

# Forum IAS

## 7 PM COMPILATION

**16<sup>th</sup> to 30<sup>th</sup> June, 2023**

### Features of 7 PM compilation

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

**India – China border dispute: Three years after Galwan clash– Explained, pointwise**

**Topic:** International Relations

**Sub Topic:** India and its neighbourhood- relations.

**[Kurukshetra June 2023 Summary] Water conservation through community planning – Explained, pointwise**

**Topic:** Human and Economic Geography

**Sub Topic:** Distribution of key natural resources across the world (including South Asia and the Indian sub-continent).

**Cyclone disaster management in India: progress and challenges – Explained, pointwise**

**Topic:** Disaster Management

**Sub Topic:** Disaster and disaster management.

**[Yojana June 2023 Summary] Direct Benefit Transfer (DBT) in India: A global role model – Explained, pointwise**

**Topic:** Social Justice

**Sub Topic:** mechanisms, laws, institutions and Bodies constituted for the protection and betterment of vulnerable sections.

**Precision fermentation: advantages and challenges – Explained, pointwise**

**Topic:** Science and Technology

**Sub Topic:** Awareness in the field of biotechnology.

**[Yojana June 2023 Summary] Yoga for Global well-being – Explained, pointwise**

**Topic:**

**Sub Topic:**

**Carbon Border Adjustment Mechanism (CBAM) and its implications for India – Explained, pointwise**

**Topic:** Environment and Bio-diversity

**Sub Topic:** Environmental pollution and degradation.

**World's largest grain storage plan: benefits and challenges – Explained, pointwise**

**Topic:** Public Distribution System

**Sub Topic:** objectives, functioning, limitations, revamping; issues of buffer stocks and food security

**Recent Development in India-US Relations – Implications and Significance – Explained, pointwise**

**Topic:**

**Sub Topic:**

**India-Egypt Relations – Recent Developments -Explained, pointwise**

**Topic:**

**Sub Topic:**

**Financing the Green transition: initiative and challenges – Explained, pointwise**

**Topic:**

**Sub Topic:**

**Volatility in Tomato, Onion and Potato (TOP) prices and its implications for India – Explained, pointwise**

**Topic:** Economic development

**Sub Topic:** marketing of agricultural produce and issues and related constraints.

**Uniform Civil Code: Arguments for and against – Explained, pointwise**

**Topic:**

**Sub Topic:**

**India – China border dispute: Three years after Galwan clash– Explained, pointwise****Introduction**

Three years after the infamous Galwan clash, the India-China border dispute still remains a significant geopolitical issue. The deadly encounter in the Galwan Valley marked a turning point in Sino-Indian relations, leading to heightened tensions and military buildup along the Line of Actual Control (LAC). While some progress has been made through rounds of diplomatic and military talks, many friction points persist. This ongoing dispute continues to strain the bilateral ties, making its resolution critical for regional peace and stability.

**About the Galwan Clash**

The Galwan Valley clash, occurring on the night of June 14-15, 2020, marked a pivotal moment in India-China relations. For the first time in 45 years, soldiers from the Indian Army and China's People's Liberation Army engaged in a fatal altercation at the Line of Actual Control (LAC), resulting in significant casualties on both sides. The conflict, sparked by China's attempts to alter the LAC status quo, ignited deep tensions and mutual distrust.

Three years later, despite diplomatic, political, and military discussions, these issues remain unresolved. Both nations continue to enhance their military presence and infrastructure along the LAC, amidst fluctuating perspectives on the situation's gravity. The disengagement in key areas remains incomplete, and India insists on returning to the April 2020 status quo. This complex dispute requires continual vigilance, ideally leading to a peaceful, mutually beneficial resolution.

**Read more:** [Playing Chinese Checker: PLA's big aim at LAC is to get India to accept China's hegemony. We must see this & prepare](#)

**What is the status of the present conflict between India and China?**

**Ongoing standoff and military preparedness:** The conflict between India and China following the Galwan Valley clash in 2020 remains unresolved, with both sides maintaining a significant military presence along the disputed Line of Actual Control (LAC). India has significantly enhanced its military infrastructure, surveillance capabilities, and combat readiness, closing the "infrastructure differential" with China.

**Diplomatic and military talks:** 18 rounds of high-level military talks have been conducted so far, focusing on disengagement and restoring peace along the LAC in eastern Ladakh. Some success has been achieved, with disengagement in several areas following extensive diplomatic and military discussions.

**Media row:** The ongoing dispute between India and China concerning journalists, tensions have escalated as China has reportedly ordered the last Indian journalist remaining in the country to leave. The representative from the Press Trust of India (PTI) has been instructed to leave China, effectively erasing any Indian media presence from the country.

**Difference of opinion in LAC:** There is a significant difference in how the two sides perceive and project the situation at the LAC. While China portrays the situation as gradually shifting to a normalized management phase, India views the border situation as "very fragile" and "quite dangerous." Furthermore, India demands the restoration of the status quo of April 2020 at Ladakh, which China has consistently refused.

**Future relations:** India maintains that the normalization of bilateral ties with China is contingent upon peace in the border areas. China, on the other hand, seeks to put the border issue aside to focus on building a broader relationship. This fundamental disagreement continues to hamper the resolution of the conflict.

**Must read:** [Disengagement agreement at Pangong Tso Lake – Explained](#)

## What is the status of boundary talks between India and China?

### What happened at Galwan Valley?

Last year, Eastern Ladakh witnessed the fiercest Sino-Indian border clash since the 1962 war, leading to death of 20 Indian Army soldiers and a sizeable number (reports say 45) of Chinese troops. The clash happened after weeks of face-off between troops at several parts of Eastern Ladakh.

### What led to Indian Army-PLA face-off in the first place?

- India's decision to strengthen border infrastructure was not welcomed
- The DSDBO road including a bridge over Shyok river were major irritants
- Chinese objected to India building 4-5 small footbridges for the troops to cross the river near PP14.
- Skirmishes on the northern banks of Pangong Tso preceding the clash.
- India's decision to withdraw the statehood for Jammu and Kashmir



Indian and Chinese troops and tanks disengaging from the banks of Pangong Tso in Eastern Ladakh.

PHOTO: NORTHERN COMMAND, INDIAN ARMY

### Why Galwan Valley is important?

Galwan Valley is strategically located between Ladakh in the west and Aksai Chin in the east. At its western end are the Shyok river and the Darbuk-Shyok-Daulet Beg Oldie (DSDBO) road. Its eastern mouth lies not far from China's vital Xinjiang-Tibet road or G219 highway.

### Where does the Line of Actual Control lie?

The LAC lies east of the confluence of the Galwan and Shyok rivers in the valley, up to which both India and China have been patrolling in recent years. After the June 15 clash, China has claimed that the entire valley lies on its side of the LAC.



### Territorial claims and LAC claims

- They are not the same.
- The distinction between territorial claims and LAC claims is sometimes blurred.
- The LAC refers to territory under the effective control of each side, not to their entire territorial claim.
- For instance, India's territorial claims extend 38,000 sq km on the other side of the LAC across all of Aksai Chin, but the LAC India observes runs through the valley.

### The Concerns

- By staking a claim to the entire Galwan Valley and up to the confluence of the rivers, China is, in India's view, unilaterally altering the LAC.
- This goes against the 1993 Border Peace and Tranquility Agreement under which India and China agreed to strictly respect and observe the LAC between the two sides.

### Undemarcated borders

- The alignment of the LAC has never been agreed upon.
- The current understanding of the LAC reflects the territories that are, at present, under the control of each side, pending a resolution of the boundary dispute.
- For the most part, in the western sector, the LAC broadly corresponds with the border as China sees it.
- However, India and China do not agree on the alignment of the LAC everywhere.

### The length of the Line of Actual Control

- From Ladakh to Arunachal Pradesh, the LAC has a length of 3,488 km
- 1,597 km in the western sector
- 545 km in the middle sector
- 1,346 km in the eastern sector.
- The length of the LAC in Ladakh is 826 km

Source: Deccan Herald

**High-level military talks:** These talks aim to encourage disengagement in the friction points and to restore peace along the LAC. Though some progress has been made through these discussions, a mutually acceptable solution to all the remaining points of contention is yet to be agreed upon.

**Achievements of the talks:** As a result of the ongoing diplomatic, political, and military conversations, troops have successfully disengaged from multiple areas including Galwan Valley, the north and south banks of [Pangong Tso](#), and the Gogra Post-Hot Springs area. This indicates that despite the friction, both sides are willing to engage in dialogue to resolve conflicts.

**Key issues remain unresolved:** China has been resistant to discussing the strategic Depsang Plains and Demchok areas, stating that these are “legacy issues” that predate the April 2020 clashes and hence do not come under the purview of the current talks. This resistance has created a deadlock in the negotiations, further complicating the already strained relationship between the two nations.

**Diverging perspectives and expectations:** There is a clear divergence in how both countries view the progress and the outcome of these talks. China seeks to normalize the situation, urging India to separate the border issue from the broader bilateral relationship. India, on the other hand, insists that peace and tranquillity in the border regions are a prerequisite for any normalization of bilateral relations. This fundamental difference in perspective continues to pose challenges to the success of the talks.

**Read more:** [India China rebooting ties Post – Doklam](#)

**What are the challenges in resolving the India – China border dispute?**



Source: Tribune

**Historical Disagreements and ‘Legacy Issues’:** The India-China border dispute has a long and complex history that dates back to the 1962 border war. The presence of ‘legacy issues’, such as the disputes over Depsang Plains and Demchok, which China refuses to discuss under current talks, adds an additional layer of complexity.

**Unilateral actions:** China’s attempts to unilaterally alter the status quo along the LAC, including military incursions into Indian territory, have significantly escalated tensions and complicated resolution efforts.

**Strategic concerns and nationalistic sentiments:** The strategic importance of the disputed territory, coupled with nationalistic sentiments on both sides, makes it more difficult for either government to compromise or concede territory.

**Military build-up and infrastructure development:** Both sides have been strengthening their military presence and infrastructure along the LAC, signalling preparedness for potential conflict and reducing the space for a peaceful resolution.

**Lack of trust and mutual suspicion:** The deadly clashes of 2020 have deeply impacted the level of trust between the two nations, leading to heightened suspicion and uncertainty. This lack of trust creates a volatile environment that is not conducive to long-term conflict resolution.

**Imbalance in buffer zones:** The establishment of buffer zones during the disengagement process has resulted in India losing more territory than China. This imbalance creates further tension and makes conflict resolution more difficult.

**Media and diplomatic relations:** Relations outside the border conflict, like the tit-for-tat war over journalists, further strain the relationship between the two nations, making it harder to find common ground and cooperate in resolving the border dispute.

**Read more:** [Lessons and Challenges for India after a Year of Galwan Clash](#)

**What should be done?**

**Continued dialogue and negotiations:** Both nations must continue high-level talks, keeping dialogue channels open to facilitate negotiation and mutual understanding. Military, political, and diplomatic conversations should be maintained to reduce tension along the LAC.

**Establish trust:** Building trust is crucial in resolving any conflict. To this end, both countries should actively avoid actions that could exacerbate the situation, such as unilateral attempts to alter the status quo, and work towards fostering an environment of mutual respect and understanding.

**Resolve legacy issues:** The legacy issues, including unresolved border claims, should be addressed in the negotiations, without discarding them as matters predating the current conflict. This would ensure a comprehensive solution to the border dispute.

**Balanced disengagement:** Future disengagements should aim for a balance, ensuring neither side disproportionately loses territory in the creation of buffer zones. This will help to maintain the equilibrium and contribute to a long-term peaceful resolution.

**Improvement of broader relations:** While addressing the border dispute is essential, it would be beneficial to also focus on improving the broader bilateral relations. For instance, both countries could work towards resolving issues such as the ongoing media dispute.

**Third-party mediation:** If bilateral talks do not result in a breakthrough, considering a neutral third-party mediator could be an option. However, both countries must agree to this, and it should not be perceived as an infringement on their sovereignty.

**Sources:** Indian Express ([Article 1](#) and [Article 2](#)), [Swarajyamag](#), [Financial Express](#), Economic Times ([Article 1](#), [Article 2](#) and [Article 3](#)), [Tribune](#), [Live Mint](#), [WION](#) and [The Diplomat](#)

**Syllabus:** GS 2: International Relations: India and its neighbourhood- relations.

**[Kurukshetra June 2023 Summary] Water conservation through community planning – Explained, pointwise**

**Introduction**

Water conservation is a critical global concern, emphasized by the United Nations' Sustainable Development Goal 6 (SDG 6), which promotes clean water and sanitation for all. An integral part of this goal involves managing water resources sustainably and ensuring that every drop is used efficiently.

In a populous country like India, where the pressure on water resources is immense, the need for conservation is even more urgent. In this context, community planning plays a vital role. By involving local communities in water conservation efforts, the use and management of water can be optimized to meet local needs and circumstances, while also fostering a sense of responsibility for this crucial resource.

**Read more:** [Equitable Water Resources Management – Explained, pointwise](#)

**What are the needs for water conservation in India?**

**Growing population and limited resources:** India houses 18% of the world's population with only 2.4% of the world's land. This increasing population and limited resources necessitate effective water conservation.

**Increased freshwater demand:** Due to industrialization, urbanization, and population growth, the demand for freshwater has escalated. The country needs to conserve water to meet this rising demand.

**Rapid depletion of groundwater levels:** Groundwater fulfils about 80% of rural and 50% of urban India's water needs. Farmers extensively extract groundwater for irrigation, resulting in declining groundwater levels. Thus, judicious extraction and water conservation are required to balance the situation.

**Reliance on rain-fed irrigation:** India receives about 1,200 mm of rainfall each year, yet only 6% is effectively captured and stored. This heavy reliance on rain-fed irrigation results in water stress during dry periods and emphasizes the need for effective water conservation and storage techniques.

**Mitigating effects of climate change:** Erratic rainfall patterns, droughts, or drought-like conditions due to climate change increases the need for effective water management and conservation.

**Sustainable agricultural practices:** Around 84% of total incremental irrigation comes from groundwater. To ensure the sustainability of agricultural practices, it is crucial to conserve water resources.

**Enhanced community involvement:** Water conservation initiatives would be more successful if the community is involved in various stages of implementation. Community-based management of water resources is therefore essential.

**Must read:** [Groundwater Use and Governance in India – Explained, pointwise](#)

**How can India use community participation to address the rapid depletion of groundwater?**

**Enhancing awareness and education:** Through community awareness programs, local residents can learn about the importance of groundwater, the dangers of over-extraction, and ways to conserve it. Education can empower communities to take proactive steps towards conservation.

**Promoting community-led initiatives:** Communities can be encouraged to take the lead in local water conservation initiatives, such as rainwater harvesting, maintaining local water bodies, and employing sustainable irrigation practices. These initiatives can significantly reduce the over-reliance on groundwater.

**Establishing water user associations:** Communities can form Water User Associations to manage local water resources. These associations can develop local rules for water usage, conduct regular checks on water levels, and ensure the equitable distribution of water.

**Empowering local self-governance:** The Panchayati Raj Institutions (PRIs) can play a pivotal role in planning, implementing, and monitoring water conservation measures at the local level. They can take up the responsibility of identifying water conservation projects and strategizing the extraction of water for identified purposes.

**Involving women in water management:** Women, often the primary users of water in households, can play a crucial role in water conservation. Encouraging women's participation in decision-making about water management can lead to more sustainable use of groundwater.

**Building capacity for sustainable water use:** Communities can be trained in sustainable water use, the maintenance of water infrastructure, and the monitoring of local water resources. This capacity building can ensure long-term, sustainable management of groundwater.

**Promoting collaboration and convergence:** Communities should be encouraged to collaborate with district or block-level authorities for the planning, execution, and monitoring of water conservation projects. This ensures the convergence of efforts and resources for maximum impact.

**Read more:** [\[Kurukshetra April 2023 Summary\] Groundwater Water Management through Panchayats – Explained, pointwise](#)



### What initiatives have the several Union and state governments taken for water conservation?

#### A few PMKSY activities needing Consistent Community Participation

SN	PMKSY Components	Programme Activity
3	Per drop more crop	Programme management, preparation of State/District Irrigation Plan, approval of annual action plan, Monitoring, etc.; Promote efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain-guns in the farm; Construct micro irrigation structures; Secondary storage structures at tail end of canal system to store water when available in abundance (rainy season) or from perennial sources like streams for use during dry periods through effective on-farm water management.
4	MGNREGA	Create water harvesting structures on individual lands of vulnerable sections, creation of new irrigation sources, upgradation/desilting of traditional water bodies, water conservation works, etc.; De-siltation of canal & distribution system, deepening and desiltation of existing water bodies, strengthening of bunds/embankments, etc.
5	National Aquifer Mapping and Management (NAQUIM) Programme	This initiative under the Ministry of Jal Shakti has taken various steps for water conservation involving local communities, NGOs, and other stakeholders.
6	Rained Area Development Programme (RADP)	The RADP emphasizes sustainable and integrated farming systems and includes measures for soil and water conservation.
7	National Perspective Plan	This is a long-term plan for water conservation that includes both surface and groundwater management.

