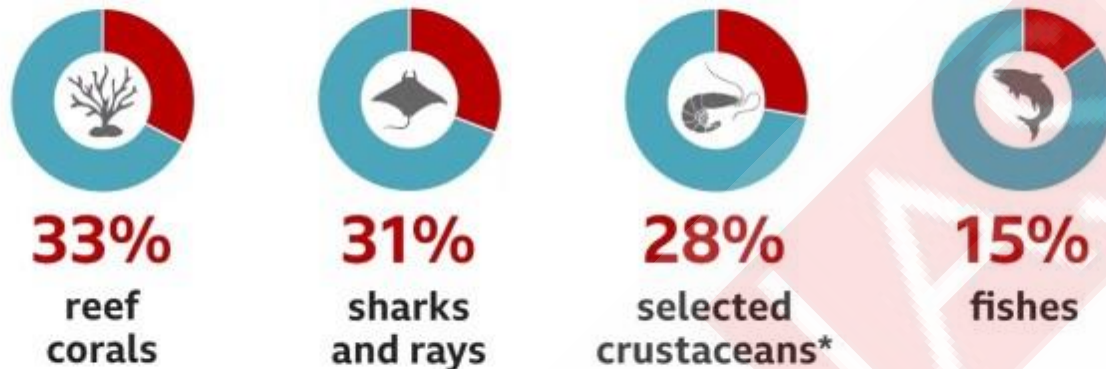
Global species assessed for extinction threat



*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

One in ten marine species are at risk of extinction

Share of species at threat of extinction



*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

Source: BBC

There are concerns that without this treaty, not only will marine species not be protected but also **some species will never be discovered before they become extinct.**

A legally binding treaty would put limits on how much fishing can take place, restrict the routes of shipping lanes and exploration activities like deep sea mining. It will help in slowing down the pace of deterioration of marine ecosystems and restore their capacity to self-stabilization.

What are the major impediments to the High Seas Treaty?

The negotiations have failed to reach consensus on several contentious issues like: **(a) Ensuring fair access to marine resources (MGRs)** for all. Industrialized nations have technology to access deep sea resources which less-industrialized nations lack. Just 10 industrialized countries account for 71% of fishing catch value and 98% of patents on genetic sequences of marine life in the high seas. Several Latin American nations have criticized richer nations' rigidity and continued focus on their own narrow economic interests; **(b) Principles and procedures to establish Marine Protected Areas (MPAs):** They are global common that belong to all countries. No single country can claim exclusive right over high seas and its resources. There has been lack of consensus on framing an **overarching mechanism for implementing and managing MPAs**, how to integrate them with existing fisheries management policy or how the environmental impacts of planned activities should be assessed; **(c)** There are also differences regarding **funding and support for developing countries**. Arctic is another undecided issue. As Arctic ice melts due to climate change and shorter winters, it will open up new area of extraction. But countries are divided over the activities to be permitted and their impact on Arctic ecosystem.

What are the various marine resources?

Generally, marine resources are divided into three categories; **(a) Biotic resources:** They include phytoplanktons (algae and diatoms), zooplanktons, fishes, crustaceans, molluscs, corals, reptiles and mammals etc.; **(b) Abiotic resources (mineral and energy):** They include **(i) Mined Minerals** such as salt, sand, gravel, phosphate, diamonds, manganese, copper, nickel, iron, and cobalt;

(ii) **Drilled Minerals** such as crude oil and gas hydrates; (iii) Minerals present in the deep sea waters such as Manganese nodules, Cobalt crusts and Massive sulphides; (c) **Commercial resources**: This includes navigation, aviation, trade and transport, tourism, livelihood support etc.

Deep Sea Mining

Deep-sea mining is the process of extracting/excavating mineral deposits from the deep seabed. The deep seabed is the seabed at ocean depths greater than 200m, and covers about two-thirds of the total seafloor. Research suggests deep-sea mining could severely harm marine biodiversity and ecosystems.

Despite this, there is growing interest in the mineral deposits of the seabed. This is said to be due to depleting terrestrial deposits of metals such as copper, nickel, aluminium, manganese, zinc, lithium and cobalt. Demand for these metals is also increasing in technologies like smartphones, wind turbines, solar panels and batteries.

What should be the approach going ahead?

The timeline of next round of negotiations is not clear yet, but the deadline has been set for the end of the year.

There is a need to facilitate greater participation to allow all countries and communities (especially coastal state, small island and Landlocked developing countries) to have a say in how marine resources existing outside of national jurisdiction should be shared.

Additionally, adjacent coastal states should have a role in decision-making mechanisms pertaining to activities in areas beyond national jurisdiction that affect them.

There is a need to have an effective, reliable mechanism to build capacity and transfer marine technology to the developing nations. It is essential to the success of the treaty.

Conclusion

The marine ecosystems are facing dangers of unprecedented level. Ocean systems are a vital buffer against global warming. They provide a primary protein source for more than 3 billion people, and support the livelihoods of almost 600 million people. Just like atmospheric warming; the window to take actions to protect marine ecosystems, before irreversible catastrophic damages happen, will be limited. The countries must act with urgency to reach consensus to protect marine ecosystems in the earnest.

Syllabus: GS II, Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests; GS III, Conservation, Environmental pollution and degradation.

Source: [Indian Express](#), [Down to Earth](#), [BBC](#), [Foreign Policy](#)

Issues in the Real Estate Sector in India and the RERA Act – Explained, pointwise

Introduction

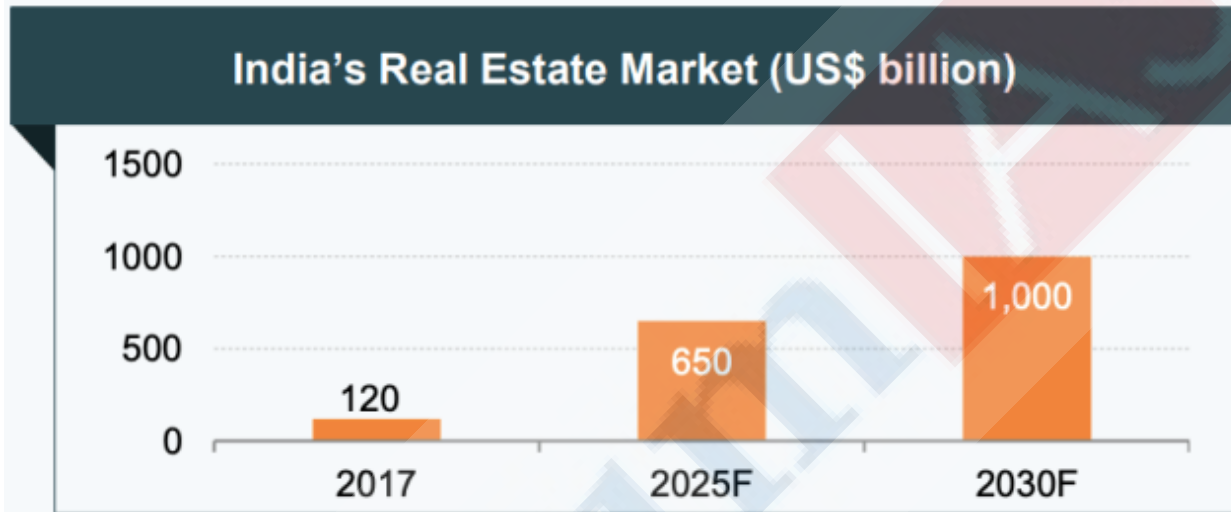
The controlled demolition of Supertech towers in Noida grabbed media headlines all over India. The towers were demolished after a prolonged legal battle of almost a decade. In 2021, the Supreme Court had upheld the 2014 Judgment of the Allahabad High Court that had ordered the demolition. The Court had held that the towers were built in violation of building and city planning norms. Several experts have remarked that the demolition is symptomatic of the ills affecting the Real Estate sector in India. They contend that while the demolition is being celebrated as the law catching up with the culprits, the rot run by nexus of corrupt government officials, political leader and builders is too deep to be cured by one corrective action. The Government has enacted the Real Estate (Regulation and Development) Act in 2016 to regulate

the sector. While there have been some positive impact, but more efforts are required to address the gaps.

About the Real Estate Sector in India

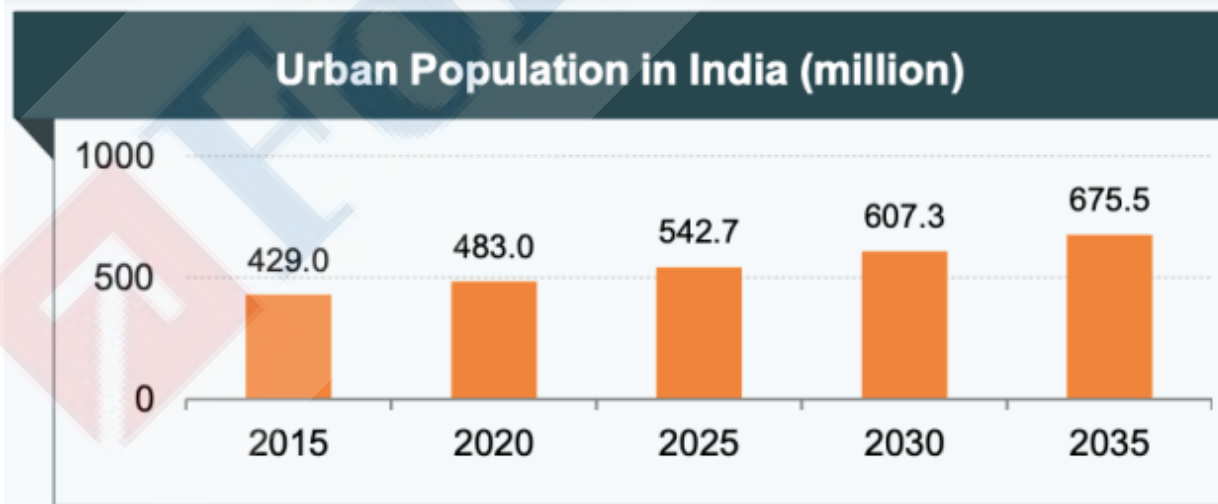
The real estate sector is one of the most globally recognized sectors. It comprises of four sub-sectors: Housing, Retail, Hospitality, and Commercial. The construction industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy. In India, the **real estate sector is the second-highest employment generator, after the agriculture sector.**

According to NITI Aayog, by 2030, the Indian real estate market is predicted to be worth US\$1 trillion from US\$ 200 billion in 2021 and will contribute 13% of the country's GDP by 2025.



Source: India Brand Equity Foundation

The sector will be driven by rapid urbanization as Indian cities grow over the decade. According to the Economic Times Housing Finance Summit, the current shortage of housing in urban areas is estimated to be ~10 million units. An additional 25 million units of affordable housing are required by 2030 to meet the growth in the country's urban population.



Source: India Brand Equity Foundation

In addition, the rapidly expanding digital economy will create demand for real estate as well. According to Savills India (Real Estate Consulting Agency), real estate demand for data centres is expected to increase by 15-18 million sq. ft. by 2025.

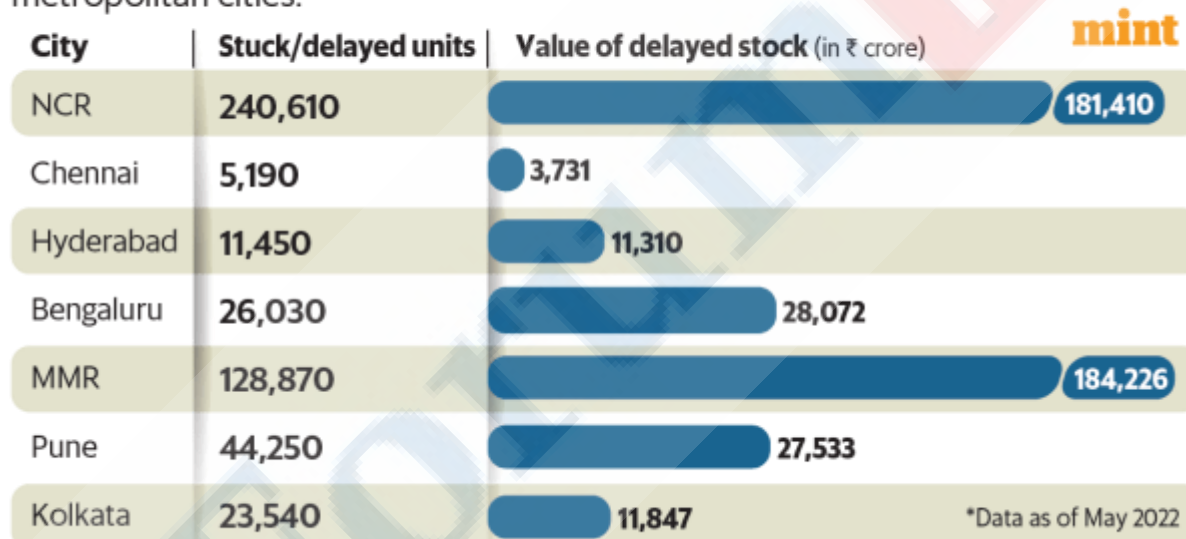
What are the major issues in the Real Estate Sector in India?

Affordability, Inflation and Volatility in financial market: Urban housing is characterized by high prices. It is nearly impossible for majority of Indians to buy a house in major urban areas. The surge in global commodity prices has increased the cost of construction substantially. Rise in cost of living and interest rates on home loans further reduce affordability. Apart from this, inflation and volatility in the financial markets remain key concerns for the real estate sector.

Lack Of Efficient Project Management: It remains a major impediment. The requirement of multiple clearances from multiple Government departments, delay in grant of approval by civic authorities, a lack of funding sources, and budget overruns due to significant delays lead to delays. According to an estimate by a realty consultancy firm, the construction of about 240,000 homes remains stalled in the National Capital Region (NCR) alone

Hanging fire

Projects worth about ₹5 trillion are stuck or delayed across key metropolitan cities.



NCR is national capital region; MMR is Mumbai metropolitan region.

Source: Anarock Property Consultants

Source: Mint

Lack of Transparency: Though the real estate agents and projects are registered, all of them are not necessarily verified. This reflects the drop back of authorities in action.

Corruption: There is a nexus between corrupt government officials, builders and local political leadership. Often, there is blatant violation of laws and rules in terms of land-use norms, FSI or fire and safety compliance etc. For instance, the Supertech towers were built on land initially earmarked for a public park. The plan was changed to allow construction of 9-storey towers. Eventually, towers were built with 40 floors. Similarly, the commercial building in Mundka, Delhi, where fire tragedy occurred in May 2022, was operating without Fire NOC.

What steps have been taken to resolve the issues in the Real Estate Sector in India?

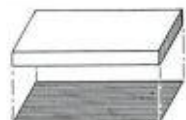
The Government's focus has been towards **making housing affordable** for everyone. Changes in floor space index (FSI) rules have made land hoarding unsustainable. Similarly, the

Government's push for '**Housing for All**' fuelled the demand for affordable housing and in turn generated much-needed liquidity in the sector.

Floor Space Index

- It means the ratio between the **area of covered floor** (Built up Area) to the **area of the plot** (land) on which the building stands.
- FSI indicates the total amount of area (on all floors) which can be built upon a plot.
- Higher the FSI, **greater the number of floors** that can be constructed in the building.
- Thus, higher FSI results in **vertical urbanization**.

FSI 1.0



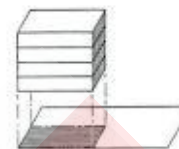
100 % LOT COVERED

If all the plot area is covered under built-up area, only **1 floor** can be constructed.



50 % LOT COVERED

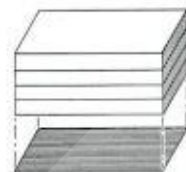
If 50% of the plot area is covered under built-up area, **2 floors** can be constructed.



25 % LOT COVERED

If 25% of the plot area is covered under built-up area, **4 floors** can be constructed.

FSI 4.0



100 % LOT COVERED

If all the plot area is covered, **4 floors** can be constructed.



50 % LOT COVERED

If 50% of the plot area is covered, **8 floors** can be constructed.

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The Government has also tried to make the sector more transparent with the enactment of **Real Estate (Regulation and Development) Act, 2016 (RERA)**. It has improved the availability of information on project approvals. It has enhanced investors' confidence.

Other initiatives by the Union Government include: **(a)** Revival of stalled projects through **Special Window for Affordable & Mid-Income Housing (SWAMIH) fund**; **(b)** Creation of **affordable housing fund** with an initial corpus of about INR 10,000 crore to fund housing finance companies (HFCs) in the priority sector; **(c)** Real estate debt restructuring; **(d)** Moratorium benefits during COVID-19 pandemic (moratorium on interest payments on loans).

What are the salient provisions of the RERA, 2016?

The Real Estate (Regulation and Development) Act, or RERA, was enacted to **regulate the real estate industry**, protect buyers' interests, and encourage developers to provide more professional and timely services.

Objectives of the RERA, 2016

- **Ensure accountability** towards buyers and protect their interests.
- **Enhance transparency**, ensure fair-play and reduce frauds and delays.
- **Introduce professionalism** and pan-India standardization.
- Establish **symmetry of information** between the builder and buyer.
- Establish a **regulatory oversight** mechanism to **enforce contracts**.
- Establish a fast-track **dispute resolution mechanism**.

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The salient provisions of RERA, 2016 include:

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Regulatory Authorities: The Act provides for State Governments to create regulatory authorities (Real Estate Regulatory Authority, RERA) with a mandate to **register and maintain a database of real estate projects**; and to **protect the interest of buyers**. All projects with plot size of minimum 500 sq.mt or eight apartments need to be registered with Regulatory Authorities. Real Estate Agents also need to register with the Authority.

Grievance Redressal: Regulatory Authorities have power to address grievances of buyers. If buyer is not satisfied with the decision, they can challenge it to the **Appellate Tribunal** established in each State.

Penal Provisions: The Authorities can send show cause notices to developers, brokers and promoters if they violate their obligations under the RERA. If they are unable to justify their acts or omissions, they can be subjected to heavy fines. There are **provisions of imprisonment** of up to 3 years for developers and up to 1 year in case of agents and buyers for violation of orders of Appellate Tribunals and Regulatory Authorities.

Timely Completion: 70% of the funds collected from buyers need to be deposited in a separate dedicated account (escrow account) meant for that project only. The deposited money can be used only for the construction of that project. The provisions has been added to prevent diversion of funds by developer to some other project as was the common practice earlier. It will ensure timely construction.

In case of delays, builders have to refund buyers or pay interest on their money for delays.

Transparency: At the time of registration of project, the developer has to furnish specific details related to project like the Sanctioned plan, time period or completion etc. The Act defines terms like **Carpet Area, Common Area** etc. Buyers will be charged for the carpet area and not super built-up area. Developers can't do alteration or addition in the sanctioned plans and specifications of project layout, without the written consent of 2/3rd of allottees/homebuyers.

Protecting Buyer's Interest: The **developer is liable to repair any structural defects** that occur within 5 years of purchase. Similarly, a builder cannot take more than 10% of the cost of the project from the buyer as advance or application fees.

What has been the impact of RERA on Real Estate in India?

The impact of RERA is not fully evident yet. This is because real estate projects have long gestation period. Since RERA is not applicable to projects prior to 2016, very few RERA compliant projects have been completed so far.

However, according to a report by the Government, RERA has led to improved compliance to timelines by builders. A project that had faced prolonged delays in Gautam Buddh Nagar was completed through intervention of the UP Real Estate Regulatory Authority at the request of the buyers.

Real Estate Market experts have observed that the urban market is now becoming dominated by big real estate developers that are **more professional and transparent in their dealings** (Corporatization of Real Estate). This is going to be good for the buyers in the long run. Going ahead, there is going to be reduction in over-supply; as earlier, many developers used to undertake multiple projects without due clearances. Now, this will be kept in check.

What should be the approach going ahead?

First, the RERA does not address the issue of delays in grant of approvals by the Government authorities. There is a need to **reform the approval process** and **make it more transparent**. The practice of violation of planning and building norms followed by subsequent regularization of illegal projects and buildings need to be strictly prohibited.

Second, as pointed out by several policy experts, the process of urban planning is poor in India. This has resulted in haphazard urbanization and creation of slums lacking basic amenities. The urban planning process should involve expertise of professional urban planners.

Third, several studies, including by the National Institute of Public Finance and Policy, have noted the link of the Real Estate Sector and Black Money. Government is taking steps to increase transparency in real estate transactions and curb use of black money (like rationalization of stamp duties). However, more steps are needed in this regard e.g., stricter implementation of Benami Transactions Act, 2016.

Conclusion

India is poised to undergo rapid urbanization in this and the coming decade. The real estate sector has an important role to play. It is crucial to address the lacunae challenging this sector in order to achieve sustainable urbanization. RERA, 2016 is the first corrective step in this regard. The Government must undertake further reforms related to urban planning bodies and checking corruption to make the process of urbanization inclusive and equitable.

Syllabus: GS III, Indian Economy and issues related to growth, development; Infrastructure.

Source: [Mint](#), [Mint](#), [Business World](#), [Financial Express](#), [PIB](#), [Indian Express](#)

The Electricity Amendment Bill, 2022: Provisions, Benefits and Concerns – Explained, pointwise

Introduction

The Electricity (Amendment) Bill, 2022 was introduced in the Lok Sabha in the Monsoon Session (2022) of the Parliament. The Bill amends the Electricity Act, 2003. The 2003 Act regulates the electricity sector in India. Through this Bill, the Government intends to bring several reforms in the electricity sector through this Amendment Bill including the principle of open access. Some provisions of the Bill have been opposed by several stakeholders including the opposition political parties, some State Governments and a section of farmers. The Bill has been referred to the Parliamentary Standing Committee for further discussions.

What are the major issues in the electricity sector?

Financial Health of State Discoms (Distribution Companies): Years of populist tariff schemes, mounting Average Technical and Commercial (AT&C) losses and operational inefficiencies have adversely affected the financial health of State Distribution Companies (Discoms). The AT&C loss in distribution was 21% (2019–20) and Discoms incurred a loss of INR 867 billion after accounting for support of INR 1.1 trillion from the government. As of August 2022, Discoms have accumulated overdue, unpaid bills of INR 1.37 trillion.

