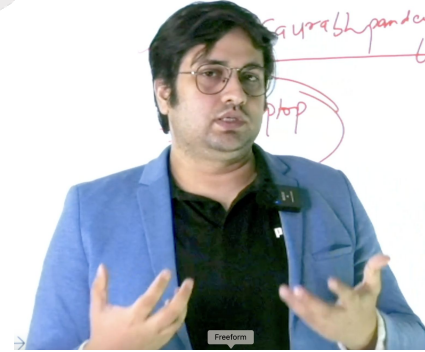


Topics - MINDS MAPS included (Daily current affairs)-- 21st & 20th October 2024



- **Copper plate Inscriptions**
- **Malabar**
- black pollution balls,
- Ponta Delgada
- **Hurricane Season & LA NINA**
- **Sino-American Rivalry and Geopolitical Dynamics**
- **G-20 Economic Insights**
- **New Statue Unveiled at the Supreme Court**
- **COP29: Key Highlights and Focus Areas**

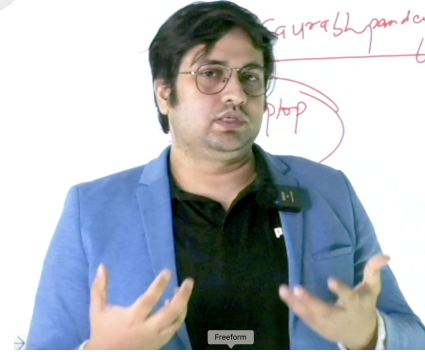


By saurabh Pandey



THE HINDU

- **ICTP at Galathea Bay: India's 13th Major Port**
- **16th Amendment ACT (IR IN NEWS)**
- **Indian Railways: Challenges and Developments**
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16th Century Copper plates discovered in Tiruvallur

N. Sai Charan
CHENNAI

A set of copper-plate inscriptions dating back to the 16th Century CE have been discovered at the Sri Singeeswarar temple at Mappedu village in Tiruvallur district recently. The two leaves of the copper plates were strung together using a ring that had the seal of the Vijayanagara Kingdom.

The official alerted the Epigraphy Division of the Archaeological Survey of India through the State Archaeology Department. K. Munirathnam Reddy, Director (Epigraphy), ASI, Mysore, said the inscription was written in Sanskrit and Nandinagari script. It was engraved in 1513 during the reign of King Krishnadevaraya. He said such inscriptions were valuable for recording history.



— Topic → Copper plate Inscriptions



Discovery Location: Copper-plate inscriptions were found at the Sri Singeeswarar temple in Mappedu village, Tiruvallur district.



Historical Date: The inscriptions date back to the 16th Century CE, specifically engraved in 1513.



Royal Connection: The plates feature the seal of the Vijayanagara Kingdom, indicating their royal significance.



Language and Script: The inscriptions are written in Sanskrit and Nandinagari script.



Official Notification: The discovery was reported to the Epigraphy Division of the Archaeological Survey of India by a state archaeology official.



Expert Insight: K. Munirathnam Reddy, Director of Epigraphy at ASI, emphasized the historical value of such inscriptions.



Historical Importance: These inscriptions are crucial for recording and understanding historical events and contexts.

Summary: Recently discovered copper-plate inscriptions from 1513 at the Sri Singeeswarar temple in Tiruvallur district provide valuable historical insights, written in Sanskrit and Nandinagari script, and linked to the Vijayanagara Kingdom.

Quad group of countries take part in back-to-back naval war games

Dinakar Peri
NEW DELHI

The Quad group of countries – India, Australia, Japan, and the U.S. – have held back-to-back naval war games, deepening interoperability and honing, in particular, their anti-submarine warfare skills.

“Exercise Malabar” by the four countries concluded on Friday off the coast of Visakhapatnam. Earlier, they were part of the multi-lateral “Exercise Kakadu” hosted by the Royal Australian Navy from September 9 to 20.

The Indian Navy termed “Exercise Malabar”, held from October 8 to 18, as the “most comprehensive” of all editions so far. The harbour phase was held in Visakhapatnam, followed by the sea phase in the Bay of Bengal.