Source: Kurukshetra

#### Water conservation programmes implemented by selected states

SN	State	Name of initiative	Programme Activity
1	Andhra Pradesh	Neeru – Chettu	Rejuvenating and revitalising natural resources. De-silting of tanks and feeder channels, etc., are taken up, additional water storage is created. Aimed at collective participation and spread of awareness to make the State 'drought proof' through better Water Conservation.
2	Bihar	Kal Jeevan Hariyali	Identification, restoration, and renovation of all public water storage structures - ponds / canal / pines, etc. Construction of check dams and other water harvesting structures in small rivers / drains and water storage areas of hilly areas. The objective is to encourage farmers to participate in water conservation initiatives of the government and to get sensitised on the use of alternative crops, drip irrigation, organic farming, and other new technologies with less dependence on irrigation.
3	Gujarat	Sujalam Sufalam Jal Sanchay abhiyan	Deepening water bodies in the state before monsoon arrives to increase storage of rainwater to be used during times of scarcity. It is a Public Private Partnership programme and government contribution is 60 per cent of the work expenditure.
4	Haryana	Jal he Jeevan Hai	Encouraging farmers to adopt crop diversification and sow crops which require less water like Maize, Arhar, etc., instead of water guzzling crops such as paddy so as to conserve water.
5	Odisha	Pani Panchayat	Ensuring voluntary activity of group of farmers engaged in the collective management (harvesting and distribution) of surface water and groundwater (wells and percolation tanks). Objective is to ensure optimum utilisation of water as well as improving agricultural production.
6	Maharashtra	Jalyukt Shivar Abhiyaan	Deepening and widening of water streams, construction of cement and earthen stop dams, works on nullahs and digging of farm ponds. Objective is to make Maharashtra drought-free by making 5,000 villages free of water scarcity each year.
7	Rajasthan	Mukhtar Mantri Jal Swawalamban Abhiyaan	Extending conservation efforts to manage rainfall, runoff, groundwater & in-situ soil moisture. Through convergence of schemes of various departments, works are executed through people's participation by motivating villagers & beneficiaries.
8	Telangana	Mission Kakatiya	Reclamation of water tanks by restoring minor irrigation sources. Aims at spreading minor irrigation in the state with community participation for sustainable water security.

Source: Kurukshetra

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### What role do community planning and participation play in water conservation?

Table 3: Community Engagement in MGNREGA Watershed Development Works

Type of Watershed Development Works	Engagement of the Community
<ul style="list-style-type: none"> <li>☛ Contour trenching for water conservation in plantations and grassland development.</li> <li>☛ Loose boulder bunding by erecting dry stone walls across the hill slopes at pre-determined spacing for developing land for cultivation.</li> <li>☛ Spring-shed development in north eastern States to revive springs and protect these against drying up during dry season.</li> <li>☛ Village ponds excavation and renovation of existing ponds to increase water storage space.</li> <li>☛ Bench terracing to use the hill slopes for crop production on sustainable basis.</li> <li>☛ Gabion structures of stone and wire dams across drainage lines to address soil erosion issues.</li> </ul>	<ul style="list-style-type: none"> <li>☛ Intensive participatory planning exercise is adopted to prepare watershed development plans with active involvement of villagers.</li> <li>☛ Identification of workable watershed boundaries [with around 500-1000 hectares of area] by referring to watershed atlas available with the States concerned.</li> <li>☛ Carrying out Baseline/benchmark Surveys viz. climate, soil types, fertility, rainfall pattern, runoff volume, land-use pattern, vegetation to make the plan outcome-oriented.</li> <li>☛ Active participation of community makes the programme community-driven and community managed/owned.</li> <li>☛ Adoption of Participatory Rural Appraisal which combines various tools like social mapping, resource mapping, seasonal mapping, transect walk, focus group discussions enables community to express and analyse their own situation, clearly delineating location-specific water needs and priorities.</li> </ul>

Source: Compiled by the author from Samarthyaa: Technical Training Manual (MGNREGA), Ministry of Rural Development [www.nrega.nic.in]

#### Source: Kurukshetra

**Ensuring sustainable water management:** Community involvement in planning and implementing water conservation initiatives ensures sustainable water management. For instance, community-driven rainwater harvesting projects can contribute to groundwater recharge and reduce dependency on borewells.

**Promoting ownership and responsibility:** When communities participate in planning, they take ownership of the conservation projects, leading to better upkeep and longevity of these initiatives. For example, local management of ponds and lakes in villages often leads to better maintenance and use of these water bodies.

**Enabling customised solutions:** Community planning allows for solutions that are tailored to local conditions and needs. For instance, the selection of appropriate irrigation techniques can be decided based on local climate and crop patterns.

**Facilitating resource mobilisation:** Community participation can facilitate the mobilisation of local resources, both human and material, for water conservation. In the Indian state of Rajasthan, for example, traditional water conservation practices were revitalised by communities, leading to improved water availability.

**Increasing effectiveness of public policy:** Community participation can make public policies more effective by integrating local knowledge and practices. A good example of this is the Atal Bhujal Yojana, which aims to manage groundwater with active participation from communities in water-stressed areas.

**Strengthening social cohesion:** Community participation in water conservation can also strengthen social ties and foster a sense of shared responsibility. This was evident in the village of Hiware Bazar in Maharashtra, where community-led watershed development projects transformed it into a 'water surplus' village.

**Improving monitoring and accountability:** When communities are involved in the execution and monitoring of water conservation projects, it leads to greater transparency and

accountability. For instance, social audits of water schemes can ensure that projects are executed as planned and funds are utilised appropriately.

**Read more:** [\[Kurukshehra June 2023 Summary\] Fostering Water Management for Food Security – Explained, pointwise](#)

#### What should be done?

**Initiating social mobilization:** Communities should begin by analyzing their specific water needs and preparing a Water Security Plan, Irrigation Plan, and Village Action Plan.

**Discussing sustainability:** Community meetings should deliberate on the sustainability of water schemes for both drinking and irrigation purposes. New revenue sources, such as user fees or maintenance fees, should be explored to ensure the smooth operation and conservation of water systems.

**Preparing a water reserve audit and safety plan:** These plans will ensure the recharge, storage, and availability of water, as well as address issues related to water quality.

**Ensuring convergence with line departments:** Communities should work closely with district authorities to plan and execute water conservation projects under various government schemes, ensuring increased water availability in rural areas.

**Promoting timely execution and fund utilisation:** Coordination with District or Block level authorities is essential for promoting the timely execution of water projects and proper utilization of funds.

**Adopting technologies for monitoring:** Communities should embrace digital mediums and technologies for the monitoring of water schemes.

**Arranging social audits:** Regular social audits of water schemes should be arranged in consultation with district line department officials.

**Arranging training and capacity building programmes:** Programmes should be arranged for grassroots workers on rainfall data capture, water collection, storage, and usage. Monitoring water availability, sources, and quality: Communities should be vigilant about their local water resources and organize awareness camps when necessary.

**Read more:** [Water Crisis in India – Explained, pointwise](#)

**Source:** Kurukshehra

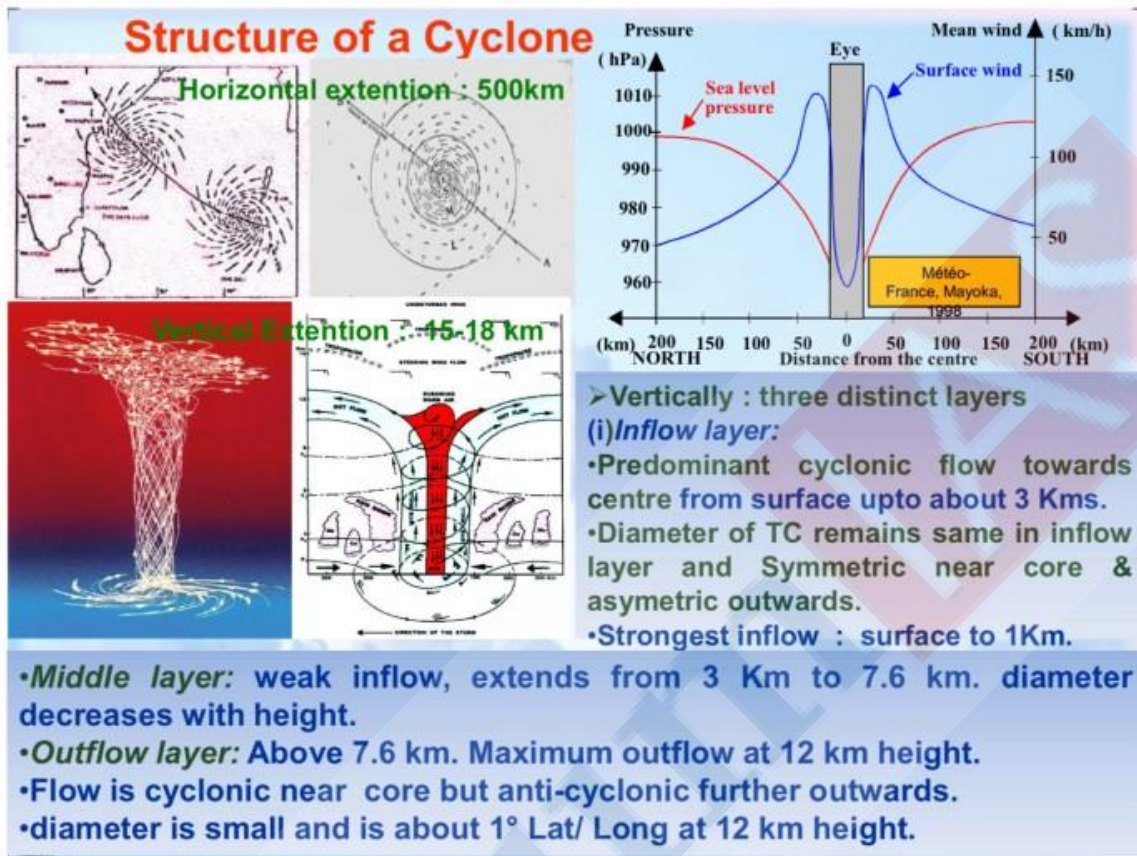
**Syllabus:** GS 1: Human and Economic Geography: Distribution of key natural resources across the world (including South Asia and the Indian sub-continent).

### Cyclone disaster management in India: progress and challenges – Explained, pointwise

#### Introduction

Cyclone disaster management in India has seen significant progress in recent years, marked by improved early warning systems, enhanced preparedness measures, and strengthened response capabilities. However, challenges persist as the country continues to face the onslaught of cyclones, as exemplified by Cyclone Biparjoy. While India has made commendable strides in mitigating the impact of cyclones, there is a need to address issues such as infrastructure retrofitting, technology integration, community engagement, and coordination to further strengthen cyclone disaster management and build a more resilient nation.

### About the cyclones in India



**Source:** IMD

India's North Indian Ocean (NIO) region, which encompasses the Bay of Bengal and the Arabian Sea. This region includes the Indian peninsular mainland's 7,500 km coastline, along with Lakshadweep and the Andaman and Nicobar Islands. Both the Arabian Sea and the Bay of Bengal are prominent cyclone forming regions that pose significant threats to the Indian subcontinent.

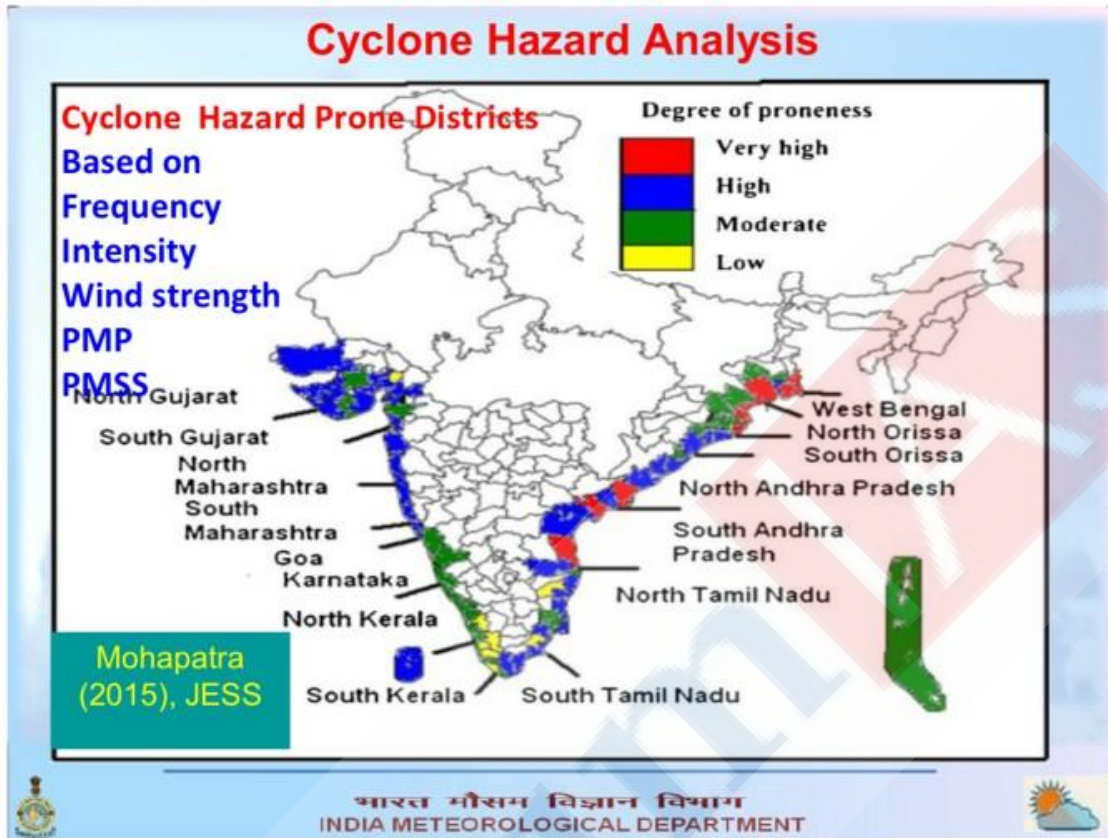
**Cyclones from the Bay of Bengal:** The Bay of Bengal has experienced an 8% decrease in cyclonic storms in the recent period (2001-2019), compared to the previous period (1982-2000). However, it still dominates in terms of cyclone frequency and intensity compared to the Arabian Sea. These cyclones often originate on the eastern side of the North Indian Ocean (NIO) Basin and initially move in a west-northwesterly direction.

**Cyclones from the Arabian Sea:** Cyclones in the Arabian Sea are less frequent but no less dangerous. However, there has been a 52% increase in the number of cyclonic storms over the Arabian Sea (2001-2019), compared to the previous period (1982-2000).

**Cyclogenesis:** It is the development and strengthening of cyclonic circulation in the atmosphere in the tropics.

**Read more:** [How Tropical cyclones are formed?](#)

### What are the cyclone-prone regions in India?



Source: IMD

### What are the socio-economic impacts of cyclones in India?

Cyclones in India wreak significant havoc, leading to catastrophic socio-economic impacts. These impacts are not only direct, such as property damage and loss of life, but also indirect, affecting long-term economic development and societal well-being.

**Loss of life and displacement:** Historically, cyclones in India have resulted in substantial loss of life. For example, the 1999 Odisha cyclone claimed over 10,000 lives. Cyclones also often lead to mass displacement, as people are forced to evacuate their homes due to the imminent danger, which leads to substantial social disruption.

**Damage to infrastructure:** Cyclones cause significant infrastructure damage, impacting transportation, communication, electricity, and water supply. For instance, Cyclone Tauktae in 2021 caused widespread damage to roads, bridges, and buildings in Gujarat and Maharashtra.

**Impact on the economy:** The economic cost of cyclones is staggering. Cyclone Fani, which hit Odisha in 2019, resulted in losses estimated at \$1.81 billion. The economic impact extends to sectors like agriculture, fisheries, and tourism, affecting the country's GDP.

**Impacts on livelihoods:** Cyclones also negatively impact livelihoods, particularly for fishermen and farmers. Fishing vessels can be destroyed or lost at sea, and crops can be severely damaged, leading to loss of income and food insecurity. For example, Cyclone Amphan (2020) in West Bengal disrupted the livelihoods of millions, causing an estimated \$13 billion in damage.

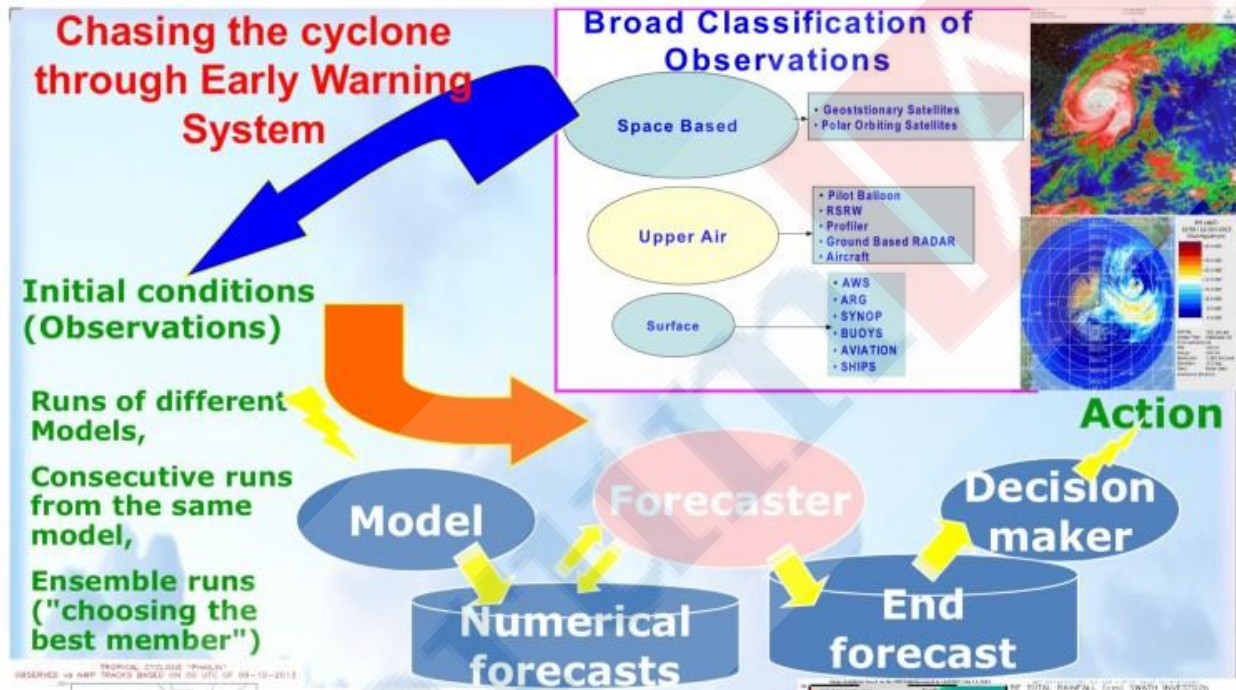
**Effects on public health:** Post-cyclone conditions can lead to the spread of waterborne diseases, creating a public health crisis. Limited access to clean water and sanitation facilities, coupled with the displacement of communities, can exacerbate health issues.