According to latest government data, Discoms of 3 states — Tamil Nadu, Maharashtra and Telangana – are yet to pay about 57% of the total dues owed to power generating companies

Read More: [DISCOM sector in India: Challenges & solutions – Explained, pointwise](#)

Fuel Security Concerns: Coal supplies by Coal India Limited is limited to ~65% of actual coal requirement by coal based thermal plants. It leads to increased dependence on imported coal (at higher price) with the cascading result of high power generation costs.

Under-procurement of Power by States: Increasing power generation costs due to limited fuel availability, poor financial health of State Discoms, high AT&C losses have contributed in suppressed demand projections by State Discoms.

Higher Financing Costs: Over the last few years, the leading rates (by banks) to power sector have increased significantly in comparison to the rates at the time of project conception and appraisal. This has resulted in project cost overrun and hence higher end tariffs.

The Government has tried to undertake reforms in the sector for quite some time. With this Amendment Bill, the Government has tried to reform both the demand (consumer end) and supply side (distributor end).

The Electricity Act, 2003

- The Electricity Act was passed by the Parliament in 2003.
- It consolidated the laws related to generation, transmission, distribution, trading and use of electricity.
- The Act had several objectives:
 - ◊ Protect the interest of consumers.
 - ◊ Rationalisation of tariffs.
 - ◊ Transparent policies regarding subsidies.
- The Act resulted in privatisation of distributing companies.
- The Act was amended in 2007. The provisions for 'cross subsidy' (to ensure subsidy to poor households) were added.

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What are the salient provisions of the Electricity Amendment Bill, 2022?

Multiple discoms in the same area: The Electricity Act provides for multiple discoms to operate in the same area of supply. It requires discoms to distribute electricity through their own network. The Bill removes this requirement. Discom must provide **non-discriminatory open access** to its network to all other discoms operating in the same area, on payment of certain charges.

Cross-subsidy Balancing Fund: Upon grant of multiple licenses for the same area, the State government will set up a Cross-subsidy Balancing Fund. Any surplus with a discom on account of cross-subsidy will be deposited into the fund. The **fund will be used to finance deficits in cross-subsidy** for other discoms in the same area or any other area.

The matters related to the operation of multiple discoms in the same area will be **regulated in accordance with the rules made by the Union Government** under the Act.

Cross-subsidy refers to the arrangement of one consumer category subsidising the consumption of another consumer category

License for distribution in multiple states: The Central Electricity Regulatory Commission (CERC) will grant licenses for distribution of electricity in more than one State.

Payment security: Electricity will not be scheduled or despatched if adequate payment security is not provided by the discom. The Union Government may prescribe rules regarding payment security.

Contract enforcement: The Bill empowers the CERC and State Electricity Regulatory Commissions (SERCs) to adjudicate disputes related to the performance of contracts (related to sale, purchase, or transmission of electricity).

Renewable purchase obligation: The Act empowers SERCs to specify renewable purchase obligations (RPO) for discoms. RPO refers to the mandate to procure a certain percentage of electricity from renewable sources. The Bill adds that RPO should not be below a minimum

percentage prescribed by the Union Government. Failure to meet RPO will be punishable with a penalty between 25 paise and 50 paise per kilowatt of the shortfall.

Power procurement and tariff: Under the 2003 Act, in case of multiple discoms in the same area of supply, the SERC is required to specify the maximum ceiling for tariff. The Bill adds that the SERC will also specify a minimum tariff for such cases.

What are the perceived benefits of the Electricity Amendment Bill, 2022?

First, the provision of open access allows consumers to **choose their electricity supplier**. This will **enhance competition** between discoms. Increased competition will prompt them take steps to be more efficient (like taking steps to cut down commercial losses by better metering). The ultimate beneficiaries will be the consumers.

Second, the focus of the Government has been shifting from providing electricity connections to **ensuring enhanced quality of supply**, particularly in terms of hours and predictability of supply and steady voltage level. This Electricity Amendment Bill with its focus on discoms competition will help fulfil universal service obligations to provide last mile connectivity and supply.

Third, the Bill aims to **promote renewable energy** by requiring the SERCs to set the renewable purchase obligation of discoms within a new range set by the Union Government.

Fourth, the Bill makes provision for mandatory fixing of minimum as well as maximum tariff ceilings. This will help **curb predatory pricing** by power distribution companies and to protect consumers.

Fifth, the Electricity Amendment Bill has several provisions to ensure graded and **timely tariff revisions**. This will help provide discoms enough cash to be able to **make timely payments to power producers**. This move is aimed at addressing the recurrent problem of default by discoms in payment to generation companies.

Sixth, the payment security mechanism will ensure **power generators receive payments on time**. This will solve their cash flow problem (due to delay in payments by discoms). The producers can, in turn, make timely payments to Coal India for procurement of coal and avert power crisis that were witnessed recently.

Seventh, establishment of **cross-subsidy balancing fund** will ensure that the current subsidy mechanism is not disrupted (higher tariff for commercial sector and lower for domestic).

What are the concerns associated with the Electricity Amendment Bill, 2022?

The Bill has been opposed by opposition parties, several State Governments and some farmer bodies. The following are their concerns:

First, State Governments are concerned that certain provisions of the Bill encroach on their rights. Electricity is a subject under the **Concurrent List** (Item 38, List III (Concurrent) of Seventh Schedule), so the Union Government is well within its rights to enact a law. However, some concerns of the State Government are valid: **(a)** Power to CERC to grant license for distribution of electricity in more than one State. SERCs have better understanding of ground conditions; **(b)** The Union Government can give directions to the SERCs, **(c)** The Union Government will specify the minimum percentage of RPOs which was earlier decided by the SERCs; **(d)** The Bill makes changes in the the composition of the committee for selection of Chairperson/members of the SERCs. The Committee will now have a nominee of the Union Government.

Second, the Opposition parties have criticized the Bill arguing that that privatization will benefit private discoms at the cost of consumers.

Third, Farmers' organisations worry that the Bill will result in the **end of subsidies** to the farm sector.

Fourth, workers' union in the power sector [All India Power Engineers Federation (AIPEF)], fear loss of jobs and hence opposing the Bill.

Fifth, there is lack of clarity on certain aspects related to operations. It is not clear how maintenance and upgradation of infrastructure will be undertaken given that multiple discoms will be using the same infrastructure.

What should be done going ahead?

The Bill has been referred to the Parliamentary Standing Committee. There should be proper deliberations to incorporate views of all stakeholders. The concerns raised by the State Governments are valid and should be appropriately addressed.

The Government has taken several steps to alter the electricity mix and improve the share of renewable energy. However, there has been lack of effort in upgrading the infrastructure to ensure sustainable uptake of the electricity generated by the renewable sector. The lacunae must be addressed expeditiously.

Conclusion

The Electricity Amendment Bill, 2022 has brought in several welcome reforms in the sector. However, the concerns related to the Bill must be addressed. The Bill would help in achieving India's dream of providing 24*7 electricity to all its citizens, achieving a 5 trillion economy, achieving sustainable development goals, and fulfilling their obligation of Intended Nationally Determined Contributions (INDC) under the Paris Agreement.

Syllabus: GS III, Infrastructure: Energy

Source: [Indian Express](#), [Indian Express](#), [The Hindu](#), [ORF](#), [Business Standard](#)

Issues in Electoral Funding in India – Explained, pointwise

Introduction

The Association of Democratic Reforms (ADR) recently released an analysis report on Sources of Funding of National and Regional Political Parties. The report has provided some startling observations. The total income of national and regional parties from unknown sources for FY2020-21 stood at INR 690.67 crore. Between 2004-05 and 2020-21, the national political parties have collected more than INR 15,077 crore from unknown sources. Political experts rue that the opacity in electoral funding is the single biggest factor in political corruption in India. Money is central to the issue of political corruption and political parties are suspected to be the largest and most direct beneficiaries. Corruption in elections reduces accountability, distorts representation, and introduces asymmetry in policymaking and governance. Critics say that reforms in the electoral fundings are not forthcoming as all political parties, irrespective of their ideology, benefit from the current opaque set-up.

What is the meaning of Electoral Funding?

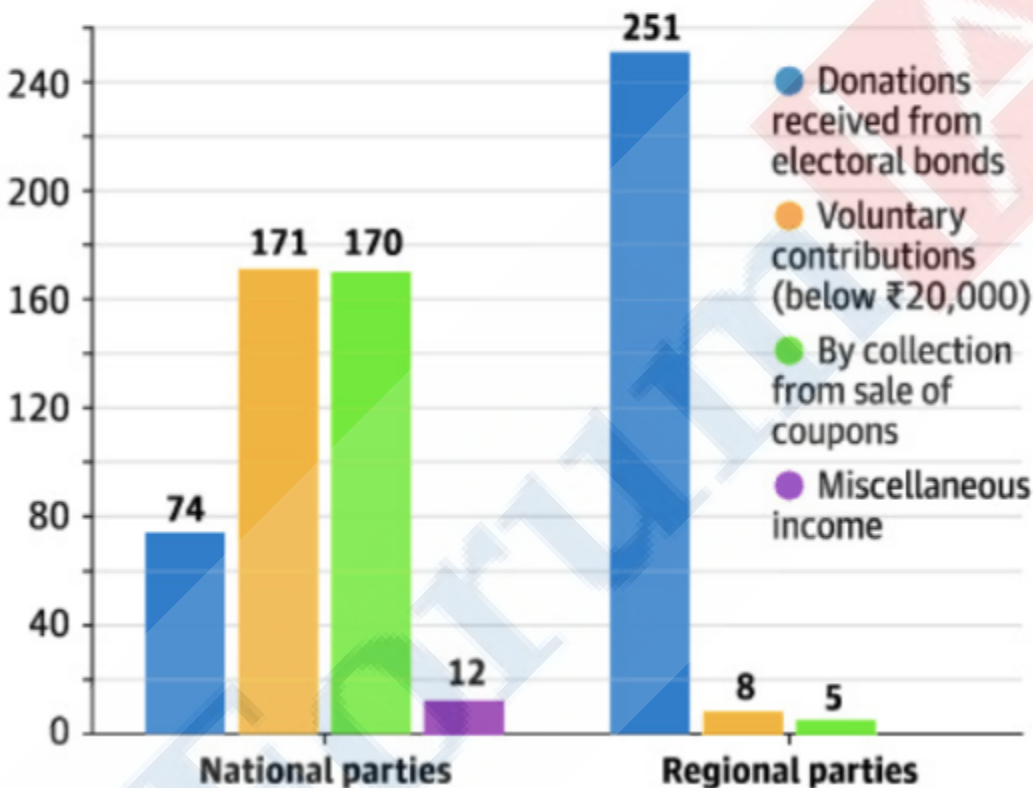
Money received by the political parties and the expenditure done by them in the process of election (directly or indirectly) come under the ambit of Electoral Funding/Financing. Laws governing these financial aspects are known as electoral funding/financing law. Electoral financing law can be studied under three broad sub-groups: **(a)** Limits on political contributions and party and candidate expenditure; **(b)** Disclosure norms and requirements; **(c)** State funding of elections.

Electoral funding in India is broadly governed by the provisions of the **Representatives of People Act (RoPA), 1951; the Conduct of Election Rules, 1961; the Companies Act, 2013; and the Income Tax Act, 1961.**

What are the findings of the ADR Report on Electoral Funding?

For the FY2020-21, 8 national political parties have declared INR 426.74 crore income from unknown sources. 27 regional parties received INR 263.928 crore income from unknown sources.

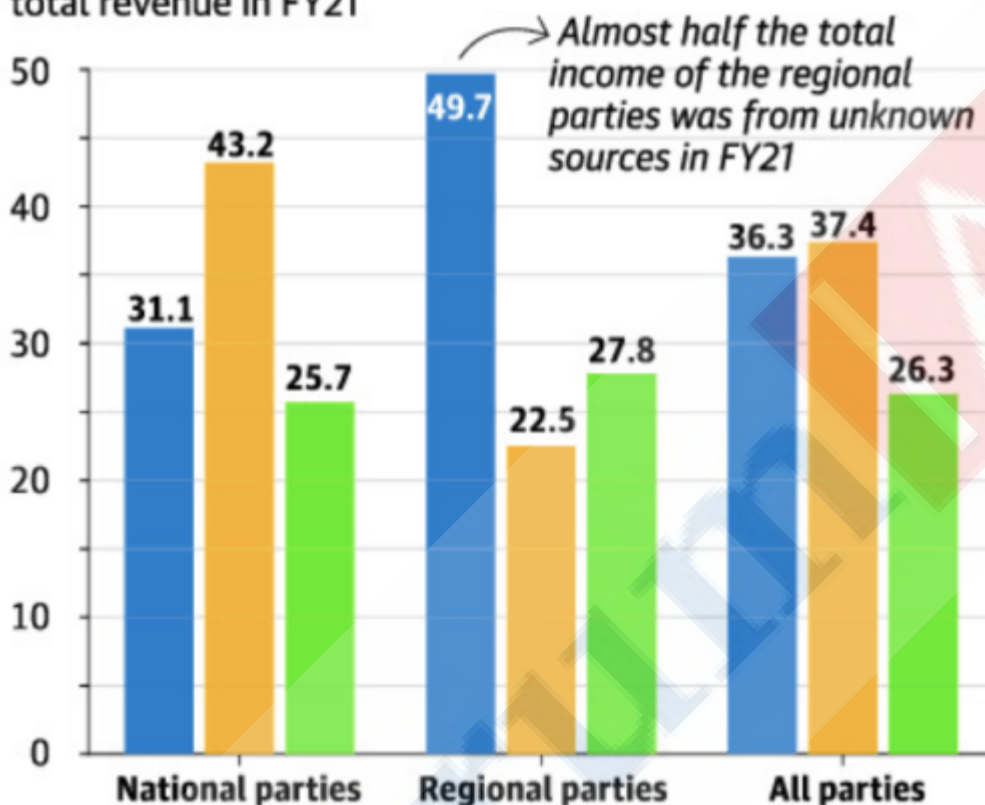
1 Undisclosed sources | The graph shows the amount of funding (in ₹ crore) received in FY21 through unknown sources. The national parties and regional parties received ₹427 crore and ₹264 crore worth of funds, respectively, from unknown sources. A split:



Source: The Hindu

31% income of national parties and ~50% income of regional parties have come from 'unknown resources'. The report has treated unknown income as the income declared in the IT returns without giving source of income for donations below INR 20,000.

2 Share of revenue | The graph shows the donations from unknown sources ●, donations from known sources ● and income from other known sources such as sale of assets, membership fees ● as a share of total revenue in FY21



Source: The Hindu

Overall, the combined income of national and regional political parties from unknown sources amount to 36%.

Sources of Income of National and Regional Parties for FY 2020-21				
Political Parties	Income from Unknown Sources (as per IT Returns) **	Income from Known Sources (donations details declared to ECI)	Income from Other Known Sources*	Total Income
National Parties	426.742	593.748	353.293	Rs 1373.783 cr
Percentage share	31.06%	43.22%	25.72%	100%
Regional Parties	263.928	119.395	147.38	Rs 530.703 cr
Percentage share	49.73%	22.50%	27.77%	100%
Grand Total	690.67	713.143	500.673	Rs 1904.486 cr
Percentage share	36.30%	37.40%	26.30%	100%

Source: ADR

ADR has also scrutinized the IT Returns of the political parties and found that between FY2004-05 and 2020-21, the National Parties have collected INR 15,077.97 Crore from unknown sources.

What are the issues with Electoral Funding in India?

Lack of Transparency: Large proportion of electoral funding comes from unknown sources. This is basic violation of transparency principles as electorate has a right to know whether the funds

are being raised through legitimate means. The electoral bonds also suffer from this lacuna, and citizens are unaware about who is funding the political parties.

Corruption and 'Regulatory Capture': Activists argue that the unknown 'donors' include large corporate houses, or corrupt local businessmen who fund local political leaders. This makes the political leadership amenable to business interests. The current system tolerates **lobbying and capture**. The industry / private entities use money to ensure less stringent regulation, and the money used to finance elections eventually leads to favourable policies.

According to American political activist, Lawrence Lessig, even legal (but large) campaign donations, amount to '**institutional corruption**' which compromise the political morality norms of a republican democracy. Instead of direct exchange of money or favours, political candidates alter their views and convictions in a way that attracts the most funding. This change of perception leads to an erosion of public trust, which in turn affects the quality of democratic engagement.

No Limit on Funding: Earlier there was a cap on how much funds a corporate can donate to a political party out of the profits it earns. That upper limit has been removed. This has opened an avenue for corporates to increase funding to political parties and consequently increase their influence on the political system.

Lack of Fairness: Access to **large financial resources translates into electoral advantage**. Richer candidates and parties have a greater chance of winning elections. This distorts the level playing field. The Supreme Court has also supported this view in the *Kanwar Lal Gupta v Amar Nath Chawla*.

Contravention of Laws: Lack of disclosures contravenes various laws and ECI notifications. In spite of the Central Information Commission (CIC) ruling, all political parties have refused to submit themselves to the transparency that comes with Right to Information. There is widespread prevalence of black money, bribery, and quid pro quo corruption. The Supreme Court, affirmed the conclusions of the 2002 report of the National Commission to Review the Working of the Constitution, recognized this reality in *PUCL v Union of India*.

Electoral Bonds

- Electoral bonds were introduced through the Union budget in 2017.
- Electoral bonds are an instrument through which **anyone can donate money to political parties**.
- The bonds are sold in **multiples denominations** of INR 1,000, INR 10,000, INR 1 lakh, INR 10 lakh, and INR 1 crore, can be bought from authorised branches of the State Bank of India.
- A donor is required to pay the amount (say INR 10 lakh) via a cheque or a digital mechanism (**cash is not allowed**) to the authorised SBI branch. The donor can then give this bond (just one, if the denomination chosen is Rs 10 lakh, or 10, if the denomination is Rs 1 lakh) to the party or parties of their choice.
- The **political parties can choose to encash such bonds** within 15 days of receiving them and fund their electoral expenses.

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What are the issues with Electoral Bonds?

First, Before electoral bonds were introduced, it was mandatory for political parties to make public all donations above INR 20,000 and no corporate entity was allowed to make donations amounting to more than 7.5% of the average net profits of a company in the preceding 3 years. The introduction of electoral bonds not only **increased the number of anonymous donors, but also the number of shell companies donating to political parties.**

Second, Electoral bonds lead to **information asymmetry**; only the ruling government can access the information on who lends and to whom, leading to **issues of moral hazard and adverse selection.**

Third, Since the identity of the donor has been kept anonymous, **it could lead to an influx of black money; and there is a threat to the spirit of democracy.** The Election Commission in April 2019 told the Supreme Court that **it did not approve of anonymous donations made to political parties**, though it was not against the Electoral Bonds Scheme.

Fourth, one of the arguments for introducing electoral bonds was to allow common people to easily fund political parties of their choice, **but more than 90% of the bonds have been of the highest denomination (Rs 1 crore).**

What should be done going ahead?

There is a need to bring reforms in electoral funding

First, the funding process should be made completely transparent. Rules regarding funding and expenditure need to be tightened by placing an absolute cap on anonymous donations. The ADR Report has recommended that full details of all donors should be made available for public scrutiny under the RTI. Some countries where this is done include Bhutan, Nepal, Germany, France, Italy, Brazil, Bulgaria, the US and Japan.

Second, There should be an upper limit on the amount that can be donated to parties (like the limit of 7.5% of profits set under Companies Act, 2013). This will restrict influence of big corporate houses.

Third, electoral rules should be amended to regulate political advertisements, outline permissible categories of expenditure, prevent foreign sources of donations and lay down a limited base for public funding. The Law Commission of India in its 255th Report has recommended to cap the entire donation received through anonymous sources at Rs. 20 crores or 20% of the total funding of a political party.

Fourth, the ADR Report has recommended that scrutiny of financial documents submitted by the political parties should be conducted annually by a body approved by CAG and ECI so as to enhance transparency and accountability of political parties with respect to their funding.

Fifth, the ECI has recommended that tax exemption be awarded only to those political parties which contest and win seats in Lok Sabha/Assembly elections. The Commission has also recommended that details of all donors who donate above INR 2,000 be declared in public domain.

Sixth, violation of rules and transparency provisions should be stringently penalized. The Election Commission must be provided with greater powers in this regard.

Seventh, some provisions of the Electoral Bond scheme has been questioned in the Supreme Court. The Court must adjudicate on the issue quickly and bring more clarity.

Law Commission's Recommendations on Electoral Finance (255th Report)

- Extend regulation of election expenses from date of nomination to **date of notification**.
- Authorization of political funding by a corporate should be done at the Annual General Meeting (AGM) and not Board of Director (BoD) meeting.
- Extension of norms of disclosures by candidates about their election expenses including funding received from non-Government corporate or a person and from the parent political party.
- **Public disclosure of electoral expenses documents** submitted by the candidates.
- Submission of **audited annual reports** by Political Parties detailing all the funds received and the expenditure incurred which shall be **disclosed publicly** by the ECI.
- **Disclose contributions** less than INR 20,000 if such contributions exceed INR 20 crore or 20% of the party's total contributions, whichever is less.
- Failure to disclose expenses results in disqualification for 3 years. This should be **extended to 5 years** to render the candidate ineligible for next election.
- **Penalty of 5 times the contribution received**, if such contribution is received from an ineligible donor under Companies Act and RoPA.
- **State funding of elections not feasible**. In-kind subsidies should be provided.

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What are the global best practices?

European countries such as France and Belgium have curtailed private spending on elections through a series of legislations since the 1990s, thereby successfully negating the influence of rich corporates in elections. France banned all forms of corporate funding in 1995 and capped individual donations at 6,000 Euros.

Brazil and Chile have banned corporate donations after a series of corruption scandals emerged related to corporate funding.

Some Important Reports/Commission related to Electoral Reforms

Law Commission 170th Report (1999) 'Reform of the Electoral Laws'.

Law Commission 255th Report (2015) 'Electoral Reforms'.

Election Commission of India (2004) 'Proposed Electoral Reforms'.

The Goswami Committee on Electoral Reforms (1990).

The Vohra Committee Report (1993).

The Indrajit Gupta Committee on State Funding of Elections (1998).

The National Commission to Review the Working of the Constitution (2001).

