ForumIAS

7 PM COMPILATION

3rd and 4th Week April, 2025

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- 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
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RARE EARTH MINERALS – Significance & Challenges – Explained pointwise

Recently, China has suspended exports of certain rare earth minerals & magnets that are crucial for the world's car, semiconductor & aerospace industries. The Chinese government ordered restrictions on the export of six heavy rare earth metals, which are refined entirely in China, as well as rare earth magnets, 90 percent of which are produced in China in retaliation to the increase in tariff on the Chinese imports by the USA's President Trump.

What are Rare Earth Elements, their characteristics & sources?

- Rare earth elements (REEs) are a group of 17 chemically similar metallic elements in the periodic table. It comprises **15 lanthanides elements** (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium), plus **Scandium** and **Yttrium**.
- The rare earths are actually not 'rare' in nature; they occur abundantly but are often not concentrated enough to undertake viable extraction.
- **Characteristics**: REEs are characterized by high density, high melting point, high conductivity, and high thermal conductance. REEs are classified into Heavy REE and Light REE.
- **Sources**: REEs do not occur in a free state. They are found in mineral oxide ores. The principal sources of rare earth elements are **Bastnaesite**, **Xenotime** (commonly found in mineral sand deposits), **Loparite** (occurs in alkaline igneous rocks) and **Monazite**.

What is the utility of Rare Earth Elements?

1. Rare earths are used in small quantities but have **qualities that make them essential**. For example, **Neodymium** is a critical component for permanent magnets and has the ability to carry material 1,300 times its own weight. Neodymium-based permanent magnets are key components in **EV traction motors and wind turbines**. Like neodymium, **Dysprosium** is also an important component of permanent magnets that will be used in EVs and wind turbines.

2. Europium is necessary for **LED bulbs and colour television screens**. **Samarium** is used in **optical lasers.**

3. Several rare earths also have important uses in emerging hi-tech medical technologies. Further they make the refining of crude oil into gasoline more efficient and are used in many specialty metal alloys. Their sector-wise uses include:

- **Aerospace and Defence:** Used in precision-guided munitions in missiles, high-power sonar on ships and submarines, stealth helicopters, etc.
- **Healthcare**: used in medical imaging devices, such as MRIs, modern surgical machines.
- **Clean Energy**: Used in wind turbines, electric car batteries and energy-efficient lights (LEDs and CFLs).
- **Nuclear Energy**: useful for controlling nuclear reactions and is used in control rods.
- **Electronics**: Used as phosphors in cathode ray tubes, fluorescent lamps and X-ray intensifying screens.
- **Chemicals, Oil Refining, and manufacturing**: Make the refining of crude oil into gasoline more efficient and are used in many specialty metal alloys.

What is the current status with respect to the reserves of Rare Earth Elements?

National:

- India is almost 100% import dependent for most rare earths. However, India has great potential for domestic production as it possesses the 5th highest reserves of rare earths in the world.
- In India, significant rare earth minerals found are **ilmenite, sillimanite, garnet, zircon, monazite**, and **rutile**, collectively called **Beach Sand Minerals** (BSM).

- Monazite is the principal source. Monazite is mainly found in Odisha, Andhra Pradesh, Tamil Nadu, Kerala, West Bengal, and Jharkhand. According to the India Minerals Yearbook (2019), India had 12.47 million tonnes of Monazite Resources.
- They are classified as atomic minerals and are therefore not at par with other minerals. The reason that they are classified as atomic minerals is because some of these elements occur in the earth's surface along with thorium and uranium which are radioactive minerals.

International:

- The total world reserves are estimated at 120 million tonnes of Rare Earth Oxides equivalent content (REO). Out of this, **China** alone accounts for 44 million tonnes followed by **Vietnam** and **Russia**.
- China holds the leading position among producers of rare earth oxides with 140 thousand tonnes. The other major producers are **Myanmar, Australia, USA, Russia** and **Malaysia**.
- Concentrated/partially-processed intermediate products are further processed at many locations in Europe, USA, Japan and China.

What is the strategic significance of Rare Earth Elements?

1. Multiple Uses: They are used in multiple hi-tech applications and processes like EVs, Medicinal appliances, LEDs etc. that domestic production of such elements becomes inevitable.

2. Rising Demand: The multifarious uses of rare earth elements in new age technologies shows that their demand is going to rise in future. For instance, the current demand of **Neodymium** in India is small, at around 900 tonnes per annum, because domestic manufacturing of EVs and wind turbines is still limited. However, as manufacturing of EVs and wind turbines picks up, the demand for neodymium is estimated to rise sharply by 6-7 times by 2025 (6,000 tonnes) and by 18-20 times by 2030 (20,000 tonnes).

3. Reducing Import Bill: India is almost 100% import dependent for most rare earths which creates a huge pressure on foreign exchange. Further, prices of rare elements are consistently rising due to the rising demand. For instance, the global price of neodymium has risen sharply from under US$ 100 per kg in 2018 to over US$ 200 per kg at present.

4. Highly Concentrated Supply Chain (CHINESE DOMINANCE): The global supply scenario for rare earths is highly concentrated, much more than oil and hydrocarbons, which poses a strategic challenge. Until 2023, China produced 99 percent of the world's supply of heavy rare earth metals, with a trickle of production coming out of a refinery in Vietnam. But that refinery has been closed for the past year because of a tax dispute, leaving China with a monopoly. China also produces 90 percent of the world's nearly 200,000 tons a year of rare earth magnets, which are far more powerful than conventional iron magnets. Japan produces most of the rest and Germany produces a tiny quantity as well, but they depend on China for the raw materials. In 2010, following a dispute with Japan over Senkaku Islands in the East China Sea, **China shut down exports of Rare Earth Elements to Japan**. Recently, China halted the export of critical minerals in retaliation for the Tariff War initiated by the USA's President Trump. Given India's border dispute, China might resort to similar tactics in future.

5. Huge potential: India has greater reserves than the US and Australia, only behind China, Vietnam, Russia, and Brazil. With Russia embroiled in conflict, the onus is on India to emerge as a supplier not just for domestic use but for international consumption.

What are the reasons behind the limited production of Rare Earth Elements in India?

1. Rare earth materials are not concentrated enough in many geographical locations with respect to **commercial viability**. It is expensive to commercially produce them.

2. At present they are classified as atomic minerals. The **mining for rare earths is reserved exclusively for government companies**. Currently, there are only two companies – **Indian Rare Earths Ltd** (IREL, owned by

GoI) and **Kerala Minerals and Metals Ltd** (owned by Kerala government) that can mine them. Further, their production capacities and technological capabilities are limited which is why India is import dependent.

3. IREL's primary source of revenues is not rare earths. Most of its income comes from the production and marketing of other minerals contained in beach sands. Since its revenue does not depend upon rare earth elements, **IREL has little need to produce and research**. IREL has poor incentives to refocus itself as a globally competitive rare earth extraction and processing firm. This has restricted India to be a low-cost exporter of rare earth oxides instead of higher value-added products.

4. The present system (clubbing rare earth elements with atomic minerals) ends up **separating the rare earths ecosystem from other R&D ecosystems** like electronics or metallurgy. This severely impacts the overall umbrella of strategic research, undercutting the interdisciplinary nature of modern research work. R&D is dominated by DAE and the Bhabha Atomic Research Centre (BARC), with negligible participation by the Academia and private sector. The situation is similarly disintegrated with regards to exploration. The Geological Survey of India (GSI), Mineral Exploration Corporation Limited (MECL) and Atomic Minerals Directorate for Exploration and Research (AMD) operate in overlapping spheres while working in siloes.

5. Beach sand mining was permitted until a few years ago but was **banned in 2016** in an attempt to conserve strategic minerals including rare earths and thorium.

What steps can be taken to boost domestic production?

1. The Ministry of Mines has recently proposed moving the 17 rare earths elements outside the ambit of atomic minerals so that commercial mining by private entities and other PSUs can take place. Further, Private players can be mandated not to extract thorium and uranium from monazite rock or beach sands and restrict themselves to rare earths.

2. Based on availability and criticality of rare earths, the **Ministry of Mining has conducted an analysis for prioritizing efforts in both exploration and foreign acquisition**. India has an established relative abundance of Light Rare Earths: elements from Lanthanum to Samarium. The initial focus can be on extraction of these elements. Efforts are already on to discover Lithium deposits as well. A joint venture of 3 PSUs, named **Khanij India Bidesh Limited (KABIL)**, has been entering into long-term contracts for India's critical mineral needs.

3. The government can create a new **Department for Rare Earths (DRE)** under the Ministry of Mines. This DRE should oversee policy formulation and focus on attracting investment and promoting R&D. It could coordinate with other agencies to **partner directly with groupings such as the Quad**. This will help in building up a strategic reserve as a buffer against global supply crises.

4. The government should also create an autonomous regulator, the **Rare Earths Regulatory Authority of India (RRAI)**. It would resolve disputes between companies in this space and check compliance.

5. IREL can be de-merged into two different entities with appropriate amendments to the Atomic Energy Act. One entity can focus exclusively on Thorium extraction and can be retained under the Department of Atomic Energy. The other entity can specialise in other available rare earth processing and can be under the control of the proposed DRE.

6. A **consolidation in the exploration of rare earths is necessary**. The National Mineral Exploration Policy, 2016 had a proposal to set up the **National Centre for Mineral Targeting** (NCMT) to replace the present system of having committees within the Geological Programming Board of the Geological Survey of India. NCMT has not been created yet.

7. Private industry must be incentivised and enabled to set up processing capabilities beyond the extraction phase. Such a move will be crucial for higher value added products having robust domestic supply chains. Private industry linkage is necessary to promote R&D Ecosystem as well.

8. The Government should have **Rare Earth Strategic Reserves**, similar to the Strategic Petroleum Reserves. Having Rare Earth Strategic Reserves can help provide a **consistent demand environment**, as well as a **fallback at times of any unfavourable action** by the Chinese Government.

Conclusion

The time is right to focus on boosting the indigenous supply of rare earth metals that currently contribute a total value of nearly US$ 200 billion to the Indian economy. A sustained supply is also essential to reduce its dependence on Chinese imports and truly realize the vision of *Atmanirbhar Bharat*.

Read More – The Indian Express
UPSC Syllabus GS 1 – Distribution of Key Natural Resources across the world

Model Bilateral Investment Treaty (BIT)- Explained Pointwise

The **Union Budget 2025** announced a **revision** of India's **Model Bilateral Investment Treaty (BIT)** to make it more **"investor-friendly**", marking a decade since the last model was adopted in 2015. This revision offers India an opportunity to align its investment treaty policy with **"current global economic realities"**, as well as address emerging concerns around **investor protection**, **sovereign regulatory space**, and **dispute resolution**.

What is Bilateral Investment Treaty (BIT) and its evolution in India?

BIT is often referred to as **International Investment Agreements (IIAs)**, are legal tools that **protect foreign investments** by assuring investors certain guarantees against adverse actions by the host state. As of 2023, over **3,291 IIAs** (including **2,831 BITs**) have been signed globally **(UNCTAD).**

India's BIT Landscape:

- India has signed **86 BITs**, of which **only 13 are currently in force** (MEA, 2024).
- The **2015 Model BIT**, adopted after adverse international arbitral awards (e.g., **Vodafone, Cairn Energy cases**), sought to balance investor rights with **sovereign regulatory autonomy**. However, India has struggled to negotiate new BITs based on this model. According to legal experts, **no major capital-exporting country** has accepted it fully.

Evolution of India's Model Bilateral Investment Treaty (BIT)

Phase & Period	Key Characteristics & Motivation	Notable Developments
Phase I: 1994–2011(Liberal, Investor-Centric Phase)	– Broad protections: Fair and Equitable Treatment (FET), Most Favored Nation (MFN), unrestricted ISDS. – Asset-based definition of investment. – Aimed to attract foreign capital in post-liberalization era	– First BIT signed with UK (1994). – 66+ BITs signed by 2011

Phase II: 2011–2015 (Crisis and Reassessment Phase)	– Reassessment of treaty commitments due to rising ISDS claims. – Motivation: Protect regulatory autonomy and limit legal liability	– **White Industries v. India (2011)** – BIT-based claims by Vodafone and Cairn
Phase III: 2015–Present (Sovereignty-Oriented Model)	– Narrow FET clause aligned with customary international law. – No MFN clause. – ISDS allowed only after **5 years of exhausting local remedies.** – Enterprise-based investment definition. – Curtail litigation risk and preserve policy space	– **2015 Model BIT introduced** – India unilaterally terminated 58 BITs. – New BITs with Brazil, Belarus based on 2015 model.
Phase IV: 2021–2025 (Expected) (Reform and Balancing Phase)	– Revision underway to balance investor protection with sovereign rights. – Likely changes: Flexible ISDS, enhanced investor obligations, alignment with global best practices. – Improve investment climate, support "Ease of Doing Business"	– MEA-led review of 2015 Model BIT initiated in 2021. – Revised Model BIT expected by **2025**

Key Features of the 2015 Model BIT

Aspect	2015 Model BIT
Fair and Equitable Treatment (FET)	Narrowly defined, aligned with customary international law
MFN Clause	Excluded to prevent importing favorable terms from **third-party BITs**

ISDS Mechanism	Permitted only after exhausting **local remedies for 5 years**
Scope of "Investment"	Based on **characteristics (enterprise-based),** not just assets
Investor Obligations	Included obligations for compliance with **laws, environment, labor**
Exclusion of Taxation	Tax matters kept out of **ISDS jurisdiction**
Transparency & Public Interest	Emphasized **state's regulatory rights, including for health, environment**, and public order.

What is the significance of BIT Revision?

1. Foreign Investment Promotion & Economic Growth: FDI into India grew from **$16 billion in 2000** to **$537 billion in 2023**; similarly, **Outward Direct Investment (ODI)** rose from **$1.7 billion to $236 billion** (UNCTAD World Investment Report, 2023). A robust BIT framework encourages cross-border capital flows, enabling India to attract and protect both **inbound and outbound investments**. India's ambitious goals under **Amrit Kaal** (Vision 2047) require legal infrastructure that bolsters investor confidence.

2. Balancing Investor Rights with Sovereign Regulatory Space: Post-2008 financial crisis and climate crises, host states globally are recalibrating investment treaties to allow for policy flexibility on issues like **public health, environment, and taxation**. The revised BIT offers an opportunity to **"balance investment protection with the right to regulate"**, as emphasized by the article.

3. Boost to Infrastructure and Employment: The India-EFTA FTA (March 2024) introduced a **quantifiable commitment** by EFTA states to invest **$100 billion** in India, generating **1 million direct jobs**. Its investment chapter innovatively replaced ISDS with **G2G consultation mechanisms**. Model BIT revision can institutionalize such novel frameworks.

4. Reducing Treaty-Based Arbitrations: India has faced over **25 ISDS claims**, costing billions in arbitration and compensation (e.g., **Cairn award of $1.2 billion**). Clearer, balanced BITs can reduce litigation and foster predictability.