**Impact on education:** Cyclones often result in the closure of schools, impacting children's education. In many cases, schools are converted into temporary shelters for displaced families, further prolonging educational disruption.

**Long-term economic development:** The high cost of post-disaster recovery diverts resources from other areas of economic development. Recovering from cyclones often means that less money is available for infrastructure improvements, healthcare, and education, slowing overall economic progress.

**Read more:** [All about tropical cyclones](#)

**What are the Cyclone disaster management mitigation and preparedness measures in India?**



**Early warning systems:** India Meteorological Department (IMD) is a critical player in the early detection of cyclones, issuing timely warnings that help evacuate people and limit damage.

**National Cyclone Risk Mitigation Project (NCRMP):** Supported by the World Bank, the NCRMP aims to enhance the preparedness and resilience of coastal communities. This is achieved through the construction of cyclone shelters, infrastructure development, and improved access routes for effective evacuation.

**Coastal Protection Initiatives:** A key mitigation measure is the strengthening of coastal regions, which includes the creation of natural barriers like mangrove plantations and artificial barriers like sea walls and embankments to reduce the impact of cyclones.

**Infrastructure Retrofitting:** Existing infrastructure, particularly in vulnerable coastal regions, is often retrofitted to withstand cyclonic conditions. This might include reinforcing structures or adopting cyclone-resistant construction techniques for new builds. After every cyclone Indian government initiated a retrofitting program to strengthen cyclone shelters in vulnerable areas.

**Integrated Coastal Zone Management (ICZM) Project:** This initiative is designed to enhance the resilience of coastal areas through sustainable environmental practices. The project includes mapping vulnerable zones, promoting conservation, and implementing sustainable livelihood strategies for local communities.

**Colour-coding of cyclones By IMD:** The well-known colour-coding of natural disasters seeks to alert people to the risks' potential severity in advance. Green, yellow, orange, and red are the colours that IMD uses.

**Community-based disaster management:** Programs are implemented to raise awareness and train communities for cyclone preparedness. In Odisha, for example, locals have been trained to effectively respond during cyclones.

**Use of technology:** The use of technology, such as Geographic Information System (GIS) mapping, helps identify vulnerable zones and plan evacuation routes. This technology was notably used during Cyclone Fani in 2019.

**Coordinated efforts:** Effective disaster management requires coordinated efforts among various agencies, such as the National Disaster Management Authority (NDMA), State Disaster Management Authorities (SDMAs), IMD, and local administrations. Due to this, India has been able to minimise the loss of life during the cyclone.

**Evacuation planning:** Comprehensive evacuation plans are developed for vulnerable regions. During Cyclone Amphan in 2020, these plans facilitated the evacuation of over two million people in West Bengal and Bangladesh.

**Must read:** [El Nino: Concept and impacts – Explained, pointwise](#)

### **What are the issues with Cyclone disaster management In India?**

India has made considerable progress in managing cyclone disasters, especially in terms of evacuation and early warning systems. However, several challenges persist that need to be addressed for a more effective cyclone disaster management system.

**Focus on management:** Disaster management in India is more focused on management than prevention.

**Socio-economic conditions of with coastal population:** One-third of the population of India which lives in the coastal area is poor and marginalized rendering it ill-prepared and unable to cope with a disaster. On a few occasions, the warnings were not taken seriously by the local communities thereby making it more disastrous. For instance, during Ockhi cyclone disaster warnings were ignored by local bodies.

**Issues with State disaster management forces:** Not all the State disaster response forces are better prepared like Odisha. As they are ill-prepared to respond the onus of response always falls on the NDRF rendering golden hour response unavailable.

**Overemphasis on evacuation:** While evacuation is a critical aspect of disaster management, it should not overshadow other significant factors. For instance, the strategy during Cyclones Phailin and Fani mostly revolved around evacuation, with more than a million people moved from vulnerable districts. This approach largely overlooked the potential destruction caused by storm surges, which can be catastrophic depending on the cyclone's intensity, high tides, and topography.

**Insufficient post-disaster response:** There is a noticeable lack of attention given to post-disaster response in India. During Cyclone Jawad, many farmers resorted to distress selling and premature harvesting due to the approaching cyclone. More proactive measures, such as providing mechanised harvesting procedures during emergencies, can significantly reduce the economic impact on farming communities.

**Inadequate infrastructure:** Even with timely evacuation, the lack of sturdy and cyclone-resistant infrastructure can lead to significant property damage. Many buildings, including cyclone shelters, may not withstand the impact of a severe cyclone with high storm surges.

**Communication barriers:** Efficient communication is crucial during a disaster. However, language barriers, illiteracy, and the lack of access to communication tools in rural and

marginalized communities can hinder the effective dissemination of early warnings and instructions.

### **What should be done to ensure proper cyclone disaster management in India?**

To ensure effective cyclone disaster management in India, several measures and actions can be taken. Here are some key steps that can be implemented:

**Strengthen early warning systems:** Enhance the capabilities of meteorological agencies, such as the India Meteorological Department (IMD), to provide accurate and timely cyclone forecasts and warnings. Invest in advanced technologies, such as weather radar systems and satellite imagery, to improve cyclone tracking and prediction.

**Improve communication and dissemination:** Establish robust communication channels to disseminate early warnings and relevant information to the public, especially vulnerable communities in cyclone-prone areas. Utilize multiple mediums, including mobile networks, radio, television, and social media, to ensure widespread dissemination.

**Enhance preparedness and response planning:** Develop comprehensive cyclone preparedness and response plans at national, state, and local levels. Conduct regular drills and exercises to test the effectiveness of response mechanisms and ensure coordination among various stakeholders, including government agencies, civil society organizations, and the public.

**Strengthen infrastructure and resilience:** Invest in the construction and retrofitting of cyclone-resistant infrastructure, including cyclone shelters, coastal embankments, and resilient housing. Implement coastal protection initiatives, such as mangrove restoration and beach nourishment, to mitigate the impact of storm surges and erosion.

**Community engagement and capacity building:** Promote community participation and awareness in cyclone preparedness and response. Conduct training programs and workshops to build the capacity of communities, local leaders, and volunteers in disaster management techniques, evacuation procedures, and first aid.

**Integration of technology:** Leverage technological advancements, such as remote sensing, geospatial mapping, and early warning systems, to enhance cyclone monitoring, forecasting, and response. Ensure access to reliable and up-to-date information for decision-making.

**Strengthen coordination and collaboration:** Foster collaboration among different stakeholders, including government agencies, nongovernmental organizations, academia, and the private sector, to ensure a coordinated approach to cyclone disaster management. Facilitate information sharing, resource mobilization, and joint planning.

**Post-disaster recovery and rehabilitation:** Develop comprehensive strategies for post-cyclone recovery and rehabilitation, including provision of immediate relief assistance, infrastructure reconstruction, livelihood restoration, and psychosocial support for affected communities.

**Sources:** The Hindu ([Article 1](#) and [Article 2](#)), [Down To Earth](#), [NIDM](#), [UN Habitat](#), [India Today](#) and [The Times of India](#)

**Syllabus:** GS 3: Disaster Management: Disaster and disaster management.

## **[Yojana June 2023 Summary] Direct Benefit Transfer (DBT) in India: A global role model – Explained, pointwise**

### **Introduction**

Direct Benefit Transfer (DBT) in India has emerged as a pioneering model in ensuring the efficient and effective transfer of government welfare benefits. By leveraging technology and India's unique identity infrastructure, DBT directly channels funds to beneficiaries' accounts, minimizing leakages and corruption. It represents a successful amalgamation of public policy and technology, prompting global recognition. As India shares this innovative approach at



international forums like G20, DBT's potential as a global role model for welfare distribution becomes increasingly evident.

### What is DBT?

**my GOV**  
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**AADHAAR**

**New Paradigms  
in Financial  
Inclusion for  
New India**  
Jan Dhan se Direct  
Benefit Transfer

**Direct Benefit Transfer (DBT) -  
Bringing transparency  
through Aadhaar**

**Aadhaar to identify and remove  
fake and duplicate beneficiaries**

**82.9% DBT beneficiaries  
seeded with Aadhaar**

**34.53 crore beneficiaries  
seeded with Aadhaar**

**₹68,815 crore of funds transferred  
using Aadhaar Bridge Payment**

**Source: MeitY**

**www.transformingindia.mygov.in**

**Source:** MeitY

The DBT was envisioned as a system where welfare benefits provided by the government are directly credited to the identified beneficiary's bank or postal account. Over time, the initiative has expanded, growing both in its scope and coverage.

**The scope of DBT has widened:** From merely providing cash support to including in-kind transfers. Today, it covers more than 300 Central schemes and over 2000 State schemes. The benefits provided range from cash assistance to in-kind goods and services.

**Cash support schemes:** such as the [Pradhan Mantri Kisan Samman Nidhi \(PM KISAN\)](#), which supports farmers, and the National Social Assistance Programme (NSAP), providing pensions for

the elderly, Divyangjan, and widows. There are also scholarships for deprived sections needing support.

**In-kind support schemes:** Include the fertilizer subsidy, the Public Distribution System for food grains support, and the Pradhan Mantri Poshan Shakti Nirman (PM POSHAN) which provides mid-day meals for school children.

**Use of Aadhaar:** DBT schemes employ the use of the electronic ID Aadhaar for identifying and authenticating the intended beneficiaries. During the enrollment of beneficiaries, their Aadhaar details are captured and subsequently authenticated against details stored in the Unique Identification Authority of India (UIDAI)'s Central Identities Data Repository (CIDR).

The frequency of this authentication process depends on the particular scheme. For instance, in the case of PM KISAN, Aadhaar authentication occurs only at enrollment, while for the Public Distribution System, beneficiaries must authenticate their Aadhaar each time they access their quota of grains.

#### **What is India Stack and how DBT in India is integrated with it?**

India Stack is a unified platform comprising open APIs and digital public utilities, with the objective to harness the key elements of identity, data, and payments at a large scale. It is essential to understand that Direct Benefit Transfer (DBT) is not a social assistance program in and of itself, but rather a mechanism to consolidate and control data on direct benefit transfers from various sources.

For cash schemes, DBT relies on bank account numbers or Aadhaar-linked accounts to directly transfer social benefits to beneficiaries. In this process, Aadhaar plays a dual role. Not only does it serve as a unique identifier, but also as a financial address. This takes place under the Aadhaar Payments Bridge (APB) system where an individual's Aadhaar number is mapped against a unique savings bank account, enabling transfers to such accounts using the Aadhaar number as the address.

Furthermore, under the Aadhaar-enabled Payment System (AePS), an individual can use their biometric credentials to carry out banking transactions in Aadhaar-linked bank accounts.

**Read more: [DBT Scheme has been beneficial for India in meeting the diverse needs of its population](#)**

What are the benefits of implementing DBT in India?

# Direct Benefit Transfer (DBT)

*Ensuring Transparency,  
Removing Leakages*



Accurate targeting of beneficiaries by **eliminating duplication & fraud**

Covers **300+** schemes across **52** ministries

**₹22.77 lakh crore+** transferred directly into beneficiaries' bank accounts

**8 Years**  
Seva, Sushasan,  
Garib Kalyan

my  
GOV  
मेरी सरकार



More than  
**₹2.22 lakh crore**  
estimated gains

Source: MeitY

**Efficiency:** DBT eliminates intermediaries, ensuring that funds directly reach the intended beneficiaries, making the process faster and more efficient.

**Transparency:** Since the transfer of benefits is done electronically, it reduces the chances of funds being misused, creating a transparent system of fund allocation.

**Reduction in corruption:** DBT helps curb corruption by cutting out intermediaries and reducing opportunities for funds to be siphoned off.

**Reduced leakages:** The program minimizes the leakage of funds that typically occurs in traditional welfare schemes where resources are diverted away from the intended beneficiaries.

**Identity verification:** Using Aadhaar for beneficiary identification aids in ensuring that the benefits reach the correct individuals.

**Reduced expenditure for government:** By eliminating wastage, DBT helps the government save significant resources that can then be deployed for other welfare schemes.

**Financial inclusion:** DBT encourages people, especially from rural and underprivileged backgrounds, to open bank accounts, thus promoting financial inclusion.

**Real-time tracking:** DBT allows for real-time tracking of fund disbursement, helping identify bottlenecks and areas of improvement.

**Empowerment:** Direct cash transfers enable beneficiaries to have greater control over their funds, enhancing their decision-making power and overall empowerment.

**Must read:** [How Direct Benefit Transfer scheme has transformed social welfare in India](#)

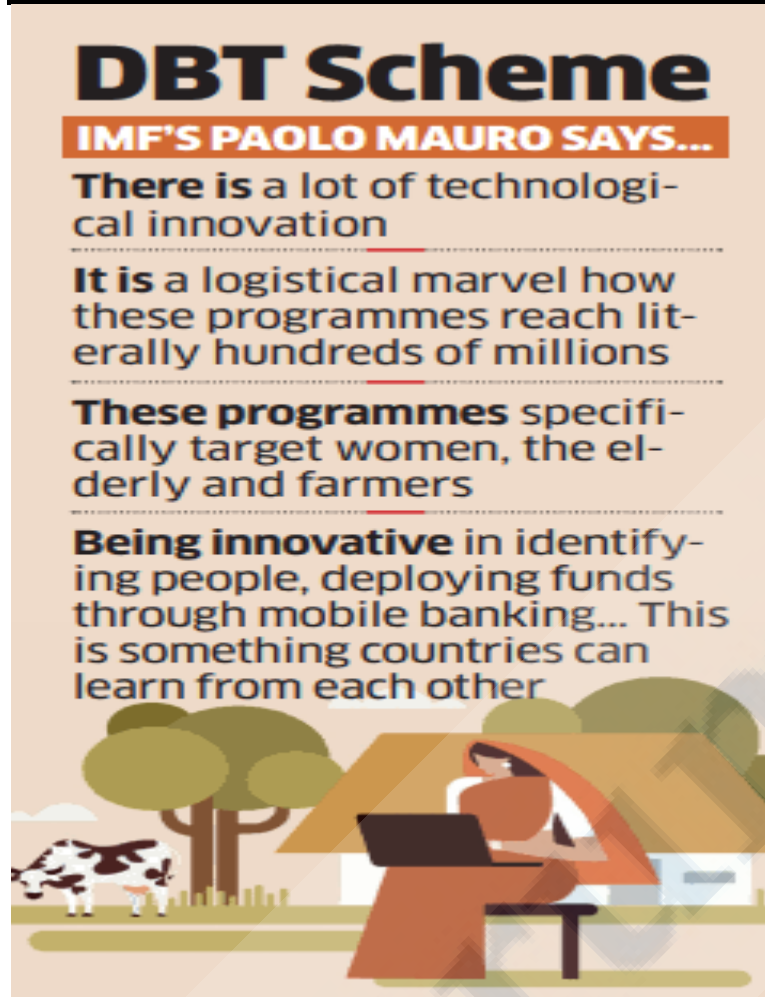
About DBT in India's role in the G20 agenda

India's ongoing Presidency of the G20 is committed to being inclusive, ambitious, action-oriented, and decisive. India's vision is that its initiatives for 'leveraging technology for citizen welfare' can lead to a fundamental mindset shift and benefit humanity as a whole. In line with this vision, DBT serves as an exemplary example of Indian innovation. India is seeking to introduce its home-grown DBT paradigm, which is based on [Digital Public Infrastructure \(DPI\)](#), to the world through the G20 platform. The initiative is particularly targeted towards the Global South.

DBT in India is not just a national initiative; it also aligns with India's broader goals within its co-chairship of the Global Partnership for Financial Inclusion. For its impact on promoting transparency, DBT was also showcased in the G20 Anti-Corruption Working Group Meeting.

**Must read:** [Direct Benefit Transfer \(DBT\): Advantages and Way Forward – Explained, pointwise](#)

## How has the World reacted to DBT in India?



**Source:** TOI

DBT in India has garnered international recognition for its significant impact on social welfare and governance reforms.

**The International Monetary Fund (IMF) applauds DBT:** IMF praised DBT for its scale and logistical prowess in reaching hundreds of millions of low-income individuals. The institution called DBT a 'logistical marvel' for the impressive reach of its programmes.

**World Bank lauds DBT's reach and impact:** The World Bank also commended the scale at which DBT impacts lives. Owing to DBT's digital cash transfers, India succeeded in providing food or cash support to an astounding 85% of rural households and 69% of urban households. This achievement is a testament to the efficacy of DBT in reaching large populations with crucial support.

**DBT's contribution to government savings:** Beyond its impact on individual lives, DBT and its accompanying governance reforms have significantly contributed to government savings. By March 2021, these reforms had saved the Government of India a cumulative sum of Rs 2.23 lakh crore, which is approximately 1.1% of the nation's GDP. By March 2022, these savings had increased to Rs 2.73 lakh crore, further emphasizing the economic impact of DBT.

**What does the future hold for DBT in India?****The future of DBT lies in two proposed initiatives: DBT 2.0 and DBT 3.0.**

**DBT 2.0:** It aims to streamline the process of verifying eligibility for various schemes. Currently, applicants must submit various eligibility documents or certificates issued by different government departments, which then must be verified by the scheme's implementing agency. This process can be time-consuming and costly. The new initiative will digitise and link these documents to Aadhaar, ensuring efficient, real-time verification. Platforms such as DigiLocker and API Setu will facilitate access to these certificates in electronic and machine-readable formats. Many states and central government departments have already adopted this system, and efforts are underway to onboard the remaining ones.

**DBT 3.0:** It envisions a transformative change in the way benefits are delivered to citizens. Currently, citizens must discover eligible government schemes and apply for them to receive benefits. Under DBT 3.0, the government will proactively reach out to eligible citizens based on data from various government databases. The delivery of benefits will commence upon receiving the beneficiaries' consent.

Several states have implemented 'Social Registries', which are databases of beneficiary information, such as Kutumba in Karnataka, Parivaar Pehchaan Patra in Haryana, Samagra in Madhya Pradesh, Jan Aadhaar in Rajasthan, and Social Protection Delivery Platform (SPP) in Odisha. The next step is to establish a national-level social registry that incorporates best practices from state-level initiatives, further revolutionising governance in India.