Conclusion

Former Judge of the US Supreme Court Justice Louis Brandeis once wrote, "*We can have democracy in this country, or we can have great wealth concentrated in the hands of a few, but we cannot have both*". A clean, transparent electoral funding process is vital to ensure a fair electoral democracy. Most developed countries in the West have robust mechanisms to ensure transparency in their political systems. As India aspires to emulate the West by setting the ambition of achieving developed country status by 2047, it must aspire for similar standards of transparency in the political sphere. Cleaning up electoral finance can be the first step in this regard.

Syllabus: GS II, Salient features of the Representation of People's Act

Source: [The Hindu](#), [The Hindu](#), [ADR](#), [ORF](#)

ESG Framework In India – Explained, pointwise

Introduction

People are now becoming more conscious of the harm brought on by unfriendly social and environmental decisions by private (or public) corporations. The term 'ESG', which stands for all environmental, socioeconomic, and governance concerns, is consequently gaining traction in the business and corporate sector. ESG is about pursuing responsible and ethical business practices with attention to social and environmental equity along with economic development. **ESG is fast becoming synonymous with sustainability.** Investors and regulators have also increased their scrutiny in evaluating businesses that **employ sustainable business practises** and the ESG framework. In India's corporate ecosystem, there have been two major developments in the context of Sustainability/ESG Framework. The first was Corporate Social Responsibility (CSR) reporting and spending being made mandatory under the Companies Act, 2013. The second is the Securities and Exchange Board of India (SEBI) making the Business Responsibility and Sustainability Report (BRSR) mandatory for the top 1,000 listed companies by market capitalisation. This is a step forward in widespread adoption of ESG framework in corporate decision-making and business practices.

What is the meaning of ESG?

The practice of ESG investing began in the 1960s. ESG investing means **investing based on** not just traditional financial factors (like potential Return on Investment (RoI)) but also **non-financial environmental, social and governance factors**. ESG investing evolved from Socially Responsible Investing (SRI), which **refrained from investing in business operations such as tobacco, guns, or goods from regions in conflict** (like imports of diamonds from some African countries under military dictatorships). The term ESG was coined in 2004 by the former UN Secretary-General Kofi Annan.

Environmental (E), Social (S) and Governance (G) Measures



ESG is a set of standards for a company's operations that **socially conscious investors use to choose potential investments**. Environmental criteria consider how the operations of a

company impact the environment (e.g., emissions or air/water pollution). Social measures examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights.

True ESG is consistent with a company's well-considered strategy and advances its business model.

Description and examples¹

Environmental

Addresses impact on the physical environment and the risk of a company and its suppliers/partners from climate events

- Climate change and greenhouse-gas emissions (GHG)
- Air pollution (non-GHG)
- Water and wastewater management
- Waste and hazardous-materials management; circularity
- Biodiversity and ecosystems; rehabilitation

Social

Addresses social impact and associated risk from societal actions, employees, customers, and the communities where it operates

- Labor practices
- Health and safety
- Community engagement; diversity and inclusion
- Community relations, local economic contribution
- Product and service attributes

Governance

Assesses timing and quality of decision making, governance structure, and the distribution of rights and responsibilities across different stakeholder groups, in service of positive societal impact and risk mitigation

- Business ethics, data security
- Capital allocations, supply chain management
- Governance structure and engagement; incentives
- Policies; external disclosures; position and advocacy

Source: McKinsey, 'Does ESG really matter—and why?', August 2022.

What is the need for an ESG Reporting Framework?

First, Businesses have the power and resources to take good climate action, create a more sustainable, resilient future, and spend their money for this cause. ESG Reporting norms will create visibility to investors about such sustainable actions/practices by companies. The clarity will help the investors to channel their investments in sustainability-conscious companies.

Second, Globally, the landscape of sustainability reporting is evolving quickly as a result of the push for the Sustainable Development Goals and the growing momentum of the climate action movement. ESG is becoming more important in this situation.

Third, Consumers are now demanding high standards of sustainability and quality of employment from businesses. Regulators and policy makers are more interested in ESG because they need the corporate sector to help them solve social problems such as environmental pollution and workplace diversity. The investor community has also become much more interested in it.

How have the ESG Reporting Norms evolved in India?

ESG reporting in India started in 2009 with the Ministry of Corporate Affairs, Government of India, issuing the **National Voluntary Guidelines on Corporate Social Responsibility** (NVGs). In 2012, SEBI mandated that the top 100 listed companies by market capitalisation file the **Business Responsibility Report** (BRR) based on NVGs along with annual reports. BRR was extended to the top 500 listed companies by market capitalisation in 2015 and to the top 1,000 listed companies in 2019.

CSR activities have been made **mandatory** under **The Companies Act, 2013** for companies falling under the prescribed category.

Integrated Reporting (IR) was introduced by SEBI in 2017 voluntarily for the top 500 companies required to prepare BRR.

The **National Guidelines on Responsible Business Conduct** (NGRBC) came in 2019. **Business Responsibility and Sustainability Report** (BRSR) was introduced in 2021 on a voluntary basis and made mandatory from FY2022-23.

Voluntary frameworks available for disclosures⁸

Global Reporting Initiative (GRI)

Global non-profit organisation which guides reporting of ESG parameters through sector standards and guidelines. Provides disclosures that are widely employed due to their ease-of-use nature and a myriad of key performance indicators

Sustainability Accounting Standards Board (SASB)

Industry-specific standards sustained under the auspices of the Value Reporting Foundation, established to guide identification of financially material ESG topics and reporting of value creation, preservation, and erosion.

World Economic Forum (WEF): Measuring stakeholder capitalism

Represents universal and harmonised set of metrics. It contains a set of 21 Core and 34 Expanded metrics under the four Pillars of:

- Principles of governance
- Planet
- People
- Prosperity

Task Force on Climate Related Disclosures

Climate focused disclosures in the four key areas of:

- Governance
- Strategy
- Risk Management
- Metrics and Targets

Integrated Reporting <IR>

Principle based framework developed by the International Integrated Reporting Council (IIRC) to highlight the synergies between six capitals (natural, manufactured, intellectual, human, financial, social and relationship) for short-, medium- and long-term value creation.

Sustainable Development Goals (SDGs)

Set of 17 goals and 169 targets that act as a blueprint for protection of planet, eradication of poverty and inequality, and achievement of world peace and prosperity by the end of 2030.

UN Global Compact (UNGC) Principles

Principle based framework which aligns business strategy, policies, and operations with the universal concepts of:

- Human rights
- Labour
- Environment
- Anti-corruption

Source: KPMG. Some Global ESG Reporting Norms include Global Reporting Initiative (GRI), Sustainability Accounting and Standards Board (SASB), Integrated Reporting (IR) among others.

What steps have been taken by the Government to promote ESG in India?

Sustainable investments in India are primarily being promoted by the Ministry of Corporate Affairs, with support from the capital market regulator SEBI. They have introduced various **guidelines for corporations to implement the Principles of Responsible Investment**. Government of India also formed the **Impact Investors Council (IIC)** to drive the impact of investments in the country.

India is witnessing innovative instruments by investors to finance social and environmental initiatives. **India's first green bond was issued by the Ghaziabad Municipal Corporation, also listed on the Bombay Stock Exchange (BSE)**. The Corporation raised a capital of INR 150 crore to partially fund the water treatment plant and tertiary sewage.

The Finance Minister of India, recently announced that the government will float a sovereign green bond. The proceeds will be deployed in public sector projects that reduce carbon intensity in the economy.

What are the salient features of SEBI's BRSR Guidelines?

BRSR is a standardised reporting format that will provide a basis to compare environmental, social and governance goals across companies and sectors.

The BRSR guidelines are more elaborate and stringent than the existing BRR norms. BRSR incorporates metrics of international frameworks on par with global ESG reporting trends. It is a significant step towards **bringing sustainability reporting at par with financial reporting**.

Some of the key disclosures sought in the BRSR are: **(a)** Sustainability related goals & targets and performance against the same; **(b) Environmental disclosures** related to resource usage (energy and water), air pollutant emissions, greenhouse (GHG) emissions, transitioning to a circular economy, waste management practices, extended producer responsibility, biodiversity etc.; **(c) Social disclosures** covering the workforce, value chain, communities and consumers, that include: **(i) Employees/workers: Gender and social diversity** including measures for differently-abled employees and workers, turnover rates, median wages, welfare benefits, occupational health and safety, training etc.; **(ii) Communities:** Disclosures on Social Impact Assessments (SIA), Rehabilitation and Resettlement, Corporate Social Responsibility etc.; **(iii) Consumers:** Disclosures on product labelling, product recall, consumer complaints in respect of data privacy, cyber security etc.

The **9 principles of National Guidelines of Responsible Business Conduct** (NGRBC) are aligned in the BRSR report.

9 Principles of National Guidelines on Responsible Business Conduct

1. Businesses should conduct themselves with integrity, and in a manner that is **ethical, transparent, and accountable**.
2. Businesses should provide goods and services in a manner that is **sustainable and safe**.
3. Businesses should **promote the well-being of all employees**, including those in their value chains.
4. Businesses should respect the interests of and be **responsive to all its stakeholders**.
5. Businesses should respect and **promote human rights**.
6. Businesses should respect and make efforts to **protect and restore the environment**.
7. Businesses, when engaging in **influencing public and regulatory policy**, should do so in a manner that is **responsible and transparent**.
8. Businesses should **promote inclusive growth and equitable development**.
9. Businesses should engage with and **provide value to their consumers** in a responsible manner.

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The BRSR report serves as a single comprehensive source of information on non-financial sustainability measures to all the relevant key stakeholders of the business, i.e., shareholders, regulators, investors, and the public at large.

What are the benefits of ESG Norms?

First, ESG reporting norms (like BRSR Guidelines) are likely to play a bigger role in how companies are assessed, not only by investors but by consumers and stakeholders.

Second, the ESG frameworks are heading towards standardisation, which would reduce the scope of misrepresentation and greenwashing.

Greenwashing

Greenwashing is the act of giving a false image or giving false information about how an organisation's products are more environmentally friendly. It is the practise of making unsupported claims about the environmental friendliness of a company's products in order to mislead customers.

Third, Global acceptance of the ESG mandate is increasing. For instance the participation percentage for assessing the ESG performance of organisations on a global scale increased, going from 19% in 2019 to 33% in 2021, according to the DJSI (Dow Jones Sustainability Index) of the US. According to Bloomberg, it is estimated that by 2025, investments with high-performing ESG metrics will reach US\$ 53 trillion. In India, the assets of ESG-based market funds (equity and debt) have risen to over INR 12,300 crore in November 2021, from INR 2,630 crore, in November 2019.

Fourth, BRSR Guidelines will bring in more transparency in ESG reporting. This will attract greater investments in socially-responsible and environmentally-sustainable companies. This will prompt corporates to adopt sustainable measures.

What are the challenges in adoption of ESG Norms?

First, there is reluctance among corporates to adopt sustainability measures as they increase costs (e.g., installation and operating costs of an effluent treatment plant that reduces efflux of harmful pollutants to rivers/water bodies). ESG measures enhance sustainability but at the same time impact financial viability, which is against interests of shareholders.

Second, there are **no universally recognized ESG reporting standards**. The investors and corporates have been using different frameworks like Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), Task Force on Climate Related Financial Disclosures (TCFD) etc. Lack of uniformity in standards may lead to mis-selling. This poses potential risks to investor protection, transparency and capital allocation in markets, among others.

Third, the **impacts of ESG measures are difficult to quantify**. While the financial performance of companies can be measured accurately by defined financial metrics (like profits after tax, return on assets/investments), such metrics are difficult to be defined for ESG measures. This make it **difficult to measure comparative performance of corporates on sustainability measures**.

Fourth, some critics argue that **ESG Standards are against climate equity**. There are concerns over the workability of universal ESG norms. Different countries have different environmental standards based on their Nationally Determined Contributions (NDCs). These NDCs depend upon the stage of development of a country. To mandate environment standards' reporting under ESG framework that goes beyond a country's commitments would amount to negating the efforts made for **equity and climate justice**.

What should be done going ahead?

First, there is a need to bring in uniformity across various reporting standards and create a standard ESG Reporting Framework. Multilateral institutions like G20 can take a lead here to undertake consultation with representation from both developing and developed countries.

Second, the corporate sector should take initiatives to develop robust internal ESG Frameworks. In this context, an expert has suggested five guiding principles.

Guiding Principles for Corporates to design Robust ESG Framework

1. **Go Beyond the Environment:** Environment sustainability is priority areas but businesses will also have to focus on social and governance issues.
2. **Develop tools for ESG Data Management:** At present, disclosures serve as the primary source of ESG information. Going forward, robust databases would be useful to identify data-driven ESG risks and opportunities and curb transparency issues.
3. **Prepare for ESG Reporting:** Corporates should become more transparent. Regulatory bodies across the globe are emphasising improvement in transparency around financial decision-making.
4. **Measuring and Managing Emissions:** According to a report by the Carbon Disclosure Project Climate-related risks can cause Indian companies a loss of INR 7,138-billion. To stay globally competitive, Indian companies need to go beyond mapping their carbon dioxide pathways and take action.
5. **Use ESG Communication to Gain Competitive Advantage:** External communication enhances stakeholder relationships and public perception. This will attract greater investments.

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Third, there is a need to **enhance compliance** of sustainability norms gradually. SEBI had made the BRSR norms voluntary for FY2021-22 and made them mandatory from FY2022-23 (top 1000 companies). The compliance norms should be gradually expanded to all listed and unlisted companies.

Fourth, there is a need to increase awareness about the ESG norms in investors. This will influence the businesses to adopt sustainability measures.

Conclusion

Robust ESG framework and responsible ESG investing are very important for an emerging economy like India as it provides an opportunity for all stakeholders to **build an economy that is financially, socially and environmentally sustainable**. SEBI has facilitated the achievement of the United Nations Sustainable Development Goals and the Paris Agreement on Climate Change by way of mandatorily requiring ESG reporting by Indian companies. Going forward, the norms can be extended in their scope and applicability to include the unlisted companies as well.

Syllabus: GS III, Inclusive growth and issues arising from it; GS IV, Corporate Governance.

Source: [The Times of India](#), [Economic Times](#), [Bloomberg](#), [Financial Express](#)

Precision Farming: Technologies, Benefits and Challenges – Explained, pointwise

Introduction

India has one of the highest arable lands globally with over 155 million hectares and is one of the key agricultural producers. In 2019, the agricultural sector generated approximately INR 19 lakh crores (US\$ 265 billion) business comprising 18% of India's Gross Domestic Product (GDP) and employs more than half of India's population. However, there are structural challenges plaguing the agriculture sector including low productivity, uneconomic landholding size, sub-optimal input use efficiency, high biotic losses, and a low level of mechanisation. In the wake of climate change, depletion of natural resources and an imminent food crisis, India must move beyond aggressive farming and towards precision farming. According to estimates, the global precision farming market is forecasted to reach US\$ 14.6 billion by 2026 at CAGR of ~8%.

Precision farming, although at a nascent stage in India, can help the country become the top agricultural producer across the globe by maximising farm productivity and profitability.

What is Precision Farming?

Precision farming is an approach **where inputs are utilised in precise amounts** to get increased average yields, compared to traditional cultivation techniques. It is the science of **improving crop yields using high technology sensor** and analysis tools. Precision Farming utilizes multitude of advanced technologies and tools to monitor several parameters and collect information related to crop growth (like soil moisture, pH etc.). The information is used for **targeted interventions**. It is referred to as 'precision' because it is focused on **performing the right intervention** (e.g., providing water to crops), in the **right place**, at the **right time**, responding to the **specific demands** of individual crops and **individual areas** of land with superior levels of precision.

The precise nature of targeted interventions help to improve efficacy of the inputs and hence increase the yields. Precision Farming is being adopted throughout the world to increase production, reduce labor time, and ensure the effective management of fertilizers and irrigation processes. It uses a large amount of data and information to improve the use of agricultural resources, yields, and the quality of crops.

What technologies are used in Precision Farming?

Global Positioning System: GPS is used to identify the location of farm equipment in the field. It provides an accurate positioning system necessary for field implementation of variable rate technology in agricultural input management. The internet enables the creation of a system for efficient remote sensing-based agricultural management.

Grid sampling: It is a technique for segmenting fields into small units (~0.5–5 hectares). Soil samples from those grids are used to calculate the proper application rates for crop inputs. Each grid has many samples collected, combined, and delivered to the lab for evaluation.

Variable-rate technology: Variable-rate technology (VRT) consists of farm field equipment with the **ability to precisely control the rate of application of crop inputs** that can be varied in their application including fertilizers, irrigation, tillage, insect control etc.

Yield monitors: Crop yield measuring tools fitted on harvesting machinery are called yield monitors. Along with the positioning data from the GPS device, the yield data from the monitor is recorded and saved. Utilizing the yield data, GIS software creates yield maps. The data helps in decisions related to the requirement of targeted intervention.

Remote sensors: Remote sensing (in agriculture terms) means viewing crops from overhead (from a satellite or low-flying **aircraft/drone**) without coming into contact, recording and displaying the image. This technique provides the map to pinpoint the field problems more effectively. Remote sensors can be categorised as aerial or satellite sensors.

Proximate sensors: Proximate sensors can be used to measure soil parameters (Nitrogen content, pH etc.) and crop properties as the tractor passes over the field.

Computer hardware and software: Computer support is required to analyse the data gathered by other components of precision farming technology and to make it accessible in formats such as maps, graphs, charts, or reports.

What are the benefits of Precision Farming?

Increase agriculture productivity: Precise agriculture inputs (like fertilizers, water) determined scientifically through analysis of data captured by sensors enhances the agriculture output and promotes the yield.

Reduction of chemical application in crop production: Amount of input is determined based on requirement. Fertilizers are supplied only where specific nutrients are missing. Similarly

weedicides are used at location of weeds. **Drones can be used for targeted delivery** of chemicals with desired precision. This reduces unnecessary usage and cuts down waste.

Source: aces.edu (Alabama A&M University, US)

Prevents soil degradation: Since over-use of chemicals is avoided, prevents the leaching of undesired chemicals into soil, preventing their harmful impact on soil.

Efficient use of water resources: Targeted delivery of water through techniques like **fertigation** reduces water usage. Fertigation is the process of directly applying fertilizer to a crop through the irrigation system.



Source: aces.edu (Alabama A&M University, US)

Improvement in Farm Incomes: Increase in productivity, reduction in use of inputs and wastage improves farm incomes and helps in raising the socio-economic conditions of farmers.

Job creation: Precision farming has potential to create a lot of employment opportunities e.g., operating drones is a specialised skillset. Youth in rural areas can be trained and employed as certified drone operators. According to one estimate, these new-age technologies have a potential to create 2.1 million jobs in rural areas.

Moreover, it leads to **dissemination of modern farm practices** which are more **sustainable and climate-friendly**.

What are the challenges in Precision Farming?

High Cost: Precision farming is dependent on technologies like GPS, drones, and sensors. All these technologies are capital intensive and require large investments in the beginning. Spending the requisite amounts is beyond the capacity of small and marginal farmers.

Lack of technical expertise knowledge and technology: Deploying and using the technologies, interpreting the captured data require high level of awareness and skills.

Not viable for small land holdings: Precision farming require high investments. Moreover, proximate sensors (say to capture information/samples of soils) are generally deployed on farm

machinery like tractors. Thus precision farming is more conducive with mechanized farming. **High investments and mechanized farming are viable only in large holdings.** Return in small landholding are too little (due to low absolute output even though yield may be high) to justify high investments required in precision farming.

Furthermore, technology behind the practices is creating opportunities for extremists, terrorists and adversarial governments to attack farming machinery, with the aim of **disrupting food production**. For example, in 2021 a ransomware attack forced ~20% of the beef processing plants in the U.S. to shut down, with one company paying nearly US\$ 11 million to cybercriminals.

What steps have been taken to promote use of Technology in Agriculture in India?

'Digital Agriculture Mission 2021-2025'. The initiative aims to leverage a wide range of technologies from AI, blockchain along with drone technology to improve the sector's overall performance.

At present, ICRISAT (International Crop Research Institute for Semi-Arid Tropics) is working with **Microsoft to develop an AI Sowing App** to send sowing advisories to farmers for telling the optimal date to sow. The sowing date is very critical when it comes to ensure the best yield and this app aims to eradicate the guesswork from the process.

Crop yield prediction model using AI: In May 2018, **NITI Aayog partnered with IBM** to develop a crop yield prediction model using AI to **provide real-time advisory to farmers**. The partnership aims to provide insights to enhance crop productivity, increase soil yield, and control agricultural inputs with the goal of improving farmers' income. It aims to identify systems of crop monitoring, early warning on pest and disease outbreak based on advanced AI innovations. It also includes deployment of weather advisory rich satellite and enhanced weather forecast information along with IT and mobile applications with a focus on improving the crop yield and cost savings through better farm management.

AI sensors for smart farming: The Government of India, in collaboration with **Microsoft**, has begun empowering small-holder farmers in India to increase income through higher crop yield and greater price control **using AI sensors**. Microsoft is engaging with multiple stakeholders including farmers, State Governments, the Ministry of Electronics and Information Technology (MeitY) and the Ministry of Agriculture and Farmers Welfare to create an ecosystem for AI into farming. Microsoft is also engaging with Escorts (Farm equipment manufacturer) to enable precision agriculture capabilities.

Drones to monitor crop and soil health: The project entitled '**SENSAGRI: Sensor-based Smart Agriculture**' is being undertaken by the Indian Council of Agricultural Research (ICAR) along with 6 partner institutes. Its objective is to develop indigenous prototype for **drone based crop and soil health monitoring system** using remote sensors. This technology could also be integrated with satellite-based technologies for large scale applications.

What should be the approach going ahead?

Precision farming can be promoted for specific progressive farmers who have sufficient risk bearing capacity as this technology may require capital investment. The agriculture research institutes can provide technical back-up to farmers to develop the models. The learnings can then be utilized to replicate the models at a larger scale.

Given the current status of agriculture in India, precision farming is not viable on an immediate basis. In the meantime, the Government can encourage the farmers to **adopt more judicious water-use practices**. Micro level irrigation systems and water saving techniques can be promoted among the farmers.