5. Geopolitical Strategy: As India positions itself as a **major player in global value chains (GVCs)** and "Amrit Kaal", it needs modern treaties to: attract **high-tech foreign capital**, enable **ease of doing business** and provide **certainty to international investors**.

6. Legal and Institutional Significance: BITs are **legally enforceable instruments** of international law. They strengthen the **rule of law** in investment governance. Balanced BITs preserve the **"right to regulate"** while ensuring investment protection.

What are the challenges in its implementation?

1. Legal Ambiguity & Investor Skepticism: The **ELR clause** and restricted definitions dissuade foreign investors. India's failure to secure acceptance of its 2015 BIT model reflects its **limited global legitimacy**.

2. One-Size-Fits-All vs Dual Model Dilemma: Scholars like Rajesh Singh & Karamjeet Kaur propose **"dual BIT models"** – one defensive, one investor-friendly. However, this "horses for courses" strategy may undermine

India's **credibility and consistency** in international law, as investment flows are dynamic (e.g., India was a capital importer to UK in 1994 but a capital exporter by 2022).

3. Most Favored Nation (MFN) Clause Complexity: 2015 model excludes MFN, due to its misuse in **treaty shopping**. Yet, MFN is a fundamental principle of **non-discrimination** in international law, with origins dating to **17th century bilateral commercial treaties**. The clause can **support transparency** and harmonize benefits across BITs.

4. ISDS Inconsistencies: Divergent ISDS access (defensive vs liberal models) weakens India's stance in multilateral forums like **UNCITRAL**, and invites **counter-arguments in negotiations**. **Mandatory Exhaustion of Local Remedies (ELR)** for 5 years before initiating ISDS – seen as a barrier.

5. Fragmentation of India's Treaty Network: Unilateral terminations post-2015, without replacement treaties, have left gaps in legal coverage for Indian investors abroad.

What should be the way forward?

1. Principled and Predictable BIT Framework: Integrate investor protections (fair and equitable treatment, ISDS access) with **explicit regulatory carve-outs** for: Public health, environmental protection (SDG-13), taxation**. E.g. Reference, EU Model BIT**, **CETA**, **RCEP** models.

2. Introduce Tailored MFN Clauses: Consider **forward-looking MFN clauses** with consultation requirements. Include safeguards against **treaty-shopping**, e.g., by **excluding ISDS procedures** from MFN coverage.

3. Innovate on Dispute Resolution: Emulate EFTA FTA's **G2G consultation model** or **multilateral investment court** models under discussion at UNCITRAL.

4. Avoid Dual BIT Model Pitfalls: Maintain a **single, nuanced model BIT** that can be flexibly adapted through **negotiation protocols**, rather than creating inconsistent models. Support this with **investment chapters in FTAs** (as seen in EFTA).

5. Build Legal & Institutional Capacity: Strengthen India's **treaty negotiation teams** through specialized training. Create a **central database of Indian investor concerns** abroad to better inform treaty content. **E.g. Actively participate** in **UNCITRAL Working Group III (ISDS Reform)** and **OECD investment dialogues**.

6. Public & Parliamentary Transparency: Table BITs for discussion and ratification like **trade agreements** to foster democratic accountability.

Conclusion

As India aspires to become a global investment hub during its **Amrit Kaal**, the revision of its **Model BIT** is both timely and strategic. It must **strike the right balance** between offering adequate protection to foreign investors and preserving the **regulatory autonomy** of the Indian state.

The revised BIT must reflect India's **dual role** as both a **capital importer and exporter**, without compromising on its **principled and consistent approach** to international economic law.

Read more- The Indian Express
UPSC Syllabus- GS 3– Investment Models

WHO Pandemic Treaty- Explained Pointwise

The COVID-19 pandemic revealed glaring weaknesses in global preparedness, coordination, and equity in responding to health emergencies. In response, WHO Member States began negotiations in December 2021, culminating in a finalized draft of the WHO Pandemic Treaty (also called Pandemic Agreement) in April 2025, which will be presented at the 78th World Health Assembly on May 19, 2025.

The treaty described as a "generational accord to make the world safer", is a milestone in multilateral cooperation and seeks to prevent future pandemics through equity, coordination, and preparedness.

What is the WHO Pandemic Treaty?

1. A legally binding international instrument developed by an Intergovernmental Negotiating Body (INB) under the WHO Constitution.

2. Mandated in December 2021 amid COVID-19 after calls from over 20 countries and international organizations in March 2021.

3. Drafted through 13 formal negotiation rounds, including nine extended rounds and multiple intersessional consultations.

4. Its legal status: Subject to adoption by WHO's supreme decision-making body (World Health Assembly) and ratification by individual Member States.

5. Affirms "national sovereignty in public health decisions", explicitly stating that WHO cannot impose mandates such as lockdowns or vaccination.

What are the Key Provisions of the Draft Treaty?

1. One Health Approach- Recognizes that "human health is closely connected to the natural world." Calls for identification and mitigation of risks from zoonotic spillovers (pathogens jumping from animals to humans).

2. Pathogen Access and Benefit-Sharing System (PABS)- Facilitates equitable access to vaccines and diagnostics for countries sharing pathogen data and genetic sequencing. Builds on lessons from the Nagoya Protocol on genetic resource sharing.

3. Global Health Equity- Emphasizes "health equity" and solidarity. Prioritizes low and middle-income countries (LMICs) in access to pandemic-related health products.

4. Technology Transfer and Capacity Building- Mandates sharing of knowledge, skills, and expertise for local vaccine and diagnostic manufacturing. Resolves IPR (Intellectual Property Rights) bottlenecks "in the public-interest."

5. Multidisciplinary Health Emergency Workforce- Calls for the creation of a skilled, trained national and global health workforce.

6. Global Logistics and Supply Chain Network- Establishes coordinated frameworks for pandemic-time logistics and medical supply distribution.

7. Financial Mechanism- Proposes a coordinating financial structure to support pandemic prevention, preparedness, and response (PPR).

8. Sovereignty Clause- Clearly states that nothing in the treaty "shall be interpreted as providing WHO authority to order or prescribe national laws, lockdowns, or mandates."

What is the significance of the WHO Pandemic Treaty?

1. Health Security and Global Governance- It is the first legally binding international covenant exclusively aimed at spillover infections and pandemics. It fills institutional voids exposed by COVID-19, and reinforces WHO's centrality in global health governance post-US withdrawal.

2. Equity and Justice- It addresses vaccine apartheid experienced during COVID-19 (e.g., <20% of Africa vaccinated by early 2022 vs 70% in OECD). It embeds "public-interest" IPR clause, overcoming failures of COVAX and TRIPS Waivers. **For Ex-** mRNA vaccine hubs in South Africa and Indonesia under WHO's mRNA Technology Transfer Hub.

3. Scientific Collaboration- It prioritizes data sharing, essential for early detection (e.g., SARS-CoV-2 genome shared by China on Jan 10, 2020, accelerated global response). It institutionalizes a pathogen sharing protocol, akin to Global Influenza Surveillance and Response System (GISRS).

4. Legal Diplomacy & Multilateralism- It is a historic step at a time of geopolitical fragmentation. As per WHO Director-General: "This agreement is proof that multilateralism is alive and well."

5. Future Pandemic Preparedness- It reflects shift from reactive to prevention-based strategies (aligned with India's "Heal in India" and "One Health" policies). It could help reduce future economic losses—COVID-19 led to a 3.4% contraction in global GDP in 2020 (IMF) and exposed $11 trillion in economic losses globally (World Bank).

6. Economic Security- It avoids repetition of pandemic-induced economic disruptions. The World Bank estimates a pandemic could wipe out 5% of global GDP.

What are the challenges and criticisms of the WHO Pandemic Treaty?

1. Absence of the USA- US announced in January 2025 its withdrawal from WHO and did not participate in final negotiations. It weakens the global enforceability and undermines universality of treaty.

2. Lack of Enforcement Mechanism- The treaty lacks binding enforcement or sanctions mechanism if countries fail to comply. The non-binding International Health Regulations (2005) was during COVID-19.

3. North-South Divide- Developed countries insist on sharing immediate scientific data sharing. Low and middle-income countries (LMICs) have demanded reciprocity through guaranteed access to diagnostics and vaccines—a point of friction throughout negotiations.

4. Sovereignty Concerns- Many nations have resisted perceived WHO overreach into domestic health laws.

5. IPR and Pharmaceutical Lobbying- Resistance from pharma giants to mandatory knowledge and technology transfer. **For ex-** Moderna's reluctance to share mRNA tech with African manufacturers despite public funding.

6. Geopolitical Tensions- Growing distrust in global bodies (e.g., WHO accused of China bias in early COVID response) may hinder data sharing and transparency.

What should be the way forward?

1. Legal Strengthening with Incentives- Add mechanisms akin to WTO Dispute Settlement Body or UNFCCC compliance mechanisms. Provide incentives (e.g., R&D grants, patent pools) for cooperation, not just obligations.

2. Strengthen WHO's Role- Reform WHO funding (currently 80% from voluntary contributions) to ensure independence and authority.

3. National Pandemic Laws- Countries, including India, must update or enact comprehensive national pandemic legislations aligned with treaty obligations.

4. Equity-Centric IP Framework- Operationalize WHO's mRNA hubs, expand Medicines Patent Pool (MPP) model, and fast-track TRIPS+ flexibilities.

5. Multistakeholder Involvement- Involve civil society, academia, private sector, and marginalized communities in treaty implementation.

6. Enhance Early Warning Systems- Expand WHO's Epidemic Intelligence from Open Sources (EIOS). Integrate with AI-driven bio-surveillance systems.

Read More- Nature
UPSC Syllabus- GS 2- Important International Institutions, agencies and fora – their Structure, Mandate.

Heatwaves in India and Europe-Explained Pointwise

Heatwaves have become a recurring and intensifying climate phenomenon, both globally and in India. As per the World Meteorological Organization (WMO), 2024 was the warmest year on record, with global temperatures about 1.55°C above pre-industrial levels. India is witnessing an increasing frequency, duration, and intensity of heatwaves, which is a critical public health, economic, and equity challenge. Similarly, Europe has warmed almost twice as much as the global average, driven by multiple region-specific factors.

What are heatwaves? How are they defined in India?

Heat waves are prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy. In India IMD defines heatwave based on the following criteria.

Physiography of regions
- **Plain–** The maximum temperature recorded at a station is 40 degrees Celsius or more.
- **Coast-** The maximum temperature recorded at a station is 37 degrees Celsius or more.
- **Hills-** The maximum temperature recorded at a station is 30 degrees Celsius or more.

Based on Departure from Normal Temperature
- **Heat Wave-** Departure from normal is 4.5°C to 6.4°C
- **Severe Heat Wave-** Departure from normal is >6.4°C

Based on Actual Maximum Temperature
- **Heat Wave-** When actual maximum temperature ≥ 45°C
- **Severe Heat Wave-** When actual maximum temperature ≥47°C

Heat Wave is declared if above criteria are met in at least 2 stations in a Meteorological subdivision for at least two consecutive days.

What are the causes and factors behind rising heatwaves?

A. Heatwaves in the Indian Subcontinent

Natural causes

1. High Atmospheric Pressure Systems- Heatwaves occur when high-pressure systems stall over a region. These systems trap warm air near the Earth's surface and prevent the normal movement of air masses, leading to prolonged periods of hot weather.

2. Climate Variability- Natural climate variations, such as El Nino and La Nina events, influence weather patterns and increase the likelihood of heatwaves. For ex- During El Nino events, warmer ocean waters in the tropical Pacific lead to changes in atmospheric circulation and weather patterns.

3. Drought and Dry Conditions- Prolonged periods of drought and lack of precipitation reduces the overall moisture of the soil, causing the land to heat up more quickly during heat waves.

4. Changes in Wind Patterns- Shifts in wind pattern transports hot air from one region to another which intensifies heat waves in areas that are not typically prone to such extreme temperatures.

5. Geography and Topography- Geographic features and topographical conditions also contribute to the development of heat waves. **For ex-** Landlocked valleys and regions surrounded by mountains trap hot air and lead to temperature spikes.

Human-Induced Factors

1. Climate Change- India has warmed 0.7°C since pre-industrial levels, lower than the global land average (1.59°C), but the frequency of heatwaves has increased in the last two decades.

2. Urban Heat Island Effect- Urban areas with high population density, extensive concrete and asphalt surfaces, and limited vegetation tend to absorb and retain more heat, has created localized zones of higher temperatures. This phenomenon, known as the urban heat island effect, has intensified heat waves in cities.

B. Heatwaves in Europe

1. Greater Arctic Influence (Polar Amplification)- Europe, particularly the northern and eastern regions, lies close to the Arctic, where warming is 3-4 times faster than global average due to albedo loss from melting ice.

2. Cleaner Air & Reduced Aerosols- Reduction in air pollution leads to less aerosol-based sunlight scattering, increasing absorption of solar radiation.

3. Urbanization & UHI Effect- Densely populated European cities exacerbate warming.

4. Sea Surface Temperature Rise & Atmospheric Circulation- Warmer seas around Europe and altered jet stream patterns lead to prolonged summer heatwaves.

5. Albedo Effect (Europe/Arctic)- Melting Arctic ice exposes dark surfaces (land/water) that absorb more heat. The Arctic is warming 3 to 4 times faster than the global average, influencing European warming trends.

6. Climate Change- Anthropogenic greenhouse gas emissions are leading to global temperature rise, now nearing the 1.5°C threshold. Land areas (especially in mid- to high-latitude regions) are warming faster than oceans.

7. Warming Rate- Average annual temperature increased 2.4°C from pre-industrial times, compared to global 1.3°C. Longest-ever heatwave in Southeast Europe; lowest number of cold days.

What is the significance of curtailing Heatwaves?

1. Public Health Significance- When external temperature approaches 37°C, the human body struggles to release internal heat, resulting in heat stress affecting organs like kidneys, liver, and brain. Reducing hospital and emergency room burden improves health system efficiency.

2. Economic and Productivity Gains- Nearly 75% of India's workforce (~380 million people) is employed in heat-exposed sectors like construction and agriculture. As per ILO estimates heat stress is estimated to result in a 3–5% GDP loss annually in countries like India. Protecting outdoor workers ensures continuity in farming, construction, logistics, and industrial sectors. It reduces loss of working hours, safeguards GDP.

3. Social Equity and Justice- The impacts of heatwaves are disproportionately felt by the poor, women, elderly, and migrant workers, making heatwave mitigation a key element in addressing social inequities. A people-centric approach protects the most vulnerable.

4. Climate Resilience and SDG Goals- Heatwaves are one of the most direct manifestations of climate change. Addressing them contributes to the global goal of mitigating climate change and reducing carbon emissions. Aligns with SDG 3 (Health), SDG 8 (Decent Work), SDG 11 (Sustainable Cities), and SDG 13 (Climate Action).