**Must read:** [Universal Basic Income: Benefits and Challenges – Explained, pointwise](#)

India's Direct Benefit Transfer scheme has revolutionized the delivery of social welfare benefits, ensuring efficient and direct access for beneficiaries while reducing corruption and wastage. Its success has received international recognition, further cementing India's position as a leader in leveraging technology for social welfare. The future plans for DBT in India promise to build upon its successes, further streamlining the process of benefit delivery and enhancing its impact. Indeed, the DBT paradigm is one of India's most significant contributions to the global welfare discourse.

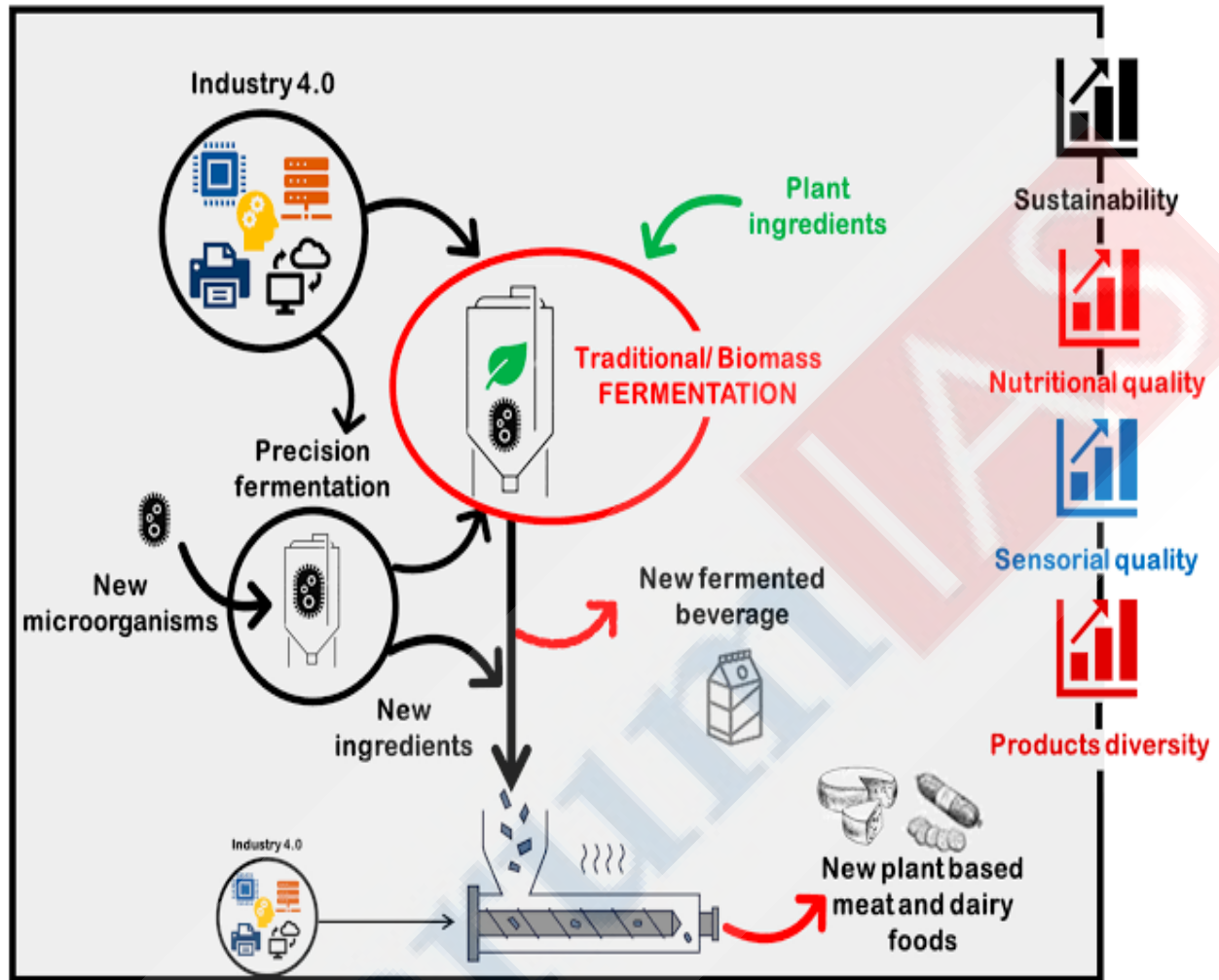
**Source:** Yojana

**Syllabus:** GS 2: Social Justice: mechanisms, laws, institutions and Bodies constituted for the protection and betterment of vulnerable sections.

**Precision fermentation: advantages and challenges – Explained, pointwise****Introduction**

Precision fermentation is an innovative technology that holds great promise for the food industry. By programming microorganisms to produce specific proteins and ingredients, it offers numerous advantages such as sustainable foods and pharmaceutical products, reduced environmental footprint, and potential solutions to food crises. However, precision fermentation also faces challenges related to regulation, safety, public perception, and its impact on traditional agriculture. Balancing these advantages and challenges is crucial for its successful implementation.

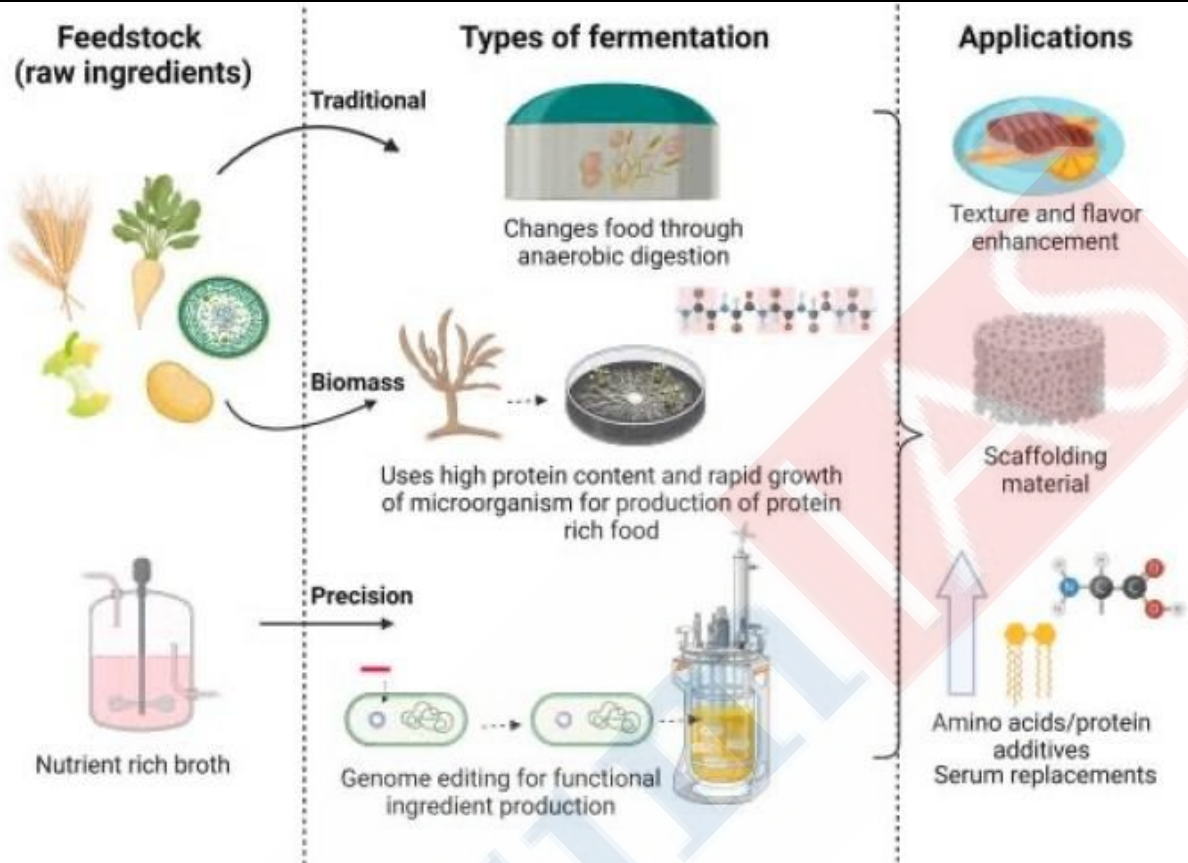
### What is precision fermentation?



Source: MDPI

Precision fermentation is a cutting-edge technology that combines traditional fermentation methods with precision biology techniques. It involves programming microorganisms, such as yeast, to produce specific proteins by inserting genetic instructions or DNA sequences into their cells. These engineered microorganisms then act as factories, producing desired proteins without the need for traditional agricultural methods or animal sources. Precision fermentation offers the potential for sustainable and scalable production of animal-free proteins with identical taste, texture, and functionality to conventional counterparts.

### What are the potential applications of precision fermentation?



Source: Science Direct

**Pharmaceutical applications:** Precision fermentation has been successfully used in the production of pharmaceutical products, such as insulin and other life-saving drugs. By using microbial fermentation to produce these drugs, it eliminates the need for animal-based sources and ensures a more consistent and reliable supply.

**Alternative proteins:** Precision fermentation has enabled the production of alternative proteins that can mimic the taste, texture, and nutritional profile of animal-based proteins. Companies have developed animal-free milk and egg proteins through precision fermentation, providing sustainable and ethical alternatives to traditional animal agriculture.

**Novel food ingredients:** Advanced fermentation technologies have been utilized to create novel food ingredients that offer unique properties and benefits. For example, companies have produced plant-based heme protein (leghemoglobin) through precision fermentation, which provides the distinctive flavour and color of meat. This has paved the way for the development of plant-based meat alternatives with enhanced sensory characteristics.

**Industry growth and investments:** The precision fermentation industry has witnessed substantial growth and investment in recent years. Numerous startups and companies are dedicated to advancing precision fermentation technologies, and investments in the sector have been increasing. This growth indicates the growing recognition of precision fermentation as a viable solution for addressing food system challenges.

Read more: [THE FORMULA FOR PLANT-BASED 'MEATS'](#)



**What are the needs for precision fermentation?**

**Food crisis and insecurity:** Traditional farming won't be able to provide all of the world's food needs because there isn't enough land available and the population is expanding daily.

**Environmental degradation:** Conventional agriculture practices contribute to deforestation, soil erosion, and the depletion of natural resources. Precision fermentation can help reduce the environmental impact by minimizing land use, water consumption, and the need for chemical inputs, thus mitigating environmental degradation.

**Water crisis:** Agriculture is a major consumer of freshwater resources. Precision fermentation requires less water compared to traditional farming methods, making it a potential solution to mitigate water scarcity and reduce the strain on water supplies.

**Climate change issue:** Greenhouse gas emissions associated with livestock farming and conventional crop cultivation are responsible for climate change.

**Animal cruelty:** Animal agriculture often raises concerns about the ethical treatment of animals. Precision fermentation is devoid of such concerns.

**Read more:** [What is 'meat' from plants, and is 'just like' meat vegetarian?](#)

**What are the advantages of precision fermentation?**

**Sustainable food production:** Advanced fermentation technologies offers a more sustainable alternative to conventional agricultural methods, reducing land use, water consumption, and greenhouse gas emissions. It provides a way to address the environmental impact of traditional farming practices.

**Animal welfare and ethics:** Precision fermentation allows for the production of animal-free proteins, eliminating the need for raising and slaughtering animals. It aligns with the ethical concerns and increasing demand for cruelty-free food options.

**Innovation and economic opportunities:** Precision fermentation represents a technological innovation that opens new avenues for economic growth and job creation. It fosters the development of a bio-based economy, with opportunities in research and development, manufacturing, and commercialization of precision fermentation-based products.

**Food security and global nutrition:** Precision fermentation can contribute to food security by providing a scalable and efficient method of protein production. It offers the potential to meet the nutritional needs of a growing population, especially in regions where access to traditional protein sources is limited.

**Climate change mitigation:** Precision fermentation reduces the environmental impact of food production by minimizing deforestation, soil degradation, and methane emissions from livestock. It helps in mitigating climate change by promoting more sustainable practices.

**Read more:** [Technological advancement often has a sting in its tail](#)

**What are the concerns surrounding precision fermentation?**

**High production costs:** Currently, precision fermentation technologies can be costly, making the products derived from them more expensive compared to conventional alternatives. This pricing disparity poses a challenge to widespread adoption and market accessibility, particularly in terms of affordability for consumers.

**Regulatory and safety considerations:** As Advanced fermentation technologies involves genetic engineering and the use of genetically modified organisms (GMOs), there are regulatory and safety considerations. Ensuring the safety of novel proteins and ingredients produced through precision fermentation is crucial, and comprehensive testing and evaluation processes are necessary to address any potential risks to human health and the environment.

**Ethical and societal implications:** Advanced fermentation technologies raise ethical questions related to the use of genetically modified organisms, particularly in food production. Some

individuals may have ethical objections to consuming foods derived from GMOs, highlighting the need for transparency and clear communication about the technology and its applications.

**The concentration of power:** There is a concern that precision fermentation, like other innovative food technologies, could lead to the concentration of power in the hands of a few large corporations. This concentration could potentially limit market competition and hinder small-scale producers or new entrants in the industry, impacting diversity and innovation.

**Impact on traditional agriculture:** The widespread adoption of precision fermentation and alternative protein sources could potentially disrupt traditional agricultural sectors, including livestock farming and crop production. This may have socioeconomic implications for farmers and communities dependent on these industries, requiring transition strategies and support.

#### What should be done?

**Robust regulatory framework:** Establishing a comprehensive regulatory framework specific to precision fermentation is essential. This includes rigorous safety assessments, labelling requirements, and guidelines for the approval and commercialization of products derived from this process.

**Scientific advancements:** Ongoing research and development are needed to enhance the efficiency, scalability, and cost-effectiveness of precision fermentation processes. Advancements in precision biology, genetic engineering, and fermentation techniques can optimize the production of animal-free proteins.

**Collaboration and diversity:** Encouraging collaboration among stakeholders, including precision fermentation companies, traditional farmers, policymakers, researchers, and consumer groups. This can facilitate a balanced and diverse food system. Supporting small-scale producers, startups, and innovators in entering the precision fermentation sector can foster competition, innovation, and prevent the concentration of power.

**Consumer acceptance and education:** Building consumer awareness and understanding of precision fermentation is essential for the wider acceptance of animal-free proteins. Educating the public about the benefits, safety, and sustainability aspects of fermentation can contribute to its adoption.

**Ethical considerations:** This includes addressing concerns about the use of genetically modified organisms and ensuring responsible practices throughout the production and supply chain. Promoting ethical guidelines and practices, such as sustainable sourcing of ingredients and fair trade principles, can contribute to the ethical implementation of precision fermentation.

**Sources:** [Livemint](#), [AFN](#), [Innovation Origins](#), [PETA](#), [The Guardian](#), [Business Wire](#), [Food Navigator](#) and [Food Institute](#).

**Syllabus:** GS 3: Science and Technology: Awareness in the field of biotechnology.


### [Yojana June 2023 Summary] Yoga for Global well-being – Explained, pointwise

#### Introduction


Yoga, a centuries-old practice, offers more than just physical exercise. It embodies a holistic approach to well-being, encompassing physical, mental, and spiritual health. This ancient practice provides tools to manage stress, enhance focus, and improve physical health. Its principles foster compassion and environmental sustainability, promoting overall global well-being. With a growing body of research endorsing yoga's health benefits, it continues to gain recognition as a valuable tool for promoting health and well-being worldwide.

## What is yoga?

## Eight Limbs of Yoga



THE ART OF LIVING



<p><b>1 yamas</b> 5 social ethics</p> <p>ahimsa - kindness satya - truthfulness asteya - nonstealing brahmacharya - moderation aparigraha - generosity</p>	<p><b>2 niyamas</b> 5 personal practices</p> <p>saucha - purity santosha - contentment tapas - austerity swadyaya - self-study iswara-pranidhana - surrender</p>
<p><b>8 samadhi</b> pure bliss</p> <p>Constant complete harmony of the Self with universe</p>	<p><b>3 asana</b> postures</p> <p>Easy comfortable positions of the body, connecting the mind and spirit to experience stillness and infinity</p>
<p><b>7 dhyana</b> de-concentration</p> <p>Dropping all the efforts and letting go</p>	<p><b>4 pranayama</b> mindful breathing</p> <p>Honoring the breath to uncover the light within</p>
<p><b>6 dharana</b> concentration</p> <p>Focus and attention</p>	<p><b>5 prathyahara</b> turning inward</p> <p>Providing alternate 'inner point of attraction' (like breath, chakra) to the senses to go inward</p>

**artofliving.org**

**Source:** Artofliving

Yoga is an ancient practice that goes beyond simple exercise. It's a lifestyle that boosts your physical, mental, and spiritual health. It's used worldwide as a key tool for overall well-being.

### **Concept and Principles of Yoga:**

Yoga promotes inner peace and happiness. It includes teachings called Yama and Niyama that guide us to live better. Ahimsa, which means non-violence, teaches us to avoid hurting others. Santosha, or contentment, helps us find happiness within ourselves.

Yoga also encourages us to live in harmony with nature, leading to more sustainable lifestyles. One of its key principles, Aparigraha, tells us to only use what we need and leave the rest for others. It also teaches us to be kind and respectful to all beings, helping us build a fairer world. So, practising yoga isn't just about personal health. It's about making a positive difference in our society and planet.

### **What are the key Yogic practices for health and well-being?**

There are a variety of yogic practices that are essential for promoting physical, mental, and spiritual well-being. Here are some of the primary practices:

**Shatkarmas:** Shatkarmas, or purification practices, are foundational in Hatha Yoga. This help cleanses the body and prepares it for more advanced practices. Examples include Kunjal or Varisar Dhauti, which improve digestion, and Jal Neti and Sutra Neti, which aid in the cleansing of the nasal sinus and improvement of eyesight.