Conclusion

The main objective of precision agriculture is to obtain a maximum yield with a minimum input while also reducing environmental harm. Better preparation of the roadmap in this sphere would be helpful for India to enhance farmers' income, be able to produce enough food to support the rising population, and also able to fulfil the commitments under SDGs.

Syllabus: GS III, Different Types of irrigation and irrigation systems, Conservation.

Source: [Indian Express](#), [Down to Earth](#), [The Hindu BusinessLine](#), [The Conversation](#)

Road Safety in India – Explained, pointwise

Introduction

The National Crimes Records Bureau released the report on Accidental Deaths in India (2021) in the last week of August 2022. The Report highlighted that the number of fatalities due to road accidents, 155,622 in 2021, had reached the highest level since 2014. As concerns were being raised on the spike in the number of death, came the sad news of demise of industrialist Cyrus Mistry along with a fellow passenger, in a road accident. Police sources were quoted as saying that the passengers were not wearing their seat belts. These developments have brought the issue of road safety to limelight. The tragic and avoidable accident indicate lack awareness about the car safety deployments and their enforcement by road safety authorities. Despite the innumerable road safety campaigns and awareness drives, the road safety remains poor in India. India is ranked among the top countries in terms of accident related deaths. ~430 lives are lost daily due to road accidents.

What are latest data numbers on Road Accidents in India?

According to the NCRB data, over 1.55 lakh lives were lost in road crashes across India in 2021 or 18 deaths every single hour. This is the highest death in any year. The number of accidents and deaths had decreased in 2020 due to lockdowns and travel restrictions. The number of accidents in 2021 were less than pre-pandemic levels, but the number of deaths have risen.



Source: Indian Express

States of Tamil Nadu (57,000), Madhya Pradesh (49,500), Uttar Pradesh (36,500), Kerala (33,000) and Maharashtra (30,000) reported high number of accidents. Deaths per 100 km of National Highways have come down from 44 in 2018 to 40 in 2021.

Two-wheelers are most susceptible to fatalities due to road accidents. Of the total deaths in road accidents, 44.5% were riders of 'two-wheelers' followed by cars (15.1%), trucks/lorries (9.4%) and buses (3%).

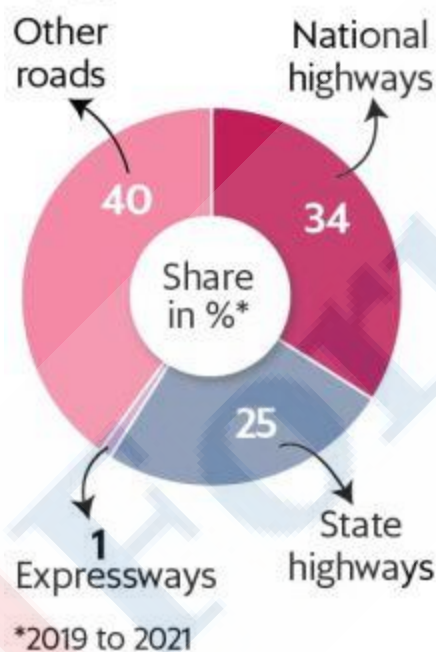
According to World Bank report (*'Traffic Crash Injuries And Disabilities: The Burden on India Society'*) India accounts for 11% of the global death in road accidents despite having just 1% of the world's vehicles. The road accidents costs INR 6 lakh crore or 3.14% of Gross Domestic Product (GDP). (However, the Ministry of Road Transport and Highways (MoRTH) estimates the socio-economic costs of road crashes at INR 1.5 lakh crore, or ~0.77% of the GDP).

The report pointed out that there is a distinct correlation between socio-economic status and road use patterns in low- and middle-income countries like India and **'poor people are more likely to be involved in a road traffic crash'**.

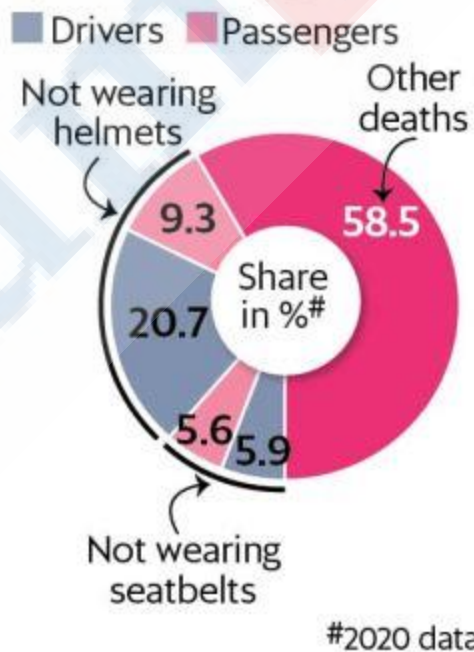
According to an IIT Delhi report, while the national highways constitute only 2% of the total length of roads in India, they account for ~35% of the fatalities.

The anatomy of road accidents: where they happen and who they kill

By type of roads



By use of safety gear



Source: National Crime Records Bureau; Ministry of Road Transport and Highways

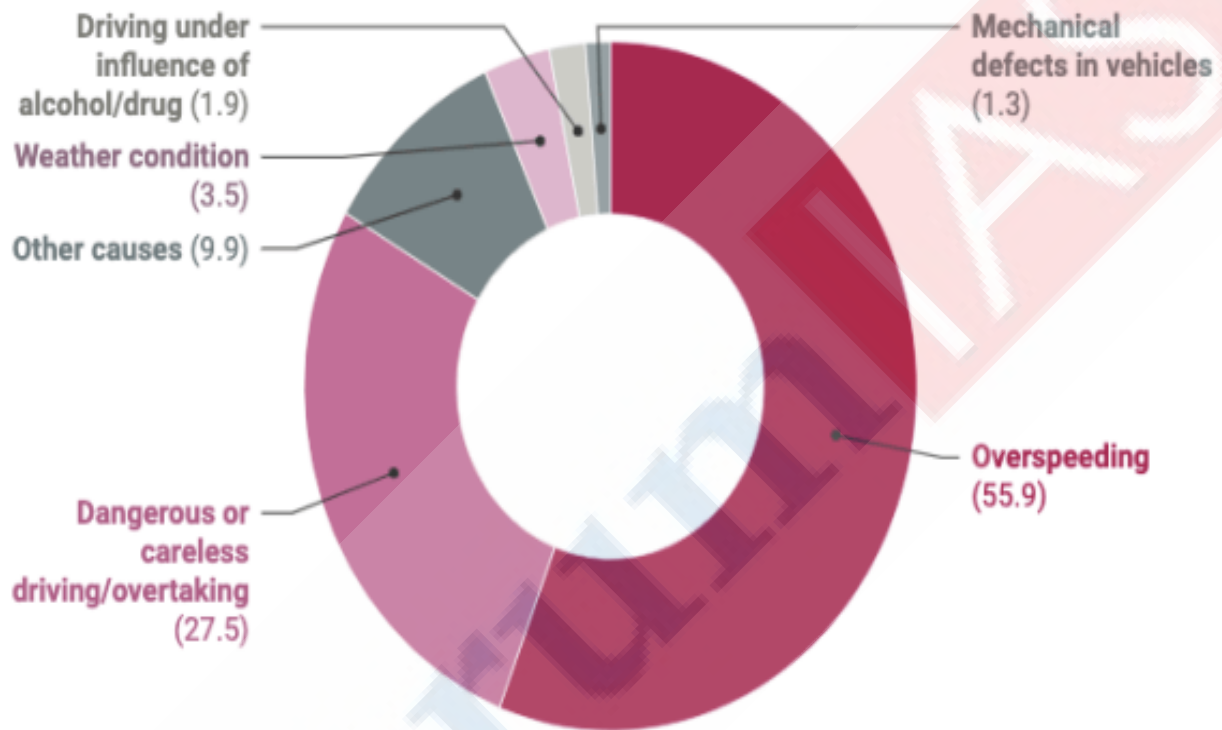
Source: Mint

What are the reasons behind high number of road accidents and fatalities in India?

Human Factors: According to the NCRB report, most of the accidents and fatalities are attributable to human factors. These include (a) Over-speeding, (b) Careless driving like jumping a red light, driving or overtaking on the wrong side of the road, talking on the mobile phone while driving etc.; (c) Neglecting safety measures like not wearing helmets or seat belts; (d) Driving under influence of alcohol or drugs.

Over speeding is responsible for a majority of lives lost on roads

Road accident deaths, by cause (in %)



Source: Mint

In addition, there is **low awareness/adherence to safety norms** e.g., in a survey it was found that only 7% of respondents wore rear seat belts. Only 28% of the respondents were aware that use of seat belt is mandatory. A WHO report (2022) noted that safety belts can reduce death and serious injuries to passengers in the back seat by 25%.

WHY WE ALL NEED TO BUCKLE UP INSIDE A CAR

In a country that accounts for 10% of all road deaths in the world, the fatal car crash which killed former Tata Sons chairman Cyrus Mistry has once again drawn attention to the scanty use of seat belts. Government agencies say they plan to create more awareness for new licence applicants to ensure cars are not driven until all occupants, including those in the rear, have buckled up. Mistry and his friend Jehangir Pandole, who also died in the crash, were in the rear seat and not strapped in.

Somit Sen & Dipak Dash report

SEAT BELT LAW

Central Motor Vehicle Rule 381(3) mandates occupants of front seats and those occupying front-facing rear seats must wear seat belts while vehicle is in motion. Rule came into effect from 2002.

PUNISHMENT/FINE

Motor Vehicle Amendment Act specifies a fine of ₹1,000 for violation, but states notify their own rates. In Maharashtra, fine for not wearing seat belts and helmets is ₹500. Transport activists have demanded a hike in fines.

ACTION TAKEN

> Mumbai traffic police have been fining car drivers for not wearing seat belts. But no case or challan is filed for not wearing seatbelts in the rear.

> Transport commissioner Avinash Dhakne told TOI fines have been imposed near toll nakas when passengers are found in the rear without seatbelts. However, no data is maintained by govt on such offences.



ADVANTAGES OF HAVING SEAT BELT FASTENED

Reduces risk of a fatal injury up to 50% in case of front seat passengers.

In front row, buckling up protects passengers from impact of expanding airbags.

Experts say airbags and seat belts are designed to complement each other.



Belts save lives sometimes even in old cars which don't have airbags.

Airbags are designed to cushion the impact while the belt serves to restrain movement. Without belt, airbags are ineffective.



PAST STUDIES ON REAR-END SEATBELTS

2019 study by SaveLIFE Foundation, a non-profit involved in road safety, found

only 7% respondents across 11 cities said they used rear seat belts.

only 28% were aware that use of seat belts was mandatory.

WHO study says use of rear seat belts can cut probability of death by 25%.

Seat belts also prevent excess injury or death for the front seat passenger.

Local Circles survey done recently showed 7 out of 10 Indians do not wear a seatbelt when seated in the rear of a vehicle.

IMPACT OF A CRASH

> Purpose of belt is to restrain you so that you stop with the car. Without the belt, inertia continues to move the body forward at the same velocity until it hits an object inside the car.

> Experts said even if a person is strapped in and airbags cushion the impact, person may still suffer some injuries.

depending on the force of the impact. It could prevent fatalities, but result in abrasions, fractures of the jaw, neck and sometimes, the spine.

> Belts keep you in your seat, prevent person from being thrown against the windshield, or flung inside or outside the vehicle, which is fatal in most cases, police officials said.

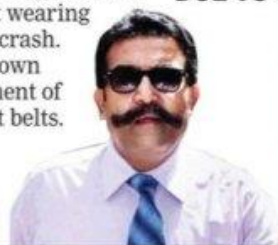
> In a high-speed crash, an unbuckled passenger can turn into a heavy projectile and hurt/kill other vehicle occupants wearing belts.

> Though seat belts prevent deaths by reducing head injuries, they can still damage by the impact associated with the force of restraint on a passenger.

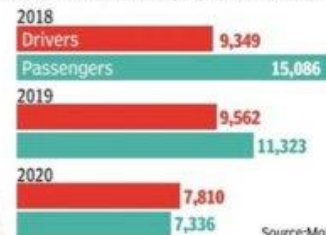


“ I had made it mandatory in Kerala and fined people in rear seats for not wearing seat belts in 2013. Those on rear seats not wearing belts can face maximum impact during a crash. Despite several crashes involving well known personalities, there is no proper enforcement of the law nor awareness about rear end seat belts. It is high time we implement the law and save lives.

—Rishi Raj Singh,
Former Kerala transport commissioner



INDIA: INJURIES, DEATHS DUE TO NOT WEARING SEAT BELT



Source: MoRTH

Source: The Times of India

Fewer deaths are attributable to external or weather conditions or mechanical defects in vehicles e.g., the highest number of road accidents and deaths are recorded between 6 pm and 9 pm on average on a given day, and in the months of January and December in a given month (due to low visibility due to fog).

Road Design: Many roads are not designed from the perspective of safety and accident prevention. Many roads have multiple **black spots**. Black spots are road locations that have a high number of crashes e.g., sharp corners in a straight road, a hidden junction on the fast road, etc. A survey found out that, these black spots are the prime location for 90% of the road accidents.

Similarly, there are no separate lanes for 2-wheelers or very heavy vehicles. Urban areas lack separate lanes for pedestrians.

Additionally, roads often have potholes or uneven surfaces due to poor upkeep which are cause of crashes and fatalities.

Poor Quality of Vehicular design: Vehicles in India lack safety features of global standards e.g., most low end cars don't have airbags e.g., In 2014, the Global New Car Assessment Programme (NCAP) revealed that some of India's top-selling car models have failed the frontal impact crash test. Car manufacturers argue that price conscious Indian consumers are more focused on mileage rather than safety norms. So there is a compromise on safety features to keep the cost low.

According to a road safety report prepared by the Transportation Research and Injury Prevention Centre, IIT Delhi, in November 2021, estimated that 'air-bag deployment reduced mortality by 63%; lap-shoulder-belt use reduced mortality by 72%, and combined air-bag and seatbelt use reduced mortality by more than 80%'.

Post-accident factors: Absence of quick response (like immediate information to medical authorities) and lack of emergency medical facilities increase the number of fatalities. In addition, possibility of harassment by law-enforcement agencies (like accident related investigations) deter by-passers to respond.

What steps have been taken to address issues related to Road Safety?

The Government formulated the **National Road Safety Policy (NRSP)** in 2010 based on the recommendations of S Sundar Committee. The Government is committed to to raise awareness about safety issues and extend assistance to the State Governments and local administrations in ensuring road safety. Under the policy, the Government reviewed standards that govern road design and the maintenance of vehicles. **National Road Safety Council** has been created to supervise matters related to road safety.

District Road Safety Committees (DRSC) have been established in each district under the Section 215 of the Motor Vehicle Act of 1988. The DRSCs are tasked with conducting an ongoing analysis of the district's traffic collisions and gathering information on incidents, their causes, accident sites, and victim information. They are also in-charge of creating a **district road safety plan**, an **emergency medical plan**, and making sure that ambulances were accessible and connected to hospitals.

The Government amended the **Motor Vehicles (Amendment) Act, in 2019** and enhanced the road safety measures: **(a)** Creating a **National Road Safety Board** to advise the government on road and traffic management (Notified in September 2021); **(b)** Higher fines for traffic crimes; **(c)** Recalling defective vehicles, dangerous for the environment and people; **(d)** Creating a **Solatium Fund for victims** of hit-and-run accidents; **(e)** Punishment to the owner for violations committed by Juvenile; **(f)** Regulated corruption by Automated testing for driver's licence and fitness certificate (FC).

The Act also protects **Good Samaritans from civil and criminal liability**. In October 2021, the Ministry of Road Transport and Highways (MoRTH) issued Guidelines for the Scheme for **grant of Award to the Good Samaritans** who save the life of a victim from a fatal accident involving a motor vehicle. A Good Samaritan is a person who **voluntarily comes forward to administer emergency care to a person injured in an accident**, or crash, or emergency situation. In 2016, the **Supreme Court of India gave “force of law” to the guidelines** for the protection of Good Samaritans issued by the Ministry of Road Transport and Highways. **Good Samaritan Law protects Good Samaritans from harassment** e.g., Police should not involve the Good Samaritans for investigation or the Hospitals should not refuse to treat the accident victims and should not charge for First Aid.

Apart from this, the Government has taken several other steps like: **(a) Front and side crash tests** for new car models came into force in 2017; **(b) New cars are required to have airbags fitted as standard**; **(c) The government notified the guidelines for road safety audits** on National Highways; **(d) Installation of Roadside Safety Crash barriers and speed warning boards**; **(e) A mobile app ‘Sukhad Yatra 1033’ has been launched** which enables highways users to report potholes and other safety hazards on National Highways including accidents; **(f) Efforts are on for rectification of identified Black spots**; **(g) Road Safety Audits are being carried out at all stages of development of the highway i.e. design, construction and operation stages**; **(h) Facilities such as Foot Over bridges & underpasses are being provided wherever required for safe crossing of pedestrians and other road users**; **(i) Road Safety Week is observed every calendar year for spreading awareness about safer behavior of road users on National Highways.**

The Ministry has formulated a multi-pronged strategy to address the issue of road safety based on 4 E's **Education, Engineering** (both of roads and vehicles), **Enforcement** and **Emergency Care**.

What more steps can be taken going ahead?

First, There is a need to enhance vehicle safety features in India. Vehicles in India must conform to global best standards e.g., The European Union's **General Safety Regulation** requires new vehicles to incorporate **advanced emergency braking technology** that launches automatically when a collision is imminent and intelligent speed assistance to reduce speed. Such standards must be incorporated in India too.

Second, The Government can implement the important recommendations of the **KS Radhakrishnan panel on Road Safety**. The important recommendations were: **(a) State Governments to perform a compulsory Audit on road safety** to ensure adequate safety standards in the design, construction, and maintenance of roads; **(b) Creating awareness among people** on road safety rules, insurance policies, etc.; **(c) Providing enough compensation to victims on time.**

Third, There is a need to review standards pertaining to safety in the **design of rural and urban roads** and bring them into consonance with international best practices, keeping in view traffic conditions in India. There can be separate lanes for 2-wheelers and heavy vehicles. Rules related to lane-driving must be implemented stringently with heavy fines for violations.

Fourth, there is a need to **create greater awareness among the general public regarding road safety**. Rash driving, lack of respect for traffic rules, low awareness about safety measures (like wearing seat belts) are symptomatic of casual attitude of Indians towards safety (self as well as of the others). Apart from this enforcement of rules must be made more stringent with revocation of driving license in case of multiple violations of rules.

Conclusion

Road accidents have remained a silent killer in India. Despite high number of accidents, road safety has remained low policy priority for the Governments. Perhaps the recent developments

can nudge the Government and the general public in the right direction. The Government has already announced strict penalties for not wearing rear seat belts. However, **the approach to road safety has to be proactive, rather than reactive**. The public has as much role to play as the Government. A concerted and focused effort can help bring down road accidents and help save precious lives. **SDG target 3.6** calls to halve the number of global deaths and injuries from road traffic crashes. **SDG target 11.2** calls for improving road safety and access to public transport. The Government must take all possible steps to meet the targets.

Syllabus: GS III, Infrastructure – Roads

Source: [Indian Express](#), [The Hindu](#), [The Times of India](#), [ORF](#), [Mint](#)

Urban Floods: Causes, Impacts and Remedies – Explained, pointwise

Introduction

The city of Bengaluru witnessed several spells of heavy rainfall in the last week. The city received > 130 mm of rainfall on September 05, 2022 which led to inundation of most parts of the city. Over the last few years, similar incidents of urban floods have occurred in Mumbai, Chennai, Patna and several other major cities. In fact, urban floods seem to have become an annual phenomena in most urban centres in India. While heavy rainfalls are a significant factor in urban floods, a major cause is poor planning, inadequate infrastructure, unauthorized construction and encroachment of river and lake beds.

What are Urban Floods?

Floods are a result of both **meteorological** and **hydrological** factors. Meteorological factors include rainfall frequency and intensity, storms, temperature etc. and hydrological factors are associated with groundwater levels, extent of impervious surface etc. When combined with **anthropogenic factors in urban centres**, events of inundation of large areas by water are classified as urban floods. Anthropogenic factors like land-use changes, exploitation of floodplains by construction and similar activities, poor solid waste management, and destruction of drainage complicate the system.

According to NDMA, Urban flooding is significantly different from rural flooding as urbanization leads to developed catchments, which increases the **flood peaks from 1.8 to 8 times** and **flood volumes by up to 6 times**. As a result, **flooding occurs very quickly** due to faster flow times (in a matter of minutes). Urban areas are densely populated and thus the economic impact can be much higher than floods in rural areas.