5. Mitigating Urban Heat Island (UHI) Effect- Curtailing heatwaves can enhance urban livability, lower energy consumption (through reduced air-conditioning needs), and improve the mental and physical well-being of city dwellers.

6. Reducing Environmental Stress and Ecosystem Damage- Curtailing heatwaves helps protect biodiversity, ensuring the health of ecosystems and natural resources essential for human survival.

What are the challenges in addressing heatwaves?

1. Early and Unpredictable Onset of Heatwaves- Heatwaves are now starting earlier in the year, catching authorities and populations off-guard. In 2025, severe heatwaves struck North and Central India 20 days earlier than in 2024, before HAP protocols were activated.

2. High Vulnerability of the Informal Workforce- Nearly 75% of India's workforce (~380 million), especially in agriculture, construction, and street vending, is directly exposed to outdoor heat. In Odisha and Gujarat, many daily wage workers continued working in peak heat hours due to lack of income alternatives or workplace protections.

3. Economic and Productivity Losses- As per ILO and World Bank estimates (2023) heatwaves have a tangible economic cost, including loss of 3–5% of GDP and up to 6% of annual work hours. In sectors like agriculture and construction, heat-induced fatigue reduced work output and delayed infrastructure projects in Rajasthan and Telangana.

4. Unequal and Disproportionate Impacts- Marginalized groups—women, elderly, migrants, and the urban poor—face higher exposure with fewer coping mechanisms. Migrant families living in tin-roofed shelters in Delhi reported extreme indoor heat and health issues during April 2024.

5. Partial and Uneven Implementation of Heat Action Plans (HAPs)- While 140+ cities and 23 states have HAPs, many lack funding, inter-agency coordination, and local customization. A 2023 CEEW analysis found that only a handful of HAPs included cooling centres, outreach in local languages, or inter-departmental response mechanisms.

6. Insufficient Public Awareness and Risk Communication- Awareness about heatwave risks and protective behavior remains low, especially in rural and low-income urban areas. In Bihar, despite IMD warnings in 2024, many communities continued outdoor weddings and festivals in peak hours, leading to heat-related illnesses.

What Should be the Way Forward?

1. Strengthening and Expanding Heat Action Plans (HAPs)- Update HAPs in every State based on local vulnerability assessments. Include humidity, nighttime temperatures, and thermal comfort indexes for long term planning.

2. Data-Driven Decision Making- Collect granular, real-time heat morbidity and mortality data. Map hotspots within cities to identify intra-urban heat inequality.

3. Improve Early Warning and Forecast Systems- Introduce Heat Health Alert (HHA) systems as in the UK. Use predictive analytics for work timing adjustments in schools, factories, and offices.

4. Build Heat-Resilient Infrastructure- Promote cool roofs, white rooftops, reflective paint, better urban ventilation, and green corridors. Adopt heat-resilient building codes and zoning laws.

5. Protect Informal Workers- Allow staggered/shifted work hours. Provide financial support and insurance for wage losses during heatwaves.

6. Establish Cooling Shelters and Public Utilities- Develop summer shelters like winter shelters. Ensure availability of ORS, drinking water points, shaded rest areas.

7. Encourage Behavioral and Institutional Change- Public awareness campaigns, climate literacy, and workplace heat safety protocols.

8. Long-Term National Policy- Integrate heatwave resilience in National Disaster Management Plan, Smart Cities Mission, and urban master plans. Incentivize tree plantation, wetland conservation, and urban greening.

Conclusion

The rising threat of heatwaves in both India and Europe signals an urgent climate adaptation imperative. While Europe warms faster due to polar influence and cleaner air, India faces a distinct set of vulnerabilities driven by high outdoor labour dependence and inequality. The battle against heatwaves must move beyond token advisories and aim for science-based, people-centric, and equity-focused long-term planning. As the cost-effectiveness of heat adaptation is well-established, prioritizing this agenda is not only a climate responsibility but also a development necessity.

India's Logistics Sector: Challenges and Opportunities- Explained Pointwise

India's logistics sector is at an inflection point, catalyzed by technological disruption, infrastructure expansion, sustainability imperatives, and policy thrust. With "logistics cost in India estimated between **14–18% of GDP" (Economic Survey 2022–23),** against a **global benchmark of 8%**, inefficiencies are a major drag on competitiveness. However, recent developments—from **PM Gati Shakti** to private equity inflows and green transformation goals—signal a paradigm shift.

In the vision of **"Viksit Bharat @2047"**, an efficient, sustainable logistics network is essential to ensuring inclusive development, green growth, and economic competitiveness. Logistics is not merely about movement — it is about connectivity, cost-efficiency, environmental resilience, and scalability.

What is India's Logistics Sector and what is its Contribution?

India's logistics sector encompasses **transportation (road, rail, air, and waterways), warehousing, supply chain management**, and **value-added services** that support the movement of goods across the country.

1. Contribution to GDP: ~**13-14%** of GDP **(NCAER, 2021-22).**

2. Employment: Employs over **22 million people** across transportation, warehousing, packaging, and related services **(CII Report 2024).**

3. Estimated Costs: **14-18% of GDP**, compared to **8-10% globally**

4. Private Equity Investments in H1 2024: **66% of total asset-class PE** (led by Abu Dhabi Investment Authority & KKR investing; $1.54 billion into Reliance Logistics). **Chennai, Mumbai, NCR, Pune** dominate with **66% of private equity investments** in H1 2024

5. Warehousing absorption: **25% YoY growth** in 2024.

6. Carbon Emissions Share: ~**13.5% of India's GHG emissions**, with road freight contributing **~88%** of sectoral emissions (IEA, 2023).

7. Third-Party Logistics (3PL): Rapid expansion due to **e-commerce, Q-commerce**, and **manufacturing** growth.

What is the Significance and Strategic Importance of Logistics Sector?

1. Economic Growth and Competitiveness: As per McKinsey reducing logistics cost by 1% of GDP can potentially save the economy **$15 billion**. Drives Make in India, Ease of Doing Business, and Export Competitiveness. Major enabler for sectors like manufacturing, agriculture, pharmaceuticals, and FMCG.

2. Infrastructure Development & Urbanization: Major logistics hubs: **Chennai, Mumbai, Pune, NCR** — being upgraded through **multi-modal logistics parks**. Emergence of Tier 2 and 3 cities in cold storage and warehousing (e.g., Patna, Coimbatore, Lucknow).

3. Employment and Skilling: Sector employs over **22 million people**. Recent Budget 2025 proposal: **5 National Centres of Excellence for Skilling** in logistics and warehousing.

4. Environmental and Climate Significance: As one of the world's most **carbon-intensive** sectors, logistics decarbonization is vital for India's **Net Zero 2070 goal**. Warehousing, oil-based freight, and inefficient modal mix contribute heavily to emissions.

5. Support to Key Sectors: Drives growth in manufacturing (Make in India), e-commerce, retail, and agriculture (farm-to-fork cold chains). Backbone for Atmanirbhar Bharat and Digital India.

6. National Development and Inclusivity: Enhances rural connectivity, MSME market access, and employment. "Viksit Bharat by 2047" hinges on future-ready logistics ensuring "growth reaches every region".

7. Geopolitical and Strategic Relevance: Strategic corridors (Delhi–Mumbai Industrial Corridor, Sagarmala) enhance **geo-economic leverage**. Efficient logistics underpin **supply chain resilience and national security**.

What are the major Government Initiatives for the development for logistic sector?

1. PM Gati Shakti – National Master Plan: Launched in 2021: a **GIS-based platform** for integrated infrastructure planning. Enables faster approvals, reduced duplication, and coordinated inter-ministerial planning. Budget 2025 made **PM Gati Shakti data/maps accessible to private sector** for better project planning.

2. National Logistics Policy (NLP), 2022: Aims to reduce logistics costs to single-digit GDP percentage. Focus on multi-modal transport, digital logistics platforms, skilling, and green logistics.

3. Multi-modal Logistics Parks (MMLPs): Over 35 MMLPs planned under PPP model to integrate **road, rail, air, and waterways**. Reduces **transit time, congestion**, and environmental impact.

4. Sustainable and Green Freight Initiatives: Pilot electric highways (Delhi–Jaipur corridor). Solar-powered warehouses, EVs for last-mile delivery. Promotion of biofuels, hydrogen, ammonia-powered ships, and LNG vessels.

5. Skilling Initiatives: Budget 2025: 5 National Centres of Excellence for Skilling focused on industry-ready training. Public-private partnerships driving logistics skilling in Tier 2/3 cities.

6. Sagarmala & Bharatmala Projects: Promote coastal and port connectivity and road freight corridor development. Expected to reduce transit time and logistics cost by up to **25%**.

7. Dedicated Freight Corridors (DFCs): Western DFC (Delhi–Mumbai) and Eastern DFC (Punjab–West Bengal) to shift freight from road to rail.

8. Inland Waterways Development: Plan to **triple cargo movement on rivers** by 2030. Ganga and Brahmaputra rivers identified under **Jal Marg Vikas Project**.

Emerging Trends in 2025 and Beyond

Trend	Key Features
Digital Twins	Real-time virtual models for warehouse simulation and optimization
Q-commerce Boom	Demand for faster last-mile delivery → growth in **in-city fulfilment centres**.
Cold Chain Expansion	Growth in food, pharma, and retail → Tier 2/3 cities seeing deployment of Grade A cold storages.
Tech Integration	IoT for real-time tracking, **robotics**, **blockchain** for inventory and warehouse management.
Sustainability	Electric vehicle fleets, solar power, **circular economy** practices in packaging and supply chains.

Diversity and Inclusion	Increasing female participation in supply chain roles.

What challenges is the logistics sector currently facing in India?

1. High Logistics Costs: Logistics costs 7.8-8.9% of GDP (NCAER 2022) vs. global average of 8%**,** high freight costs and delays. "Supply chain inefficiencies and unfavorable intermodal mix" a key barrier in last-mile connectivity.

2. Carbon Emissions and Environmental Degradation: Road freight: 38% of CO_2 emissions, dominant transport mode, heavy reliance on diesel trucks (88% of transport GHG emissions). Warehousing: High energy consumption, often non-renewable. Aviation and trucking: Difficult to decarbonize due to fuel dependency.

3. Fragmented Sector: Dominated by small, unorganized players lacking technology adoption with lack of standardization and digitization. Over 90% of trucks are individually owned and low penetration of tech-based logistics among SMEs.

4. Poor Modal Balance: Railways underutilized; India's modal mix heavily skewed towards roads. Inland water transport and coastal shipping infrastructure remains underdeveloped.

5. Inadequate Cold Chain Infrastructure: Essential for food security, pharma, and exports. Gap between supply and demand in Tier 2/3 cities.

6. Workforce Skill Deficit: Lack of industry-specific training. Acute shortage of trained manpower in supply chain, cold chain, and tech operations.

What Should be the Way Forward?

1. Modal Shift to Railways and Inland Waterways: Increase rail freight share from current ~27% to 45% by 2030 (NITI Aayog). Promote coastal shipping and inland waterways: cheaper and greener.

2. Green Infrastructure: Adopt solar, wind, and geothermal energy in warehouses. Roll out electric and LNG-powered vehicles for freight and urban logistics. Align with IMO 2050 goal to cut maritime emissions by 50%.

3. Integrated Tech-Driven Logistics: Expand Unified Logistics Interface Platform (ULIP). Widespread use of IoT, blockchain, GPS-based tracking to reduce delays, thefts, inefficiencies.

4. Cold Chain Modernization: Fast-track deployment in food, pharma sectors with Grade A infrastructure. Focus on Tier 2 and 3 cities for inclusive development.

5. Skill Development and Gender Inclusion: Expand National Logistics Workforce Strategy. Promote women's participation and diversity in supply chain roles.

6. Private Investment and PPPs: Continue enabling private equity inflow (like KKR–ADIA investment). Encourage PPP-led logistics parks and green warehousing.

7. Skill Development and Gender Inclusivity: Establish sector-specific logistics universities, promote female participation through safety measures and awareness.

8. Policy and Regulatory Reforms: Create a Unified National Logistics Regulatory Framework for inter-ministerial coordination. Use logistics performance index (LPI) benchmarking to target improvements.

9. Global Best Practices: China's 50% rail freight share, USA's rail decarbonization, IMO targets for green shipping. India must customize global models to its diverse geography and needs. Germany's Dual Vocational System: Model: Combines classroom training + on-the-job apprenticeships. Adaptation: Indian logistics firms can partner with ITIs/NSDC for similar programs.

Conclusion

India's logistics sector stands at a strategic crossroad. With sustained policy attention, rising private investments, and focus on green and digital transformation, it is poised to transition into a future-ready engine of economic growth. But to truly fulfil the vision of "Viksit Bharat by 2047", logistics must evolve to be not just efficient and integrated, but also inclusive and sustainable.

As the article rightly concludes, "the road to a greener future has been paved; it is now time to accelerate." Logistics is not merely about moving goods—it is about moving the nation forward.

Read more- The Hindu
UPSC Syllabus- GS 3- Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

India's potential in Arctic region – Explained pointwise

The melting of the Arctic region, though is an impending climatic catastrophe, however, it also presents an opportunity for great geopolitical leverage as sea levels continue to rise which leads to emergence of new trade routes. This emerging commercial opportunity becomes even more important because of the potential headwinds from the tariffs imposed by the USA as well as development of partnerships between countries around supply chains & trade routes and also because of the climate change. Thus, it becomes important to analyse the situation from India's point of view.

What is the significance of Arctic region's melting?

1. Climate Change Amplifier (Arctic Amplification): The Arctic is warming four times faster than the global average—a phenomenon called Arctic Amplification. As sea ice melts, white ice (which reflects sunlight) is replaced by dark ocean (which absorbs heat), further accelerating warming. This disrupts weather patterns worldwide, including the jet stream, contributing to extreme events like:

- Heatwaves in Europe and Asia
- Harsh winters in North America
- Unseasonal rainfall or droughts globally

2. Resources: The region is estimated to hold 13% of the world's undiscovered oil, 30% of untapped natural gas, Rich deposits of rare earth elements and copper & valuable fishing grounds.

3. Northern Sea Route: According to NASA, the Arctic sea ice is melting at a rate of 12.2% per decade – which will eventually lead to the opening up of a new trade route called Northern Sea Route – connecting the Atlantic & the Pacific Oceans across the North Pole. The NSR is being hailed as the shortest route between Europe & Asia. India's long term approach to explore new mega ports & new trade routes for not economic but also geopolitical significance also makes the NSR crucial.

What are the initiatives of India for Arctic region?

1. Svalbard Treaty (1920): India began its engagement with the Arctic early by signing the Svalbard Treaty in 1920.

2. Himadri = India is the only developing country, besides China, that has an Arctic research base – Himadri.

3. India's Arctic Policy (2022): This policy outlines India's approach to its engagement with the Arctic region, recognizing the Arctic's growing importance due to climate change, economic opportunities, and geopolitical shifts. The policy is structured around 6 main pillars i.e. Science & Research, Climate & Environment Protection, Economic & Human Development, Transportation & Connectivity, Governance & International Cooperation & lastly, National Capacity Building.