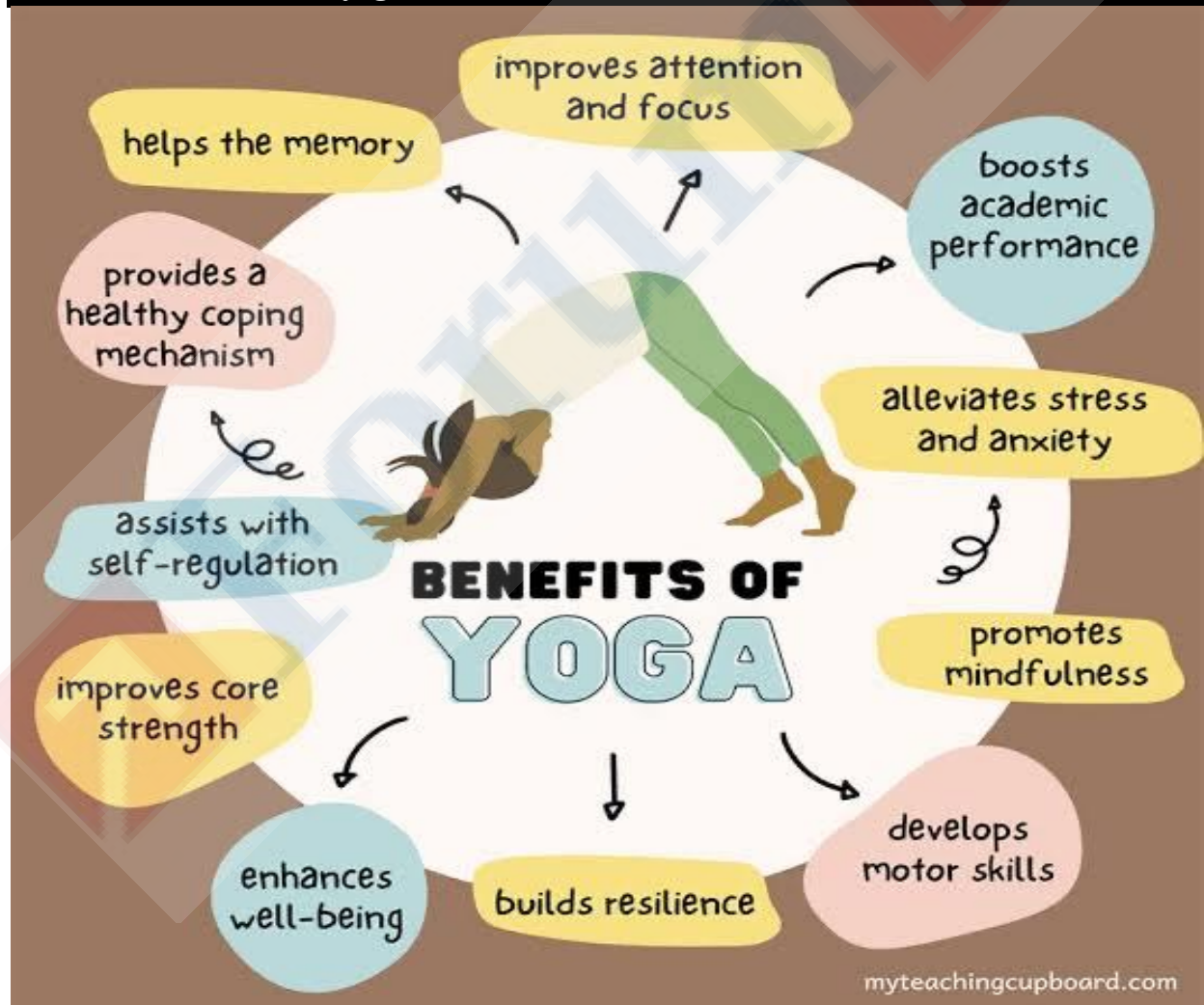
**Yogasana:** Yogasanas, or yoga postures, are performed after the body has been detoxified. This enhances the body's strength, flexibility, and overall fitness. There are many different yoga asanas, each offering specific benefits.

**Pranayama:** Pranayama, or breath regulation, is an essential part of yoga. Once the body is detoxified and stabilized through Shatkarmas and Yogasana, pranayama helps in opening the subtle channels carrying vital energy throughout the body. Examples include Nadi-Shodhana Pranayama, Shitali Pranayama, and Bhramari Pranayama.

**Mudra & Bandha:** Mudras, or body gestures, and Bandhas, or psychic locks, are used to control and channelize prana (life energy) in the body. This lead to various health benefits and is crucial for maintaining proper energy flow.

**Dhyana:** Dhyana, or meditation, is the most critical practice of yoga. It helps in developing the mind's inherent capabilities and leads to benefits such as reduced stress, improved memory, and enhanced concentration.

### What are the benefits of yoga?



**Source:** Myteachingcupboard

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**Reduces stress and anxiety:** Yoga helps to manage stress and anxiety. Regular practice reduces the level of stress hormones in your body, leading to improved mental health. This can prevent health issues like high blood pressure, depression, and heart disease.

**Improves concentration and focus:** Yoga has the power to enhance focus and clarity of thought. Amid the bustle of everyday life, it helps calm your mind, reducing distractions and promoting productivity and creativity.

**Promotes physical Health:** Yoga is also a fantastic way to improve physical health. Regular practice improves flexibility, strength, balance, and endurance. It can help manage chronic pain, improve respiratory functions, and even boost your immune system.

**Promotes compassion and respect:** On a broader scale, practicing yoga helps promote a more equitable world. It teaches respect and kindness towards all beings, fostering a culture of empathy and compassion.

**Encourages environmental sustainability:** By teaching us to live in harmony with the environment, yoga inspires us to adopt more sustainable lifestyles. It helps us realize our connection to the natural world, promoting behaviors that protect and preserve our planet.

### What does the research say about Yoga and Well-being?

**The growing interest in Yoga:** Research interest in yoga, particularly in its impact on physical and mental health, has increased significantly since the beginning of the 21st century. PubMed, for instance, shows an exponential increase in publications on yoga since the early 2000s.

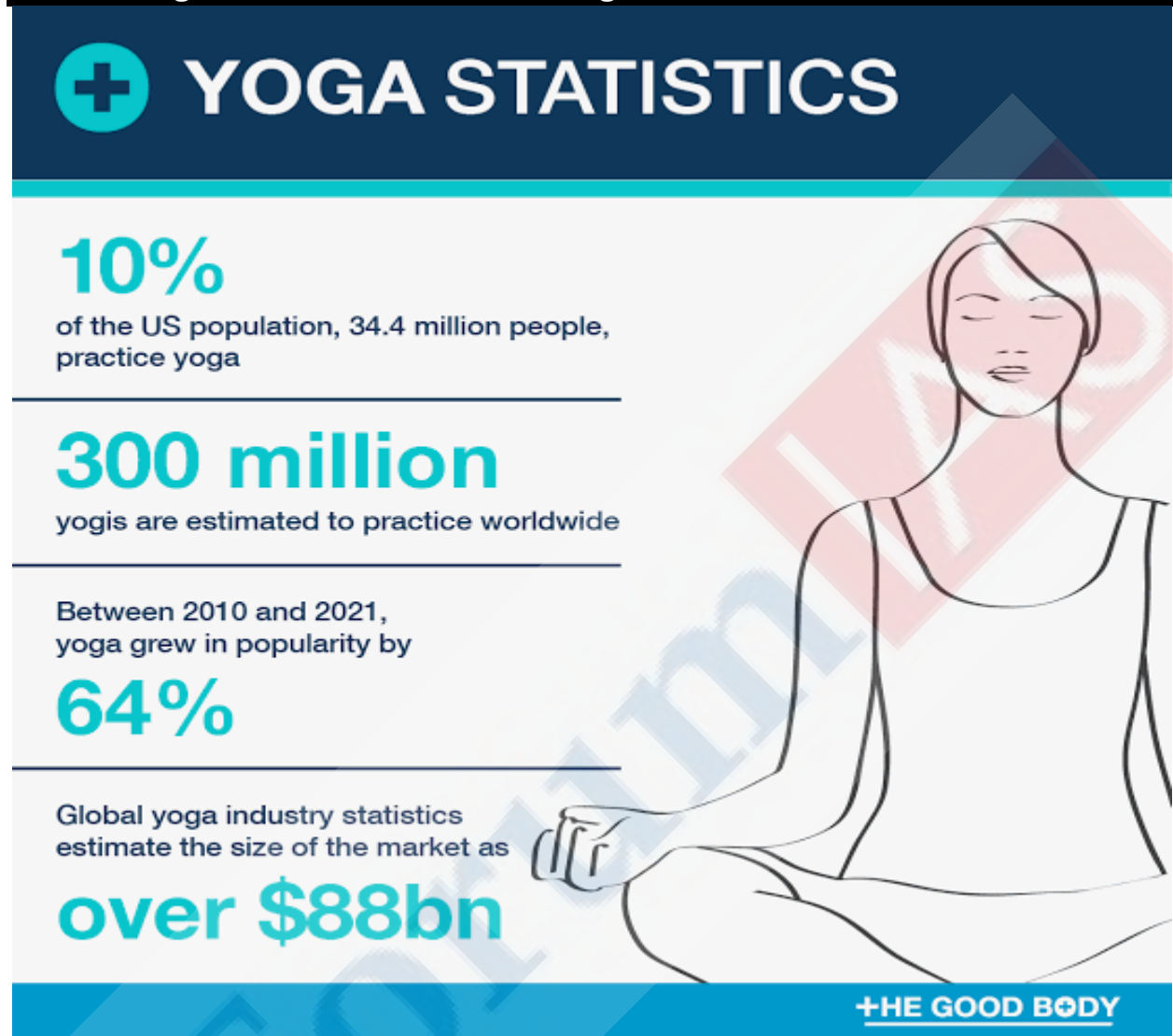
**Yoga as complementary therapy:** Studies have evaluated yoga's efficacy on various non-communicable diseases such as stroke, cancer, hypertension, and diabetes. Many researchers have found yoga to be an effective complementary therapy to conventional treatments for these conditions.

**Yoga and ageing:** Yoga's potential as a therapy to combat age-related neurodegenerative diseases has gained considerable attention. It is viewed as an alternative mode of physical activity that may help older adults achieve recommended levels of physical activity.

**Perception of Yoga:** A US survey revealed that yoga is perceived in several ways, including as an exercise activity, a spiritual activity, or a means to treat health conditions. Research reviews also found that yoga practices could be as effective as or superior to exercise in improving several health conditions.

**Yoga's unique contributions:** Yoga promotes positive health, helping us to tide over health challenges that occur during our lifetime. This concept of positive health is one of yoga's unique contributions to modern healthcare. Yoga plays both a health promotion and preventive role in healthcare among the masses.

How does Yoga contribute to Global Well-being?



**Source:** The goodbody

**Tool for harmonious relationships:** Yoga's principles, like Ahimsa (non-violence) and Santosha (contentment), encourage peaceful relationships with others. For instance, Ahimsa teaches us to avoid harm to all living beings, while Santosha promotes inner happiness over external validation. By integrating these values, societies can foster empathy and mutual respect, thereby improving global well-being.

**Environment sustainability:** Yoga practitioners are encouraged to connect with nature and respect the environment, fostering sustainable lifestyles. The principle of Aparigraha (non-possessiveness) instructs us to only use what we need, promoting environmentally conscious choices. This principle fosters respect for all beings and our planet, thereby contributing to global sustainability.

**Yoga- a path towards equality:** Yoga teaches respect and kindness to all, promoting a more equitable world. By treating all beings with dignity, yoga cultivates a culture of justice and equality, thus contributing to global well-being.

**Promoting cultural awareness:** Yoga, a practice that originated in India, is now a global phenomenon. It fosters cultural awareness and diversity, bridging gaps between cultures and

promoting global unity. This helps tackle global challenges like climate change, poverty, and inequality and contributes to the overall well-being of humanity.

The art and science of yoga offer a pathway to connect individual consciousness with universal consciousness, aiding in the attainment of a disease-free body and a calm, peaceful mind. Yoga encourages individuals to be aware, accept, and effectively manage emotions like stress, anxiety, and aggression – common symptoms of modern lifestyles. Thus, yoga proves to be an invaluable tool for global well-being, offering multiple benefits like stress reduction, improved mental clarity and focus, physical health, mindfulness, and spirituality

### Carbon Border Adjustment Mechanism (CBAM) and its implications for India – Explained, pointwise

#### Introduction

The Carbon Border Adjustment Mechanism (CBAM), recently implemented by the European Union (EU), has significant implications for countries like India. CBAM imposes a carbon cost on high-emission imports, potentially affecting India's export competitiveness. This new regulation, aimed at preventing carbon leakage, raises concerns about compatibility with existing trade norms and commitments under the Paris Agreement. Understanding the potential impact of CBAM on India and how the country responds is crucial in the broader context of global climate policy and trade.

#### What is the CBAM?

## CARBON BORDER ADJUSTMENT MECHANISM

A CBAM **adds a tariff** to imports equal to the carbon price domestic manufacturers face. An **export rebate** allows domestic manufacturers to be competitive in international markets.

Imported product carbon price + Tariff =

**DOMESTIC MARKET**  
carbon price

Exported product carbon price - Rebate =

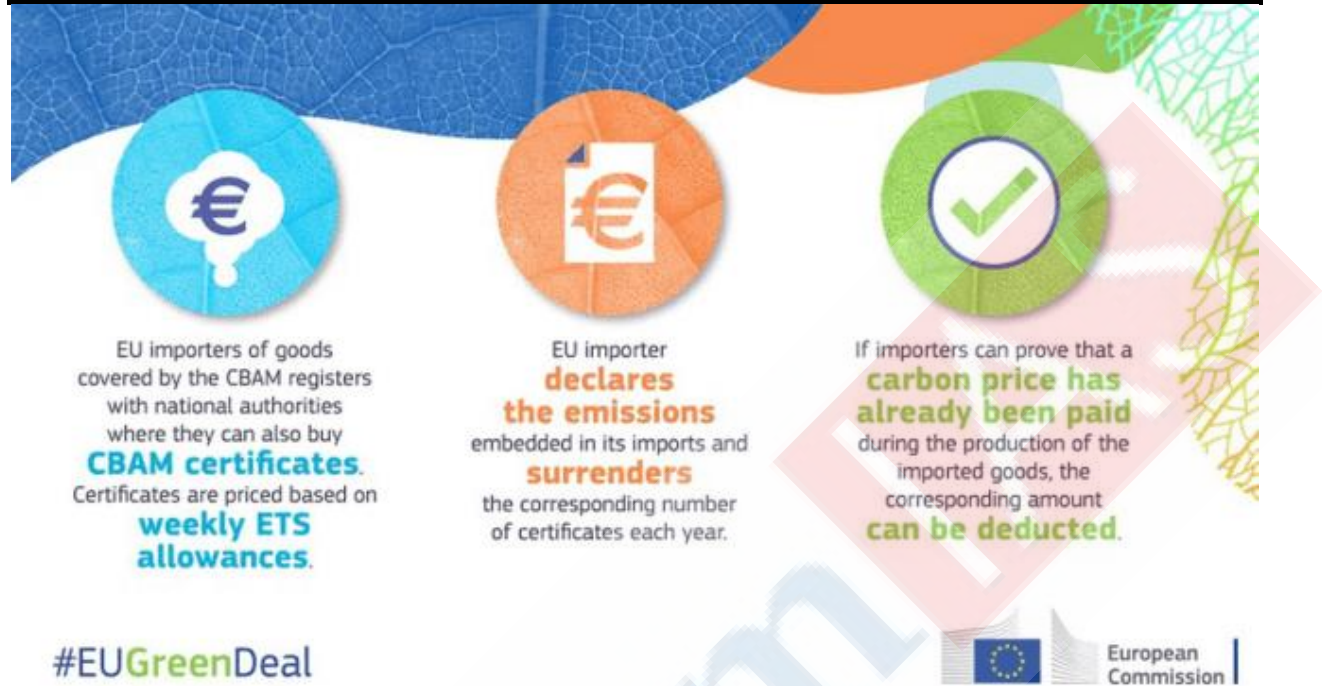
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Source: ITIF

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Read here: [Common Border Adjustment Mechanism](#)

### What are the arguments in supporting the implementation of CBAM?



**Source:** European Commission

**Promotes decarbonisation globally:** The CBAM provides an incentive for countries to reduce their carbon emissions. For example, if a country wants to export steel to the EU, the policy imposes an extra cost if the steel is produced using carbon-intensive processes. This encourages manufacturers to adopt cleaner, less carbon-intensive methods of production.

**Prevents carbon leakage:** CBAM prevents “carbon leakage”, the phenomenon where companies transfer their operations to countries with less stringent emissions regulations. For example, if a cement manufacturer moves from the EU to a country with fewer regulations, it might increase emissions. The CBAM discourages this by imposing a border tax on carbon-intensive imported goods.

**Level playing field for businesses:** The CBAM helps create a level playing field between domestic businesses in the EU and foreign companies. For instance, a European aluminium producer that follows strict emission rules would be at a disadvantage if competitors from other countries with less stringent rules could sell their products in the EU without any penalties. CBAM ensures foreign producers are also subject to a carbon cost, ensuring fairness.

**Revenue generation for climate initiatives:** CBAM will generate revenue through border taxes on carbon-intensive goods. This can be used to fund climate initiatives or capacity-building measures in developing countries or Least Developed Countries (LDCs) if the EU decides to allocate it in this manner.

**Stimulates innovation in clean technologies:** CBAM can stimulate innovation in clean technologies. Faced with a potential CBAM charge, industries may be motivated to invest in new technologies to reduce their carbon emissions. For instance, the fertiliser industry might accelerate research into low-carbon or carbon-free production processes to lower their CBAM costs.

**Encourages other countries to adopt carbon pricing:** CBAM may encourage other countries to implement their own carbon pricing mechanisms. The aim is to avoid CBAM charges, as goods



from countries with equivalent carbon pricing mechanisms are exempt. This could potentially lead to the broad adoption of carbon pricing, further facilitating global decarbonisation.

**Must read:** [EU's carbon border tax – Explained, pointwise](#)

### What are the arguments against the implementation of CBAM?

**Discrimination against developing countries:** One key concern about the CBAM is that it could unfairly disadvantage developing countries and least developed countries (LDCs), which might lack the capacity to meet its requirements. For example, a steel producer in a developing country might not have the resources to reduce its carbon emissions to EU standards, which could put it at a disadvantage in the international market.