“Malabar 2024 Sea Phase serves as a testa-



Strategic waves: The harbour phase of ‘Exercise Malabar’ was held in Visakhapatnam, and the sea phase in the Bay of Bengal. ANI

ment to the commitment of participating nations towards enhancing understanding, collaboration and engagement in the maritime domain as the world grapples with increasingly complex maritime security challenges,” the Indian Navy said in a statement on Saturday.

“Exercise Malabar”, which began in 1992 as a bilateral naval drill between India and the U.S., has

evolved into a key multilateral event aimed at “enhancing interoperability, fostering mutual understanding, and addressing shared maritime challenges in the Indian Ocean and Indo-Pacific region,” it noted.

Anti-submarine warfare and undersea domain awareness have emerged as major focus areas among the Quad partners as all of them have con-

cerns over the rapid expansion of the Chinese Navy and its increasing forays into the Indian Ocean Region.


Units participated in complex and advanced exercises in the domains of surface, sub-surface, and air warfare. Major exercises included surface weapon firings, anti-air shoots, air defence exercises, anti-submarine warfare exercises, extensive operations of ship-borne helicopters, the Navy said.


Exercise Kakadu


Exercise Kakadu brought together nearly 3,000 personnel from 30 nations, ships from 10 countries, and aircraft from five nations, all converging in the north Australian exercise area, underscoring Canberra’s commitment to “regional maritime security and international partnerships”.

Topic→ Malabar

 The Quad group includes India, Australia, Japan, and the U.S., with a focus on naval cooperation and interoperability.

 "Exercise Malabar" concluded on October 18 near Visakhapatnam, marking its most comprehensive edition.

 The exercise featured a harbour phase in Visakhapatnam and a sea phase in the Bay of Bengal, emphasizing maritime security collaboration.

 The Quad partners are particularly focused on anti-submarine warfare due to concerns over the expanding Chinese Navy in the Indian Ocean.



— "Exercise Kakadu," held from September 9 to 20, involved nearly 3,000 personnel from 30 nations, highlighting regional maritime security efforts.