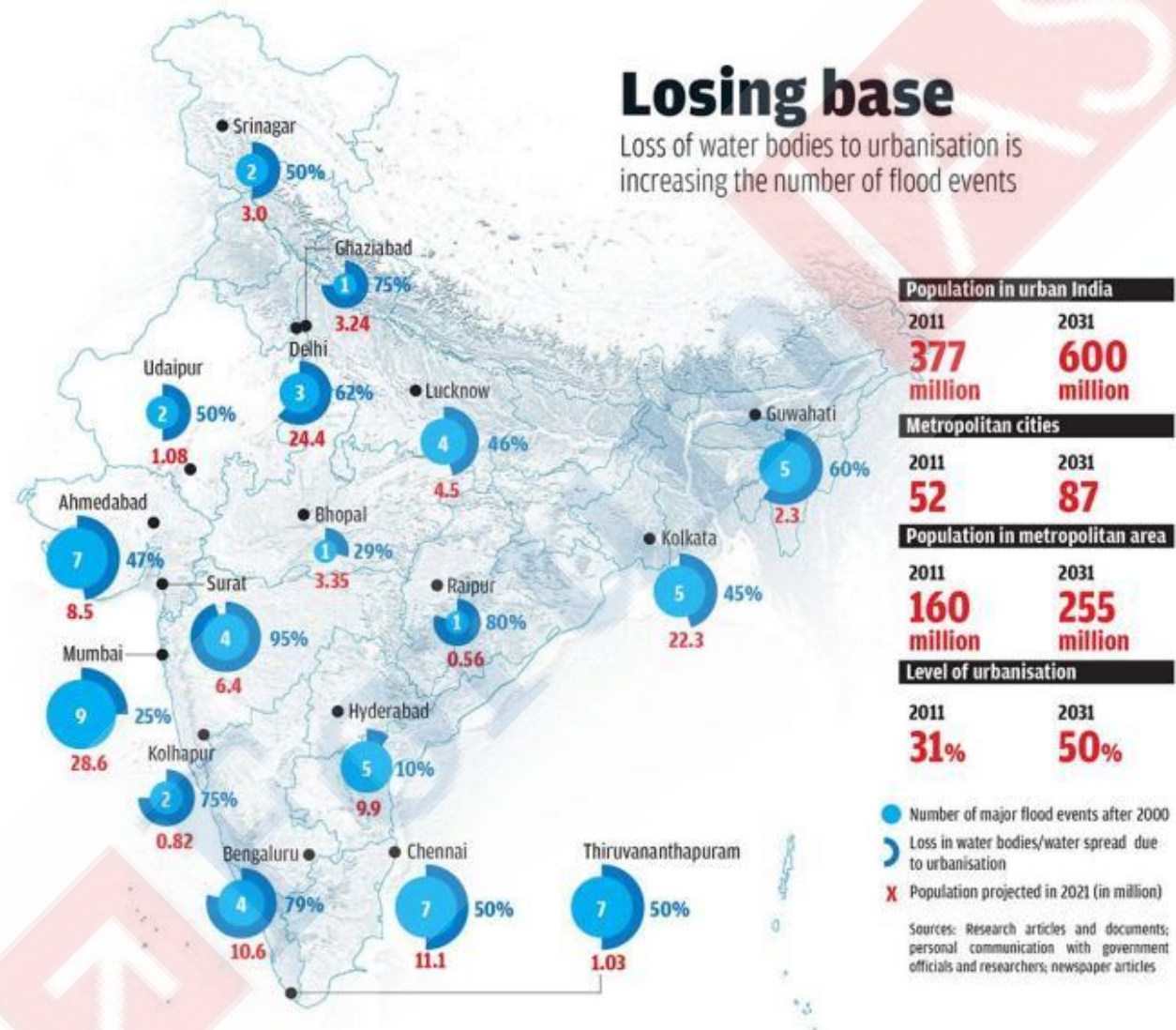
What are the reasons behind Urban Floods?

Urban floods are caused by a wide variety of factors, but they typically result from a combination of natural and human influences.

Meteorological Factors: Most Indian cities receive heavy rainfall during monsoons. The extreme weather events with concentrated heavy rainfall are becoming more frequent due to climate change (increased cyclonic activity in Arabian Sea and Bay of Bengal due to warming). Most urban floods in recent times were consequent to episodes of heavy rainfall e.g., Bengaluru witnessed > 130 mm rainfall in one day, against average rainfall of ~4.5 mm/day in this time of the year. Similarly Mumbai recorded ~950 mm of rainfall on July 26, 2005.

Hydrological Factors: Flood risk arises when the **surface runoff is greater than the infiltration rate** during The infiltration rates depend upon the type of soil, their respective water retention capacities, vegetation cover (reduces speed of water and increases infiltration) etc. Urbanization reduces rate of infiltration due to paved roads and lack of vegetation cover. Lower infiltration leads to higher run-off and flooding.

Anthropogenic/Human Factors: The risk of urban flooding has increased as a result of human interference in the natural environment. Urbanization has led to **encroachments on water bodies** and construction on beds of rivulets/rivers and lakes. This **obstructs natural flow of water**. Consequently, such areas are inundated with water during events of heavy rainfall e.g., in Bengaluru, the *Dakshina Pinakini* river had been dry for three decades and was considered extinct. With heavy rainfall it was flooded and damaged buildings in its path. In 2021, a Comptroller and Auditor General report had highlighted that the *Bruhat Bengaluru Mahanagara Palike* (BBMP), had not removed 714 encroachments out of the 2,626 identified near water bodies.



Source: Down to Earth. Number of Urban Flood Events in major cities since 2000 and the loss (in %) of water bodies due to urbanization. Bengaluru has witnessed an unprecedented 79% loss of water bodies.

Similarly, the number of water bodies in Gurugram has decreased from 644 in 1956 to 123 in 2018 and the green cover is only 9%. Delhi's Commonwealth Games Village (CWG) has been built right next to Yamuna's floodplain. The secondary runway of Chennai International Airport has been built right over the Adyar river. Many projects in Andhra Pradesh's Amaravati Capital City Project, have been proposed to be built on the floodplains of the Krishna river.

In addition, most Indian cities have undergone **haphazard urbanization**. The infrastructure has not been commensurately upgraded with rising population e.g., storm water drainage lacks capacity to adjust for loss of natural run-off due to construction. The Karnataka State Action Plan on Climate Change (2013) had noted that drain infrastructure of Bengaluru is not enough to handle even moderate rainfall event. Yet, the infrastructure has not been upgraded. Also, lack of regular cleaning and upkeep of drains leads to clogging and flooding.

In many cases waste water from cities is drained in rivers and lakes. This causes **siltation** and **reduces the capacity of natural drains**, causing urban floods.

What causes urban floods?

Meteorological factors

- Unprecedented rainfall
- Influence of urban microclimate

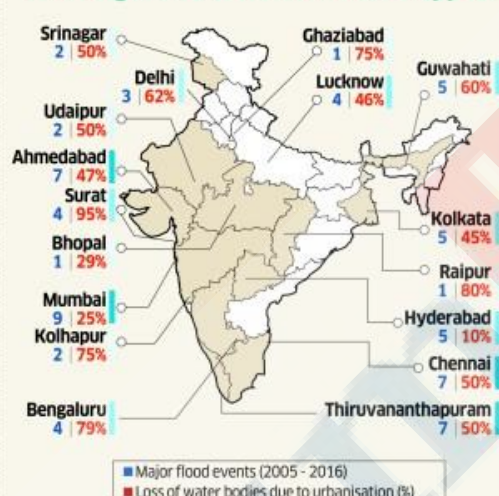
Hydrological factors

- Change in the course of rivers
- Presence of high tide
- Synchronisation of runoffs of various parts of the watershed

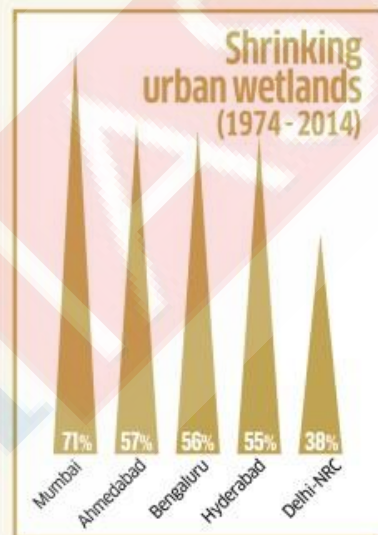
Human factors

- Rapid urbanisation and deforestation
- Loss of waterbodies
- Encroachment of floodplains and low lying areas
- Damage to drainage channels
- Buildings designed without regard to flood risk
- Lack of water conservation infrastructure

Flooding occurs as waterbodies disappear



Shrinking urban wetlands (1974-2014)



CITIES AND THE YEAR THEY SAW MAJOR FLOODS

Mumbai: 2005 - Present; Bengaluru: 2005, 2007, 2015, 2020; Chennai: 2002, 2004, 2005, 2006, 2007, 2015; Ahmedabad: 2017; Kolkata: 2007, 2017; Hyderabad: 2020

Source: Deccan Herald

What are the impacts of Urban Floods?

Urban regions are **hubs of economic activity** and contain critical infrastructure that require round-the-clock security. Damage to critical infrastructure in major urban centres has an impact at both the State and National level e.g., 2005 flood in Mumbai led to disruption of operations of Stock Exchanges (BSE and NSE) and shut down financial services, resulting in losses exceeding US\$ 100 million.

Disruptions in power and transportation impact day-to-day life of residents. Extreme events cause **loss of life and property**.

Additionally, flood waters from industrial facilities or storage locations may disperse dangerous chemicals and fuels into water. Toxic chemicals and untreated sewage can both pose serious risks to the general public's health and the water supply.

Spread of infection post flood event can cause **spread of epidemics**.

For lower income groups, the major challenge is the ability to earn a livelihood, which is directly affected by urban flooding. The urban poor are at more risk, because in most cases the slums in which they live are most vulnerable to urban floods.

How can the issue of Urban Floods be addressed?

The most critical need is to increase the resilience of the communities and adaptive capacity of the infrastructure.

First, Water-sensitive urban design and planning techniques are most critical. These methods take into consideration the topography, types of surfaces (pervious or impervious), natural

drainage, and have very little impact on the environment. Vulnerability analyses and risk assessments should be mandatory in city master plans.

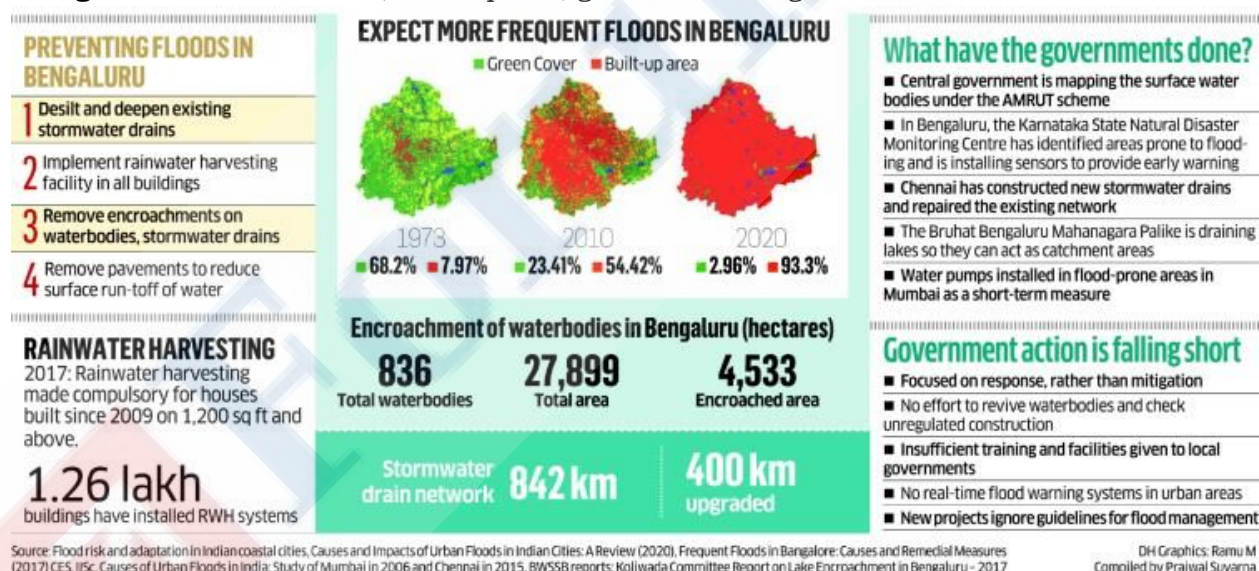
Second, a comprehensive **database of all wetlands and water bodies** in urban areas should be established. Protected areas for river, lake, and other water channel catchments must be identified and **freed from encroachments**. Flood plains and natural water bodies must be restored.

Third, there is a need to adopt scientific management measures to deal with urban floods. Risk reduction should start with a **mapping of flood vulnerability**. Hydraulic and hydrological models must be used to analyse the flood pattern. The findings must be in urban master plans. Land use in urban areas should be strictly regulated.

Fourth, the **urban infrastructure must be upgraded**, including construction of new storm water drains and expansion of existing sewerage infrastructure. Moreover, the pavement cover must be reduced and vegetation/green cover should be expanded to reduce storm water run-off.

Fifth, there is a need for **improved coordination between various institutions** especially between water resources and disaster management authorities for **integrated approach towards flood management**. Engagement with grassroots organisations is necessary to promote awareness on holistic flood risk management. **Participatory approach** for early action coordination among stakeholders can help mitigate flood risks.

Sixth, as recommended by the draft New National Water Policy there is a need for renewed thrust on **protection and revival of traditional local water bodies** in both urban and rural areas. These water bodies would form part of **urban blue-green infrastructure** for improved water levels and quality, as also flood mitigation, through specifically curated infrastructure such as **rain gardens** and **bioswales**, urban parks, green roofs and green walls etc.



Source: Deccan Herald

Seventh, some countries are experimenting with concept of **Sponge Cities**, and initial experience has shown promise. If the solution is successful and scalable, same can be adopted in India in the new upcoming urban expansions. Sponge cities can solve the problem of urban flooding as well as scarcity of water during the summer season.

Sponge City

Sponge City is a type of city which is designed in such a way that it acts like **a sponge for rainwater**. The water is absorbed and **allowed to naturally filter through the soil to reach the aquifers**. The aquifer recharge helps fulfill the water needs of the city.

The Sponge city has **contiguous open green spaces, interconnected waterways and channels** and ponds across neighborhoods to **naturally detain and filter water**. City buildings have green roofs that can retain rainwater and naturally filter it before it is recycled. There are also porous design interventions across the city including construction of bioswales, porous pavements that **allow water to be absorbed and permeate to recharge the groundwater**.



Source: British Business Council

Conclusion

A Climate Change Assessment Report (2020) of the Ministry of Earth Sciences has noted that the increased frequencies of heavy rainfall has enhanced flood risk all over India, particularly in the urban areas. This requires an urgent fix. Addressing the challenge of urban floods requires a concerted effort of Union, State and Local Governments along with the citizens.

Syllabus: GS III, Disaster and disaster management.

Source: [Indian Express](#), [Indian Express](#), [Down to Earth](#), [Mint](#), [The Times of India](#)

Managing Climate Change: A Strategy for India – Explained, pointwise**Introduction**

Climate Change is a clear and present danger. The latest IPCC Assessment Report has warned that if nothing is done, global warming is likely to reach at least +2.8°C by the end of the century. Developing countries will be most seriously impacted by the impending disasters. Globally, there is a concerted effort to address the challenge under the aegis of the UN Framework Convention on Climate Change (UNFCCC). At the latest Conference of the Parties (COP) in Glasgow (COP26), many countries including India accepted a long term commitment to reduce carbon emissions to Net Zero. This is a departure from the position in 2015 (Paris, COP21) when most countries had committed only to reducing the emissions intensity of their GDP. India has set a target to achieve Net Zero by 2070, while most developed countries intend to achieve the target by 2050. There are several challenges in achieving these targets. A research paper titled 'Managing Climate Change: A Strategy for India' authored by a noted economist has suggested several measures to achieve these targets.

About India's Climate Targets

India had submitted its first pledge in 2015 that had three primary targets. The revised climate targets (or INDCs, Intended Nationally Determined Contributions) were officially submitted in August 2022. The new targets are: **(a)** Reduction in emissions intensity of the GDP by 45% by 2030 (compared to 2005 level); **(b)** Total non-fossil fuel electricity generation capacity to be raised to 500 gigawatts (GW) by 2030.

The long term target is to achieve Net Zero emissions by 2070.

The targets are contingent on transfer of technology and low-cost international finance including Green Climate Fund (GCF).

Read More: [India's New Climate Targets \(INDCs\) – Explained, pointwise](#)

What suggestions have been provided by the Working Paper?

The longer-term objective of getting to Net Zero can be achieved by a combination of both **demand side** and **supply side** actions.

Demand Side actions include: **(a) Increased energy efficiency** through adoption of energy-efficient technologies, combined with **lifestyle changes**; **(b)** Shifting from **direct use of fossil fuels** to electricity as the final energy source wherever possible.

Supply side actions include: **(a)** Shifting away from electricity generation using fossil fuels (coal, diesel and gas) to **Renewable Energy** (RE, mainly solar and wind); **(b)** Development of **green hydrogen** as a substitute for fossil fuels in key areas; **(c) Expanding forest area** to increase natural carbon sinks; **(d) Developing CCUS techniques** (Carbon Capture Utilization and Storage) to make them commercially viable to offset CO₂ emissions from residual use of fossil fuel that may remain.

The Report has provided sector-wise action points for promoting decarbonization.

Decarbonising Power Sector

Need: This is a top-priority sector because it accounts for roughly half of total CO₂ emissions in the economy. Also decarbonising other sectors of economy will entail shifting from direct use of fossil fuels to use of electricity as the final source of energy (e.g., shift from oil based vehicles to electric vehicles in transportation), increasing the share of electricity as the major energy carrier. To meet the 2030 target, annual capacity addition must increase to 38 GW over the next 8 years, up from an average of about 11 GW in the previous 4 years.

Challenges in Decarbonization of Power Sector

- **Intermittency:** Grid management is difficult because of intermittency of solar and wind power.
- **Cost Competitiveness:** Solar and wind power generation has become cost competitive over the last decade and cost almost same as coal-fired plants. However, **cost of battery storage** (to smooth the supply) is high. It would raise the cost by 60-100% rendering them uncompetitive.
- **Poor financial status of DISCOMs:** Most DISCOMs are making losses and are under huge debt primarily because of populist policies. This impacts **investments and adoption of Renewable Energy (RE)**. Potential private investors in RE feel that **DISCOMs may default** on payments.
- **Transmission Infrastructure:** RE power generation is largely concentrated in the South and West India. This power will require to be transported to other region, needing expansion of transmission infrastructure.
- **Phasing out coal** is crucial to achieve Net Zero, but India still has a very high dependence on coal.
- **Land Acquisition:** Large amount of land would be required to expand RE. According to an estimate, generating 50% of electricity through solar by 2050 would require 23,800 sq. km of land (~0.8% of India's land area).

Source: Managing Climate Change: A Strategy for India

Created by | ForumIAS®

Suggestions

Intermittency: It can be handled by **(a)** Pairing RE generation with gas-based power plants or with pumped-hydro storage; **(b)** Use of grid-scale battery storage. Each of these methods entails additional costs, and will make RE costlier.

Risk cover to RE Producers: Improving the financial status of DISCOMs should be a top priority but will take time. In the mean-time, **special risk-mitigation measures** can be undertaken to encourage private investments in RE. The Union Ministry of Power, State Governments and the RBI can sign a **tripartite agreement**. Under the agreement, RE power generators will be reimbursed by the RBI in case they are not paid on time by the DISCOMs. RBI will debit the account of State Government and recover the amount from them. There is evidence that private sector generators prefer to invest if they are offered such protection.

Read More: [DISCOM sector in India: Challenges & solutions – Explained, pointwise](#)

Expanding Transmission Infrastructure: Power Grid Corporation (under Central Government) has to step-in as it better equipped to handle environment clearances etc. Government can provide initial investment. As these transmission lines become operational and start earning revenues, they could be privatised to raise capital for further investments.

Phasing-out Coal: A recent study had recommended that **~50 GW of coal capacity in India can be considered for early retirement** provided supportive finance is available. The Ministry of Power has recently announced phasing down of 81 units of coal power plants to 40–55% of their capacity, to replace with approximately 30 GW of solar power by 2025–26. The Governments of **Gujarat, Maharashtra, Karnataka and Chhattisgarh** have announced that they will **not fund any new coal power plants in their States**. Shift away from coal will have economy wide impacts like loss of livelihoods in the coal mining sector, loss of income to coal producing State Governments, loss of transportation revenue to Indian Railways among others. Hence, retirement of functioning coal plants should ideally be incentivised by **provision of international concessional financing**. Here, India must keep on pressing for financial support from the developed countries to fulfil their commitments.

Carbon Tax: At present, the Government levies a cess of INR 400/tonne of coal. This translates to a **carbon tax of US\$ 3.5/tonne of CO₂**. IMF has recommended a carbon tax of US\$ 25/tonne of CO₂ for India, (US\$ 75/tonne for the US/EU). Increasing carbon tax on coal to the recommended level will increase costs of coal-based electricity by ~40% leading to early phase out. Oil products are already heavily taxed by the Governments. The introduction of carbon taxation can accelerate the transition to RE, as well as generate revenues to help **finance other elements of the climate management plan**.

Production Base for RE: According to an estimate, achieving Net Zero will require the RE capacity to reach 7400 –8400 GW by 2070. India must meet its demand for Solar cells/modules, wind turbines etc. domestically as well as export for global demand. The Union Government has already launched PLI Schemes for manufacturing Solar PV Cells, batteries etc. The Government should avoid high import tariffs and instead foster innovation by domestic industry to make them competitive. The Government has rightly encouraged partnerships with leading international companies. The trade policy required for this objective has to be carefully designed, recognising the importance of openness to innovation. Domestic R&D efforts by the industry should also be encouraged.

Land Acquisition: State governments would need to be proactive. They can acquire the land with appropriate compensation to landowners, and passing it on to private solar power developers on a fixed/long-term lease basis. The process must be transparent. Focus should also be on utilizing wasteland for solar power generation to minimize impact on agriculture. In addition, agriculture productivity can be enhanced by sustainable practices to negate any impact of diversion. There is a need to actively pursue reduction in methane emissions from agriculture sector.

Decarbonising Industries

Need: The Industrial sector accounts for ~33% of India's CO₂ emissions. Almost 50% of the emissions from the industrial sector are contributed by Steel, oil-refining and cement production. The rest are emitted by mining and quarrying, brick manufacturing, pulp and paper, fertilisers, textiles and petrochemicals, and other non-specific industries. Decarbonizing industrial sector will be crucial to achieve the climate change targets.

Suggestions

Shift to Electricity: Many industries use fossil fuels to generate heat required in their operations. They can be shifted to use electricity for this purpose.

Shift to Green Hydrogen: Industries like steel, fertilizers, cement, petrochemicals etc. use fossil fuels as feedstock in chemical processes (shift to electricity not possible). They can be decarbonized through use of Green Hydrogen (H₂). India's H₂ demand is expected double over the next 10 years. Green Hydrogen Policy is geared towards increasing adoption. Government should provide appropriate incentives to increase R&D and adoption of Green Hydrogen.

Read More: [Green Hydrogen Policy – Explained, pointwise](#)

CCUS Measures for Cement Sector: India is the second-largest producer and consumer of cement in the world. Cement manufacturing is very carbon-intensive. According to the IPCC, CCUS, through the reverse-calcination process, could be a feasible solution to decarbonise this industry as the costs become favourable

Decarbonising Transport

Need: The transport sector contributes 13% of India's emissions. The sector is heavily dependent upon petroleum and natural gas. This sector includes railways, road transport, inland shipping, and airlines.