4. Monsoon Research: Institute of Governance & Sustainable Development and the National Council of Applied Economic Research collaborated recently to understand how changes in the Arctic, particularly the loss of sea ice, could influence India's monsoon pattern & agricultural output.

5. Observer Status in Arctic Council: India has held Observer status in the Arctic Council since 2013, participating in various working groups and contributing to scientific research.

6. Arctic Circle India Forum: The Arctic Circle India Forum is an upcoming international conference scheduled to take place in May & it reflects the growing importance of the Arctic region for India.

7. Research Initiatives: The National Centre for Polar and Ocean Research (NCPOR) in Goa leads India's Arctic research, including the establishment of a research base in Svalbard, Norway.

8. Scientific Expeditions: India has conducted multiple scientific expeditions to the Arctic, focusing on climate change studies and environmental monitoring.

9. India-Russia Collaboration:

- Establishment of a working group on the NSR under the bilateral intergovernmental commission on trade, economic, scientific, technical & cultural cooperation.
- Chennai-Vladivostok Maritime Corridor also emerges as a potential bridge to the NSR ports such as Pevek, Tiksi & Sabetta.

What can be the way forward?

1. Shipbuilding: India needs to boost its shipbuilding capacity to sail through the turbulent waters of NSR & grab the opportunity with both hands. It needs to increase the range, categories & capacity of the ships to suit the Arctic's requirement & handle its harsh environment. India needs to make adequate investments in ice-breaking fleets & other structural upgrades to compete globally.

2. Multilateral engagements: India needs to leverage the platforms like Arctic Circle India Forum to help contextualise the dialogue from an Asia- and India-focused lens. The forum should serve as an impetus to move the needle forward on India's Arctic policy with stakeholder consultations & forging of partnerships.

3. 'Polar' Ambassador: Recent developments have seen multiple nations appointing ambassadors to represent their interests in the Arctic region, reflecting the area's growing geopolitical and environmental significance such as USA & Greenland appointing their respective Arctic Ambassadors. India can also take a leaf out of their books & appoint a Polar Ambassador for streamlining its efforts.

4. Balance between Russia & USA:

- Russia with its vast Arctic coastline, extensive experience in Arctic navigation, training of personnel apart from being a trusted partner of India, is an obvious partner for India to explore the NSR. However, India's incline towards the Russian Bloc would be implying support to China's Polar Silk Road, which China is building as a northern extension of its Belt & Road Initiative – which India strongly opposes. Moreover, NSR is providing a much greater opportunity for China to not only grab control over the Arctic route but to completely bypass the Malacca strait choke point in the Indian Ocean.
- On the other hand, if India supports the Western Bloc & partners with the U.S., it could lose its perceived stake in the massive resources that currently fall under the Russian Sphere of Influence.
- Thus, India needs to balance USA & Russia and partner with like-minded nations like Japan & South Korea which share similar concerns about growing cooperation between Russia & China in the Arctic region. The trio should advocate the rectification of disparities within the Arctic Council & promote a more inclusive & equitable Council.

Conclusion:

While the commercial advantages of the Arctic melting are significant—fueling economic activity, investment, and geopolitical interest—they also come with high environmental risks, geopolitical competition & calls for sustainable and regulated development. Thus, it provides a double-edged opportunity – which India needs to smartly grab with both hands while preventing the reckless exploitation of the Arctic reserves.

Read More – The Hindu
UPSC Syllabus GS 1 – Critical geographical features, including water-bodies & ice-caps

Indus Water Treaty- Concerns and Way Forward- Explained Pointwise

Indus Water Treaty (IWT), which has survived 4 wars, decades of cross-border terrorism against India by Pakistan, and a long history of antagonism between the two countries, was suspended for the 1st time by India following the terrorist attack on the tourists in Pahalgam on 22/4.
Among the slew of diplomatic actions against Pakistan announced by India – including the closure of Attari border post, cancellation of visas – the suspension of the IWT may have the most far-reaching ramification.
Thus, this calls for an analysis of the provisions of the Indus Water treaty, the associated concerns and the Way Forward to address these concerns.
Indus Water Treaty negotiated in 1960 between India and Pakistan is a landmark transboundary water-sharing mechanism. The Treaty has 12 Articles & 8 Annexures (from A to H). However, disagreements have persisted among both India and Pakistan over the treaty.
Before suspending the treaty, India had called for amendments in the treaty last year due to its dissatisfaction over the dispute resolution process, blaming Pakistan's continued 'intransigence' in implementing the treaty.
Pakistan has also raised objections regarding India's construction of Kishenganga and Ratle hydroelectric projects.

What is the History behind the introduction of the Indus Water Treaty? What are its main provisions?

History Behind the Indus Water Treaty

Pre Independence	Preceding partition, the six rivers of the Indus basin, which originated in the Himalayas/Tibet (Indus, Sutlej, Beas, Ravi, Jhelum and Chenab) was a common network, for both India and Pakistan.
At the Time of Partition	The partition of India raised questions about the distribution of water between the two nations. Since the rivers flowed from India, Pakistan felt threatened by the prospect of control of river waters by India.
Inter-Dominion Accord (May 4, 1948)	The Inter-Dominion Accord of May 4, 1948 laid out that India would release enough water to Pakistan in return for annual payments (by Pakistan). However, the problems of this arrangement were soon realized and it was considered necessary to find an alternative solution.
Indus Water Treaty 1960	India and Pakistan signed the Indus Water Treaty with the intervention of the World Bank in 1960. Precise details were laid out regarding the way in which the waters would be distributed.

Main Provisions of the Indus Water Treaty:

Eastern Rivers with India	Under the Indus treaty, all the waters of 3 eastern rivers namely Ravi, Sutlej, and Beas (with a mean annual flow of 33 Million Acre-feet (MAF)) were allocated to India for exclusive use.

Western Rivers with Pakistan	Pakistan gets control of 3 Western Rivers (Chenab, Indus and Jhelum) with a mean annual flow of 80 Million Acre-feet (MAF).
Western River Water utilization permitted for India	The Indus River treaty allows India to utilize the waters of Western Rivers for: **a. Limited irrigation use** **b. Non-consumptive use**– For applications such as power generation, navigation etc. This, allows India to generate hydroelectricity through a run-of-the-river projects (without the storage of waters) on the western rivers, subject to specific criteria for design and operation. **c. Storage level permitted-** India can store up to 3.75 MAF of water of the Western Rivers for conservation and flood storage purposes.
Water Division Ratio	The Indus Water treaty gives India 20% of the water from the Indus River System and the rest 80% of the water to Pakistan.
Dispute Resolution Mechanism	The Indus Water Treaty provides a 3-step dispute resolution mechanism. **a. Permanent Commission-** The disputes of the parties can be resolved at the Permanent Commission, or can also be taken up at the inter-government level. **b. Neutral Expert (NE)-** In case of unresolved questions or 'differences' between the countries on water-sharing, such as technical differences, either side can approach the World Bank to appoint a Neutral Expert (NE) to come to a decision. **c. Court of Arbitration-** If either party is not satisfied with the Neutral Expert's decision or in case of 'disputes' in the interpretation and extent of the treaty, matters can be referred to a Court of Arbitration.

What has been the significance of the Indus Water Treaty?

The Indus Waters Treaty has been largely successful in maintaining water cooperation between India and Pakistan for over 60 years, despite periods of political tensions and conflict between the two countries.

1. Only cross border water sharing treaty in Asia- The Indus water Treaty is the only cross border water sharing treaty between two nations in Asia.

2. Generous towards lower riparian state- It is the only water pact that compels an upper riparian state to defer to the interests of a downstream state. Pakistan has been given 80% share in the river water system. This is 90 times greater volume of water than Mexico's share under a 1944 pact with the US.

3. Passed the Crisis test- The Permanent Commission set up as a part of the Dispute Resolution Mechanism under the treaty has met even during the 1965 and 1971 wars between India and Pakistan.

4. India's Generosity- India's respect for the values of trans-boundary river treaty is also a major factor behind the successful functioning of the treaty. India chose not to invoke the Vienna Convention on the Law of Treaties, to withdraw from the Indus Water Treaty in the face of terror attacks like Indian Parliament in 2001, Mumbai in 2008, Uri in 2016 and Pulwama in 2019.

5. Successful Model- The Indus Water Treaty serves as a successful model of cooperation between two rival countries.

What are the concerns with the Indus Water Treaty?

India's Concerns:

1. Most Generous treaty- Experts have termed this the most generous water sharing treaty. The treaty has resulted in unequal sharing of the waters with 80% allotment to Pakistan. It is the only water-sharing pact in the world that compels upper riparian State to defer to the interests of the downstream State.

2. Prevents India from building any storage systems on Western Rivers- Despite the Indus water treaty providing for certain exceptional circumstances for building storage systems on Western Flowing Rivers, Pakistan has deliberately stopped such efforts. The extensively technical nature of the treaty allows Pakistan to stall legitimate Indian Projects.

3. Pakistan's continued "intransigence" in India's Hydroelectric Projects- In recent times disputes over the Kishenganga and Ratle hydroelectric projects have intensified. Although, they are 'run-of-the-river' projects, which generate electricity without obstructing the natural flow of the river, Islamabad has repeatedly alleged that these violate the IWT. Also, Pakistan is directly seeking arbitration at The Hague, bypassing treaty-compliant proceedings. Pakistan's proposal for a PCA mechanism in these hydropower projects is in contravention to the graded dispute settlement mechanism provided in Article IX of the IWT.

India had issued notices – first in 2023 & again in 2024 – to seek a 'review and modification' of the agreement. The latest notice, which includes the word 'review', signaled New Delhi's intent to revoke and renegotiate the 64-year-old treaty. Article XII (3) allows for modifications through a new, ratified agreement between both governments.

4. Old and Outdated Treaty- According to the Departmentally Related Standing Committees on Water Resources report of 2021, present day pressing issues such as climate change, global warming and environmental impact assessment have not been taken into account by the Treaty. The Indus basin, which has been ranked as the world's second most over-stressed aquifer by NASA in 2015, has been severely affected by climate change. India seeks renegotiation and amendments to the treaty for sustaining its burgeoning population.

5. Loss to Indian States in the Indus Basin- There have been substantial economic losses to the Indian States in the Indus River Basin. **For ex-** According to J&K Govt's hired consultant report, J&K has been suffering economic losses to the tune of hundred of millions annually due to the Indus Water Treaty.

Pakistan's Concerns:

1. Lower Riparian Concerns- As a lower riparian state, Pakistan fears infrastructure developments will reduce downstream flows.

2. Accusations of 'Water Terrorism'- Pakistan accused India of "water terrorism" for the Shahpurkandi barrage project, despite the project's compliance with the IWT.

3. Environmental Flow Issues- Pakistan insists on maintaining environmental flows, supported by the 2013 Permanent Court of Arbitration ruling on India's obligation to release flows downstream of the Kishanganga project.

4. Tied Hands of Pakistan: Dispute resolution mechanisms in the IWT will be of no use & assistance of Pakistan in case India decides to 'revoke' the treaty. As there is no provision in IWT about its duration or suspension, there is no avenue that Pakistan can approach for 'revival' of the treaty. Pakistan cannot approach the **International Court of Justice** to implement the treaty because of the Indian reservation given under the ICJ statute that bars the filing of a case by Pakistan against India.

What is the significance of suspension of IWT for India?

1. Strategic Pressure Tool (Diplomatic leverage): Suspension can be used to pressure Pakistan over cross-border terrorism and ceasefire violations. Demonstrates that tolerance has limits in bilateral relations.
2. Utilisation of resource: India can now create storage on western rivers – Indus, Jhelum & Chenab. After suspending the IWT, India can immediately stop sharing water flow data with Pakistan. There will be no design or operational restrictions on India for the use of water of the Indus & its tributaries.
3. National Sentiment and Sovereignty: Suspension of IWT reflects India's assertion of sovereign rights over its rivers, especially amid growing public and political pressure after militant attacks like Uri (2016), Pulwama (2019) & now Pahalgam.
4. India can also stop visits by Pakistan officials to the 2 HEPs currently under construction in J&K – Kishenganga HEP on Kishenganga (a tributary of Jhelum) and Ratle HEP on Chenab.
5. India can undertake reservoir flushing (a technique used to remove accumulated sediments from reservoir by releasing water through low-level outlets to scour-out the sediments & transport it downstream) on the Kishenganga project, which will increase the life of the dam.
6. Climate and Water Security: With increasing water scarcity, India may prioritize domestic agricultural and drinking water needs over treaty obligations.

Read More- Need to amend the Indus Waters Treaty

What are the Concerns with the termination or abrogation of the IWT?

Abrogating the Indus Waters Treaty (IWT) between India and Pakistan could have serious consequences for the region:

1. Escalation of Geopolitical Tensions- Abrogation of the treaty is likely to escalate political tensions between India and Pakistan. This might heighten the risk of water conflicts between the two nuclear-armed neighbors.

2. Threat to Regional Stability- The Indus river basin is shared by India, Pakistan, China and Afghanistan. Instability in the IWT could have ripple effects on water cooperation in the wider region.

3. Damage to India's International Standing- Unilaterally suspending or withdrawing from the IWT could damage India's image as a responsible global power. It may be a setback for future negotiations of water treaties, like the Teesta Water Treaty with countries like Bangladesh.

4. No 'Exit Clause': The IWT lacks an exit clause i.e. neither India nor Pakistan can legally abrogate it unilaterally. The treaty has no end date & any modification requires the consent of both the parties.

What Should be the Way Forward?

1. While the IWT cannot be exited, it does contain a dispute resolution mechanism: Article XI, along with Annexures F & G – which lays out procedures for raising grievances – first before the Permanent Indus Commission, then a Neutral Expert, and eventually, a forum of Arbitrators.

2. Integration of Ecological Perspectives- The ecological perspectives must incorporate Environmental Flows (EF) to sustain the Indus Valley ecosystems, as suggested by the Brisbane Declaration and the 2013 Permanent Court of Arbitration ruling on Kishanganga.

2. Recognisation of Climate Change Impacts- Strategies must be developed to manage climate change effects. India should explore the possibility of using climate change as a 'change in circumstances' to initiate conversation on renegotiation of the IWT.

3. Enhanced Water Data-Sharing- A World Bank-supervised, legally binding data-sharing framework should be established to monitor water quality and flow changes. Such estimates would add to the accuracy of each side's dependence on the other in sharing the waters of these rivers.