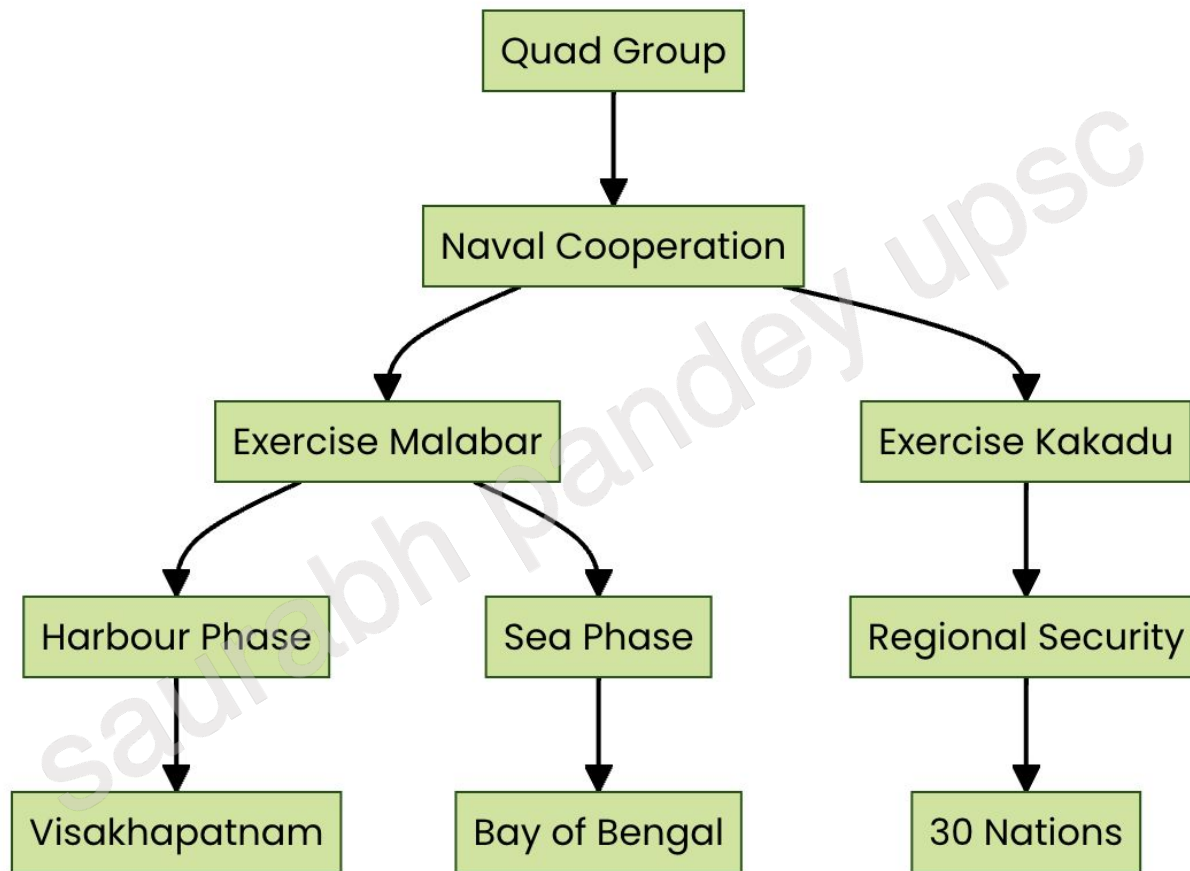


Major activities included surface weapon firings, anti-air shoots, air defense, and extensive operations of ship-borne helicopters.



"Exercise Malabar" began in 1992 as a bilateral drill and has evolved into a key multilateral event addressing shared maritime challenges.

Summary: The Quad nations conducted significant naval exercises, enhancing interoperability and focusing on anti-submarine warfare amid rising maritime security challenges.



Pollution balls: ick in the blue

Reuters

Beaches in Sydney reopened on Saturday for swimmers after authorities cleared thousands of black pollution balls washed ashore, which testing found to be formed from chemicals similar to those in cosmetics and cleaning products. Around 2,000 of the mystery black balls, some golf ball-sized, had washed onto beaches across Sydney since October 15, forcing the closure of eight beaches, including the iconic Bondi Beach, and leading to a massive clean-up operation amid fears they were highly toxic.

"Based on advice from the Environment Protection Authority, we can now confirm the balls are made up of fatty acids, chemicals consistent with those found in cleaning and cosmetic products, mixed with some fuel oil," said New South Wales Maritime Executive Director Mark Hutchings in a statement. He added the balls, which continued to appear on October 18 in fewer numbers, are not harmful to health when left on the sand but should not be touched.



Workers clear "tar balls" washed ashore on Coogee Beach in Sydney on October 17. AFP

The New South Wales Environment Protection Authority said laboratory testing was continuing to try to determine where the balls came from. "It is still somewhat of a mystery and may take a few more days to determine origin," said EPA Executive Director Stephen Beaman. Sydney's ocean beaches, famed for golden sand and clean water, draw tourists from around the globe.

For feedback and suggestions

for 'Science', please write to
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with the subject 'Daily page'

Topic→ Sydney Beaches Reopened After Pollution Incident



Key Developments



Beaches Reopened: Sydney's beaches are now open for swimming following a thorough clean-up operation.




Pollution Incident: Since October 15, thousands of black pollution balls, similar to golf balls, washed ashore, causing the closure of eight beaches, including the famous Bondi Beach.





Chemical Composition: These balls consist of fatty acids and chemicals akin to those found in cosmetics and cleaning products, combined with fuel oil.