Suggestions

Electrification of Railways: Indian Railways has the 4th largest rail network in the world. 80% of the broad-gauge track network is now electrified. However, > **33% of trains (both passenger and freight) are currently run by diesel locomotives.** The railways should put in place a plan for an accelerated shift to full electric traction over this decade and phase out diesel locomotives.

Modal Mix of Freight Transport: Focus should be on faster completion of Dedicated Freight Corridors (DFCs). Modal mix of India's freight should be shifted to Railways (from Roads) as Railways are more energy efficient.

Electrifying Road Transport: Electric Vehicles (EVs) are gaining popularity but at present account for less than 2% of the total automobile sales in the country (15% in China). Adoption can be improved through Government interventions to: **(a)** Reduce price of EVs; **(b)** Promotion of EVs for public transport; **(c)** Establishing a sustainable EV-Charging network; **(d)** Establishing a robust battery-swapping ecosystem.

Read More: [Battery Swapping Policy: Provisions, Benefits and Challenges – Explained, pointwise](#)

Restructuring Manufacturing Capacity in Automotive Sector: To achieve Net Zero by 2070, entire fleet of vehicles have to be EVs by 2050. So sale of fuel based vehicles has to be phased out by 2035. Automotive Manufacturing ecosystem has to shift to production of EVs. Auto component production is dominated by MSMEs, they will need to be assisted to restructure themselves to produce the new types of parts, including components for batteries. Government has to come-up with appropriate policy framework to aid this transition.

Safety of EVs: Statutory regulation for this sector needs special attention. The EVs need to be safe to build public faith and enhance adoption. Establishing standards for battery design suited to Indian conditions, standards for charging/recycling and their enforcement will be crucial. A close coordination between industry and the government will be necessary.

Promoting Public Transport: Increased capacity of Metro networks and use of EVs in public transport (electric buses) are initial steps. A large-scale shift towards public transport requires a 'system reform' of the urban passenger transport system.

BOX 3: Promoting Public Transport

The following are some of the measures that can be taken to promote public transport.

1. Behaviour change campaigns will be needed to break the perception of personal and social status associated with private car ownership.
2. A good way of encouraging public transport is to take steps to discourage private transport. High parking charges within city areas is a good strategy, as is the introduction of congestion charges. Both can be reduced for EVs to encourage electrification.
3. Disincentives must be accompanied by steps to improve the quality of the public transport experience. This is particularly important in developing countries, where poor quality often discourages many individuals in upper-income groups from using public transport.
4. Public transport should be accessible to senior citizens and differently-abled people. Women and child commuters also need assurances of greater safety in the last mile from public transport stops to home.
5. Dedicated lanes speed up the movement of buses and can reduce travel times, compared to private cars. This has been successfully introduced in some cities in India (e.g., Ahmedabad, Indore, and Bhopal), but was strongly opposed in some others (e.g., Delhi), where the effort was abandoned.
6. While the quality of public transport must be upgraded, fares should be kept low. Revenues from passenger fares can be supplemented by non-fare revenues from advertising and real-estate. Revenues from parking charges and congestion charges mentioned above, can be earmarked to provide cities with a source of revenue to cross-subsidise public transport. Special cess on properties along the public transport routes can also be considered.

Source: Managing Climate Change: A Strategy for India, Centre for Social and Economic Progress
Emissions from Expanded Urbanization

Need: India's urban population is projected to increase from about 377 million (or about 31% of the population) in 2011, to over 875 million (53%) by 2050. With rising urbanization and higher incomes, demand for electricity will rise. This will contribute to increased emissions (till electricity mix has share of fossil fuels).

Suggestions

Energy Efficient Appliances: Commendable progress has been made in some aspects e.g., UJALA helped in bringing down the retail price of LED bulbs by 80% and has succeeded in distributing 370 million LED bulbs since 2015. This has effectively saved 48 billion units of electricity per annum, or avoided 386 mt of CO₂ emissions from electricity generation. Adoption of energy efficient appliances (like ACs, fans etc.) should be expanded through similar Government interventions.

Energy Efficient Buildings: Energy usage in buildings can be significantly reduced through better building design and construction materials. Regulatory mechanisms could enforce LEED/GRIHA standards for building design and construction, limit the use of glass facades for commercial building designs, promote rainwater harvesting, rooftop solar panels and construction materials suited to the Indian climate.

Managing Intra-city Transportation: Spatial planning has been ignored in Indian urbanisation, but it can help to **minimise transportation in private vehicles**, and maximise usage of public transport within cities. The IPCC estimates that demand-side measures of infrastructure use;

based on compact cities, rational spatial planning and high public transport usage, can potentially mitigate 30% CO₂ emissions by 2050. **Developing a 10-year action plan** for the 20 biggest metros in the country would be a good first step in elaborating a strategy for decarbonisation.

Managing Urban Waste: Rising amount of solid waste and sewerage generated in cities is a major source of non-CO₂ GHGs. Adopting sustainable measures for urban waste management can help cut down these emissions.

Afforestation and CCUS

Need: The IPCC has recognised that fossil fuels cannot be completely eliminated in hard-to-abate sectors (like air transportation). The resulting emissions will have to be dealt with by increasing the stock of forests providing a natural carbon sink, and through CCUS technology to mitigate climate change.

Suggestions

Afforestation: The Forest Survey of India (FSI, 2019) estimates that to create a 2.5 Gt-CO₂e equivalent carbon sink, India would require the area under forest and tree cover to **increase by 18.7 million hectares** (~3.4% of the country's geographic area). Nearly 66% of this can be achieved through **restoration of impaired and open forests**. The FSI (2019) estimates the total cost of this to be 1.5% of the GDP. This will not only help in sequestering CO₂, it will also have substantial co-benefits including ecological restoration and water management.

Carbon Capture, Utilisation and Storage (CCUS): CCUS refers to techniques of artificially capturing CO₂ from the atmosphere/large point-sources such as industries and sequestering it chemically into geological formations for long-term storage. The IPCC considers CCUS to be critical to achieving the +1.5°C target. The Ministry of Petroleum and Natural gas has recently published a draft policy document for CCUS in India, wherein geological sites with 393 Gt-CO₂ sequestration potential have been identified.

The technology for CCUS is still maturing and it cannot be currently deployed cost-effectively at industrial scale. However, advanced countries have a vital interest in this area and are heavily involved in developing the technology.

Read More: [Geoengineering Technologies: Applications and Concerns – Explained, pointwise](#)

Investment Requirement for the Transition

Implementing the mitigation strategy will require massive investments. These must be supplemented by investments aimed at adaptation to combat extreme weather events such as prolonged droughts and heavy floods. Several studies have attempted to quantify the additional investment India must plan for in future to mitigate climate change.

Table 1: Estimates of annual investments in energy and other sectors in India (2020 \$, billion)

Study	Sector coverage	Scenario	Total	Additional*	% of GDP (cumulative)	Period
McCollum et al., 2018	Energy	+1.5°C by 2100 (50%)	\$313	\$147	2.6%	2016 - 2050
CEEW, 2021 ³⁷	Electricity, EVs and H2 production	NZ by 2070	\$202	\$107	1.0%	2020 - 2069
IEA, 2022 ³⁸	Energy	NZ by 2070	\$160	\$107	3.1%	2022 - 2030
McKinsey, 2022 ³⁹	Energy and land-use systems	NZ by 2050	\$600	\$228	3.7%	2021 - 2050

*Estimates of additional investment indicate the amount above a reference level, or business-as-usual projection, wherein investment as a percentage of GDP increases over time.

Source: *Managing Climate Change: A Strategy for India*, Centre for Social and Economic Progress. Estimates of additional investments required by India to combat Climate Change.

The additional investment needed has to come from the public and private sectors in some combination. Some of the investments e.g. in transmission infrastructure, agricultural R&D, water management in rural and urban areas will have to come dominantly from the public sector. This will impose a strain on already constrained government finances and efforts will have to be made to create fiscal space to accommodate these investments. For the rest, private sector should carry the burden.

The UNFCCC explicitly envisaged that developing countries would receive international financial assistance to help meet the demands of both mitigation and adaptation. The Paris Agreement of 2015 had promised additional international financial assistance of \$100 billion per year, to be achieved by 2020. This has not been achieved. The Glasgow Pact noted that it would now be achieved only by 2023. The Pact also called for a substantial increase in the amount of assistance thereafter. The new target for international financial assistance will have to be agreed in subsequent COP meetings.

Climate change negotiators have not emphasised flows from multilateral development banks (MDBs), such as the World Bank, the International Finance Corporation, the Asian Development Bank, the European Investment Bank and others, as important channels for international finance for climate change. They have instead favoured the UN Green Climate Fund as the preferred channel for this purpose. However, given the scale of financing needed, it is unlikely that the requisite amounts can be achieved without active involvement of the MDBs.

Conclusion

IPCC has observed that actions announced by all nations in COP26 to fight climate change are insufficient to contain global warming to the desired level. The Glasgow Pact therefore called on all Parties to consider taking stronger action, to be announced by COP27. Since the consequences of exceeding +1.5°C are alarming, with India likely to be one of the worst sufferers, Government should take an active role in pushing all countries to do more. Domestically, the Government has done a commendable job in pushing for RE energy and EV adoption. The effort must be continued with same vigour for ensuring green transition of the economy as early as possible.

Syllabus: GS III, Conservation, Environment pollution and degradation

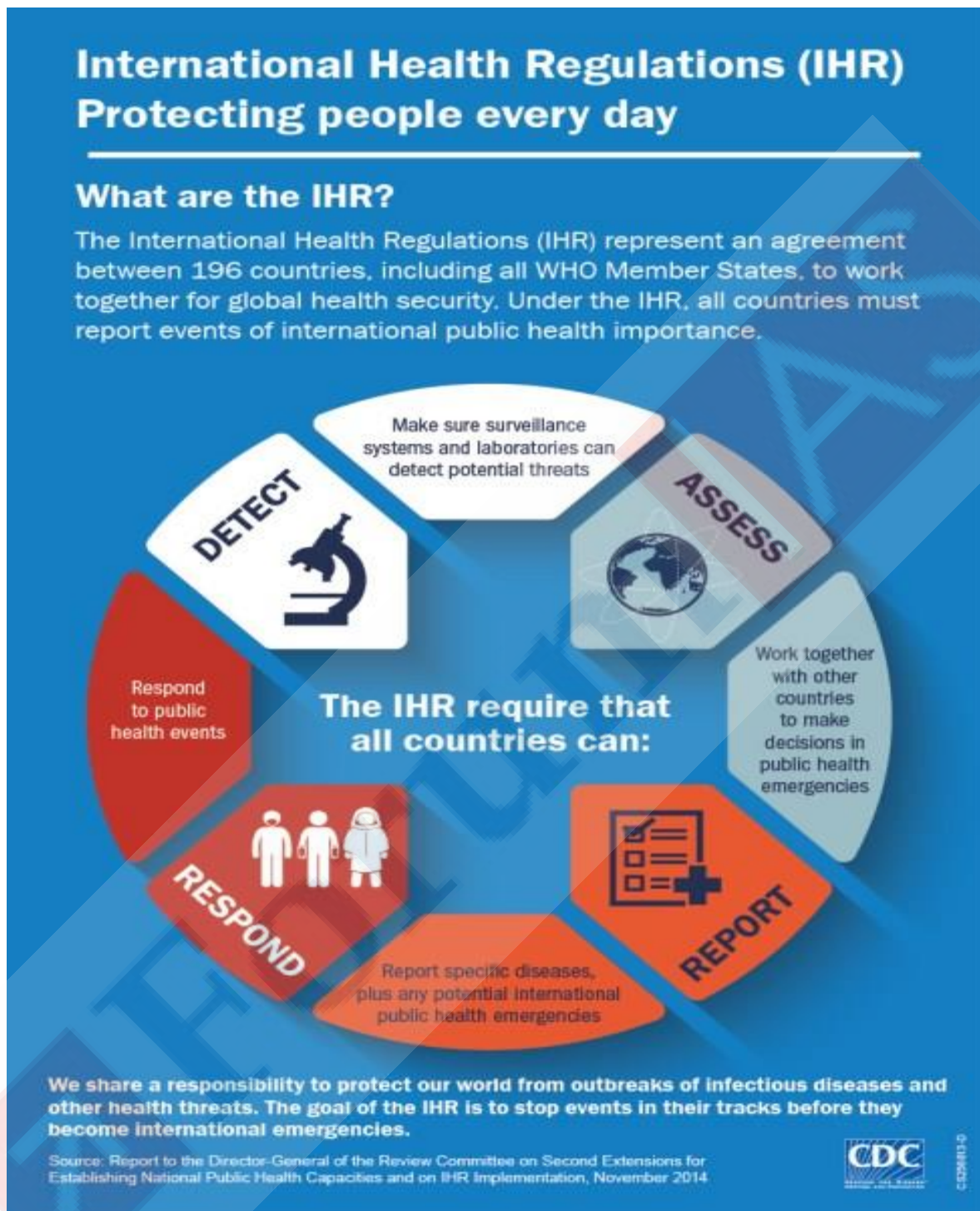
Source: [Mint](#), [Centre for Social and Economic Progress](#)

Need for a Global Pandemic Treaty – Explained, pointwise**Introduction**

COVID-19 is being considered as the most severe pandemic the world has encountered in the last 100 years. As of September 2022, more than 603 million cases have been reported worldwide, with approximately 6.4 million deaths. The impact of the pandemic has been much beyond the loss of life. It has pushed an estimated 120 million people into extreme poverty. Economies across nations fell massively as the strict lockdowns virtually brought the economic activities to a standstill. No single Government or institution has a wherewithal to address such a crisis single-handedly. This has given rise to the larger perspective that 'nobody is safe until everybody is safe'. The world is now facing three global health emergencies (COVID-19, Monkeypox and Polio). COVID-19 pandemic exposed the deep cracks in the global health systems including the International Health Regulations (IHR). Members of the World Health Organization (WHO) are now working towards a Global Pandemic Treaty that will prepare the world to combat such pandemics in a better manner in future.

What is the current framework to combat global pandemics?

At present Global public health responses are guided by the **International Health Regulations (IHR)**. The Regulations were adopted in 1969 and revised in 2005 after the SARS outbreak. The regulations provide an overarching legal framework that defines countries' rights and obligations in **handling public health events and emergencies that have the potential to cross borders**. The IHR are an **instrument of international law** that is **legally-binding** on 196 countries. They create rights and obligations for countries, including the **requirement to report public health events**. The Regulations also outline the criteria to determine whether or not a particular event constitutes a 'Public Health Emergency of International Concern' (PHEIC). The Regulations require countries to **improve their core capacities**, including legislation, coordination, and surveillance, to detect and respond to national health emergencies. The IHR also define the steps for reporting disease outbreaks to WHO and disease control measures. The IHR are based on 4 pillars: **Detect, Assess, Report** and **Respond**.



Source: [cdc.gov](https://www.cdc.gov)

IHR require countries to maintain core capacities for surveillance and response. Additional provisions address the areas of international travel and transport such as the health documents required for international traffic. The IHR are important for several reasons.

INTERNATIONAL HEALTH REGULATIONS (IHR)

– from policy to people's health security

What are the IHR?

The IHR are legally binding and help countries work together to protect lives threatened by the spread of diseases and other health risks, including radiation and chemical hazards.



5 reasons why the IHR matter

 <p>HEALTH THREATS HAVE NO BORDERS</p> <p>The IHR strengthen countries' abilities to control diseases that cross borders at ports, airports and ground crossings</p>	 <p>TRAVEL AND TRADE ARE MADE SAFER</p> <p>The IHR promote trade and tourism in countries and prevent economic damage</p>	 <p>GLOBAL HEALTH SECURITY IS ENHANCED</p> <p>The IHR establish an early warning system not only for diseases but for anything that threatens human health and livelihoods</p>	 <p>DAILY THREATS ARE KEPT UNDER CONTROL</p> <p>The IHR guide countries to detect, assess and respond to threats and inform other countries quickly</p>	 <p>ALL SECTORS BENEFIT</p> <p>The IHR prepare all sectors for potential emergencies through coordination and information sharing</p>
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World Health Organization
REGIONAL OFFICE FOR Europe

Until all sectors are on board with the IHR, no country is ready

www.euro.who.int/ihr

Source: WHO

What are the shortcomings in the existing framework?

The International Health Regulations are legally binding and signed by 196 countries. Hence they provide the most comprehensive framework to deal with a pandemic. Yet there are several lacunae.

First, The current IHR system has **little power to ensure governments comply with their responsibilities**. The Governments do not accurately report on their core capacities to prepare for and respond to health emergencies. Often, there is a delay in sharing information with the WHO regarding local outbreaks. This delays global response as happened in case of COVID-19. The gap can be attributed to lack of strict implementation mechanism.

Second, International Health Regulation (IHR) obligations are heavily tailored towards prevention and detection of pathogens, and **very limited on response stages to prevent transmission**.

Third, The IHR is governed by the Ministries of Health of the member States. The Health Ministries often have little influence on the underlying problem of a **lack of broader political will**, including to **commit resources that could improve core capacities** in accordance with the principles of IHR.

Fourth, The IHR primarily addresses capacities at a national level, which **does not improve global oversight and coordination**.

Fifth, despite attempts by WHO to devise improved methods of monitoring state compliance with IHR, there have been modest changes. These efforts under IHR do not appear to have had much effect on **state preparedness or response**.

COVID-19 Pandemic has led to recognition of the fact that IHR need further revision and that is the reason for the negotiation of new treaty.

How will a Global Pandemic Treaty be useful?

In December 2021, the World Health Assembly held a special session (only 2nd such special session since its inception in 1948) and took the decision to form a global pandemic treaty to 'strengthen pandemic prevention, preparedness and response'.

An **Intergovernmental Negotiating Body** (INB) will be responsible for drafting and negotiating a treaty under Article 19 of the World Health Organisation's (WHO) Constitution. This will be second such initiative under Article 19. The first was the WHO Framework Convention on Tobacco Control which came into effect in 2005.

Article 19 of the WHO Constitution

It mentions that the Health Assembly shall have the authority to adopt conventions or agreements with respect to any matter within the competence of the Organization. A 2/3rd vote of the Health Assembly shall be required for the adoption of such conventions or agreements.

The new pandemic treaty is expected to cover aspects like **data sharing, genome sequencing of emerging viruses, equitable distribution of vaccines and drugs and related research throughout the world.**

This treaty is an attempt to plug existing gaps, as well as to strengthen global coordination measures that have been weakened over time, in order to have a better global response to these massive issues.

A treaty could also **enhance the capacity of more countries** (especially in low- and middle-income countries) to produce diagnostics, therapies, and vaccines, built by a global commitment of funds, expertise, and technology transfer.

It will help to reach consensus on high-level legally binding principles and commitments within the Convention.

What are the potential benefits of an international agreement on pandemics?



Political engagement at leaders' level and global inclusivity via a new **legally binding agreement** rooted in the WHO constitution



Improved equity in access to quality medical countermeasures (vaccines, therapeutics and diagnostics)



Established principles, priorities and targets to help countries better prepare for and respond to future pandemics



Sharing of monitoring data, genetic data, samples, technology and their associated benefits



Strengthened national, regional and global resilience to – and capacities to tackle – future pandemics



A One Health approach that connects the health of humans, animals and the planet

Source: European Council

What dimensions should be covered in a Global Pandemic Treaty?

First, Prevention of pandemics and their early detection should be the topmost priority. This could be achieved with a more **robust country-reporting mechanism**, as well as through the more widespread use of **joint external evaluations** and better follow-up.

Second, Ensuring **universal and equitable access** (addressing vaccine inequities) to medical solutions, such as vaccines, medicines and diagnostics will **ensure resilience** to the future pandemics.


Third, there is a need to **ensure better surveillance** of pandemic risks. The monitoring of risks and knowledge-sharing on new infectious diseases spreading from animals to humans is crucial to the prevention of future pandemics. This could be achieved through: **(a) Increasing laboratory and surveillance capacity** required to identify animal diseases in all countries; **(b) Increasing cooperation** between research institutions worldwide. This will aid in the worldwide data collection process, which will help with a better understanding of the disease; **(c) Better coordination of international funding** for core capacities. This will ensure a better health system in developing or underdeveloped countries also.

Fourth, Better alert systems should be developed. Digital technologies and innovative tools for data collection and sharing as well as predictive analytics can **support real-time communication and early warnings** which should, in turn, trigger a **more rapid response**.

Fifth, the **WHO alarm mechanism must be reformed** by making the process of declaration of Public Health Emergency of International Concern (PHEIC) and enforcing travel restrictions more robust.

Sixth, A new pooled insurance mechanism could be established to share the risks associated with infectious disease outbreaks, while simultaneously using these financing resources to encourage compliance with a global pandemic treaty.

10 incentives and benefits of an international treaty on pandemics

- 1  Faster and better information for signatory countries about pandemic threats
- 2  Greater certainty for citizens regarding equitable access to pandemic countermeasures (e.g. diagnostics, medicines, vaccines)
- 3  Cost-effective solutions, based on regional and global planning, for stockpiling and production of pandemic supplies in, or near, a given country
- 4  A guaranteed "seat at the table" for national leaders at all treaty fora where decisions on pandemic preparedness and response will be taken
- 5  More secure global supply chains and sufficient healthcare workers during pandemics
- 6  Clarity about each country's core capacities
- 7  Insight into research and development on pandemic solutions, and better sharing of R&D solutions
- 8  Greater confidence that all partners are doing their part, through fair accountability systems
- 9  Integration of the 'one health' approach into the global health architecture, thereby improving prevention by connecting the health of humans, animals and the planet
- 10  Partnership and networking with national counterparts in overcoming the threat of future pandemics, and with all other relevant actors (international organisations, civil society, private sector)

Source: European Council

Some states have been **reluctant for the instrument to be a legally binding framework convention** because it would require ratification by every member state. They argue this would be a substantial political hurdle. However, in the absence of a legally binding framework, many countries might not comply with the requirements, thus rendering the treaty ineffective. Hence it must be legally binding.