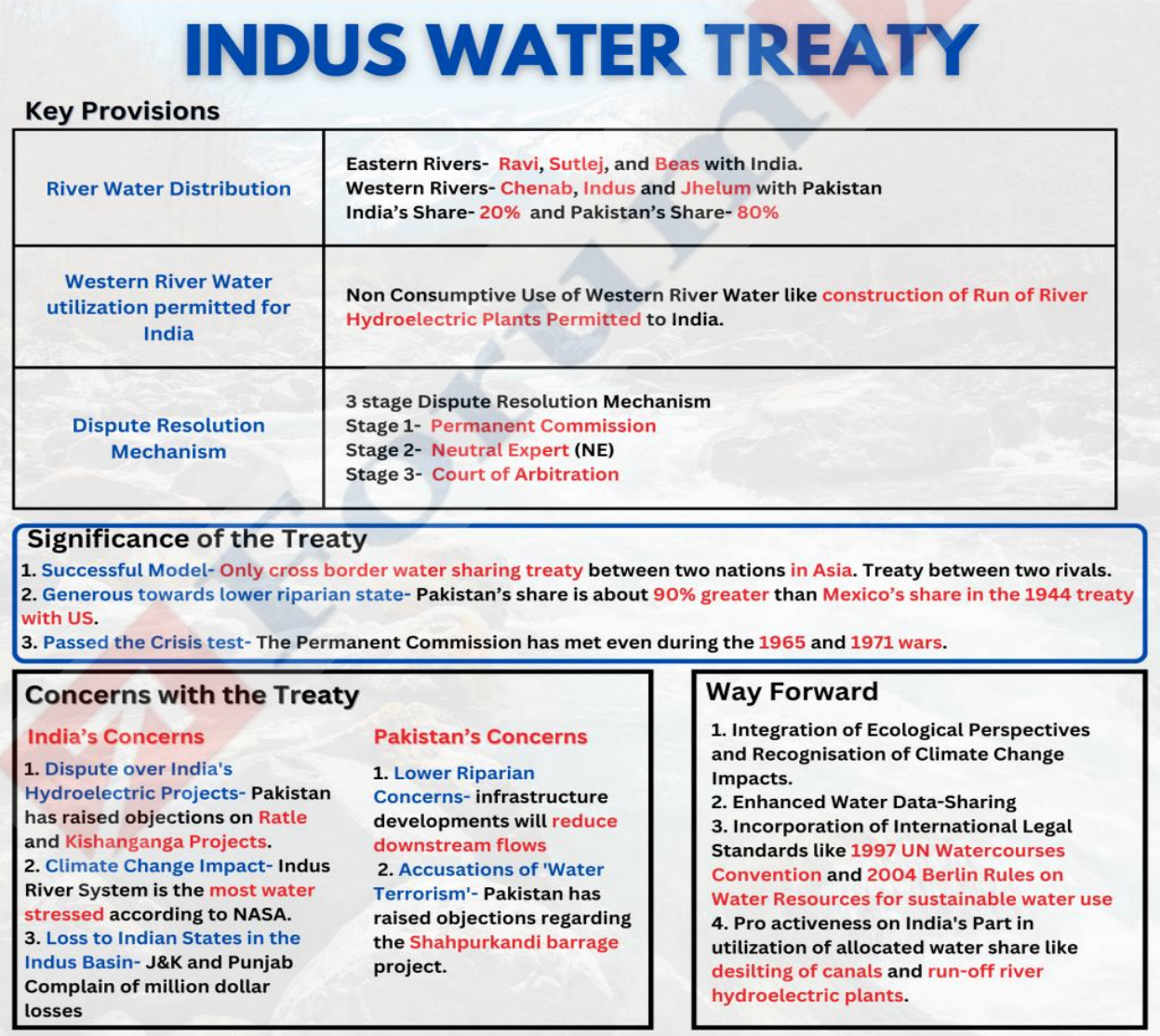
4. Incorporation of International Legal Standards- The treaty provisions must be aligned with the 1997 UN Watercourses Convention and the 2004 Berlin Rules on Water Resources for sustainable water use.

5. Proactiveness on India's part in utilization of allocated water share- As suggested by the standing committee of water resources, the canal systems in Punjab and Rajasthan should be repaired to increase their water carrying capacity. Also, India should take steps to completely utilize its entitlement of waters of Western Rivers.

6. Use of pressure tactic in case of escalation- As suggested by some experts, in case of escalation of hostilities by Pakistan in future, India can suspend the meetings of Permanent Commission. If the first state of dispute redressal is not functional, the subsequent two steps of 3-tier dispute redressal don't kick in.

7. Internationalize Pakistan's Violations: Instead of withdrawing, India can highlight Pakistan's terror-related breaches as violations of peaceful cooperation under the treaty's spirit.

Conclusion:
The Indus Waters Treaty, despite being resilient, is under increasing strain due to geopolitical tensions because of Pakistan's continued support to cross-border terrorism, climate stress, and domestic water needs. While India has the right to re-evaluate its approach, outright suspension poses significant strategic and legal challenges. A calibrated approach of assertive diplomacy, technical readiness, and treaty modernization is the best path forward.



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UPSC Syllabus- GS 2 India and its neighbourhood Relations

World Trade Organisation – Relevance & Challenges – Explained Pointwise

One of the major global headwinds casting a shadow on the international trade is the 'reciprocal tariffs' which have been imposed by the US President Donald Trump to punish the countries, including some of the closest trading partners of America. These tariffs, also known as the 'Trump Tariffs', have been compared to the **Smoot-Hawley Tariffs** of 1930 – which is believed to had hastened the slide into the Great Depression. However, unlike the 1930s, the world today has an international organisation, called WTO, regulating the international trade according to a rule-based order. However, many have also argued that the WTO has lost its relevance in the present period. Thus, in this article we will try to discuss the achievements of WTO, the challenges that it is currently facing & what could be the reforms that should be brought in it.

What is WTO?

The World Trade Organization (WTO) is the primary international organization governing the rules of trade between nations. It was established in 1995, replacing the **General Agreement on Tariffs and Trade (GATT)**, which had been in effect since 1948.

Principles: The WTO operates on several core principles such as:

- **Non-discrimination:**
  - **Most-Favoured-Nation (MFN):** Treating all trading partners equally.
  - **National Treatment:** Treating foreign products, services, and nationals no less favorably than domestic ones.
- **Reciprocity:** Countries should aim to lower trade barriers in exchange for similar concessions from other countries.
- **Trade Liberalization:** Gradual reduction of tariffs and quotas.
- **Binding Commitments:** Countries' commitments to open markets are binding and enforceable.
- **Transparency:** Member countries are required to publish their trade regulations. WTO collects and shares trade information among members.
- **Dispute Settlement:** Provides a legal and institutional framework for resolving trade conflicts

What have been the achievements of WTO?

1. Facilitation of International Trade- Binding rules for global trade in goods and services have facilitated dramatic growth in cross-border business activity. The real volume of world trade has expanded by 2.7 times since the inception of WTO.

2. Forum for Negotiations: It serves as a platform for countries to negotiate new trade agreements and address trade-related issues, promoting ongoing trade liberalization.

3. Reduction in Tariffs- After the creation of WTO, average tariffs have almost halved, from 10.5% to 6.4%. This has facilitated the growth of International trade.

4. Boost to national incomes- Accession to WTO has given a lasting boost to national income of several developing economies.

5. Rise of global value chains- The predictable market conditions fostered by the WTO have combined with improved communications to enable the rise of global value chains. Trade within these global value chains today accounts for almost 70% of total merchandise trade.

6. Reduction in poverty- The free and fair trade principles has also contributed to reduction in world poverty levels. Taking into account, the World Bank's $1.90 threshold for extreme poverty, the poverty level has fallen from ~33.33% in 1995 to ~10% today.

7. Dispute settlement: The Dispute Settlement Body (DSB) of WTO provides a rules-based system to resolve trade conflicts. It has handled over 600 disputes, many involving major powers like the US, EU, and China. It has helped in avoiding the trade wars and ensures compliance with international norms so far.

8. Support for Developing Nations: WTO has provided technical assistance, training, and special provisions to developing countries which has helped them in developing their capacities. It has allowed longer timeframes and flexibilities to them in implementing trade agreements. It has also launched the **Aid for Trade** initiative to help the least-developed countries (LDCs).

9. Trade Policy Review: The WTO reviews national trade policies to ensure transparency and compliance with WTO regulations, fostering greater openness in trade practices.

What are the challenges and key areas of reforms for WTO today?

The WTO was expected to perform 3 functions – the negotiating function, the dispute settlement function, and the trade monitoring function. It has been struggling to perform any of them.

1. Stalemate in Trade Negotiations (Doha Round Failure): The Doha Development Round, launched in 2001, aimed to improve trade conditions for developing countries. It failed to reach consensus due to deep disagreements between:

- Developed nations (pushing for access to developing markets)
- Developing nations (seeking agricultural subsidies reform).

The failure reflects the WTO's inability to adapt to evolving global dynamics.

2. Bias Towards Developed Countries: WTO rules are often seen as favoring the economic interests of rich nations. Developed countries continue to provide massive agricultural subsidies (e.g., EU, US), while pressuring developing nations to open up markets. This has led to growing North-South tensions within the WTO framework.

3. Rising Protectionism and trade restrictions:

- MFN (Most Favoured Nation) principle is the bedrock of WTO & hence it was included as Article 1 in the Agreement. However, many countries (especially developed countries) are now stepping away from the MFN because according to them the trade liberalization has not happened as much as they were expecting, Moreover, they are finding it easier to negotiate on tariffs bilaterally by signing FTAs rather than at WTO.
- Trade restrictions by the developed and advanced economies has affected international trade (~$747 billion in global imports), and postponement of investment by businesses. WTO has not evolved into a forum to find a solution out of such kind of economic crisis.

4. Failure of dispute resolution mechanism (DSM)- There has been a lack of consensus among the members regarding the reforms of the Appellate Body. The appointment of nominees to WTO's appellate body has at times been blocked by developed countries, paralyzing the WTO as a judge and enforcer of global trade rules. ***For ex-*** *US has been blocking appointments to the Appellate Body since 2019.*

5. Trade distortion by misusing the Special and Differential Treatment (S&DT)- Provisions for agricultural and industrial subsidies have been misused by many developed countries, causing trade distortions. High income countries like South Korea and China have mis-utilised the concessions of developing countries, as developing countries are defined based on 'self-declaration'.

6. Shift to Plurilateral Agreements- There has been a shift towards plurilateral agreements like the TPP Agreement. Plurilateral Agreements favour developed countries more as they are able to push their interests (developing countries have less negotiating power) unlike WTO where all agreements happen through consensus.

7. Lack of consensus- WTO works on the principle of consensus-based decision making which often leads to deadlock & inaction. Moreover, there is lack of consensus on WTO reforms. For e.g. on one hand, the countries of Global South demand rationalization of fisheries subsidies, handholding of their public stockholding programs. On the other hand, developed nations have put their old obligations on the back-burner and are pushing the WTO to form rules on e-commerce, an area where they have a clear edge. Due to slow bureaucratic process of WTO, it takes years to complete the negotiations & bring reforms, making the WTO too slow to respond to modern trade issues like: E-commerce, Digital services, Climate-related trade policies.

8. Lack of Support for Least Developed Countries (LDCs): Despite promises, LDCs struggle to access global markets due to: Complex rules, High compliance costs & Limited representation in negotiations. WTO has not fully delivered on its development agenda.

9. Lack of Transparency: WTO negotiations are often criticized for being opaque, with limited input from civil society and smaller countries. The process is seen as undemocratic, favoring the interests of richer members.

10. China-factor: WTO has been criticized to allow China to flood the global markets with its cheap exports, but simultaneously restricted access to its domestic markets. WTO rules were highly inadequate to anticipate that how one country can produce more than 50% of steel & would flood the market & able to distort the trade – without violating the WTO rules, but clearly undermining the integrity of multilateral trading system.

11. India-specific challenges:

- WTO required the participating members to reduce their domestic subsidies on agriculture sector. However, agriculture is a politically sensitive issue for any government in India. Moreover, for country like India, which relies on domestic production, to limit its subsidies to just 10% will limit its developmental needs & raise food security concerns.
- India's large-scale public stockholding programs for food security have been contentious at the WTO, as other members argue these programs distort global trade. The "Peace Clause" offers temporary protection, but a permanent solution remains elusive, leaving India's food security policies vulnerable to challenge.
- India has opposed recent plurilateral initiatives (agreements among subsets of WTO members) on issues such as investment facilitation, arguing there is no mandate for such negotiations. This stance has isolated India and is seen as obstructing the WTO's ability to address emerging trade topics like digital trade, climate, and labor standards.
- India's competitive advantage in services (IT, finance, education) is often hampered by barriers in developed markets, including visa restrictions (e.g., H-1B visas in the US). Negotiations under the General Agreement on Trade in Services (GATS) have not yielded sufficient gains for India's service exporters.
- The WTO's TRIPS agreement poses challenges for India's generic pharmaceutical industry, which is vital for affordable medicines both domestically and globally. Stringent patent rules can restrict India's ability to produce generics, impacting public health.
- Developed countries frequently use non-tariff barriers, such as sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT), which Indian exporters find costly and difficult to comply with. These requirements often necessitate significant investment in infrastructure and standards compliance, putting Indian producers at a disadvantage.
- India often faces an asymmetry in negotiating power against developed countries, making it challenging to advance its interests effectively. To counter this, India builds coalitions with other developing countries, but this sometimes leads to a perception of obstructionism.

What are the suggested WTO reforms?

1. Dispute Settlement System Revival:

- **Restore Appellate Body Functionality:** Simplify procedures, reduce costs, and improve transparency. Clearer timelines, stricter compliance with rulings, and safeguards against overreach.

- **De-politicization of Appointment process-** The appointment process to dispute settlement body should be made independent of political control.
- **Interim Solutions:** Some members propose alternative dispute resolution mechanisms (e.g., mediation) while addressing Appellate Body paralysis.
- **Dispute settlement reform-** Expanding the Appellate Body panel from seven to nine judges, redefining membership of the Appellate Body from part-time to full-time, and allocating more resources to the Appellate Body Secretariat.

2. Special and Differential Treatment (SDT) Reform:

- **Objective Criteria:** Replace self-declared developing-country status with metrics like GDP per capita, trade share, and human development indicators.
- **Graduation Mechanism:** Phase out SDT benefits for advanced developing economies (e.g., G20 members) while retaining protections for LDCs

3. 30 for 30- India had earlier issued a comprehensive proposal called "30 For 30". It was to bring at least 30 operational improvements to the WTO before the Organization completes 30 years, that is by 1 January 2025. A year long cooling-off period before hiring a diplomat in any role in the organization, resolving old issues before picking up new ones, and a time-bound work programme to make dispute settlement more accessible for developing countries are some of the suggested operational improvements.

4. New rules on emerging trade domains- There must be consensus based new agreements on emerging trade domains like electronic commerce, investment facilitation, domestic regulation in services. It will make trade more efficient and predictable in cutting-edge sectors of the economy.

5. Increasing participation in global trade- Efforts must be made to make it easier, safer and viable for women and smaller businesses to participate in global trade. This would help make trade more inclusive.