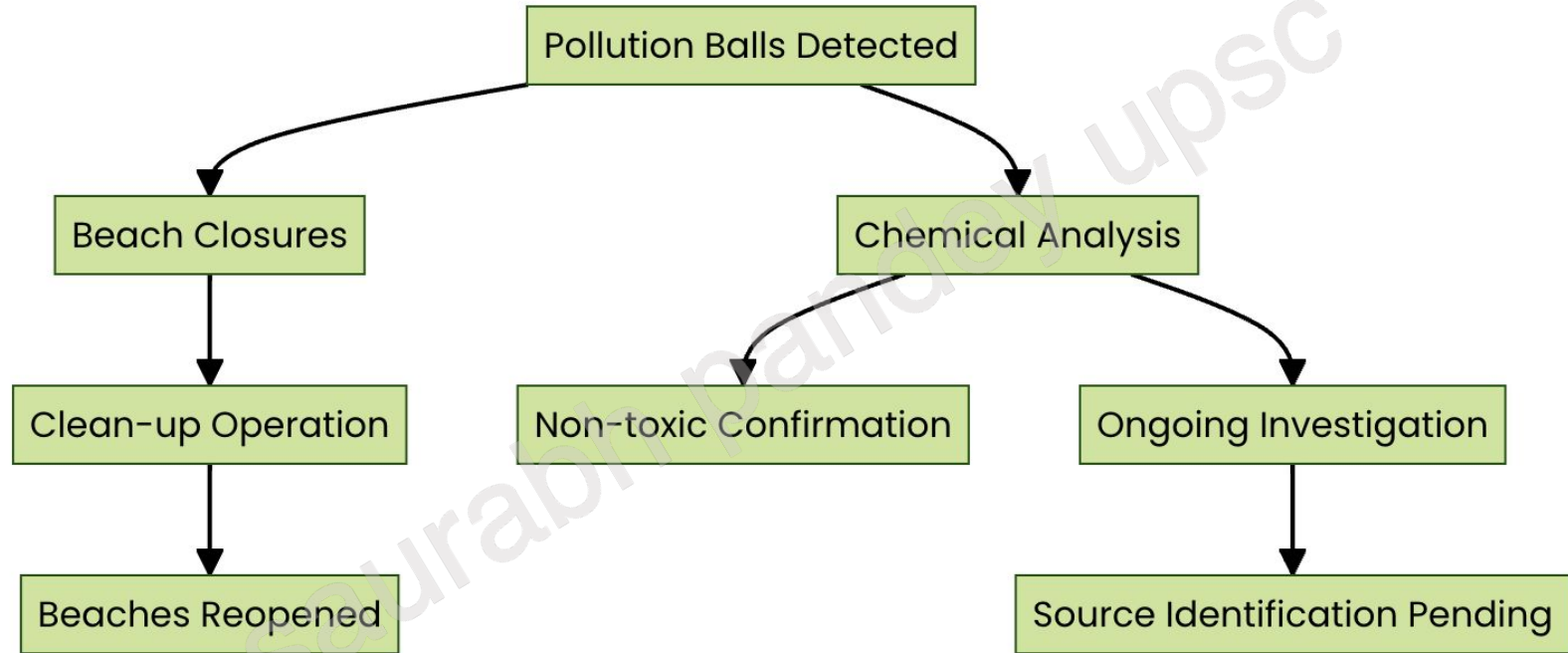
Health Advisory: Authorities have confirmed that the balls are not harmful to health if left on the sand, but they advise against physical contact.

-  Ongoing Investigation: The New South Wales Environment Protection Authority is actively conducting laboratory tests to trace the origin of these pollution balls.

 Tourism Impact: Known for their golden sands and pristine waters, Sydney's beaches are a major tourist attraction, making this incident particularly impactful on local tourism.

 Mystery Remains: The source of the pollution balls is still unknown, and it may take several days to determine their origin.


Summary: Sydney's beaches have reopened after a clean-up of black pollution balls, which are non-toxic but remain under investigation to identify their source.






A pair of Atlantic spotted dolphins leap out of the water off Ponta Delgada, Sao Miguel Island in the Azores archipelago, Portugal, on July 3. The regional assembly of the Azores Islands approved the creation of the largest protected marine area in the North Atlantic to reach international conservation goals well ahead of time. The area encompasses almost 300,000 sq. km. and preserves underwater mountain ranges and vulnerable marine ecosystems. REUTERS


— Topic → Mapping in News


 A pair of Atlantic spotted dolphins were observed leaping out of the water in Ponta Delgada, Sao Miguel Island, Azores, Portugal,


 The regional assembly of the Azores Islands has approved the creation of a significant marine protected area.

 This new marine area is the largest in the North Atlantic, aimed at achieving international conservation goals ahead of schedule.

 The protected area covers nearly 300,000 square kilometers.

 It includes the preservation of underwater mountain ranges and vulnerable marine ecosystems.

-  The initiative reflects a commitment to marine conservation and biodiversity protection in the region.

 The approval signifies proactive measures taken by the Azores Islands for environmental sustainability.