**Contradiction with multilateral agreements:** CBAM may contradict existing multilateral climate and trade agreements, including the Paris Agreement and World Trade Organization (WTO) principles. For instance, the Paris Agreement calls for 'Common but Differentiated Responsibilities', allowing countries at different stages of development to set their own emissions targets. CBAM doesn't offer such differentiation, possibly violating this principle.

**Potential for trade disputes:** CBAM could spark trade disputes, as it appears to contravene the WTO's non-discrimination principles. Countries could challenge the CBAM at the WTO, arguing it discriminates against 'like' goods based on their carbon content.

**Complicated implementation:** The implementation of CBAM could be complex and challenging, particularly for countries with less administrative and institutional capability. For example, the need to establish rules of origin to account for carbon content for every part and component at the point of origin would be a formidable task for countries involved in complex global value chains.

**Possibility of retaliatory measures:** There's a risk that countries affected by the CBAM might respond with retaliatory measures, such as their own carbon border taxes. This could escalate into a trade war, complicating international trade and potentially harming global economic growth.

**Questionable justification:** Some critics question the basic premise of the CBAM, arguing there's insufficient evidence of significant carbon leakage to justify it. Critics contend that other factors, such as labor costs, regulatory transparency, and stability, often carry more weight in companies' location decisions than environmental regulations.

**Read more:** [A multi-pronged counter is warranted to tackle the EU's carbon tax plans](#)

### How does CBAM affect other countries' carbon pricing mechanisms?

**Undermining other carbon pricing mechanisms:** The CBAM can undermine other countries' carbon pricing mechanisms by setting a global price standard. As the CBAM only recognizes the EU Emission Trading System and equivalent mechanisms, countries using different forms of climate regulation may find their efforts devalued.

**Imposing additional burden on developing countries:** Many developing countries lack the institutional capacity to set up a comprehensive accounting and reporting system for carbon emissions, a requirement under the CBAM. This imposes an additional burden on these nations and could potentially hamper their own climate action initiatives.

**Questioning "Equivalence":** The concept of "equivalence" becomes tricky with the introduction of CBAM. Countries that have opted for different forms of climate regulation under their Nationally Determined Contributions (NDCs) may struggle to ensure "equivalence" in terms of carbon pricing, potentially leading to an uneven playing field. This will in turn create trade inequities.

**The challenge of "Extraterritorial Effects":** The CBAM raises critical questions regarding extraterritorial effects, given that it implicitly assumes or enforces compliance with EU norms on

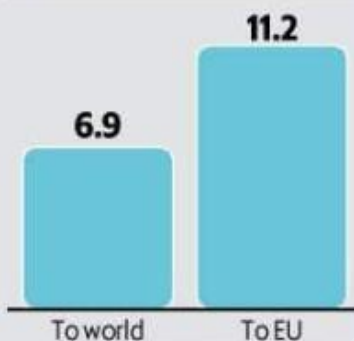
countries outside its jurisdiction. This could lead to tensions in international climate agreements and trade relations.

### Why is India worried about the CBAM?

## RISING TENSION

The proposed tax has raised concerns among Indian metal producers, who fear it will create a new trade barrier for exports to Europe.

### Share (%) of CBAM products in India's exports



India's total exports of CBAM products to EU:

**\$8.22 bn**

### Impact on sectors covered under CBAM

mint

#### ↑ HIGH

	Number of tariff lines affected	EU's share (%) in India's exports of CBAM products
Iron ore, concentrates	16	19.9
Steel products	163	20
Iron and steel	473	31.4
Aluminium and products	85	27.7

#### ↓ LOW

Cement	14	6.1
Fertilizer	24	0.7
Hydrogen	1	0
Electrical energy	1	0

CBAM: Carbon Border Adjustment Mechanism

Source: Global Trade Research Initiative (GTRI)

SARVESH KUMAR SHARMA/MINT

Source: Live Mint

**Potential impact on key industries:** India, being a major global producer of steel and aluminium, is concerned about the impact of CBAM on these industries. The CBAM might put Indian producers at a disadvantage as they may find it more challenging to meet the EU's carbon standards.

**A barrier to free trade:** India is currently in the process of negotiating a Free Trade Agreement (FTA) with the EU. There's a worry that while tariffs are being eliminated under the FTA, the CBAM could act as a non-tariff barrier, impacting the expected benefits of the agreement.

**Transparency concerns:** India also raises concerns over the transparency of the carbon tax calculation under CBAM. The EU's one-size-fits-all approach may not take into account factors like per capita pollution, forest cover, and sustainable living, which are relevant in the Indian context.

**Risk of retaliation and trade disputes:** Lastly, India, like many other countries, might consider retaliatory measures against the EU's CBAM. This could lead to trade disputes and potentially harm relations between India and the EU.

**Read more:** [Why EU's carbon levy helps rich countries get richer](#)

### How is India planning to tackle CBAM?

**Conducting sectoral analysis:** The Indian government plans to undertake a sector-by-sector analysis to assess the impact of the CBAM on its industries. This detailed examination will aid in determining targeted action plans for each potentially affected sector.

**Engaging relevant departments:** India is roping in multiple departments, such as the Climate Change Finance Unit of the Department of Economic Affairs and the Steel Ministry, to collaboratively analyze the potential issues and formulate suitable solutions.

**Incorporating CBAM into FTA Negotiations:** India is considering including CBAM discussions in the ongoing negotiations for a Free Trade Agreement with the EU. This approach aims to ensure that while tariffs are being eliminated under the FTA, the CBAM doesn't pose additional barriers to trade.

**Demanding transparency:** India is keen to ensure that the EU provides transparency in how the carbon tax under the CBAM is calculated for different sectors. It insists that factors like per capita pollution, forest cover, and sustainable living practices should also be considered in the assessment.

**Building alliances with developing nations:** In its strategy to tackle the CBAM, India is also planning to join forces with other developing nations, such as South Africa. This collective approach will help present a united front in discussions and negotiations with the EU, strengthening their stance and addressing common concerns effectively.

**Read more:** [Exporting into a world with carbon tax](#)

### What should be done?

**Adopting uniform carbon pricing:** To avoid the complexities related to the CBAM, countries should work towards a global agreement on uniform carbon pricing. This will not only create a level playing field but also avoid potential disputes.

**Capacity building in developing countries:** Given the difficulties in accounting and reporting the carbon emissions of production processes, efforts should be made at a global level to build the institutional capabilities of developing nations and least-developed countries.

**Balancing trade and climate action:** There is a need for better coordination and balance between trade policies and climate action commitments. Policies need to be designed such that they do not contradict but complement each other.

**Revisiting multilateral agreements:** Existing multilateral agreements on trade and climate change may need to be revisited and potentially revised to align them with new climate realities and mechanisms like the CBAM.

**Establishing clear rules of origin:** If carbon border adjustments become widespread, there will be a need for clear, transparent, and fair rules of origin to account for the carbon content of goods, especially in complex global value chains.

**Sources:** Live Mint ([Article 1](#) and [Article 2](#)), The Hindu ([Article 1](#), [Article 2](#) and [Article 3](#)), The Hindu Businessline ([Article 1](#) and [Article 2](#)), [Business Standard](#), [New Climate](#), [North Africa Post](#) and [WEF](#)

**Syllabus:** GS 3: Environment and Bio-diversity – Environmental pollution and degradation.

## World's largest grain storage plan: benefits and challenges – Explained, pointwise

### Introduction

India has embarked on an ambitious journey to establish the world's largest grain storage plan, aiming to transform the nation's agricultural economy. While the initiative presents numerous benefits, such as reducing post-harvest losses, enhancing farmers' income, and strengthening food security, it is not devoid of challenges. Issues like ensuring the functionality of Primary Agricultural Credit Societies and managing the enormity of the project are substantial hurdles to overcome. This exploration will delve into the merits and potential obstacles of this significant plan.

### About the world's largest grain storage plan

**Read here:** [Cabinet approves Constitution and Empowerment of an Inter Ministerial Committee \(IMC\) for Facilitation of "World's Largest Grain Storage Plan in Cooperative Sector"](#)

### What is the rationale/need for the world's largest grain storage plan?

**Read here:** [What is the massive grain storage plan the govt has unveiled, how it'll help farmers](#)

What are the salient features of the grain storage plan when compares to other nations' plans?

**Scale of the project:** The "World's Largest Grain Storage Plan in the Cooperative Sector" is a massive undertaking in comparison to similar projects in other nations, aiming to augment India's grain storage capacity from 145 million tonnes to 215 million tonnes.

**Note:** USA, Brazil, Russia, Argentina, Ukraine, France, and Canada which have more capacity to store food grains than they produce. Against the total foodgrain production of 615 MMT, China has a storage capacity of 660 MMT.

**Decentralization:** Unlike many other nations' centralized storage systems, India's plan promotes decentralization, aiming to construct storage facilities in every block with capacities between 500-2000 tonnes.

**Climate consciousness:** With the growing concern over climate change, this plan also seeks to create climate-resilient storage facilities, which is not a primary focus in many other countries' grain storage plans.

**Inter-ministerial coordination:** An inter-ministerial team will oversee the plan, ensuring seamless coordination among various government bodies.

**Significant financial commitment:** A budget allocation of INR 1 lakh crore shows a commitment not seen in many similar initiatives globally.

### What are the benefits associated with the world's largest grain storage plan?

**Prevention of food wastage:** By increasing storage capacity, India aims to prevent food grains from being exposed to pest attacks and inclement weather, thereby reducing losses. For instance, the government has cited post-harvest losses in the range of 4-6% for cereals and 5-8% for pulses.

**Enhanced food security:** The plan would strengthen food security in a country where millions still suffer from hunger, by ensuring a larger portion of the grain production is safely stored and distributed.

**Support to farmers:** Farmers will benefit from better prices for their produce as the storage facilities will reduce the need for distress sales, allowing farmers to store their grains and sell when prices are favorable.

**Cost savings:** The local storage facilities will help reduce transportation costs associated with moving food grains to procurement centres and then back from warehouses to fair-price shops.

**Employment generation:** The construction and operation of these storage facilities could generate local employment, thereby boosting rural economies.

**Strengthening PACS:** By allowing PACS to diversify their activities, the plan not only bolsters these societies but also increases the incomes of their farmer members. For example, PACS can function as procurement centers, fair price shops, or set up custom hiring centres.

**Better management of climate change effects:** In view of the anticipated challenges to food production due to climate change, having robust and widespread storage facilities will help the country manage fluctuations in crop yields better.

#### **What are the challenges in establishing the world's largest grain storage plan?**

**Revival of non-functional PACS:** A large number of Primary Agricultural Credit Societies (PACS) in India is currently dysfunctional. For example, only about 63,000 out of 1 lakh PACS are currently operational in India. These societies need to be revived and made operational to maximize the potential of the plan.

**Ensuring fair implementation:** The plan requires careful implementation across diverse regions with different requirements. For instance, the pilot project in a district with ample resources might suggest a higher storage capacity, but replicating the same model in a resource-scarce region could lead to underutilization or waste of resources.

**Financing and convergence of schemes:** The plan involves the convergence of several schemes from different ministries. For example, the Agriculture Infrastructure Fund (AIF) from the Ministry of Agriculture might prioritize different objectives than the Pradhan Mantri Kisan Sampada Yojana (PMKSY) from the Ministry of Food Processing Industries. Coordinating these schemes to work towards a common goal of enhancing grain storage might present intricate bureaucratic challenges.

**Infrastructure and technology:** Setting up modern storage facilities and implementing digital solutions for management might pose a challenge given the rural setting and the potential lack of technological infrastructure in these areas. For instance, a state-of-the-art godown requiring a continuous power supply might face operational issues in an area with frequent power cuts.

**Employment and skill development:** The plan could generate local employment opportunities, but it may also require training people to operate and manage these advanced storage facilities, posing a challenge in terms of skill development.

#### **What should be done?**

**Revive and strengthen PACS:** Many Primary Agricultural Credit Societies (PACS) are currently dysfunctional. For the plan to be successful, these societies need to be revived and operational.

**Develop efficient guidelines:** An effective implementation methodology needs to be developed. This should involve robust guidelines that cater to the unique requirements of different regions in the country.

**Ensure timely implementation:** To reap the benefits of this plan, timely implementation is crucial. This will require a concerted effort from all stakeholders, including the various ministries involved and PACS.

**Efficient utilization of funds:** Given the vast sum allocated for this plan, efficient utilization of funds is necessary. Mismanagement or misallocation of resources could severely hamper the plan's execution.

**Technology integration:** Digital tools and technologies should be employed to make these storage facilities more efficient and to streamline the process of monitoring and management.

**Address climate change impact:** Efforts need to be made to anticipate and mitigate the potential impact of climate change on food grain storage. This could involve incorporating storage technologies that are resistant to extreme weather conditions.

**Capacity building:** There should be adequate training for the personnel involved in managing these storage facilities, to ensure smooth operation and maintenance.

**Sources:** The Hindu Businessline ([Article 1](#) and [Article 2](#)), Deccan Herald ([Article 1](#) and [Article 2](#)), Live Mint ([Article 1](#) and [Article 2](#)), [Indian Express](#), [PIB](#) and [Tribune](#)

**Syllabus:** GS 3: Economic development – Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security;

## Recent Development in India-US Relations – Implications and Significance – Explained, pointwise

### Introduction

The recent visit of the Indian Prime Minister to the United States marked an important milestone in the strengthening of India-US relations. This occasion, marked by meaningful dialogues and strategic agreements, has profound implications for both nations. The meetings aimed at bolstering economic, strategic, and technological ties, addressing global challenges together, and cementing the partnership in the face of shifting global dynamics.

Highlights of the recent Indian Prime Minister visit to the United States	
Sector	Highlights
Space Technology Partnership for the Future	<ol style="list-style-type: none"> <li>1. Development of a strategic framework for human spaceflight cooperation by NASA and ISRO by the end of 2023.</li> <li>2. Delivery of the NASA-ISRO Synthetic Aperture Radar (NISAR) satellite and anticipated launch in 2024.</li> <li>3. Enhanced commercial collaboration in the space economy due to India's Space Policy – 2023.</li> <li>4. Signing of the Artemis Accords by India.</li> </ol>
Semiconductor and Telecommunications Partnership	<ol style="list-style-type: none"> <li>1. Signing of an MoU on Semiconductor Supply Chain and Innovation Partnership.</li> <li>2. Announcement by Micron Technology, Inc., to invest up to \$825 million in a new semiconductor assembly and test facility in India.</li> <li>3. Proposal by Lam Research to train 60,000 Indian engineers in semiconductor education.</li> <li>4. Launch of Joint Task Forces on advanced telecommunications, focusing on Open RAN and research and development in 5G/6G technologies.</li> </ol>
Quantum Coordination and Advanced AI Research	<ol style="list-style-type: none"> <li>1. Establishment of an Indo-U.S. Quantum Coordination Mechanism to facilitate collaboration among industry, academia, and government.</li> <li>2. Launch of a \$2million grant program under the India-U.S Science and Technology Endowment fund for AI and quantum technologies.</li> <li>3. 35 innovative joint research collaborations in emerging technologies funded by the U.S. National Science Foundation (NSF) and the Indian Department of Science and Technology (DST).</li> </ol>
Next Generation Defense Partnership	<ol style="list-style-type: none"> <li>1. Adoption of a Defense Industrial Cooperation Roadmap to enable co-production of advanced defense systems.</li> <li>2. Signing of an MoU between General Electric and Hindustan Aeronautics Limited for the manufacture of GE F-414 jet engines in India.</li> <li>3. Setting up of the India-U.S Defense Acceleration Ecosystem (INDUS-X).</li> <li>4. India's plans to procure General Atomics MQ-9B HALE UAVs and the establishment of a Comprehensive Global MRO facility in India by General Atomics.</li> </ol>
Clean Energy Transition	<ol style="list-style-type: none"> <li>1. India-U.S. Climate and Clean Energy Agenda 2030 Partnership and Strategic Clean Energy Partnership (SCEP) to deploy clean energy at scale.</li> <li>2. Creation of the India-U.S New and Emerging Renewable Energy Technologies Action Platform.</li> <li>3. Collaboration to reduce the cost of green/clean hydrogen under India's National Green Hydrogen Mission and the U.S. Hydrogen Energy Earthshot.</li> <li>4. Development of joint efforts in carbon capture, utilization, and storage.</li> <li>5. Large investments in solar panel manufacturing and steel production in the U.S. by Indian companies.</li> <li>6. Acceleration of the deployment of zero emissions vehicles, electric transportation, and the development of biofuels.</li> <li>7. Creation of the Global Biofuels Alliance.</li> <li>8. Innovative investment platforms to lower the cost of capital for greenfield renewable energy and battery storage projects.</li> <li>9. Enhancement of the bilateral collaboration to secure resilient critical minerals supply chains.</li> </ol>
Propelling Global Growth	<ol style="list-style-type: none"> <li>1. The two nations recognize the potential of Digital Public Infrastructure (DPI) for enabling open and inclusive digital economies and will explore the development of an India-U.S Global Digital Development Partnership.</li> <li>2. Strengthening of Multilateral Development Banks (MDBs) was discussed, emphasizing their evolution and their financial capacity enhancement to address global challenges.</li> <li>3. The Indo-Pacific Economic Framework (IPEF) is highlighted as an important pillar for resilience, clean energy transformations, and economic progress.</li> </ol>
Deepening Strategic Convergence	<ol style="list-style-type: none"> <li>1. Mutual support for the reform and strengthening of the UN and India's permanent membership on a reformed UN Security Council.</li> <li>2. Shared concern over the conflict in Ukraine and commitment to render humanitarian assistance.</li> <li>3. Recommitment to empowering the Quad for global good and peace in the Indo-Pacific.</li> <li>4. Resolve to counter global terrorism and condemn violent extremism in all its forms.</li> <li>5. Commitment to a peaceful, secure, and stable Afghanistan.</li> <li>6. Long-term strategic partnership between India, Israel, United Arab Emirates, and the United States (I2U2).</li> <li>7. Shared commitment to an open, secure, and reliable Internet and cooperation on cybersecurity.</li> <li>8. Mutual affirmation of shared democratic values and a commitment to inclusive development.</li> </ol>

**What is the Significance of these developments for India and the US?**

**Strategic Balancing in a Multipolar World Amid Changing Global Dynamics:** The recent geopolitical developments like rise of China, decline in multilateral institutions, Russia-Ukraine war and growing influence of emerging economies highlight a constantly evolving world order. The US needs India to counterbalance China in the Indo-Pacific region. Post Galwan clash, India also needs to develop a stronger relationship with the US.