6. Reforming the voting process- Clear guidelines must be spelt as to when a country may use its veto power. Veto usage needs to be weighed against the interests of all, and in light of the WTO's mandate.

7. Independent panel as arbiter- An independent panel could play the role of arbiter, evaluating the competing claims and helping to overcome the political deadlock.

8. Increasing transparency- WTO members should proactively disclose their subsidies to develop trust and transparency among WTO members.

Conclusion:
However, despite these challenges, WTO remains essential, but without real reforms, its influence will continue to decline, and global trade may become more fragmented and unstable. WTO reform is not just about fixing broken systems—it's about revitalizing global trust in a fair and inclusive multilateral trading order.

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Non-Aligned Movement – Challenges & Relevance – Explained Pointwise

2025 marks the 70th anniversary of 1st Asia-Africa Summit, popularly called as Bandung Conference, which laid the foundation of Non-Aligned Movement (NAM). The Asia-Africa Summit gave birth to a new paradigm of South-South Cooperation. It demonstrated the need for the Global South to work together to champion its collective aspirations on the world stage.
However, due to shifting global landscape, divergent national interests, rise of alternative platforms, lack of leadership & inaction – questions have been raised about whether NAM is still relevant today or not.

What is NAM?

NAM was a started during the cold war as an organization of States which were recently got liberated & that didn't seek to formally align themselves with either **USA** *(representing capitalist bloc)* or **USSR** *(representing socialist bloc)* or their ideologies, but sought to remain independent or neutral. However, it doesn't mean that the countries committing to NAM will not take any advantages from either USA or USSR but means that they will not going to have any ideological commitments.
The movement originated in **1955** during **ASIA-AFRICA CONFERENCE** in **Bandung –** where 29 newly independent Asian & African countries met – which led to the development of a Global South. The Organization came into existence in **1961** with **BELGRADE CONFERENCE** under the leadership of **India, Yugoslavia, Egypt, Ghana & Indonesia**.
Policy of non-alignment was based on 5 principles called **PANCHSHEEL:**

- Mutual respect for each other's territorial integrity & sovereignty.
- Non-interference in each other's military & internal affairs.
- Mutual non-aggression
- Equality & mutual benefit
- Peaceful coexistence & economic cooperation

What are the challenges faced by NAM?

1. Losing relevance: NAM is based on the philosophy of non-alignment which is rooted in the legacy of colonialism & ideology of cold war. With the end of the cold war & changing world order- NAM is seem to be losing its relevance.

2. Internal Cohesion and Divergent Agendas: NAM's membership is large and diverse, encompassing countries with vastly different political systems, economic interests, and foreign policy priorities. This diversity leads to difficulties in achieving unity and taking decisive action on global issues. While agreement on broad principles is common, consensus on specific international issues is rare, often resulting in only general statements rather than concrete resolutions or collective action.

3. Fragmentation and Leadership Vacuum: The breakup of key founding states (e.g., Yugoslavia) and the lack of strong, natural leaders today have weakened NAM's influence. Some major members have shifted their focus to other alliances or regional groupings. The movement lacks charismatic or widely accepted leaders who can steer its agenda in the current multipolar world.

4. Perceived Lack of Impact and Action: NAM is often seen as reactive rather than proactive, preferring criticism or support over hardline resolutions or interventions. Its impact on pressing global issues, such as conflicts, nuclear disarmament, and economic reform, is perceived as limited. The movement's calls for nuclear disarmament and equitable international economic structures have not yielded substantial results, leading to questions about its effectiveness.

5. Emergence of alternative platforms: Alternative platforms like BRICS, SCO, G20 etc have emerged with overlapping agendas- reducing the need & scope for NAM.

What is the contemporary relevance of NAM?

1. NAM Principles: The core principles that catalyzed the coming together of leaders of developing world in 1955, i.e. **Panchsheel,** are equally relevant even today. These principles are required to uphold & defend the rules-based global multilateral system which is under siege today & UN in its present form – has become highly inadequate to address the global challenges.

2. Representation and Voice for the Global South: NAM is the second largest grouping of states after the United Nations, comprising 120 member countries and representing nearly two-thirds of UN members and over half of the world's population. It continues to serve as a collective voice for developing nations, advocating for their interests in global forums, especially at the United Nations.

3. Advocacy Against Neo-Colonialism and Western Hegemony: In the post-Cold War era, NAM has repositioned itself to confront what it perceives as Western dominance and neo-colonialism, focusing on the

marginalization and exploitation of poorer nations in a unipolar world. The movement opposes foreign occupation, interference in internal affairs, and aggressive unilateral measures by powerful states.

4. Focus on Socio-Economic Challenges: NAM has shifted its agenda toward addressing economic underdevelopment, poverty, and social injustices, which it identifies as major threats to peace and security for its members. It plays a role in promoting economic cooperation, equitable development, and the reduction of global inequalities, particularly those exacerbated by globalization and neo-liberal policies.

5. Promotion of Multilateralism and Peace: The movement remains committed to principles of peaceful coexistence, mutual respect, non-interference, and disarmament. NAM actively supports multilateral approaches to global challenges, including nuclear disarmament, regional security, and the strengthening of international law.

6. Platform for Unity and Coordination: NAM provides a forum for developing countries to coordinate their positions on major international issues, enhancing their bargaining power in negotiations with developed nations. It is especially active within the UN system, where NAM countries often debate and advance common positions on issues like development, climate change, and reform of international institutions.

Conclusion:
The Global South has to be at the forefront of shaping the evolving multipolar world to ensure it is focused on a fair, just, inclusive & equitable global community. In this scenario, NAM remains relevant in 2025 as a vital platform for the Global South, championing multilateralism, socio-economic justice, and resistance to global power imbalances. While it faces challenges of cohesion and influence, its advocacy for equitable development and international cooperation continues to resonate for many member states.

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India-Saudi Arabia Relationship – Significance & Challenges – Explained pointwise

PM Modi recently went on State Visit to the Kingdom of Saudi Arabia before he cut short the trip after Pahalgam terror attack. The April 2025 visit of Prime Minister Narendra Modi to Saudi Arabia marked a strategic milestone, with the signing of multiple MoUs in energy, digital infrastructure, pharmaceuticals, and labour welfare.
India and Saudi Arabia enjoy a strong relationship and close people-to-people ties marked by trust and goodwill. However, there are still certain challenges & various government initiatives which we will discuss in this article.

A Brief history of India Saudi Arabia Relations

Source-Wikipedia

Initial Warm Phase: India Saudi Arabia **established diplomatic relations in 1947** which was followed by high-level visits from both sides. King Saud of Saudi Arabia visited India in 1955 and the Prime Minister Jawaharlal Nehru visited the Saudi Arabian Kingdom in 1956.
Cold Phase During Cold War: During the **Cold War**, Saudi Arabia put itself in the American camp but India followed the policy of non alignment. This dampened the initial warmth in the relations. Also, the defeat of Pakistan in 1971 followed by the **oil crisis of 1973** and Soviet intervention in Afghanistan further deteriorated the India Saudi relation.
Normalization of relationship: In January 2006, King Abdullah bin Abdul-Aziz visited India which was the first visit by a Saudi monarch in 51 years and the first top level bilateral visit since Indira Gandhi's trip to Saudi Arabia in 1982. **The Delhi Declaration 2006** was signed which aimed to strengthen ties in areas of energy, trade, science and technology, education, health, and political cooperation on regional and international issues.
Deepening of Strategic Relationship: The **Riyadh Declaration 2010** furthered on the Delhi Declaration 2006 agreement and focused on enhancing cooperation on counter terrorism, money laundering, narcotics, arms and human trafficking, and defence and economic cooperation. PM Modi visited Riyadh in 2016 and in 2018 met Saudi Crown Prince in Argentina on the sideline of the G-20 summit. Saudi Crown Prince held bilateral talks with PM Modi after the recently concluded G-20 summit. India-Saudi Arabia have further deepened their strategic relationship by forming **Strategic Partnership Council (SPC).**

What is the significance of India Saudi Arabia relations?

India and Saudi Arabia hold a lot of importance for each other and hence India-Saudi Arabia relationship is seen as one of the most promising partnership in the 21st Century.

Geo-Political Significance:

1. Saudi Arabia's growing geopolitical importance: Saudi Arabia has substantial geopolitical influence in the regional politics of Middle East especially on the **Israeli-Palestinian peace process**. Saudi Arabia has cultivated ties with major powers such as the US, Russia, China and the EU.This increasing geopolitical profile of Saudi Arabia has to led to deepening of India's geopolitical engagement with Saudi Arabia.

2. Deepening of Chinese geopolitical relation with Saudi Arabia: China has deepened its geopolitical relation with Saudi Arabia. China has initiated the **Saudi Arabia-Iran relations reconciliation.** Thus it becomes important for India to engage with Saudi Arabia in the geopolitical arena to counter the growing Chinese geopolitical influence.

Geo-Strategic Significance:

1. Counter Terrorism Cooperation: Saudi Arabia has a substantial influence over Pakistan. India can use this influence to bring Pakistan to negotiating table for talks on terrorism. Saudi Arabia has shown an understanding of **India's terrorism-related concerns** and has agreed to work with India in countering the global menace. For e.g. Saudi Arabia strongly condemned the Pahalgam terror attack.

2. Defence cooperation: Saudi Arabia has limited experience in countering threats from groups like **Houthi militias**. Both countries have conducted joint military exercises on tackling terrorism in the mountainous areas bordering Yemen. They are exploring the possibilities of joint development and production of defence equipments.

3. Fighting piracy and protection of oil routes: Piracy in the Gulf of Aden and surrounding regions remains a threat to Sea Lines of Communication. There is also an increase in naval cooperation between India and Saudi

Arabia with two editions of the bilateral naval exercise-**Al Mohed al Hindi** conducted to protect the world's oil artery the Strait of Hormuz.

Geo-Economic Significance:

1. Energy security: Saudi Arabia is 3rd largest source of crude oil & natural gas for India. It is a **source of 17% or more of crude oil and 32% of LPG requirements** of India and thus a key pillar of India's energy security. With US sanctions on Iran**,** India needs to import crude oil from other sources to meet its energy need. Saudi Arabia have offered India with additional crude oil supplies to meet India's growing needs. The partnership is expanding into renewable energy, particularly green hydrogen, supporting India's energy transition and Saudi Arabia's Vision 2030 diversification strategy.

2. Saudi Arabia's Vision 2030: Vision 2030 plan of Saudi Arabia calls for **diversification of** the oil-dependent economy by attracting tourism and foreign investment and turning it into a global hub for business and culture. Saudi Arabia needs India's technological assistance to execute Vision 2030.This Vision opens up immense opportunities for Indian businesses like the **IT sector** and the **infrastructure businesses.**

3. Investment: Saudi Arabia has one of the **largest Sovereign Fund** in the World. It is an important nation to invest fund in India particularly in National Infrastructure and Investment fund (NIIF). Saudi oil giant Aramco and the Abu Dhabi National Oil Company have acquired 50% stake in the $44 billion project in Ratnagiri, Maharashtra. Saudi Arabia has committed to investing up to USD 100 billion in India, spanning critical sectors such as energy, infrastructure, technology, and health

4. Trade: India is Saudi Arabia's second-largest trade partner and Saudi Arabia is India's fourth-largest trade partner. Bilateral trade between the countries in FY2022-23 was valued at **$52.76 billion.** Trade between the countries is going to increase in the coming decades.

Cultural Significance:

1. Cultural Connect: Saudi Arabia facilitates **Hajj pilgrimage** to over 1,75,000 Indians every year. This is why Saudi Arabia is culturally significant for India.

2. Indian Diaspora: The 2.7 million strong Indian community in Saudi Arabia is the **'most preferred community'** in Saudi Arabia and act as gents of soft power diplomacy. It is the largest expatriate group in the Kingdom. They send remittances of over US $11 billion annually to India.

3. Cultural and tourism exchanges are being enhanced, including new initiatives in film, education, and tourism under Saudi Vision 2030

What are the Challenges in India Saudi Arabia Relations?

However this deepening relation between India and Saudi Arabia also face several challenges which have been enumerated below.

1. Complexity of Middle East Politics: The politics of the Middle East are complex and multidimensional. There exist several fault lines like **Saudi Arabia-Iran Rivalry, Saudi Arabia-Israel animosity**. India faces a complex challenge to manage its relationship with all these countries without antagonizing others. For e.g. India tries to maintain ties with Iran (especially for projects like Chabahar Port), but Saudi Arabia's rivalry with Iran can complicate things.

2. Saudi Arabia–Pakistan Relations: Saudi Arabia has deep historical ties with Pakistan, including military and financial support, which sometimes causes friction with India. **Saudi Arabia is one of the largest financial aid provider to Pakistan**. Pakistan has been using these funds to breed terrorism and hatred towards India. This has also led to some discomfort in deepening of India-Saudi Arabia Relationship in the field of counterterrorism.

3. Labour and Migration Issues:

- **Expatriate Welfare:** The large Indian expatriate community (over 2.6 million) in Saudi Arabia sometimes faces challenges related to working conditions, wage disputes, and limited legal recourse, particularly under the erstwhile **Kafala system**. Although reforms are underway, ensuring the welfare and protection of these workers remains a priority.
- **Nitaqat Program of Saudi Arabia:** The Nitaqat program was introduced in 2011 in order **to increase the employment of Saudi nationals in the private sector**. Saudi policy of 'Nitaqat' have upset the large expatriate community of Indian working in the Kingdom.

4. Asian Premium: The "Asian premium" is an extra charge that the Organization of the Petroleum Exporting Countries (OPEC) levies on oil sales to Asian countries, including India, over and above the actual selling price of the oil. This premium has been a contentious issue, with Asian countries arguing that it is unfair and calling for its elimination. Saudi Arabia, the world's largest oil producer, has reduced the Asian premium charged on oil exports to India from around $10 per barrel to $3.5 per barrel. This move comes after India started sourcing a significant portion of its energy requirements from Russia, which is not a member of OPEC and therefore does not apply the Asian premium on its oil sales. India has been pressing oil producers to remove this premium for a long time, and has even suggested the introduction of an "Asian discount" instead.

5. Trade Deficit: India consistently faces a significant trade deficit with Saudi Arabia, primarily due to its heavy reliance on Saudi crude oil imports. In FY 2023-24, the trade deficit was nearly USD 20 billion.

6. Kashmir Issue: Occasionally, Saudi Arabia (through the OIC – Organization of Islamic Cooperation) has made statements supporting Pakistan's stance on Kashmir, though less so recently.

7. China's Growing Influence: Saudi Arabia is also deepening ties with China (energy deals, investment, and even security cooperation), which can dilute India's influence.

8. Maritime Security: Ensuring the safety of maritime trade routes in the Red Sea and the Gulf, especially in light of actions by non-state actors, requires close cooperation but also presents a shared security challenge.

What are the government initiatives to boost the bilateral relations?