Summary: The Azores Islands have established the largest marine protected area in the North Atlantic, covering nearly 300,000 sq. km, to enhance conservation efforts

What do the Atlantic Ocean hurricane forecasts foretell for India?

Countries along the rim of the Indian Ocean are vulnerable to both the chronic and acute stressors of climate change. Warming, rising seas, and the increasing incidence of extreme rainfall are chronic stressors; they happen in the background. Acute stressors ride on top of the chronic stressors and exacerbate their effects

Raghu Murtugudde

Meteorologists had previously forecast a historic hurricane season for 2024 based on the expectation that a strong La Niña would emerge this winter. But while the hurricanes Helene and Milton may seem consistent with this forecast, 2024 has evolved to be a year with a summer with no major hurricanes.

One important reason is that the strong La Niña has played truant thus far. In fact, weather agencies are currently downgrading their La Niña forecasts.

The 2023 hurricane season was history's fourth-most active despite the strong El Niño that year. Meteorologists expect a subdued hurricane season during an El Niño and an earnest one during a La Niña. Now, are they to assume that the record warming during 2023-2024 has flipped the hurricane season on us or that the link between hurricanes and El Niño/La Niña has flipped? They'll need to wait and watch.

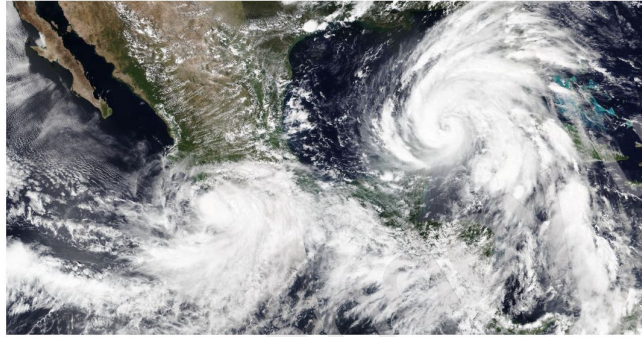
Forecasting seasonal cyclone activity is a challenging task, but hurricane forecasts have overall become more accurate, especially in terms of narrowing the cone of uncertainty of the storms' landfall. Some major challenges remain vis-à-vis forecasting the intensities, however.

The more worrisome fact is that the forecasting community has acquired hardly any skill in terms of the aftermath of a hurricane, i.e., after it makes landfall. Post-landfall rain and winds wreak considerable damage to property and lead to the loss of lives.

The challenge of forecasting cyclones
A shortcoming in any forecast automatically raises the stakes for how well people and governments can plan for hurricanes and, in the climate part of the world, cyclones. The climate models used to develop projections don't explicitly resolve cyclones. Any projections for the future are based on other resolved metrics that indirectly indicate cyclonic activity and its potential intensity.

Historical analyses of global cyclones suggest there hasn't been a detectable increase in the total number of cyclones. However, the number of strong cyclones has increased. Cyclones draw the energy they need from the upper ocean, and the upper oceans are warming in all cyclone-producing regions of the planet. This has led to many instances of rapid intensification: when the maximum cyclone wind speed increases by 55 km/hr or more within a 24-hour period. Rapid intensification has proven hard to predict.

The North Indian Ocean is also



Tropical Storm John along Mexico's Pacific coast and Hurricane Helene over the Gulf of Mexico on September 25, 2024. NASA

reported to be experiencing an increasing number of cyclones, especially in the Arabian Sea. The fact that the last few years have been unusually quiet only underscores the challenge of predicting seasonal cyclone numbers, cyclones as individual events, how they react to global warming, and of course their post-landfall effects.

Good, bad, and ugly
India has made impressive progress in forecasting cyclones together with a disaster management plan that has been equally effective at reducing the loss of lives. More good news for the North Indian Ocean is that the typical stretch of ocean where cyclones intensify is relatively small, over both the Arabian Sea and the Bay of Bengal, thus limiting the size and strength of the cyclones. Most cyclones over the Arabian Sea also tend to be steered northwestward, away from India.