Conclusion

The COVID-19 pandemic brought forward the gaps in the existing mechanisms to tackle global pandemics. The fact that the comity of nations under the aegis of WHO have agreed to negotiate a Global Pandemic Treaty indicates that have realized the existing system needs to be fixed. Now it must be ensured that the agreed framework fixes the lacunae. Most crucial aspects would be addressing vaccine equities, transparency in early reporting mechanisms and enhanced domestic capacities, especially in the developing/least-developed countries. Inability to address these gaps will leave the world vulnerable to a similar or even more deadly pandemic in future.

Syllabus: GS II, Global groupings and agreements involving India and/or affecting India's interests,

Source: [The Hindu](#), [The Hindu](#), [European Council](#), [Lancet](#)

[Kurukshestra September Summary] Tribal Development Strategies – Explained, pointwise

Introduction

Development of tribes of India has remained a central theme in India's development plans and strategies right since the Independence. However, challenges still exist today for India's Scheduled Tribes (STs) due to their traditional lifestyles, remoteness of habitations, dispersed population, and frequent displacement. STs constitute 8.6% (10.45 crore) of the total population of India (Census, 2011). Around 92% of the ST population lives in rural areas. While the proportion of the ST population to the total population has marked an increasing trend from 6.9% in 1961 to 8.6% in 2011, the socio-economic progress of ST people vis-à-vis the rest of the population in the country remained skewed on various development parameters. Various provisions have been provided in the Constitution to safeguard the interests of tribals. Governments have framed several policies and launched many programmes for Tribal Development, which have yielded mixed results.

Constitutional Safeguards

The creators and founding fathers of the Indian Constitution recognised the special needs of the STs and put in place certain special safeguards, which are enshrined in the Fundamental Rights, DPSP, and other special provisions laid out in the Constitution. These safeguards have been provided to **ensure social and economic justice** as well as to protect these communities from any other potential exploitation. These provisions lay down the basis of ensuring an equitable tribal development in India.

S.N	Articles/ Schedules	Provisions in Brief
1	14	Equality before the law or the equal protection of laws.
2	15	Government not to discriminate against any citizen on the grounds of religion, race, caste, sex, place of birth.

3	15(4)	States can make any special provisions for the advancement of any socially and educationally backward classes of citizens including STs.
4	16(4)	Reservation of appointments or posts by States.
5	38	State to strive to promote the welfare of its people by securing and protecting a social order.
6	46	State to promote educational and economic interests of all the weaker sections including STs.
7	164(1)	States with a large proportion of ST population (Bihar, Madhya Pradesh and Odisha) shall have a Minister-in-charge of tribal welfare.
8	275(1)	Grants-in-aid from consolidated funds of India for promoting the welfare of the STs and for raising the level of administration of the scheduled areas.
9	330, 332 and 335	Reservations of seats for ST in the Lok Sabha, the State legislative assemblies and services.
10	340	State to appoint a Commission to investigate the conditions of the socially and educationally backward classes.
11	342	State to specify tribes or tribal communities as STs.
12	275(1)	Grants from the Consolidated Fund of India each year to be released for promoting the welfare of the STs.
13	5th Schedule	Prescriptions outlined for the administration of Scheduled Areas and the setting up of Tribal Advisory Councils for monitoring and advising the matters relating to welfare of the tribal community and tribal development [Article 244(1)]
14	6th Schedule	Administration of Scheduled areas in the States of Assam, Meghalaya, Tripura, and Mizoram by designating certain areas as Autonomous Districts and Autonomous Regions and also by constituting District Councils [Article 244(2)],
15	73rd and 74th Amendments, Panchayats (Extension to the Scheduled areas Act 1996)	Major shift towards empowering and enabling the scheduled tribes to look after their own interest and welfare through their own initiative. PESA provides a constitutional, legal and policy framework to ensure sustainable autonomous tribal governance.

Plans and Programmes for Tribal Development

The policy makers and planners accorded utmost priority to the welfare and development of ST from the beginning of the First Five-Year Plan (1951-56). The Plan laid down the principle for suitably designing such programmes that could adequately cater to the needs of all the underprivileged. Special provisions were initiated towards securing effective and intensified developmental drives for the all-round development of STs. At the end of the First Plan, the Government recognised the **need for a concrete, integrated developmental planning** to improve the socio-economic conditions of STs in the country.

In the Second Plan (1956- 61), the Government **grouped development programmes** in Scheduled areas under four heads: **(a)** Communications; **(b)** Education and culture; **(c)** Development of tribal economy, and **(d)** Health, housing and water supply. An emphasis was laid on **economic development**, with the focus on **reducing economic inequalities** in society. The development programmes for ST were planned, based on respect and **understanding of their culture and traditions** and economic problems. In 1961, the Government opened 43 Special Multi-purpose Tribal Blocks, later termed as **Tribal Development Blocks (TDBs)**.

The Third Plan (1961-66) continued the earlier plans and policies for tribal development. The Fourth Plan (1969-74) vowed to realise a rapid rise in the standard of living of the people, ensuring equality and social justice to all. Six pilot projects in Andhra Pradesh, Bihar, Madhya Pradesh and Odisha were set up in 1971-72.

The Fifth Plan (1974-78) launched the **Tribal Sub-plan (TSP)** envisaging the percolation of direct benefits of development initiatives to the STs. The TSP aimed at the promotion of development activities to raise the level of living standards of STs. It also envisaged the protection of interest of the ST through legal and administrative support. The TSP also stipulated to **ensure accountability and transparency**, along with the flow of funds from other developmental sectors for ST, which was proportionate to the population.

The Sixth Plan (1980-85) **sought to ensure a higher degree of devolution of funds and earmarked poverty alleviation programme** for at least 50% of ST families to cross the poverty line. Infrastructural facilities in Scheduled areas were expanded to support tribal development. Seventh Plan (1985-90), the emphasis was on the economic development of STs by creating two national-level institutions viz. **(a) Tribal Cooperative Marketing Development Federation (TRIFED)** in 1987 as an apex body for **State Tribal Development Cooperative Corporations**; **(b) National Scheduled Castes and Scheduled Tribes Finance and Development Corporation**, which was later bifurcated into two separate corporations – one for SCs and other for STs. The existing NSTFDC started operating in April 2001. NSTFDC has tried to provide remunerative prices for the forest and agriculture produce of STs, and has made provisions for credit support for employment generation.

The Eighth Plan (1992-97) focused on eliminating the exploitation of ST and paid attention to their special problems of suppression of rights, land alienation, non-payment of minimum wages and restrictions on the **right to collect minor forest produce**, etc. The Ninth Plan (1997-2002) envisaged the creation of an enabling environment conducive for STs to exercise their rights freely, enjoy their privileges and lead a life at par with the rest of the society.

The Tenth Plan (2002-07) focused on tackling the unresolved issues in tribal development and problems faced by the tribal society on a time-bound basis. The Eleventh (2007-12) and Twelfth Plan (2012-17) consolidated the welfare measures and offered directions to the States to design proper and appropriate developmental activities specifically relevant for the development of STs. The Annual Plans thereafter through NITI Aayog of Government of India take care of development needs of STs in States. The Aayog, from time-to-time, issues guidelines for implementing Tribal Sub-Plans by Central Ministries/Departments. Central Ministries/ Departments have been mandated by NITI Aayog to earmark funds in the range of 4.3 to 17.5% of their total Scheme allocation every year for tribal development.

Socio-economic Status of STs

Livelihood Development

The erstwhile Planning Commission adopted the Tendulkar Methodology to estimate poverty incidence in India based on the survey results conducted by National Sample Survey Office

(NSSO). As per these estimates, ST People living below the poverty line in 2011-12 were 45.3% and 24.1% in the rural and urban areas, respectively.

Table 2: ST Population below Poverty Line during 2009-10 and 2011-12 (in %)

S. No.	State	Rural		Urban	
		2009-10	2011-12	2009-10	2011-12
1	Andhra Pradesh	40.2	24.1	21.2	12.1
2	Assam	32.0	33.4	29.2	15.6
3	Bihar	64.4	59.3	16.5	10.3
4	Chhattisgarh	66.8	52.6	28.6	35.2
5	Gujarat	48.6	36.5	32.2	30.1
6	Himachal Pradesh	22.0	9.5	19.6	4.0
7	Jammu & Kashmir	3.1	16.3	15.0	3.0
8	Jharkhand	51.5	51.6	49.5	28.7
9	Karnataka	21.3	30.8	35.6	33.7
10	Kerala	24.4	41.0	5.0	13.6
11	Madhya Pradesh	61.9	55.3	41.6	32.3
12	Maharashtra	51.7	61.6	32.4	23.3
13	Odisha	66.0	63.5	34.1	39.7
14	Rajasthan	35.9	41.4	28.9	21.7
15	Tamil Nadu	11.5	36.8	17.6	2.8
16	Uttar Pradesh	49.8	27.0	20.2	16.3
17	Uttarakhand	20.0	11.9	0.0	25.7
18	West Bengal	32.9	50.1	20.6	44.5
	All India	47.4	45.3	30.4	24.1

Source: Reproduced from Annual Report 2021-22, Ministry of Tribal Affairs, Government of India

Source: Kurukshetra

Table 4: Unemployment Rate (UR) for Scheduled Tribes (ST) and all from 2017-18 to 2019-20 (Figures in %)

Social Group	Rural			Urban			Rural+Urban		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
PLFS (2019-20)									
ST	3.7	1.8	3.0	7.1	8.0	7.3	4.1	2.3	3.4
All	4.5	2.6	4.0	6.4	8.9	7.0	5.1	4.2	4.8
PLFS (2018-19)									
ST	4.4	2.4	3.8	10.5	14.4	11.5	5.0	3.3	4.5
All	5.6	3.5	5.0	7.1	9.9	7.7	6.0	5.2	5.8
PLFS (2017-18)									
ST	4.9	2.2	4.0	7.0	7.6	7.1	5.1	2.6	4.3
All	5.8	3.8	5.3	7.1	10.8	7.8	6.2	5.7	6.1

Source: PLFS 2019-20, NSO, MOSPI, Reproduced from Annual Report of Ministry of Tribal Affairs, 2021-22

Source: Kurukshetra

Literacy and Education

The literacy rates (Census 2011) of the total population and ST population for all age groups in 2011 were 73.0% and 59.0% respectively. The youth literacy gaps between ST and all categories were recorded at 5.1 percentage points whereas for males and females the gaps were 7.1 and 14.7 percentage points, respectively. Such widening gaps between the literacy rates of the general population and ST indicate that the literacy drives of the Government are **yet to benefit all citizens of the country equitably**. In the case of STs, the dropout rates show a declining trend for primary, upper-primary.

Table 5: Literacy Rate by Age Group-Census 2011

All Categories (age groups)	Total			Scheduled Tribe		
	Person	Male	Female	Person	Male	Female
All Ages	73.0	80.9	64.6	59.0	68.5	49.4
10-14	91.1	92.2	90.0	86.4	88.3	84.4
15-19	88.8	91.2	86.2	80.2	85.7	74.6
20-24	83.2	88.8	77.3	69.2	79.6	59.0
Adolescent (10-19)	90.0	91.7	88.2	83.6	87.1	79.9
Youth (15-24)	86.1	90.0	81.8	75.0	82.9	67.1

Source: Office of the Registrar General, India, Reproduced from Annual Report of Ministry of Tribal Affairs, 2021-22

Source: Kurukshetra

Table 6: Drop-out Rates in School Education for Scheduled Tribe Students

Year/ Class	Primary			Upper-Primary			Secondary		
	Girls	Boys	Overall	Girls	Boys	Overall	Girls	Boys	Overall
2015-16	4.18	4.29	4.24	9.64	9.70	9.67	26.28	26.27	26.27
2016-17	3.91	3.96	3.94	8.60	8.69	8.64	27.15	27.85	27.51
2017-18	3.48	3.82	3.66	6.14	5.95	6.04	21.36	22.90	22.14
2018-19	5.23	5.72	5.48	6.46	6.89	6.69	23.38	26.40	24.93
2019-20	3.45	3.90	3.69	5.65	6.15	5.90	22.49	25.51	24.03

Source: Unified District Information System for Education Plus (UDISE+), Ministry of Education, Reproduced from Annual Report of Ministry of Tribal Affairs, 2021-22

Source: Kurukshetra

Providing education is key to equitable tribal development. To address the issues of literacy and drop-outs from formal education and lower enrolment ratios, ST students have been accorded **special incentives** through the provision of **free textbooks, uniforms, and free education in schools**. Residential schools have been built exclusively for the ST students, and the cost of boarding and lodging is borne by the Government. A special focus has also laid on ST students under **District Primary Education Programme, Kasturba Gandhi Balika Vidyalaya, Mid-day Meals Scheme, and Navodaya Vidyalaya**. While the construction of girls' hostels was started during the Third Plan period, a separate scheme for the construction of hostels for Scheduled Tribe boys was launched in 1989-90. **Tribal schools have been established in TSP areas** from 1990-91 onwards.

The Government has also been providing quality education to the ST students by utilising a part of funds under Article 275(1) of the Constitution of India for setting up **280 Eklavya Model Residential Schools (EMRS)** in 20 States from Class VI to Class XII. This initiative was launched during 1997-98 with an objective to enable ST students to avail the facility of reservation in higher and professional education courses as well as in/higher level jobs in the government and various public sector undertakings. This programme was revamped on September 12, 2019.

Entrepreneurship and Skill Development

Under Skill India Mission, the Ministry of Skill Development (MSDE) has been delivering short-term skills through **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**, **Jan Shikshan Sansthan (JSS)** Scheme, **National Apprenticeship Promotion Scheme (NAPS)**, **Stand-up India** program, and long-term skills through **Craftsman Training Scheme (CTS)** and Industrial Training Institutes (ITIs) to the youth belonging to all section of the society including tribal community.

All of the above tribal development schemes have the mandatory provision of utilisation of funds for tribals through Scheduled Tribes (ST) component. While resources are not an issue, the prime concern is how to encourage the participation of youth, employable ST in various vocations by mapping their needs and aspirations.

Conclusion

Plans and Programmes of the government have continuously facilitated the socio-economic development of ST population. However, the achievement is skewed across States. The poverty gap between ST and all populations living below poverty line shows that ST are more backward economically. Most of the ST who are living under poverty line are landless agricultural labourers having minimal or no access to productive assets.

The Government has identified the problems and designed the ways and means to overcome the problems through various social, economic, and political initiatives. There is a need to popularise a **tribal-specific participatory self-governance system** where the STs will choose their own destiny by managing their own resources and empowering themselves in the **tribal-participative and tribal-managed tribal development process**. Extra efforts could be made to enhance skill and knowledge base of the ST youth through the provision of need-based training and skill upgradation. Since a majority of the tribal community is dependent on minor forest produce and low-productive agriculture, efforts need to be made to make them more productive. **Cooperation, Coordination, and Convergence** are required for the effective implementation of scheme dedicated to the upliftment of STs.

Syllabus: GS II, Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

Source: Kurukshetra September 2022

India Japan Relationship – Explained, pointwise

Introduction

The 2+2 Ministerial Meeting between Defence and External Affairs Ministers of India and Japan was recently held in Tokyo, Japan. In the Joint Statement issued after the meeting, both India and Japan acknowledged the need of global cooperation to address acute security challenges and reaffirmed their commitment to a rules-based global order that respects sovereignty and territorial integrity of nations. In recent years, the India Japan relationship has steadily expanded and deepened. Both India and Japan share a global vision of peace, stability and prosperity, based on sustainable development. They also share democratic values and commitment to human rights, pluralism, open society, and the rule of law underpin the global partnership between the two countries.

How has the India Japan Relationship evolved?

India and Japan share a historical close relationship that has existed since ancient times. The exchange is said to have begun in the 6th century when Buddhism was introduced to Japan. Indian culture, through the influence of Buddhism, has had a profound impact on Japanese culture. Throughout the various phases of history since contacts began, the two countries have never been adversaries.

After World War II, India and Japan signed a peace treaty and established diplomatic relations in April, 1952. This treaty was one of the first peace treaties Japan signed after World War II. India Japan relationship has traditionally been strong particularly so since the beginning of India's "Look East" policy in the 1990s. Japan was among the few countries that bailed India out of the balance of payment crisis.

The India Japan relationship was elevated to '**Global and Strategic Partnership**' in 2006. Strong bilateral trade and aid relations have expanded toward security-based relations. The relationship has been pursued with a new vigour since the visit by the Japanese Emperor and Empress in 2013 and the PM Shinzo Abe in January 2014. The relationship was further elevated to '**Special Strategic and Global Partnership**' in September 2014.

Both India and Japan are looking to increase their presence in the Asia-Pacific, alongside the United States. Concerns regarding China's intentions in the region have led to strengthened trilateral cooperation, but none of these countries wish to threaten China with the developing partnership. Rather, policy and security coordination between these three countries can benefit the entire Asia-Pacific region.

What is the current status of India Japan Relationship?**Strategic and Defence Cooperation**

The **Joint Declaration on Security Cooperation** between India and Japan was issued in October 2008. There are also various frameworks of security and defense dialogue between Japan and India including Foreign and Defense Ministerial Meeting (**'2+2' meeting**), annual Defense Ministerial Dialogue and Coast Guard-to-Coast Guard dialogue. The first '2+2' meeting was held in November 2019.

In September 2020, the Agreement concerning **Reciprocal Provision of Supplies and Services (RPSS)** between the Self-Defense Forces of Japan and the Indian Armed Forces was signed (**'Acquisition and Cross-Servicing Agreement'** or ACSA). ACSA enables **mutual logistics support**, including accommodation and food, during joint exercises and training. India is one of 5 countries with which Japan has an ACSA, along with Australia, Canada, the UK and the US. ACSA has enabled increased maritime security cooperation in the Indo-Pacific region.

Indian and Japanese forces regularly hold joint exercises like **Shinyuu Maitri** (Air Force), **Dharma Guardian** (Army), **JIMEX** (Navy), **Sahyog-Kaijin** (Coast Guard) and **Malabar** (Navy, multilateral).

Both India and Japan support each other's candidature for permanent membership in UN Security Council's expansion. Japan supported India's inclusion to Missile Technology Control Regime and India joined the group in 2016. Strategic and Defence cooperation is a key dimension of India Japan relationship.

Trade

India and Japan signed Comprehensive Economic Partnership Agreement in 2011. The economic cooperation has made a rapid progress since 2014. Japan is regarded as a key partner in India's economic transformation. Japan's interest in India is increasing due to reasons like India's large and growing market and its resources. India Japan bilateral trade stood at US\$ 13.7 billion in 2020, with Indian exports worth US\$ 4.3 billion and imports worth US\$ 9.4 billion. India's primary exports to Japan have been petroleum products, chemicals, non-metallic mineral ware, fish & fish preparations, metalliferous ores & scrap, clothing & accessories, iron & steel products, and machinery etc. India's primary imports from Japan are machinery, electrical machinery, iron and steel products, plastic materials, non-ferrous metals, parts of motor vehicles, organic chemicals, manufactures of metals, etc.

Investments and Development Assistance

Between 2000-2019, Japan has invested ~US\$ 32 billion. It now ranks 3rd among major investors in India. Japanese FDI into India has mainly been in automobile, electrical equipment, telecommunications, chemical, financial (insurance) and pharmaceutical sectors.

Japan is the **largest bilateral donor for India**. Japanese ODA (Overseas Development Assistance) supports India's efforts for **accelerated economic development** particularly in priority areas like power, transportation, environmental projects and projects related to basic human needs. Several high-profile infrastructure projects crucial for India's economic transformation like the **Mumbai-Ahmedabad High Speed Rail**, the **Western Dedicated Freight Corridor** (DFC), the **Delhi-Mumbai Industrial Corridor** with 12 industrial townships, the **Chennai-Bengaluru Industrial Corridor** (CBIC) are being supported by Japanese assistance.

Digital Partnerships and Start-ups

'India-Japan Digital Partnership' (I-JDP) was launched in October 2018. In May 2018, both countries signed the Joint Statement on Japan-India Startup Initiative setting up the first Startup Hub in Bangalore. Collaboration in start-ups has emerged as a vibrant aspect under this

Partnership. Till date Indian start-ups have raised more than US\$ 10 billion from Japanese Venture Capitalists (Softbank being the largest investor).

Science and Technology

The bilateral **Science & Technology Cooperation Agreement** was signed in 1985 and it underpins the bilateral S&T cooperation. The **India-Japan Science Council (IJSC)** was established in 1993. It has so far supported 250 joint projects. Several Institutional Agreements/ MoUs in the areas of life sciences, material sciences, high energy physics, ICT, biotechnology, healthcare, methane hydrate, robotics, alternative sources of energy, earth sciences, outer space etc. have been signed between the science agencies of both countries. The **India-Japan Agreement for Cooperation in the Peaceful Uses of Nuclear Energy** came into force in 2017. Both countries also have cooperation in the field of ICT, in areas such as 5G, telecom security, submarine fibre optic cables, smart-city technologies etc.

Technology cooperation has also increased through the Quad and provided a new dimension to India Japan relationship. Quad has established a critical and emerging technology working group, focused on technology principles, standards development, telecommunications, monitoring of technology trends, and critical technology supply chains.

Skill Development

An MoC was signed in 2016 to train 30,000 shop floor leaders. Japanese companies have established 12 **Japan India Institute of Manufacturing (JIM)** in India and 4 Japanese Endowed Courses (JEC) in Indian Engineering Colleges. An MoC has also been signed on **Technical Intern Training Programme (TITP)**.

Other Areas of India-Japan Cooperation

- **Healthcare:** In view of the similarities between the goals and objectives India's AYUSHMAN Bharat Programme and Japan's AHWIN, both sides had been consulting each other to identify projects for collaboration. Both sides have concluded a MoC to formalize cooperation in the field of Healthcare.
- **Act East Forum:** It was established in 2017 and aims to provide a platform for India-Japan collaboration under the rubric of India's 'Act East Policy' and Japan's 'Free and Open Indo-Pacific Vision'. The objective is to coordinate developmental projects in North-East India in areas of connectivity, forest management, disaster risk reduction and capacity building.
- **Supply Chain Resilience Initiative (SCRI):** The Trade and Economy Ministers of India, Japan and Australia launched the (SCRI) in April 2021. The initiative seeks to **enhance the resilience of supply chains** in the Indo-Pacific Region and to develop dependable sources of supply and to attract investment.
- **Disaster Risk Reduction:** India and Japan signed an MoC in the field of Disaster Risk Reduction in 2017. India and Japan have jointly organized a series of workshops to exchange information on policy and measures on disaster risk reduction.