1. POLITICAL COOPERATION:

- India's **LOOK WEST ASIA POLICY (2005):** India's Look West Policy is a strategy adopted by India to strengthen its relations with Arab nations, Iran, and Israel. It aims to promote economic, political, and cultural ties with these countries. It also aims to enhance cooperation in various fields such as trade, energy, security, and technology.
- Est of **STRATEGIC PARTNERSHIP COUNCIL:** Established in 2019, the SPC is a high-level mechanism to steer bilateral cooperation in various sectors. It is co-chaired by the Prime Ministers of both countries. Strategic Partnership Council has been expanded to include four ministerial committees, covering areas such as defense cooperation, tourism, and culture.
- **Joint Statements and Declarations:** The **Delhi Declaration (2006)** and the **Riyadh Declaration (2010)** elevated the relationship to a strategic partnership. The recent Joint Statement during PM Modi's **April 2025** visit outlines the future direction of the partnership.
- **High-Level Visits**: Regular ministerial-level interactions to ensure implementation of agreements.
- Both countries cooperate in multilateral forums like the G20, BRICS+, and the UN on various global issues

2. ENERGY & INFRASTRUCTURE INITIATIVES:

- **Joint Refinery and Petrochemical Projects**: Both nations are collaborating on establishing two refineries and petrochemical projects in India, aiming to enhance energy cooperation and infrastructure integration.
- **Electricity Grid Interconnectivity**: Feasibility studies are underway to establish electricity grid interconnectivity between India, Saudi Arabia, and the broader region, reflecting efforts to strengthen energy cooperation.

- Both the countries are collaborating in the sector of renewable energy as well especially in **Green Hydrogen** & various initiatives under **International Solar Alliance**. For e.g. **$12 Billion Saudi Investment** dedicated to India's green hydrogen, solar, and wind energy sectors

3. ECONOMIC COOPERATION:

- **High-Level Task Force on Investment (HLTF):** Established to facilitate Saudi Arabia's announced investment of **USD 100 billion** in India across sectors like energy, infrastructure, technology, and health.
- **Fintech and Digital Infrastructure Cooperation:** Collaboration on cross-border fintech, digital payments, and the development of digital public platforms like UPI
- **Skill Verification Program**: An agreement on a Skill Verification Program was signed between India's Ministry of Skill Development and Entrepreneurship and Saudi Arabia's Ministry of Human Resources, aiming to streamline the employment process for Indian workers in Saudi Arabia.

4. DEFENCE AND SECURITY COOPERATION:

- **Joint Military Exercises:** The first-ever joint land exercise, EX-SADA TANSEEQ, was held in India in 2024, and the naval exercise 'Al Mohed Al Hindi' is conducted regularly.
- **Counter-Terrorism Cooperation:** Intelligence-sharing mechanisms and joint condemnation of attacks like Pahalgam (April 2025).

5. CULTURAL AND PEOPLE-TO-PEOPLE TIES:

- **Bilateral Haj Agreement:** The annual agreement facilitates the pilgrimage of a large number of Indian Muslims to Saudi Arabia, with a quota of around 1.75 lakh in 2024. The agreement also supports women pilgrims without a *Mehram* (male guardian).
- **Yoga Diplomacy:** Recognition of Yoga as a sport in Saudi Arabia in 2017 and the popularity of Yoga in the Kingdom signify growing cultural exchange.
- **Cultural Exchange Programs:** Initiatives to promote literature, performing arts, tourism, and educational ties are being explored under Saudi Vision 2030.

6. COOPERATION IN SCIENCE AND TECHNOLOGY:

- **Space Cooperation:** An MoU has been signed between the Saudi Space Agency and the Indian Department of Space for cooperation in peaceful uses of space.
- **Technology and Innovation:** Collaboration in emerging technologies like AI, blockchain, and other advanced fields, including the potential development of a "Digital Silk Road."
- **Healthcare Cooperation:** MoUs on cooperation in health, including antimicrobial resistance and medical product regulation

7. CONNECTIVITY INITIATIVE = India-Middle East-Europe Corridor: Announced during the G20 summit, this ambitious project aims to build a rail and shipping corridor connecting India with the Middle East and Europe, enhancing economic growth and political cooperation.

What Should be the way forward for India-Saudi Relations?

1. ENHANCING ECONOMIC AND INVESTMENT TIES:

- **Diversify Trade Basket:** Move beyond the traditional focus on crude oil. Promote trade in non-oil sectors such as technology, pharmaceuticals, food processing, textiles, and engineering goods. Explore joint ventures and manufacturing partnerships.

- **Greater Integration of economies:** Some **labour-intensive establishments** from Saudi Arabia can be shifted to India which would reduce Kingdom's expatriate population. This would also eliminate the need to bring Nitaqat Policies.
- **Finalize Bilateral Investment Treaty and FTA with GCC:** Expedite negotiations for a Bilateral Investment Treaty to provide greater security and confidence to investors from both sides. Simultaneously, push for the early conclusion of a Free Trade Agreement between India and the Gulf Cooperation Council (GCC), which would significantly boost economic engagement.
- **Explore Local Currency Trade:** Investigate the feasibility of trading in local currencies (Rupee and Riyal) to reduce dependence on the US dollar and lower transaction costs.
- **Focus on New-Age Technologies:** Encourage collaboration in fintech, digital infrastructure (including UPI integration), AI, blockchain, space technology, and renewable energy. Establish joint research and development centers and facilitate technology transfer.
- **Leverage Synergies with Vision 2030 and Viksit Bharat 2047:** Actively align Indian capabilities with Saudi Arabia's ambitious Vision 2030 projects (like NEOM, Qiddiya) in sectors like construction, IT, tourism, and entertainment. Similarly, explore how Saudi investments can contribute to India's Viksit Bharat 2047 goals in infrastructure, manufacturing, and technology.

2. STRENGTHENING ENERGY PARTNERSHIP:

- **Move Towards Comprehensive Energy Cooperation:** Expand the energy partnership beyond a buyer-seller relationship in crude oil. Explore joint ventures in refineries, petrochemical complexes, and strategic petroleum reserves.
- **Solar and Green Hydrogen**: Leverage Saudi Arabia's desert landscapes and India's solar expertise to create a **global green energy hub** under the **International Solar Alliance**, focusing on grid interconnectivity and joint R&D.

3. DEEPENING DEFENCE AND SECURITY COOPERATION:

- **Institutionalize Defence Collaboration:** Formalize and expand defence cooperation through regular joint military exercises (across all domains – land, sea, air), personnel exchanges, and joint training programs.
- **Promote Defence Industry Cooperation:** Encourage collaboration in defence research and development, technology transfer, and joint manufacturing of defence equipment, aligning with India's focus on "Make in India" in defence.
- **Enhance Cybersecurity Cooperation:** Given the increasing importance of cybersecurity, establish robust mechanisms for information sharing, joint training, and cooperation in addressing cyber threats.
- **Strengthen Counter-Terrorism and Intelligence Sharing:** Continue and enhance cooperation in intelligence sharing, combating terrorism, extremism, and terror financing.
- **Maritime Security**: Conduct regular naval patrols in the Arabian Sea and Indian Ocean to secure critical shipping lanes.

4. ENHANCING MULTILATERAL AND REGIONAL COOPERATION:

- **Coordinate on Global Issues:** Continue close coordination on global issues in multilateral forums like the G20, BRICS+, and the UN, working towards a multipolar and rules-based global order.
- **Promote Regional Stability:** Engage in joint efforts to promote peace and stability in the Middle East and South Asia through dialogue and diplomatic initiatives.
- **Strengthen Cooperation within GCC+ Frameworks:** Utilize Saudi Arabia's GCC leadership to advance India's interests in West Asia, including countering regional instability.

5. PRIORITIZE DIASPORA WELFARE:

- **Labour Reforms:** Advocate for **Kafala system reforms** to ensure wage protection, faster dispute resolution, and skill recognition for Indian workers.
- **Hajj Facilitation:** Secure an expanded Hajj quota and streamline pilgrimage processes for Indian Muslims.

6. IMEC Implementation: Accelerate the **India-Middle East-Europe Economic Corridor** to enhance shipping routes, port connectivity, and logistics hubs, positioning both nations as global trade intermediaries.

7. Increased Cooperation in Space: With India's growing space prowess , space becomes an important domain of cooperation between the two countries. Newly established **Saudi Space Agency** can engage with ISRO.

Conclusion

In the fast-changing geopolitical profile of the Middle East ,India and Saudi Arabia both need each other to balance their relationships for a **peaceful and stable West Asia** where more than 8 million people of Indian origin reside and contribute for the betterment of the economy of the region. By aligning **India's "Think West" policy** with **Saudi Vision 2030**, both nations can transform their relationship into a **global strategic alliance**, addressing mutual economic, security, and technological aspirations while ensuring regional stability.

Read More: The Hindu
UPSC Syllabus GS2: Bilateral, regional & global groupings involving India

Office of Deputy Speaker – Role & Significance – Explained pointwise

The Office of Deputy Speaker has remained vacant for the entire term of 17th Lok Sabha (2019-2024) & even in 18th Lok Sabha, the House has not elected any Deputy Speaker as of yet. This is not just just a procedural lapse but a constitutional anomaly which may going to have strong repercussions on our democratic parliamentary system.
In this article, we will learn about the constitutional position, roles & responsibility of the Office of Deputy Speaker, its significance & impact of leaving the post vacant as well as what could be the way forward.

What are the Constitutional Provisions Regarding Deputy Speaker?

1. Article 93: The House of the People (Lok Sabha) is required to elect two members as Speaker and Deputy Speaker whenever these offices become vacant. The article does not specify a time frame for this election but uses the phrase **"as soon as may be"**.

2. Article 178: This article provides the corresponding requirement for the Speaker and Deputy Speaker of a State's Legislative Assembly.

Election of Deputy Speaker:

- According to **Article 93** of the Indian Constitution, it is **mandatory** to elect a Deputy Speaker.
- The Deputy Speaker is elected soon after the formation of a new house, following the election of the Speaker.
- **Rule 8 of the Rules of Procedure and Conduct of Business in Lok Sabha:** The election of the Deputy Speaker is held on a date fixed by the Speaker.
- The Deputy Speaker is elected once a motion proposing their name is passed in the House. Typically, the Deputy Speaker serves for the entire duration of the House.

Position of Deputy Speaker:

- The **Deputy Speaker** is the **second-highest authority** in the **Lok Sabha** after the **Speaker**.

- The Deputy Speaker is not subordinate to the Speaker but is directly responsible to the Lok Sabha. However, when the Speaker is presiding, the Deputy Speaker functions as a regular member of the House.
- **Article 95:** The Deputy Speaker performs the duties of the Speaker when the office is vacant and acts as the Speaker when the latter is absent from House sittings. In both scenarios, the Deputy Speaker assumes all powers of the Speaker.
- The Deputy Speaker **continues in office** even if the House is dissolved — until the newly elected House chooses a new Deputy Speaker.
- By convention (developed after 11th Lok Sabha), the **Deputy Speaker** is elected **from opposition political party** — to promote **non-partisan functioning** (it is not a constitutional requirement).

Responsibilities and Functions:

1. Presiding Officer: The Deputy Speaker performs the duties of the Speaker when the Speaker's office is vacant, or when the Speaker is absent from a sitting of the House. In such cases, the Deputy Speaker assumes all the powers of the Speaker. This ensures the continuity of the legislative process and maintains order and decorum in the Lok Sabha.

2. Maintaining Order and Decorum: Like the Speaker, the Deputy Speaker is responsible for upholding parliamentary rules and conventions, managing debates, and ensuring the orderly conduct of proceedings. They help in maintaining order and decorum in the House during debates and proceedings ensuring the rules of the House are followed.

3. Administrative Responsibilities: The Deputy Speaker may share administrative responsibilities with the Speaker, contributing to the effective management of parliamentary affairs.

4. Independence from Speaker: Deputy Speaker is not subordinate to the Speaker and is directly responsible to the House. Both the Speaker and Deputy Speaker must submit their resignations to the House.

5. Committees-related functions: If the Deputy Speaker is a member of a parliamentary committee, they automatically become its chairperson. This allows them to play a significant role in the detailed examination of legislation and other matters. For e.g. Deputy Speaker acts as chairman of the **Committee on Private Members' Bills and Resolutions**.

6. Representative Role: In the absence of the Speaker, the Deputy Speaker represents the House in ceremonial functions and official events.

What is the significance of the post of Deputy Speaker?

1. Ensures Continuity and Stability: The Deputy Speaker acts as the second-in-command in the Lok Sabha, presiding over the House in the absence of the Speaker or when the Speaker's office is vacant. This guarantees that the business of the House is not disrupted, ensuring the smooth and uninterrupted functioning of parliamentary proceedings. For e.g. 1st elected Deputy Speaker of Lok Sabha, **M.A. Ayyangar**, served as the acting speaker following the death of Speaker G.V. Mavalankar in 1956. His appointment during the crisis established a precedent for Deputy Speaker's importance as a ready & capable replacement.

2. Upholds Parliamentary Integrity and Order: When presiding, the Deputy Speaker exercises all the powers and responsibilities of the Speaker, including maintaining order, conducting debates, and enforcing parliamentary rules. Thus, the role of Deputy Speaker is not just supplementary to the Speaker's. It is vital for the uninterrupted functioning of the lower House of the Parliament. The presence of a Deputy Speaker helps uphold the integrity and efficiency of the legislative framework by providing an impartial authority to manage the House.

3. Promotes Representation and Inclusivity: Historically, the Office of Deputy Speaker has also held symbolic importance in fostering bipartisan respect. By convention, the Deputy Speaker is often chosen from the opposition party or alliance, promoting a balance of power and inclusivity within the parliamentary system.

This practice enhances the legitimacy of parliamentary proceedings and fosters cooperation between the ruling and opposition parties as well as reinforce the non-partisan ethos that the Speaker's office aims to uphold.

4. Strengthens Democratic Principles: The Office of Deputy Speaker is not merely a ceremonial seat but a constitutional imperative. The constitutional mandate for the election of a Deputy Speaker (Articles 93 and 95) reflects the commitment to democratic values and the principle of collective leadership. The role exemplifies impartiality and fairness, which are vital for the credibility of legislative institutions.

5. Facilitates Effective Administration: The Deputy Speaker often shares administrative responsibilities with the Speaker and may chair important parliamentary committees, contributing to the detailed scrutiny of legislation and issues. This involvement enhances the quality of deliberations and decision-making within the House. Constitutional expert **S.C. Kashyap** has also noted that it is not possible for a Speaker to physically preside over every sitting of the House in its entirety in a Session. Thus, in such absences, the Deputy Speaker steps in to ensure that the proceedings continue without procedural disruption.

6. Broader Role & Responsibilities: The role of Deputy Speaker has not been limited to just 'filling in' for the Speaker. They can chair important sessions (including joint sittings), preside over specific committees, handle sensitive debates that require neutral & trusted authority.