**Diversification of partnership:** The expansion of partnership across sectors like technology, space, health, digital infrastructure, and energy allows both nations to diversify their collaboration beyond traditional domains. For India, this can mean an infusion of capital, technical know-how, and access to advanced technology. For the US, it means access to India's large market, robust human resources, and a rapidly growing technology sector.

**Defense and security cooperation:** The defense technology transfer signifies the US's recognition of India as a trusted ally. This will bolster India's self-reliance in defense and enhance its military capabilities. For the US, it strengthens a key partnership in a geopolitically sensitive region.

**Strengthening of economic relations:** The resolution of trade disputes signifies a move towards more robust and fair economic relations. It allows both countries to protect their economic interests and ensure healthier trade ties, benefiting businesses and consumers in both nations.

**Collaboration for global challenges:** Increased collaboration in the health sector, especially in the wake of the COVID-19 pandemic, showcases the shared commitment of both countries to address global health challenges. Similarly, cooperation in clean energy reflects their responsibility towards global climate issues.

**Enhancement of People-to-People Ties and Role of the Indian Diaspora:** Deepening people-to-people ties not only fosters mutual understanding and goodwill, but also strengthens the durability of bilateral relations. The role played by the Indian diaspora in the economic and political life in the US is highlighted by the appointment of more than 130 Indian-Americans to key positions in Biden administration. The community makes up around one percent of the American population.

**What are the Implications of these developments for India?**

**Broadened technological collaboration:** The commitment to greater technology sharing in fields like artificial intelligence, quantum computing, and telecommunications has the potential to propel India's tech sector forward. Access to advanced technology and research opportunities can significantly boost India's innovation ecosystem.

**Defense and security:** The strategic technology transfer in fighter jet engines can enhance India's defense capabilities. This aligns with India's goal to become more self-reliant in defense production and could act as a deterrent against regional threats.

**Space exploration:** Collaboration in space exploration and technology could give a substantial push to India's space ambitions, helping the country further its scientific research, satellite capabilities, and potentially manned missions.

**Energy sector boost:** The focus on clean energy collaboration can provide technological and financial support for India's transition to renewable sources. This is crucial for India's energy security and its commitments towards climate change mitigation.

**Economic opportunities:** The resolution of previous trade disputes with the US means increased access to one of the world's largest markets. This could result in higher exports, increased foreign investments, and overall economic growth for India.

**Health sector advancement:** The collaboration in the health sector, especially regarding COVID-19 response and the distribution of vaccines, will help improve India's health

infrastructure. This is likely to contribute to better health outcomes for the Indian population in the long run.

**Strengthening of international stature:** The recent developments signal recognition of India as a significant global player by the US. This can enhance India's diplomatic influence and bargaining power on the international stage.

### What are the challenges in India-US relationship?

Read here: [Recalibrating the India-US relationship](#)

**Defense dependence on Russia:** India's historical and ongoing dependence on Russian military supplies, such as the S-400 missile system, conflicts with US sanctions on Russia. This issue complicates India-US relations and could hinder deeper strategic collaboration.

**Varied stance on global conflicts:** India and the US have different perspectives on global conflicts. For instance, India's abstention from condemning Russia over the Ukraine crisis and its balanced approach towards the Israel-Palestine conflict contrasts with the US's positions.

**Human Rights and Democratic Values:** There are elements in the US who keep on raising the issues of freedom of expression, freedom of press, protection of ethnic minorities, democracy, etc. in India. During the recent official visit of the Indian Prime Minister, more than 70 American lawmakers wrote to U.S. President Joe Biden asking him to raise concerns about democratic norms and human rights in India.

**Trade and economic issues:** Despite growing trade, issues persist, such as Indian protectionism and restrictions on market access for certain US goods. Further, the contentious subject of H1B visas, crucial for Indian professionals, remains unresolved.

**Uncertainty about US policy:** Indian policymakers express concern about policy shifts in the US due to domestic political changes. Such uncertainty, especially in areas like immigration and foreign policy, can make long-term planning difficult for India.

**Handling China:** While both countries have concerns about China's rise, they differ in their approach. India maintains a nuanced stance towards China due to its geographical proximity and complex historical relations. This can sometimes lead to divergences with the US approach.

**Climate change policy:** While both nations are working towards sustainable development and climate change mitigation, the pace and extent of their commitments differ. India, a developing country, emphasizes the principle of 'common but differentiated responsibilities' and seeks more support from developed countries like the US.

### What should be the course of action for India?

**Strategic Diplomacy and Stance on Global Issues:** Amid the complexities of a multipolar world, India should uphold its principles of strategic autonomy. This means nurturing its burgeoning relationship with the US, while also maintaining balanced relations with other global powers such as Russia and China. Concurrently, India must articulate its stance on global conflicts such as the Russia-Ukraine issue, ensuring respect for international norms without compromising its national interests. In doing so, India affirms its position as a responsible global player capable of contributing to peaceful conflict resolution.

**Trade disputes resolution:** India must continue working on resolving trade disputes with the U.S., ensuring the negotiation of fair and balanced trade agreements. Enhancing market access, addressing intellectual property rights issues, and balancing trade deficits should be priorities.

**Defense sector:** India should carry forward its cooperation with the U.S. in the defense sector, focusing on technology transfer and joint production. This will help enhance India's defense capabilities, contributing to national security.



**Managing regional politics:** India needs to carefully manage its regional politics, especially with respect to the Afghanistan situation. It should actively engage with the US and other stakeholders to ensure that its interests in the region are protected.

**Role in the Quad:** India should utilize the Quad platform for promoting peace and stability in the Indo-Pacific region, countering China's aggressive behavior, and addressing shared global challenges such as climate change and the COVID-19 pandemic.

**Stance on global issues:** India should carefully articulate its stance on global issues such as the Russia-Ukraine conflict, respecting international laws and norms while ensuring its national interests are not compromised. As a responsible global player, India should also actively contribute to finding peaceful solutions to these conflicts.

## India-Egypt Relations – Recent Developments -Explained, pointwise

### Introduction

India-Egypt relations have taken significant strides recently, especially following Indian Prime Minister visit to Egypt in June 2023. These engagements underline India's focus on deepening ties with this key Middle Eastern nation. Egypt's geopolitical significance and India's rising global stature provide a backdrop for this growing partnership. From enhanced defence collaboration to trade agreements, these strategic dialogues are setting a positive direction for the future of India-Egypt relations.

### Recent Developments and their importance

**Strategic Partnership Agreement:** Both nations elevated their bilateral relationship to a strategic partnership, with an agreement signed to formalize this status. This strategic partnership focuses on four main areas: politics, defence and security; economic engagement; academic and scientific exchanges; and cultural and people-to-people contacts.

**The "India Unit" in the Egyptian government:** Egypt constituted an "India unit" within his government. This unit consists of seven cabinet ministers who will work alongside Prime Minister Mostafa Madbouly to strengthen the India-Egypt relationship.

**Defence trade and cooperation:** India has shown interest in expanding its defense trade with Egypt, with a focus on promoting its domestic defense production. Egypt has expressed interest in the Tejas Light Combat Aircraft, an Indian-made fighter jet.

**Economic engagement and trade opportunities:** India and Egypt are exploring opportunities in the Suez Canal Economic Zone (SCZONE), which offers easy access to markets in Europe, Africa, and the Gulf. This holds potential for the 'Made by India for the World' export-oriented program. Several Indian companies already use Egypt as a manufacturing base.

**G20 invitation:** India has invited Egypt as a guest country for the G20, recognizing Egypt's significant influence in the Arab world and its strategic location. Egypt's participation in the G20 is seen as beneficial due to its representation of developing countries' aspirations.

**Award recognition for PM Modi:** PM Narendra Modi was conferred with the Order of the Nile, Egypt's highest award, signifying the importance of India-Egypt ties and acknowledging India's stature as a rising global power.

**Historical connections:** Indian PM visited the Heliopolis War Memorial, which commemorates the 3,799 Indian soldiers who sacrificed their lives in various battles in Egypt during the First World War. He had also visited the 11th-century Al-Hakim Mosque, restored with the help of the Dawoodi Bohra community in India

### A Brief Overview of India-Egypt Relations

**Ancient connections:** Both have a long history of contact dating back to the time of Ashoka. Fine Indian muslin, a type of cotton fabric was also used for wrapping mummies.

**Mahatma Gandhi and Egypt:** Mahatma Gandhi, philosophy of nonviolence and civil disobedience inspired several Egyptian nationalists in their own fight for independence. There was a mutual admiration between Gandhi and Egypt's nationalist leader Saad Zaghloul, and this connection had a profound impact on the bilateral ties of the two nations.

**Post-Independence relations:** After gaining independence, diplomatic relations were established in 1947, and a friendship treaty was signed in 1955. India also condemned the attack on Egypt during the 1956 Suez Crisis and tried to mediate. Both adopted a non-aligned foreign policy, and they co-founded the Non-Alignment Movement (1961) during the Cold War era. Their shared commitment to anti-colonialism and anti-imperialism brought them closer. This led to strong diplomatic relations, with the likes of Jawaharlal Nehru and Gamal Abdel Nasser fostering these ties.

**Modern-Day relations:** In the contemporary era, India and Egypt have nurtured their strategic partnership, symbolized by high-level diplomatic visits, such as the Indian Prime Minister's tour to Egypt in June 2023. However, despite these promising diplomatic endeavours, their economic ties have not yet reached their full potential, with a decline in trade by 17% amounting to \$6,061 million in 2022-23. This points towards the need for diversifying the economic relationship beyond oil and petroleum.

Read more: [India-Egypt Relationship – Explained, pointwise](#)

### What is the significance of India Egypt Relations?

**Strategic importance:** Egypt's geopolitical position, straddling Asia and Africa, and its control of the Suez Canal, a key global commercial artery, gives it significant strategic value. This makes Egypt an important partner for India in the region.

**Counter-Terrorism cooperation:** There is strong convergence between India and Egypt in the fight against religious extremism and terrorism. Given the global challenge posed by these issues, cooperation in this area is significant for both nations.

**Economic potential:** Trade relations between India and Egypt are expanding, with India now among Egypt's top ten trading partners. Further, the potential for India to expand its presence in the Suez Canal Economic Zone (SCZONE) offers exciting opportunities for growing economic relations. Egypt holds huge potential for the domestic industry in various sectors like agri products, steel items and light vehicles.

**Cultural and historical Ties:** India and Egypt share deep cultural and historical ties that date back to ancient times. These ties play a significant role in fostering mutual understanding and people-to-people connections, enhancing the overall relationship.

**Regional influence:** Egypt, as the largest country in the Arab world and home to the Arab League's headquarters, exerts considerable influence in the Middle East and North Africa. An enhanced relationship with Egypt can aid India's engagement with the broader region.

**Defence cooperation:** The bilateral defence cooperation has seen a fair bit of activity with joint exercises and high-level visits. As India shifts its focus towards defence exports, Egypt could be a potentially significant market.

**Education and knowledge sharing:** The presence of an Indian Centre for Excellence in IT at Cairo's prestigious Al Azhar University is indicative of the potential for further educational collaboration and knowledge sharing between the two nations.

### What are the challenges of India Egypt Relations?

Read here: [India and Egypt relationship](#)

**Domestic economic instability.** Egypt Government is battling high inflation of 21%, which has resulted in historically high prices of commodities and daily-use items. Its foreign debt is over **\$163 billion (43% of the GDP)** and its net foreign assets are **minus \$24 billion**. Prolonged economic instability may lead to mass discontent and movement similar to the 2011 revolution.

**Political differences:** There have been differences on key international issues. For instance, Egypt has not always shared India's position on the United Nations Security Council (UNSC) reforms.

**Regional instability:** Egypt's geographical location in North Africa places it in proximity to several unstable regions and conflict zones, including Libya and Sudan. This instability can indirectly impact India-Egypt relations by creating uncertainties in areas of mutual interest such as regional security and economic investment.

**Navigating regional politics:** Both India and Egypt have complex regional relationships to navigate. Balancing these relationships, particularly as they pertain to issues such as Kashmir for India or the Israeli-Palestinian conflict for Egypt, could pose challenges.

**China's growing influence:** China's growing economic presence in Africa, including Egypt, is another significant challenge. China's Belt and Road Initiative has been making significant inroads in Africa and this has increased China's influence in the region. Balancing relations with China while trying to increase India's economic engagement in Egypt and the broader African region could be a tricky diplomatic challenge for India.

**Competition with other powers:** Apart from China, there are other global and regional powers also engaging actively with Egypt, including the United States, European Union countries, Russia, and Gulf states. Managing the relationship with Egypt in the face of competition from these powers can pose diplomatic challenges for India.

#### **What should be the future path?**

**Enhanced bilateral trade and investment:** Both nations should aim to increase trade volumes and investment flows. India should consider negotiating a free trade agreement (FTA) with Egypt. India's expertise in areas such as IT, healthcare, and pharmaceuticals could be leveraged in Egypt. At the same time, opportunities should be explored for Indian investments in Egypt.

**Strengthening defence cooperation:** As the partnership has shown growth in defence and security sectors, it would be beneficial to keep this momentum going. Joint military exercises, information sharing, and collaboration on counter-terrorism efforts can be prioritized.

**Cultural and educational exchanges:** Increased cultural exchanges can foster greater understanding between the two peoples, particularly among the youth. India could offer more scholarships for Egyptian students, while Egypt could facilitate deeper understanding of the Arab world for Indian students and scholars.

**Cooperation on regional and global issues:** As significant players in their respective regions and at the global stage, India and Egypt can seek to align their stances on key issues more closely, whether it be climate change, UN reforms, or regional stability.

**Managing third-party relations:** Given the interest of other powers like China, the US, and Russia in Egypt, India should strive for a balanced approach that respects Egypt's relationships with these countries, while clearly articulating its own strategic interests.

Sources: –

**Sources:** [The Hindu \(Article 1 and Article 2\)](#), [The Indian Express \(Article 1 and Article 2\)](#), [Livemint](#), [Daily Pioneer](#), [Economic Times](#) and [Hindustan Times](#)

## Financing the Green transition: initiative and challenges – Explained, pointwise

### Introduction

“Financing the Green Transition” is the cornerstone of the global shift towards sustainability. At the Paris Finance Summit, world leaders addressed the financial disparities impeding this transition, particularly for developing nations. Key initiatives included unlocking additional lending capacity and introducing taxes for polluters. Nonetheless, numerous challenges remain – mobilizing sufficient funds, aligning policies, and enhancing public awareness. Especially, in developing countries like India, issues like insufficient financing, lack of technology, and regulatory bottlenecks further complicate the journey.

### What is green transition?

The green transition denotes a shift towards economically sustainable growth and an economy that is not based on fossil fuels or excessive natural resource consumption. Low-carbon solutions that encourage the circular economy and biodiversity are essential for a sustainable economy.

The green transition might involve investments in clean energy production, circular economy solutions, hydrogen technology, and the introduction of various new services and operating models for businesses, the industrial industry, and municipalities. This bundle includes low-carbon roadmaps and sustainability initiatives developed by several sectors.

The key elements of the green transition include – shift to renewable energy, energy efficiency, sustainable transportation, sustainable agriculture and forestry, circular economy, and green infrastructure.

### What is the need for green transition?

**Escalating impacts of climate change:** The escalating impacts of climate change, as seen in the increasing number and severity of heatwaves, storms, floods, and wildfires worldwide, necessitate a green transition. These changes, highlighted in the Intergovernmental Panel on Climate Change (IPCC) reports, pose serious threats to human lives, livelihoods, and infrastructures.

**Fossil fuel depletion:** The finite nature of fossil fuels and their impending depletion necessitate the shift towards renewable energy sources. Our current dependence on these fuels is unsustainable, and a transition to renewables is essential to secure our energy future.

**Economic vulnerability:** The “New Climate Economy Report” from the Global Commission on the Economy and Climate highlights the economies vulnerable to volatile fossil fuel prices and the environmental costs of pollution.

**Public health crisis:** Air pollution, primarily caused by burning fossil fuels, is causing a public health crisis, with millions of premature deaths each year. The World Health Organization reports underline the urgent need for cleaner, greener energy to improve air quality and protect public health.

**Loss of biodiversity:** The alarming rate of biodiversity loss, as highlighted in the “Global Assessment Report on Biodiversity and Ecosystem Services”, demands an immediate shift towards more sustainable practices. Green transition is needed to halt habitat destruction and protect the myriad species that support ecosystem health and human survival.

### What are the various initiatives taken to finance the green transition?

#### Initiative taken at international level

The recent Paris Finance Summit focused on global strategies for financing the green transition. Here are some of the key initiatives

**Multilateral development banks (MDBs):** MDBs are expected to play a significant role in addressing financial systems reform, addressing transboundary challenges, and increasing their resource allocation for developing countries. An additional lending capacity of \$200 billion was

announced for emerging economies at the summit. Apart from this, the World Bank announced disaster clauses for debt deals, that would suspend debt payment in the case of extreme weather events.

**Special Drawing Rights (SDRs):** The International Monetary Fund (IMF) announced that the goal of 100 billion SDRs for vulnerable countries had been met. ‘Recycling’ SDRs from rich countries whose central banks do not need the cushioning, to poor countries who need them or MDBs who can channel them, has been proposed.

**Just energy transition partnerships (JETPs):** A new 2.5 billion Euro JETP deal was announced for Senegal, with a consortium of countries comprising of Germany, France, Canada, the European Union, the United Kingdom, with the goal of increasing the share of renewable energy in installed capacity to 40 per cent of Senegal’s electricity mix by 2030.

**Debt restructuring and relief:** Calls were made for a significant reduction in debt levels in developing countries, particularly debt cancellations for least developed countries. For instance, Zambia reached a \$6.3 billion debt restructuring deal in debt owed to other governments including China.