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What are the issues limiting India Japan Relationship?

First, Japan has a strained relationship with Russia. India continues to pursue its strategy of 'multi-alignment' and 'strategic autonomy', balancing relations between the West and Russia. India remains heavily reliant on Moscow for the support of key capabilities in its armed forces.

By contrast, Japan's interest lies in taking a united position against Russia to defend the rules-based order.

The response of India and Japan to Russia's invasion in Ukraine is also in stark contrast. Japan also objected to Russia's holding of maritime component of Vostok-2022 exercises near [Kuril Islands](#). India has participated in Vostok exercises.

Second, despite expansion in economic ties, the trade between India and Japan is limited and far below potential. Japan barely makes to India's top 15 trading partners. India-Japan bilateral trade is less than one-fifth of India-China trade.

Third, on multiple global issues (especially issues related to developing vs developed nations gap) India and Japan end up on opposite sides. These include trade related aspects at the WTO like India's tariff structure on imports.

Fourth, The Asia Africa Growth corridor has not achieved much so far. The joint infrastructure projects in Africa has remained limited in outcomes. Similarly, Japanese companies face considerable logistics challenges in their projects in India.

What steps can be taken to further deepen India Japan Relationship?

First, The governments of both countries should work together to remove bottlenecks hampering bilateral trade. Facilitating trade will help achieve its full potential. Trade can be the most potent pillar of India Japan relationship. As of now India-Japan trade is ~5% of Japan-China trade.

Second, despite their differences on Ukraine issue, India and Japan must work together and effectively promote peace in the region. This will require continued exchanges, clear communication, skilful diplomacy and unwavering political will from both partner states with a dedicated focus on building trust.

Third, Both the countries can work on strengthening industrial competitiveness which would also help building supply chain resilience. Moreover, Japan can support India's quest to become a global semi-conductor chip manufacturing hub.

Fourth, Japan should look at more ways to accept specified skilled workers from India and help boost the digitalisation process in Japan by using the Indian IT Professionals

Fifth, there is a need to expand the partnership in the domain of Science and Technology like establishing a safe and reliable 5G network, building better space technology, renewable energy and green energy solutions (including green hydrogen), blockchain, Artificial Intelligence/Machine Learning (AI/ML) technologies.

Sixth, the cooperation in the field of infrastructure can be extended to cooperate more in India's Northeast region. Japan can support development of India's connectivity projects with the South East Asian nations. They should also work on building greater interconnectivity among ports in India, Japan and other friendly countries in the Indo-Pacific region. This will add a new multilateral dimension in India Japan relationship.

Conclusion

India and Japan are great democracies and aim at the ideals of a value-based order. The need to form the rules-based order was needed to tackle Chinese assertiveness and expansionism in the Indo-Pacific region. Further, India and Japan aim to form a new security architecture which mainly covers maritime security and cooperation. Therefore the deepening of India Japan relationship is not only important for the two countries, but also for the Indo-Pacific region and will encourage peace, prosperity and stability for the world. It is time to consolidate this shared heritage and to cooperate for a better and more prosperous tomorrow .

Syllabus: GS II, India and its neighbourhood relations

Source: [Indian Express](#), [Ministry of External Affairs](#), [ORF](#), [Ministry of Foreign Affairs, Japan](#),

Climate Reparation: Loss and Damage – Explained, pointwise

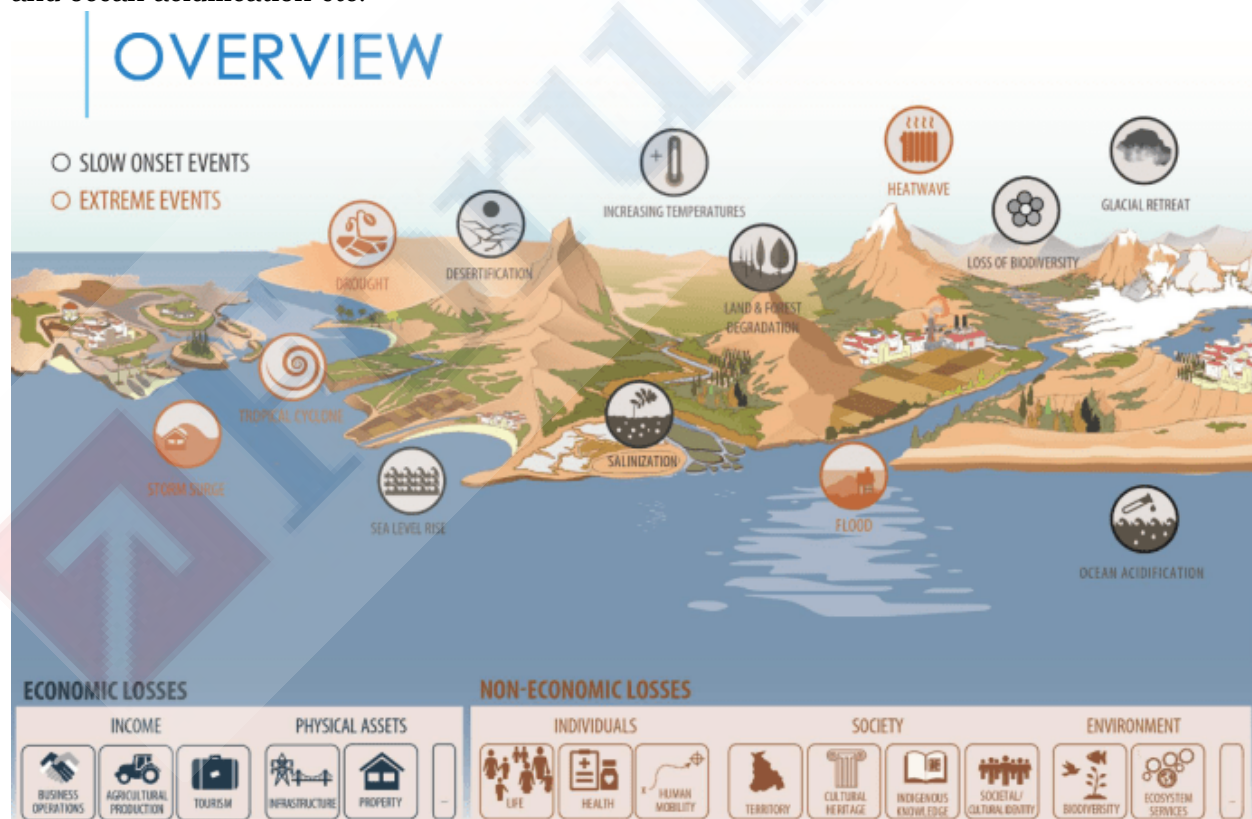
Introduction

Extreme weather events are becoming more frequent and severe, as climate change is becoming evident. The most recent extreme event occurred in Pakistan. According to media reports, at least 33% of the country's territory became inundated leading to displacement of more than 33 million people (~15% of the population). Experts have called them the worst floods in a century. The floods were preceded by extreme heatwaves in April/May (in the Indian Sub-continent). Pakistan has demanded compensation from developed countries that are being held responsible for climate change. Climate Reparations (or Loss and Damage) has been demanded by many developing countries, most notably, by small island States. Developing countries have very little historic contribution to Green House Gas (GHG) emissions that are responsible for global warming and climate change. However, they are most vulnerable to extreme events due to climate change.

Since the formation of the UN Framework Convention on Climate Change (UNFCCC), vulnerable nations have been calling on developed countries to provide financial assistance that can help them address loss and damage due to climate change. There has been little movement in this regard.

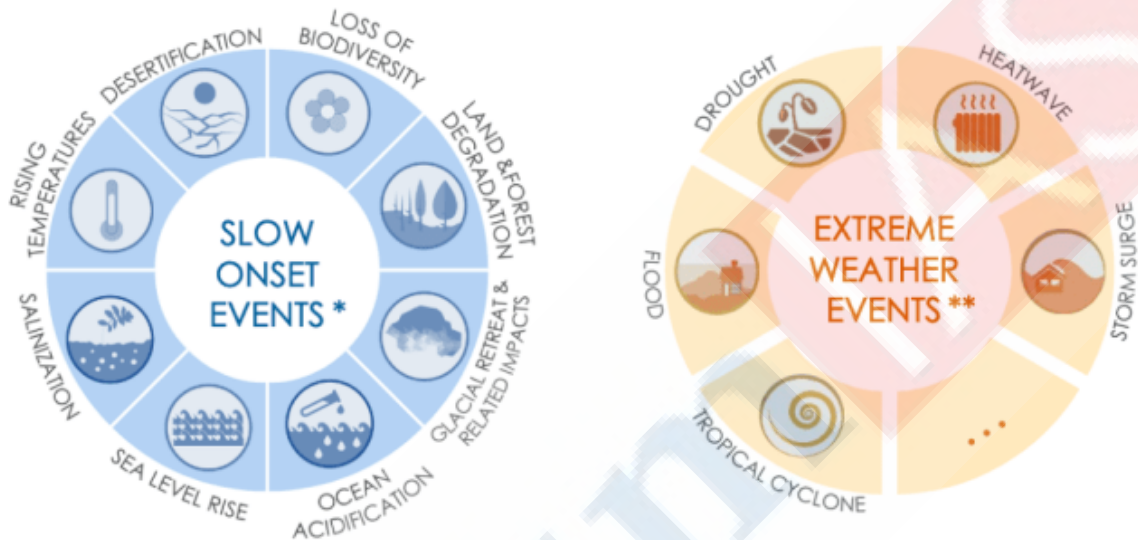
What is 'Loss and Damage'?

Events occurring due to climate change are having a deep impact on human lives and economic activities. It has increased the frequency of **extreme weather events** like floods, cyclones etc. It is also contributing to **slow onset events** like desertification, loss of biodiversity, sea level rise and ocean acidification etc.



IMPACTS OF CLIMATE CHANGE

Impacts of climate change include slow onset events* and extreme weather events which may both result in loss and damage.



Source: UNFCCC, Guide to Loss and Damage

These events due to climate change are responsible for both **economic** and **non-economic losses**. Economic losses can be measured in monetary terms e.g., damage to infrastructure/property or agriculture production (in INR or US\$). Non-economic losses are intangible and can't be accurately measured in monetary terms e.g., loss of human life, biodiversity, cultural heritage or indigenous knowledge. For instance, Communities in Kosrae, Micronesia, have lost burial grounds due to coastal erosion caused by sea level rise. Loss of sea ice in the Arctic has affected the cultural identity and hunting practices among Inuit communities.



Economic losses can be understood as the loss of resources, goods and services that are commonly traded in markets.



Non-economic losses can be understood as the remainder of items that are not commonly traded in markets.

Source: UNFCCC, Guide to Loss and Damage

People, communities and nations can adapt to some of these events. For other events, adaptation is not possible, or there is a lack of resources to adapt.

There is no official definition of ‘**Loss and damage**’. It is a general term used in UN climate negotiations to refer to the consequences of climate change that go beyond what people can adapt to; or when adaptation is possible but a community doesn’t have the resources to access or utilise them. A close definition is found in the literature review commissioned by the UNFCCC.

	Loss	Damage
UNFCCC (2012)	The negative impacts in relation to which reparation or restoration is impossible , such as loss of freshwater resources.	The negative impacts in relation to which reparation or restoration is possible , such as windstorm damage to the roof of a building, or damage to a coastal mangrove forest as a result of coastal surges.

The **developing countries are more vulnerable to climate change events**, both due to **frequency of events** as well as **lack of resources to adapt**. According to a study, 6 of the world’s 10 most affected countries (between 1996-2015) by extreme weather events were in Asia. Under the Loss and Damage framework, **developing countries demand compensation from developed countries for losses/damages suffered due to climate change events**.

Two vital arguments in the context of Loss and Damage are “Historic Emissions Argument” and “Polluter Pays Principle”.

‘Historical Emissions’ and ‘Polluter Pays’

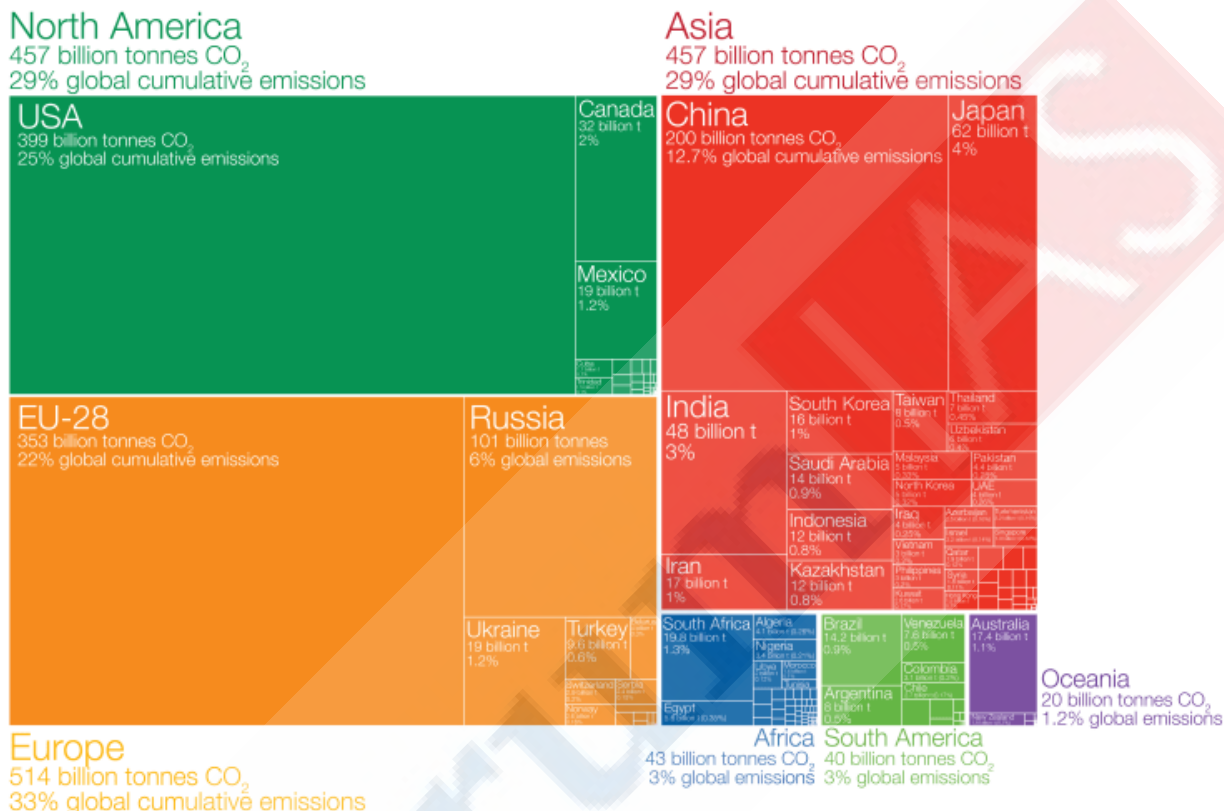
At its core, the demand for compensation for loss and damage from climate disasters is an extension of the universally acknowledged “Polluter Pays” principle that **makes the polluter liable** for paying not just for the **cost of remedial action**, but also for **compensating the victims** of environmental damage caused by their actions.

In the climate change framework, the burden of responsibility falls on developed countries that have contributed most of the greenhouse gas emissions since 1750 (considered to be the beginning of the industrial age). The United States and the European Union, including the UK,

account for ~47% of all emissions since 1750. Inclusion of Russia, Canada, Japan and Australia takes this contribution to ~60%.

Who has contributed most to global CO₂ emissions?

Cumulative carbon dioxide (CO₂) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO₂ produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade (i.e. consumption-based). Emissions from international travel are not included.



Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.

Source: Our World in Data

Historical responsibility is important because carbon dioxide remains in the atmosphere for hundreds of years (300-1000 years according to NASA). It is the cumulative accumulation of carbon dioxide that causes global warming. India, currently the 3rd largest emitter, accounts for only 3% of historical emissions.

Developing Countries that have had negligible contributions to historical emissions and have severe limitations of resources are the ones that face the most devastating impacts of climate change. Hence they demand climate reparations from developed countries.

What is the difference between mitigation, adaptation and addressing Loss and Damage?

Under the Paris Climate Agreement, countries recognized the importance of **'averting, minimising and addressing'** loss and damage.

Loss and damage can be 'averted' by **curbing greenhouse gas emissions (mitigation)**. It can be 'minimised' by **taking preemptive action to protect communities** from the consequences of climate change (**adaptation**).

'Addressing' loss and damage is the third pillar of climate action: helping people **after they have experienced climate-related impacts**.

Climate adaptation measures include: **(a)** Protecting communities from sea level rise by helping them move to higher ground; **(b)** Preparing for extreme weather disasters by investing in early

warning systems; **(c)** Protecting food supplies; **(d)** Switching to drought-resistant crops among others.

Loss and damage happens when efforts to reduce emissions are not ambitious enough and when adaptation efforts are unsuccessful or impossible to implement, sometimes due to limited resources.

The IPCC's 6th Assessment Report (WGII) observes that as the magnitude of climate change increases, the ability to adapt decreases. It has defined soft and hard adaptation limits. **'Soft Adaptation Limits'** are when adaptation options exist but communities don't have the financial resources needed to adopt them. **'Hard Adaptation Limits'** are those when climate change becomes so extreme that no amount of resources can avert or minimize loss and damage. Coral reefs offer a good example of where adaptation is likely to reach its limits. The IPCC found that 70-90% of tropical coral reefs will die by mid-century even if temperature rise is limited to 1.5°C (and nearly total loss under the 2°C scenario). This will lead to irreversible losses of biodiversity and have a major impact on coastal communities that eat and sell fish that live along the reefs.

Read More: [The IPCC Sixth Assessment Report \(Part 2\) – Explained, pointwise](#)

What actions has the international community taken to address Loss and Damage?

At the drafting stage of the UNFCCC in 1991, it was proposed by the Alliance of Small Island States to create an insurance scheme to provide financial resources to countries impacted by rising sea levels. Each country would contribute resources according to their relative contribution to global emissions. The proposal was rejected, and Loss and Damage was not mentioned in the Framework Convention adopted in 1992.

Loss and damage first appeared in the negotiated outcome of the UN climate talks in 2007 as part of the **Bali Action Plan**. In 2013, **Warsaw International Mechanism** (WIM) was formed to avert, minimise and address loss and damage. The WIM has been mandated to **share knowledge, strengthen dialogues** among stakeholders and **mobilise expertise** to enhance action and support to address loss and damage. But **neither the WIM nor any other established mechanism delivers funding** to help countries manage loss and damage.

Loss and Damage is mentioned in Article 8 of the Paris Agreement. However, there is no reference to provision of finance for climate reparation/compensation in this Article.

At COP26 in Glasgow, a large coalition of climate-vulnerable countries advocated for creating a new finance facility or fund dedicated to loss and damage. The proposal for loss and damage financing was once again rejected by developed countries.

A 2-year **Glasgow Dialogue** was established at the COP26. It will discuss possible arrangements for loss and damage funding. It was also agreed to **operationalise and fund the Santiago Network on Loss and Damage** (SNLD).

Santiago Network on Loss and Damage (SNLD)
The Santiago Network is a network to enable Loss and Damage fund flow from developed to developing countries. It will work towards the implementation of relevant approaches at the local, national and regional level, in developing countries that are particularly vulnerable to the adverse effects of climate change.

The first session of the Glasgow Dialogue took place at the Bonn UN climate negotiations in June 2022. In Bonn, the developed nations acknowledged the need to deal with loss and damage, but didn't commit on any steps they would be willing to take to address the problem. The negotiations also saw limited progress on how to design the SNLD.

How much funding currently goes toward addressing loss and damage, and how much is needed?

According to a recent report by the UN Office for the Coordination of Humanitarian Efforts (UNOCHA), annual funding requests related to climate-linked disasters averaged **US\$ 15.5 billion** in the 3-year period between 2019 and 2021. The economic loss from cyclone Amphan in India and Bangladesh in 2020 has been assessed at US\$ 15 billion.

A paper published by researchers at the Basque Centre for Climate Change (Spain) estimates that the economic costs in developing countries from damages will increase from **US\$ 116-435 billion in 2020** to US\$ 290-580 billion in 2030, and could reach between **US\$ 1-1.8 trillion by 2050**.

An Oxfam research found that funding appeals linked to extreme weather events are 8 times higher than they were 20 years ago.

Despite the recent mention in the IPCC WGII report that about 24% of the Green Climate Fund's approved projects refer to loss and damage, it's difficult to clearly identify the amount of funding available for loss and damage. The **lack of an agreed definition makes it hard to tag projects** that could be considered loss and damage and obscures its relation to adaptation and mitigation.

What should be done going ahead?

First, it is necessary to arrive at an agreement on a definition of Loss and Damage. The lack of an agreed definition makes it hard to tag projects that could be considered loss and damage and obscures its relation to adaptation and mitigation.

Second, Climate plans and policies should account for loss and damage alongside mitigation and adaptation. The developed countries have to acknowledge their historical contributions and provide funding for both adaption/mitigation as well as Loss and Damage measures.

Third, At COP27, it will be important for negotiators to find a workable pathway and start helping communities that are already suffering and have no mechanism for financial support.

Fourth, To receive funding for loss and damage, it has to be established that the disaster was caused by climate change. Climate science has come a long way and is now advanced enough to enable scientists to say with a fair degree of certainty how much role climate change has had to play in a particular extreme weather event. But it is still far from being an exact science. Further advancements are necessary in climate science which will provide a solid basis for Loss and Damage finance.

Conclusion

The developed countries have continued to dilute their obligations since the UNFCCC came into existence in 1992. Kyoto Protocol failed to achieve its outcome, the promise to provide US\$ 100 billion annually in climate finance has remained unfulfilled. They have repeatedly blockaded the attempts to establish Loss and Damage finance. As the impacts of climate change are becoming more and more apparent, developed countries must own up their responsibility and provide immediate assistance to the suffering countries. Else the situation is only going to get worse from here.

Syllabus: GS III, Conservation, Environment Pollution and Degradation

Source: [Indian Express](#), [World Resources Institute](#)