7. Symbol of Parliamentary Tradition: The office of the Deputy Speaker traces its roots to pre-independence legislative practices and remains an integral part of India's parliamentary heritage. The position originated in the Central Legislative Assembly under British Rule, where it is known as the Deputy President. The 1st to hold the office was **Sachidanand Sinha** in 1921. By the time India achieved independence in 1947, the Office of Deputy Speaker already became an institutional fixture in legislative governance.

What could be the impact of leaving the Office of Deputy Speaker vacant?

1. Leaving the Deputy Speaker's position vacant undermines the institutional safeguards established by the Constitution. It centralizes the procedural power solely within the Speaker & the ruling party, eliminating a vital counterbalance.

2. In an emergency situation, such as the Speaker's resignation, death, or removal, the lack of a designated second-in-command could lead to confusion or even a temporary leadership vacuum in the House.

3. The delay in election of the Deputy Speaker also signals a broader disregard for parliamentary conventions – especially the unwritten rule of offering the post to the opposition. Failing to fill the post is not just a passive oversight, it is an active sidelining of consensus politics.

4. The intent of the constitution by including the phrase "as soon as may be" is clear that the Lok Sabha must never function without a second-in-command – a constitutional safeguard to ensure continuity, stability & institutional balance.

5. Though, the Constitution does not prescribes a definite timeline for the election of Deputy Speaker, but the phrase "as soon as may be" must not be interpreted as "whenever convenient". The argument that there is 'no urgency' to appoint the Deputy Speaker runs counter to the entire ethos of constitutional democracy. Our Constitutional framers foresaw the importance of redundancy in leadership & thus created the post of second-in-command. Hence, the position of Deputy Speaker are not afterthoughts – they are foundational to the system's resilience.

What could be the way forward?

1. Amend the Rules or Constitution to Specify a Time Frame: Introduce an explicit time limit-such as requiring the election of the Deputy Speaker within a fixed number of days (e.g. 60 days) after the Speaker's election or within the first or second session of the new Lok Sabha. A statutory mechanism can be introduced to allow the President to initiate the process within a time frame – upon the advice of PM or the Speaker. This would remove ambiguity and make the election process time-bound, reducing the scope for government discretion and delays.

2. Strengthen Parliamentary Conventions: Reinforce the established convention of electing the Deputy Speaker in the second session at the latest, and encourage all parties to uphold this practice in the interest of parliamentary integrity and continuity. Public and institutional pressure, including from the Opposition and civil society, can help ensure adherence to this convention.

3. Empower the Speaker to Fix an Early Date: The current rules allow the Speaker to fix the date for the Deputy Speaker's election. The Speaker should be encouraged, either by convention or through internal parliamentary resolutions, to set this date promptly after the Speaker's own election.

4. Judicial or Institutional Oversight: The Supreme Court has already sought responses regarding the prolonged vacancy. Continued judicial scrutiny or recommendations from parliamentary committees can act as a deterrent against undue delays.

5. Political Consensus and Transparency: Foster a political consensus, possibly through an all-party meeting, to ensure that the Deputy Speaker's election is not held hostage to political bargaining but is treated as a matter of institutional propriety and balance.

Conclusion:
The Office of Deputy Speaker of Lok Sabha is neither symbolic nor optional. It is a constitutionally sanctioned position designed to uphold the integrity & continuity of legislative functioning. Disregarding it not only violates the Constitution's letter but also undermines the spirit of the democratic balance. Thus, it is time for the Parliament to reaffirm its respect for constitutional norms & institutional integrity by electing a Deputy Speaker – which will ensure House's commitment to rule-based governance.

Read More: The Hindu
UPSC Syllabus GS2: Parliament & State Legislatures – Structure, Functioning, Conduct of business

Solid Waste Management in India- Explained Pointwise

The Solid Waste Management in India remains an Achilles heel for India. The Supreme Court of India recently criticized the solid waste management in New Delhi. There are more than 3,800 tones of untreated solid waste in Delhi alone. This waste reaches landfills and threatens public health and the environment. Proper steps need to be undertaken for safe disposal and treatment of solid waste in India.

What is a Solid Waste?

- **Solid Waste:** Solid waste refers to any unwanted or discarded material that is not in a liquid or gaseous state. The solid waste includes a wide range of materials generated from various sources such as households, industries, commercial establishments, construction sites, and institutions.
- **Types of Solid Waste:**
  - **Municipal Solid Waste (MSW)** – Household, commercial, market waste.
  - **Biomedical Waste** – Hospitals, clinics (requires special handling).
  - **Electronic Waste (E-waste)** – Phones, laptops, appliances.
  - **Construction & Demolition (C&D) Waste** – Debris, bricks, tiles.
  - **Industrial Waste** – By-products from factories, often hazardous.
  - **Plastic Waste** – Single-use plastics, packaging material.

What is the status of Solid Waste generation in India?

Status of Solid Waste Generation in India:

- According to a study published in 'Nature' – India is the biggest plastic polluter in the world – releasing 9.3mT of plastic waste annually – which is equivalent to around 20% of global plastic emission.
- According to CPCB report, only ~50% of total solid waste generated in the country is treated. The processing of solid waste in India has improved significantly, from 19% in 2015-16 to ~50% in 2020-21. In the corresponding period, the proportion of solid waste landfilled has fallen from 54% to 18.4%.

The total quantity of Solid waste generated in India per Day	~1,60,000 Metric Tonnes Per Day (TPD)
Waste Collection per day	~1,53,000 Metric Tonnes Per Day (TPD) Waste Collection efficiency is ~96%
Waste treatment per day	~80,000 Metric Tonnes Per Day (TPD) Only 50% of the total waste is treated
Waste Landfilled per day	~30,000 Metric Tonnes Per Day (TPD) 18.4% of the total waste generated ends in landfill
Unaccounted Waste Generation	~50,000 Metric Tonnes Per Day (TPD) 31.2% of the total waste generated remains unaccounted.

About 50-55% of the waste generated in Indian cities is biodegradable wet waste, about 35% is non-biodegradable wet waste and 10% is an inert component.

What are the Challenges with Solid Waste Management in India?

1. Rising Waste Generation: Rapid economic growth has raised the consumption levels in the economy, which has in turn increased the waste generation. Further, the expansion of digital economy is leading to a multifold increase in e-waste generation. Rising plastic waste generation in eco-sensitive regions like Himalayas are

choking the fragile ecosystems present there. ***For ex-*** *A Planning Commission Report had estimated that India will generate 165 million tonnes by 2030.*

2. Lack of proper Waste Management: India lacks proper waste management and disposal techniques.

- **Inadequate Infrastructure:** Many urban and rural areas lack proper infrastructure for waste collection, segregation, transportation, processing, and disposal.
- **Collection & Treatment:** While collection rates are improving, a significant portion of the generated waste remains uncollected.
- **Poor Processing:** Only 50% of the waste produced is actually processed in India. ~30% of waste is not accounted and ~20% ends up in landfills, reflecting poor waste disposal method.
- **Incorrect and Inadequate Segregation Techniques:** There is poor segregation of waste at source. Hazardous waste and e-waste is not sealed and labelled leading to improper disposal. ***For ex-*** *Valuable materials like aluminum and plastics end up in landfills instead of being recycled.*
- **Reuse/recycling of waste:** Reuse and recycling of waste is predominantly an informal economy, lacking access to advanced technology.
- **Financial Constraints:** Local municipal bodies often face budget limitations hindering investments in modern waste management systems.

3. Littering and Illegal Dumping: Due to poor disposal methods, almost half of waste is placed in uncontrolled dumps and landfills. A substantial amount of untreated waste, approximately 24%, ends up in landfills, many of which are unscientific and overflowing. These landfills are the source of generation of methane gases, leachates, and landfill fires, adversely affecting the surrounding environment

4. Lack of land resources: The urban areas in India lack adequate land resources to set up waste processing plants. ***For ex-*** *Waste processing plants in Delhi need large land parcels, of about 30-40 acres each for treatment.*

5. Lack of public awareness: Lack of public awareness regarding proper waste management practices, contributes to littering and improper disposal habits.

6. Lack of regular waste collection services: The lack of regular waste collection services adds up to the building up of waste as well as littering. Illegal dumping in open areas and water bodies increases the pressure on the municipal body, warranting more resources for clean-up.

7. Lack of proper data: Lack of data regarding the quantity & quality of waste generated & processed in India is a major roadblock in its management. The data regarding the rate of waste generation in India is underestimated & of waste collection is over-estimated. For e.g. according to the official estimates, the plastic waste generation rate in India is 0.12 kg/capita/day, while according to the study published in 'Nature' , it is as high as 0.54 kg/capita/day. The agencies in India claim to collect 95% of the waste generated, however, these official statistics do not include rural areas, open burning of uncollected waste or the waste recycled by the informal sector.

8. Informal Sector: The informal sector, consisting of waste pickers and recyclers, plays a crucial role in managing and extracting value from waste, though often under hazardous conditions.

9. Waste Composition: A large percentage of Indian waste is organic, offering potential for composting and biomethanation. However, the increasing proportion of non-biodegradable waste like plastics and e-waste presents management challenges.

What are the harmful impacts of poor Waste Management?

1. Health Issues: The improper waste management leads to several health issues such as:

- Open burning of waste leads to formation of harmful particles which can cause lung diseases.
- Poor collection of solid waste leads to garbage dumps which act as breeding ground for rats and mosquitoes etc. Mosquitoes act as carriers of diseases like malaria and dengue.

2. Environmental Issues: Improper waste management techniques lead to various environmental problems such as:

- Unscientific dumping in landfill leads to formation of harmful chemicals which permeate into soil and groundwater. This renders groundwater unfit for drinking and cause multiple diseases
- Waste in landfills leads to formation of harmful gases leading to air pollution. ***For ex-*** *Around 90-98% of landfill gases are made up of methane and carbon dioxide, remaining 2-10% includes nitrogen, oxygen, ammonia, sulphides, hydrogen and various other gases.*
- A lot of land-based waste eventually ends up in sea leading to marine pollution.

3. Economic Impacts: Improper waste management usually has grave economic impacts such as:

- Expansion of landfills occupy useful land, leading to wasteful utilization of an economic resource.
- Poor waste collection leads to clogging of drains, which has become a factor in urban flooding, leading to economic losses.
- Poor waste management leads to general filth in cities, which impacts tourism potential.

What have been the Government interventions for Solid Waste Management?

Policy and Legal Framework for Waste Management in India	The Government of India (GoI) has formulated various Rules and Regulations. These rules are updated periodically and have been formulated under the **Environment Protection Act, 1986**. These include a. Solid Waste Management Rules b. e-Waste Management Rules c. Plastic Waste Management Rules
Extended Producer Responsibility (EPR) Mechanism	EPR is a policy approach in waste management that makes producers responsible for the entire lifecycle of their products, including their collection, recycling, and disposal. In 2022, EPR initiatives utilizing market mechanisms were implemented for plastic packaging, E-waste, battery waste, and used oil.
Swachh Bharat Mission for Solid Waste Management	Central assistance is provided under Swachh Bharat Mission for solid waste management, including plastic waste management in urban and rural areas.
Compost Banao, Compost Apnao Campaign	It is a multi-media campaign launched by MoHUA on waste-to-compost under SBM-(U). The aim is to encourage people to convert their kitchen waste into compost to be used as fertilizer and to reduce the amount of waste getting to landfill sites.
Promotion of Waste to Energy	The Ministry of New and Renewable Energy (MNRE) launched Program on Energy from Urban, Industrial, Agricultural waste/residues and Municipal Solid Waste to promote setting up of Waste-to-Energy projects and to provide central financial assistance.

GOBAR-Dhan Scheme	This scheme promotes the conversion of cattle dung and organic farm waste into biogas and organic compost in rural areas.
National Action Plan for Municipal Solid Waste Management	This plan by the Central Pollution Control Board (CPCB) outlines strategies for waste minimization, utilization, recycling, processing, and environmentally sound disposal.

What should be the Way Forward?

1. Scientific Waste Management: The waste management planning should be based on sound scientific and engineering studies. They should consider waste composition, capital and long-term operating costs, transport distances, and the geographical location of waste processing and disposal facilities.

2. Smart Waste Management System: In the long term, technology like (Internet of Things) can be integrated into waste management. ***For ex-*** *RFID-enabled door-to-door waste collection monitoring can enhance collection efficiency and GPS based vehicle tracking can help in real time monitoring.*

3. Emphasis on recycling, resource recovery & processing: Policies supporting recycling and recovery of resources from waste must be implemented stringently. Waste processing methods like composting, vermicomposting and bio-methanation should be adopted for treating organic waste. Establish efficient material recovery facilities (MRFs) and support the formalization of the recycling sector.

4. Scaling up Waste-to-energy: Bio-methanation (anaerobic digestion) which uses microorganisms to convert the organic waste into methane, can be used as fuel. Bio-methanation plants should be scaled up. Also, Refuse-Derived Fuel (RDF) which consists of plastics, paper, and textile waste, having good calorific value, can be used to generate power in waste-to-energy projects.

5. Polluter Pays Principle: Waste Management Rules which have incorporated '**Polluter Pays Principle**', need to be stringently implemented to penalize non-compliance. Polluter pays principle casts absolute liability on the polluter for the harm caused to the environment & extends not only to compensate the victims of pollution but also the cost of restoring environmental degradation. While the liability is clear under this principle, but the process of determining an equitable compensation is difficult as it must account for both tangible & intangible damages inflicted on environment & the affected communities. To overcome this, the Courts have modified the principle into **'Government Pays Principle'** under which it is the government which has to pay the compensation to the affected individuals & recover the same from the polluters, until the damage caused to the ecology is fully reversed.

6. Increasing Public Awareness: Self- help groups, residents' welfare associations, and community-based organizations should be encouraged to educate and acquaint people with beneficial waste management strategies, including separation, recycling modes, and drop off centers for recyclables, as well as composting.

7. Data collection: There is an urgent need to collect & provide reliable data about waste generation & its composition in the country for its effective management. We need to know how much of the waste is being generated, where & how it is being managed for finding an effective solution. We also need to have data regarding the infrastructure that has been built over the years for waste management & such infrastructure needs to be geotagged to help in proper disposal of waste.

8. Extended Producer Responsibility (EPR): To effectively operationalize the EPR, the producers, importers & and brand owners that have a legal obligation to collect the waste, can collectively form kiosks across the country to collect the waste from local bodies – so that all the waste that is covered under EPR can be deposited & effectively managed.

Conclusion:

According to the SC of India, environmental protection is not only a regulatory obligation but also a

constitutional imperative which aims to to safeguard the fundamental rights of the individuals & preserve the ecological balance. Thus, it is the right time to hold the waste management system in the country accountable to the people whose health is impacted by the land, water & air pollution caused by unmanaged & mismanaged waste all across the country.

Read More: The Hindu
UPSC Syllabus: GS III, Conservation, Environment Pollution and Degradation.