The bad news is that the Indian subcontinent and other countries along the rim of the Indian Ocean are highly vulnerable not only to the chronic stressors of climate change but also to the acute stressors. The chronic stressors refer to the warming, rising sea levels, and the increasing incidence of rainfall extremes and dry spells, all of which happen in the background. The acute stressors ride on top of the chronic stressors and exacerbate their effects. These include heavy rainfall events, flash droughts, and cyclones. For example, inundation from a cyclone will get worse as sea levels rise. Or a heatwave that

The worrisome fact is that the forecasting community has acquired hardly any skill in terms of the aftermath of a hurricane. Post-landfall rain and winds wreak considerable damage to property and lead to the loss of lives

co-occurs with a drought will make water scarce, wilt crops, and disrupt power supply (because power plants need water, too).

A few days ago, parts of Tamil Nadu suffered heavy rain and flooding. This has become an annual event because warming in the Indian Ocean, especially the Bay of Bengal, has been extending the southwest monsoon into the northeast monsoon and delivering both excess and extreme rainfall. Forecasting woes are also on full display: a low-pressure system predicted to cause flooding in Chennai veered north and completely missed the city.

Now, imagine a city has to evacuate thousands of people when a cyclone is predicted. Forecasts will continue to get better, but our expectations will also continue to rise.

From nation to region

Our region needs critical advances in the quality of the predictions of rapid intensification and landfall and of the cyclones post-landfall. Additional efforts are also required to project the cyclone

risk in the coming years at hyperlocal scales.

India remains an economically developing country, and any increments in its ability to manage its financial and human resources will be critical for the foreseeable future. This is essential context for why hyperlocal risk maps can make a big difference: it will be too expensive for us to cover all regions for cyclone risk. India has also started to bring mitigation and adaptation actions into its mainstream fiscal policies and budgetary processes by investing in renewable energy, electric vehicles, weather and climate forecasting, early warning systems, and disaster management.

The ugly news is that India's dreams of sustained economic development can never materialise until the entire subcontinent is resilient.

India's (and the Indian subcontinent's) vulnerabilities to chronic and acute climate stressors aren't only India's socio-economic vulnerabilities; they are also India's national security issues. The country's strategies for building cooperation, trade, and stability in the region have to now include the constituent countries' climate risks as well.

This can start by establishing subcontinent-wide weather and climate networks and improving forecasts and projections for all parts of India's wider neighbourhood.

(Raghu Murtugudde is professor, IIT Bombay, and emeritus professor, University of Maryland. mahatma@umd.edu)


THE GIST


The 2023 hurricane season was history's fourth-most active despite a strong El Niño. Meteorologists now have to consider if the record warming of 2023-2024 flipped the season or if the link between hurricanes and El Niño/La Niña has flipped

There has been no increase in the total number of cyclones. However, the intensity and strength have increased. The warming of upper oceans has led to instances of rapid intensification, which has proven hard to predict

India's vulnerabilities to climate are also national security issues. The country's strategies for building cooperation, trade, and stability in the region have to now include the constituent countries' climate risks as well


Topic→Overview of 2024 Hurricane Season

 Initial Predictions: Meteorologists anticipated a historic hurricane season in 2024 due to a strong La Niña, but the season has been unexpectedly quiet.

 Forecast Adjustments: Weather agencies are revising their La Niña forecasts, suggesting a decrease in expected hurricane activity.

Historical Context and Challenges

 2023 Season Recap: The 2023 hurricane season was the fourth-most active on record, despite a strong El Niño.

 Forecasting Improvements: While predicting hurricane landfall has improved, forecasting post-landfall impacts remains challenging.

Cyclone Activity and Climate Change



Cyclone Trends: Historical data shows no increase in total cyclone numbers, but there is a rise in strong cyclones.



Ocean Warming Effects: Warming upper oceans contribute to rapid cyclone intensification, complicating predictions.



Regional Focus: The North Indian Ocean, especially the Arabian Sea, is seeing more cyclone activity, underscoring the unpredictability of seasonal forecasts.