**Polluter taxes:** There was significant support for the imposition of taxes on polluting industries such as shipping. A financial transactions tax was also supported by several attendees.

**Carbon markets:** The European Union unveiled a call to action on ‘Paris Aligned Carbon Markets’ with a goal of covering at least 60% of global emissions with carbon pricing mechanisms and allocating a proportion of revenues to climate finance.

**Climate finance goal:** It was suggested that the long overdue \$100 billion climate finance goal would be achieved this year.

### Initiative taken by India

**National Bank for Financing Infrastructure and Development (NaBFID):** It is instrumental in addressing India’s infrastructure needs, notably through the National Monetisation Pipeline (NMP) and the National Infrastructure Pipeline (NIP). Emphasizing sustainable and climate-resilient development, NaBFID concentrates on projects that foster inclusive growth and sustainability.

**Net-zero targets:** India, as a developing nation with growing energy demands, has set a goal of achieving net-zero emissions by 2070. This ambitious target involves balancing the amount of greenhouse gases produced with the amount removed from the atmosphere, promoting sustainability and climate resilience.

**Green growth as a budget priority:** In a recent budget, the government identified “Green Growth” as one of its seven key priorities, emphasizing its commitment to promoting sustainable development and allocating resources accordingly.

**FDI in renewable energy:** To meet the INR 1.5-2 trillion annual investment requirement in renewable energy, the Indian government has authorized 100% annual Foreign Direct Investment (FDI) for renewable power generation and distribution projects.

**Introduction of “Green Deposits”:** The Reserve Bank of India has introduced guidelines for banks and Non-Bank Financial Companies (NBFCs) to accept “green deposits”. These funds are allocated towards environmentally sustainable projects, such as energy efficiency, clean transportation, climate change adaptation, and sustainable water and waste management.

**Business Responsibility and Sustainability Reporting (BRSR):** SEBI has mandated the top 1000 listed companies in India to adhere to the BRSR framework, promoting transparency and accountability in their sustainable business practices. This framework helps in incentivizing green financing and allowing banks to estimate their climate-related exposure.

**ESG category of mutual funds:** SEBI has introduced an Environment, Social, and Governance (ESG) category of mutual funds. The regulation allows asset management companies to launch more than one ESG fund, promoting environmentally conscious investing.

**Growth of Green, Social, Sustainability, and Sustainability-linked (GSSS) bonds:** There has been a gradual expansion in the GSSS bonds market. Fitch ratings reports that GSSS-linked debt bonds accounted for US\$ 20 billion in the Indian debt market as of January 2023, reflecting increasing private sector investment in green projects.

**Read here:** [Energy Transition: Challenges and Solutions – Explained, pointwise](#)

#### **What are the challenges to financing green transitions?**

**Lack of robust green finance regulation:** Without clear regulations in place, stakeholders, who rely heavily on conventional financial practices, may be hesitant to invest in green finance.

**Inconsistent policy and regulatory environment:** The absence of coordinated state and central government programmes can discourage investors.

**Financial health of distribution companies and utilities:** Many of these companies are unable to make timely payments to renewable energy developers, which hampers the growth of the sector.

**Mismatch between investment timelines:** Long-term green investments do not align with the short-term horizons of investors.

**Disproportionate investment in sectors and technologies:** Certain sectors, such as wind energy, attract less international finance than others, like solar photovoltaics.

**Lack of consistent data and reporting systems:** This makes it difficult to track finance flows, although the emergence of new databases may enable more efficient reporting and tracking.

**Read more:** [Clean Energy Transition of States and their challenges – Explained, pointwise](#)

#### **What can be done?**

**Encouraging private investment:** Regulations should be friendly towards private investors and businesses who are willing to invest in renewable energy projects. Reducing bureaucratic hurdles and ensuring a stable regulatory environment will also encourage more private investment.

**Leveraging international funds and partnerships:** India could access international climate finance options such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF). Bilateral and multilateral partnerships with developed countries can also provide financial and technical assistance.

**Improving financial mechanisms:** Existing financial mechanisms need to be improved to increase funding for green initiatives. This could include green bonds, carbon pricing, and other innovative financing mechanisms. The central and state governments, along with financial institutions, can also provide low-interest loans and grants for green projects.

**Enhancing technological capabilities:** Upgrading India's technological capabilities is key to making the green transition cost-effective. This would involve investing in research and development (R&D), technology transfer, and capacity building. Collaborating with international partners can help access cutting-edge technologies.

**Fostering policy consistency:** Policy inconsistency can deter investors and slow down progress. Therefore, there should be consistency and predictability in India's energy and climate policies.

**Promoting public awareness and engagement:** Raising public awareness about the importance of green transition and creating a societal demand for sustainable products can help incentivize businesses to invest in green technologies and practices.

Sources:

Sources: Down to Earth ([Article 1](#) and [Article 2](#)), [The Hindu Businessline](#), [Politico](#) and [Business Insider](#)

## Volatility in Tomato, Onion and Potato (TOP) prices and its implications for India – Explained, pointwise

### Introduction

Addressing price volatility in the Tomato, Onion, and Potato (TOP) commodities has become a pressing issue in India. These essential food items experience significant price fluctuations throughout the year due to factors like climate change, monsoons, pest attacks, and supply-demand dynamics. This instability not only has a substantial impact on the country's Consumer Price Index, contributing to inflation, but also affects the livelihoods of farmers and affordability for consumers. Coupled with the imminent threat of El Nino and inadequate cold storage infrastructure, the challenge compounds further. As these fluctuations ripple through India's economy and society, managing TOP price volatility has become a crucial task for policymakers.

### What are the reasons for volatility in Tomato, Onion, and Potato (TOP) prices?

**Seasonality:** TOP crops have distinct harvest seasons, which can create price fluctuations based on the availability of the crops. For example, potato crops witness an increase in price volatility between November to January as prices go up in October-November and then decline in December-January as new crops arrive at the market. Similarly, onions prices being lower during April-May and higher during September-November.

**Regional concentration of production:** Most of the TOP production is concentrated in a few states. Onion, for instance, is mainly sourced from Maharashtra, Madhya Pradesh, and Karnataka. Any changes in production, market dynamics, or weather events in these regions can drastically affect prices across the country.

**Production cycle uncertainty:** Negative uncertainty regarding crop yield or damage due to weather events, pests, or diseases can result in significant price volatility. For instance, any damage to the Kharif onion crop due to an uncertain monsoon increases the burden of supply on the stored Rabi crop, causing price spikes.

**Perishability and storage constraints:** The perishable nature of these vegetables, particularly tomatoes, contributes to their price volatility. Limited storage capacities and inadequate infrastructure also exacerbate price fluctuations.

**Demand inelasticity:** Demand for onions, for example, is price inelastic, meaning that even a minor shortfall in production can lead to significant price increases.

### What are the effects of volatility in Tomato, Onion, and Potato (TOP) prices on farmers and consumers?

#### Impacts on farmers:

**Uncertain income:** High volatility in prices leads to uncertainty in income for farmers. If prices fall drastically after harvest, they may incur losses despite a good yield. This can discourage farmers from planting these crops in the subsequent season, causing supply shortages and even higher price volatility. For example, the rate of table potatoes has crashed between 60 to 76 per cent this year. Against the wholesale price of Rs 10 per kg last year, farmers in Punjab were struggling to get even Rs 4 per kg this year.

**Cyclical phenomenon:** The price-production cobweb phenomenon exemplified by tomatoes highlights the challenges farmers face. For instance, low price realization in 2021 led farmers to plant less area under tomatoes and shift towards other crops like soy, cotton, and corn. This

resulted in supply shortages and higher prices in the following months, showing the cyclical impact of price volatility on farmers' decisions and their income.

**Increased vulnerability:** Farmers are left vulnerable to the whims of the market and weather conditions. This uncertainty can lead to distress, especially among small and marginal farmers who have limited capacity to absorb financial shocks. Like, due to abundant production, onion prices crashed and farmers in Maharashtra have either been compelled to sell the onions at Rs 1 per kg or throw them on roads.

#### **Impacts on consumers:**

**Budgeting difficulties:** Price volatility of TOP commodities makes budgeting difficult for consumers, especially those in lower-income brackets. Sudden price hikes can put significant strain on household budgets.

**Inflation:** Despite their relatively low weightage in the overall index, the substantial contribution of TOP to overall CPI in certain months can negatively affect the financial stability of farmers. For example, the weightage of vegetables in the overall index is only 6.04 with the weightage of TOP being 2.20. Even with such a low weightage, the contribution of TOP to the overall CPI has been higher in many months and in negative territory in some months. The share of TOP in CPI was 29% in the month of January 2020 and -18% in the month of September 2021”

**Access and affordability:** During periods of high prices, access to these staple food items can become a problem for the poorer sections of society. Even with temporary price relief measures, some consumers may find it hard to afford these essential commodities.

**Impact on other commodity prices:** High inflation in TOP prices can impact other commodity prices. For example, high potato prices might impact the prices of snacks or processed foods that use potatoes as a primary ingredient. This can lead to a broader inflationary trend, affecting the prices of multiple goods in the consumer basket beyond just the TOP commodities.

**Global implications:** Fluctuations in the prices of TOP can have an impact on global markets as well. India is one of the largest producers and consumers of these commodities. So, when prices rise domestically, it can create supply gaps internationally. For example, during periods of high onion prices in India, countries that rely on Indian exports like Bangladesh, UAE, Nepal, Netherlands, UK could experience price hikes and supply shortages.

**Read more:** [Extension of Operation Greens from TOP to Total](#)

#### **What are the initiatives taken by the government to address volatility in Tomato, Onion, and Potato (TOP) prices?**

**Operation Greens (OG):** The Ministry of Food Processing Industries provides a transportation and storage subsidy of 50% for notified fruits and vegetables (including TOP crops) during periods of excess supply in the harvest season. This scheme helps reduce waste, manage supply, and stabilize prices.

**Market Intelligence and Early Warning System (MIEWS):** Through the MIEWS portal, the government tracks and monitors the price movements of TOP commodities. This information enables the government to take quick actions in response to potential market disruptions.

**National Agriculture Cooperative Marketing Federation of India (NAFED):** NAFED assists in controlling price volatility by gathering, analyzing, and circulating information about the supply, demand, and pricing of agricultural produce.

**Export Bans:** When the domestic prices of TOP commodities rise significantly due to shortages, the government often puts a temporary ban on their exports. This is done to prevent a domestic supply crunch and to curb further price increases. This move ensures that domestic consumers have access to these commodities at affordable prices.

**Read more:** [Market Intelligence and Early Warning System\(MIEWS\) Portal](#)



**What should be done to address volatility in Tomato, Onion, and Potato (TOP) prices?**

**Buffer stocking and cold storage facilities:** There needs to be more investment in storage facilities to maintain a buffer stock of TOP, particularly potatoes and onions, which can be stored effectively. However, this approach might be less effective for tomatoes due to their shorter shelf life.

Frequent government imposition of stocking limits on traders under the Essential Commodities Act may discourage private investment in cold storages. Therefore, this Act should be reconsidered, or at least applied more judiciously, to ensure that traders can maintain buffer stocks without fear of sudden regulatory shifts.

**Increase processing capacities:** With storage posing a challenge for certain vegetables like tomatoes, it's important to increase processing capacities. This means transforming raw products into more easily storable forms like purees, powders, or dehydrated pieces. The government should consider reducing the GST for these processed products to encourage their use and make them more affordable.

To promote the use of these processed goods, the government should partner with industry organizations to conduct awareness campaigns, like those done for other processed foods.

**Encourage direct buying and contract farming:** The government can promote direct buying by organized retailers from farmer producer organizations (FPOs) through contract farming, bypassing the traditional mandi system. This can help increase the share of the consumer's rupee going to the farmers, much like in the case of the dairy industry.

**Reform Agricultural Produce Market Committee (APMC) mandis:** There is a need for significant reform in the APMC mandis. They suffer from infrastructure deficiencies and need an overhaul. The government can undertake these reforms in a public-private partnership model, reducing commissions, encouraging contract farming, and setting up private mandis for better efficiency.

**Sources:** The Times of India ([Article 1](#), [Article 2](#)), Indian Express ([Article1](#), [Article2](#)), [India Today](#), [The Economic Times](#), [Financial Express](#), [The Hindu](#), [NABARD](#), [APEDA](#)

**Syllabus:** GS 3: Economic development – marketing of agricultural produce and issues and related constraints.

**Uniform Civil Code: Arguments for and against – Explained, pointwise****Introduction**

The Uniform Civil Code (UCC), envisioned **by Article 44 of the Indian Constitution**, proposes a common legal framework for personal laws for all Indian citizens, irrespective of religion. The goal is to achieve national integration, ensure gender equality, and uphold constitutional values. The **22nd Law Commission of India** is currently reassessing this subject, inviting public and institutional opinions. However, realizing the goal of UCC faces numerous challenges, as it involves striking a balance between the protection of religious rights, cultural diversity, and political sensitivities with the objective of legal uniformity. This makes the UCC a significant topic of national discussion.

**What is the UCC?**

The UCC is a proposition to replace the personal laws, which are based on the scriptures and customs of different religious communities in India, with a common set of laws governing every citizen. These laws pertain to **personal matters like marriage, divorce, inheritance, adoption, and maintenance**.

The concept of UCC is enshrined in **Article 44** of the Indian Constitution, which **falls under the Directive Principles of State Policy**. It states, “The State shall endeavor to secure for the citizens a uniform civil code throughout the territory of India.”

As of the present day (June 2023), the UCC has not been implemented in India, except in the state of Goa where a common family law, known as the **Goa Civil Code or Goa Family Law**, applies to all its citizens irrespective of religion.

### What is the Judicial view on UCC?

Read here: [The Debate on Uniform Civil Code – Explained, pointwise](#)

### What arguments do proponents give in support of implementing UCC?

**Constitutional mandate:** Article 44 of the Constitution of India, which falls under the Directive Principles of State Policy, clearly states that “**The State shall endeavor to secure for the citizens a Uniform Civil Code throughout the territory of India.**” Proponents argue that it is a constitutional mandate to work towards a UCC, thereby ensuring equality before the law.

**Promotion of gender justice and equality:** Many supporters of the UCC point to discriminatory practices in various religious personal laws, especially those related to marriage, divorce, and inheritance. They argue that a UCC can help eradicate such disparities. For example, **the Hindu Succession Act, 1956 was amended in 2005 to give daughters equal inheritance rights with sons**, but many argue that similar reforms have not been adopted universally across all personal laws.

**Strengthening of national integration:** Proponents of the UCC contend that it would foster a sense of unity and promote national integration by eliminating the legal pluralism currently seen in personal laws. They argue that the UCC will affirm the notion of “**one nation, one law,**” thereby reinforcing the idea of a unified Indian identity amidst its diverse population.

**Evolution of progressive jurisprudence:** Supporters often cite the historic **Shah Bano case of 1985** to argue for a UCC. In this case, the Supreme Court of India ruled in favor of Shah Bano, a divorced Muslim woman, granting her right to maintenance from her ex-husband under **Section 125 of the Indian Penal Code, a secular law**. However, the verdict was highly controversial and led to the enactment of the **Muslim Women (Protection of Rights on Divorce) Act, 1986** which diluted the judgement. This case is often used to highlight the need for a UCC to ensure justice and equality for women across religions.

**Precedent of Goa’s Civil Code:** Proponents of the UCC often cite the example of Goa, which has been following **the Portuguese Civil Code 1867, which is also called Uniform Civil Code**. It is the set of civil laws that governs all Goans, irrespective of religion. This is often put forth as a successful example of the implementation of a form of UCC.

### What are the critics’ arguments against the uniform civil code?

**Violation of religious freedom:** Critics argue that the UCC may infringe upon the freedom to practice the religion of one’s choice, which allows religious communities to follow their own personal laws. For example, **Article 25** of the Indian constitution gives every religious group the right to manage its own affairs, and **Article 29** allows them to conserve their distinct culture.

**Threat to cultural diversity:** Another argument against the UCC is the threat it could pose to India’s rich cultural diversity. Critics argue that individual personal laws reflect the distinct customs and traditions of different religious communities, and a uniform code could undermine this diversity. They contend that the UCC could lead to **a homogenization of laws**, which would not be in keeping with India’s multicultural ethos.

**Existing secular laws:** Critics also question the need for a UCC, pointing out that there are already secular laws applicable to all citizens, irrespective of religion, in many matters, such as **Section 125 of the Criminal Procedure Code, which provides for maintenance, and laws relating to domestic violence**.

**Imposition of 'Hinduised' Code:** Some critics suggest that the UCC might impose a 'Hinduised' code on all communities. For example, a UCC could include provisions for family disputes on property inheritance, which may be in line with Hindu customs and will legally force other communities to follow the same.

**Diversity in personal laws:** The opposition argues that even codified civil laws and criminal laws like the **Code of Criminal Procedure (CrPC) and the Indian Penal Code (IPC)** don't follow 'one nation, one law'. For example, **the law of anticipatory bail differs from one state to another.**

**Personal laws placed in concurrent list:** Some constitutional law experts argue that perhaps the framers did not intend total uniformity, which is why personal laws were placed in **Entry 5 of the Concurrent List**, with the power to legislate being given to the Parliament as well as the State Assemblies.

**Read more:** [Code red: The push for a uniform civil code should not become a divisive tool](#)

#### **What should be done?**

**First**, major awareness efforts are needed to reform current personal laws. This should be initiated and undertaken by the communities themselves. Legal intervention should be undertaken only if a practice violates fundamental rights of citizens (especially women).

**Second**, the social transformation from diverse civil code to uniformity should be gradual. Therefore, the government must adopt a piecemeal approach and restrain implementing all aspects in single legislation. Matters related to marriage, divorce, inheritance, etc. can be dealt separately taking up one issue/matter at a time

**Third**, there should be an in-depth study and wider consultation involving all stakeholders including academia, constitutional experts, religious and political leadership. This will ensure better formulation and greater acceptability.

**Sources:** [Business standard](#), Indian express ([Article 1](#), [Article 2](#)), [The Economic Times](#)