Progress in Cyclone Forecasting

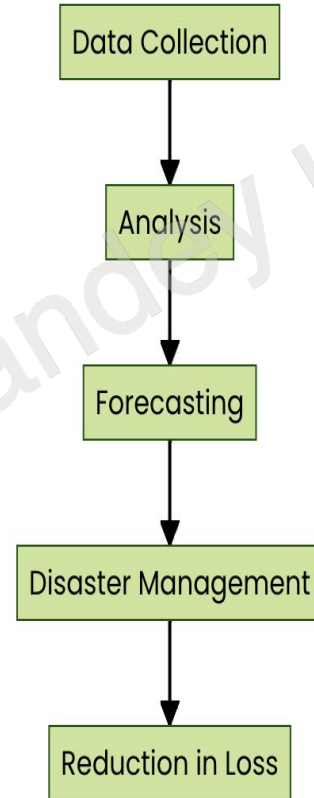
Significant advancements in forecasting cyclones in India.
Effective disaster management plans have been implemented.
Reduction in loss of life due to improved forecasting.



Limited Cyclone Intensity

North Indian Ocean has a small area for cyclone intensification.
Limits size and strength of cyclones, especially in the Arabian Sea.

Cyclone Forecasting Process:





Vulnerability to Climate Change

Indian subcontinent is highly susceptible to climate change.

Chronic stressors: Climate change impacts.

Acute stressors: Heavy rainfall and cyclones.



Impact of Rising Sea Levels

Exacerbates cyclone effects with increased inundation and flooding.

Rising sea levels contribute to more severe flooding.



Annual Flooding Events

Tamil Nadu experiences heavy rain and flooding annually.

Warming in the Indian Ocean affects monsoon patterns.



Forecasting Challenges

Recent issues with forecasting accuracy.

Low-pressure system missed Chennai, highlighting challenges.



Rising Expectations

Improved forecasting technology leads to higher public expectations.

Necessitates better preparedness for evacuations and responses.




Need for Improved Predictions: The region requires better predictions for cyclone intensification, landfall, and post-landfall impacts.




Hyperlocal Risk Mapping: Developing hyperlocal risk maps is crucial for managing cyclone risks effectively, given the economic constraints.




Economic Development Context: India's economic development is tied to its ability to manage financial and human resources, impacting cyclone risk management.

 **Investment in Mitigation:** India is integrating climate adaptation and mitigation into fiscal policies, focusing on renewable energy, electric vehicles, and disaster management.

 **Regional Resilience:** Sustainable economic development in India hinges on the resilience of the entire subcontinent to climate stressors.

 **National Security Concerns:** Climate vulnerabilities are not just socio-economic issues but also national security challenges that require regional cooperation.

 **Need for Regional Networks:** Establishing weather and climate networks across the subcontinent is essential for improving forecasts and addressing climate risks.

India's choices in a world becoming bipolar again

Last month, when India's National Security Adviser Ajit Doval met the Chinese Foreign Minister Wang Yi on the sidelines of the BRICS National Security Advisers' meeting in St. Petersburg, Russia, a possibility was born anew. Is our diplomatic engagement with China, strained since the horrific June 2020 Chinese incursion into Galwan Valley that claimed the lives of 20 Indian soldiers, about to improve? India faces this question at a time when its relations with the United States have been thriving, with the U.S. regarding India as a useful partner to counter Chinese aggression in the Indo-Pacific. So, must India again face a crucial choice in a bipolar world?

Two nations at odds but still connected

My answer would be a qualified yes. Yes, because two major powers, the U.S. and China, are again vying for global hegemony; but qualified, because this is not the bipolarity we knew during the Cold War. After all, the U.S. and China have multiple connections with each other that the U.S. and the U.S.S.R. did not: the U.S. is the largest investor in China's economy, China owns more U.S. Treasury Bonds than any other country, the U.S. sends more tourists to China than to any other Asian country, and there are more Chinese students in the U.S. than those of any other nationality. These are two powers at odds, but with multiple avenues of diplomatic dialogue and economic co-operation that simply did not exist during the Cold War.

That was an era when the U.S. and the Soviet Union marshalled their satellite states into their respective camps, sundered by the "iron curtain", and competed to enlarge their nuclear arsenals. The end of this bipolarity coincided with the advent of globalisation, heralding "the unipolar moment", which lasted a couple of decades and in which Washington enjoyed untrammelled global dominance in spheres political, military, economic, and technological.

But the U.S. did not remain uncontested in any of these spheres for long. Around the 2008-09 financial crisis, the spectre of Beijing began to rise. China's "peaceful rise" over the last quarter of a century, fuelled by American investment in its industries and a booming export trade in manufactured goods, has reheated the global order.

China has supplanted the U.S. as the world's leading manufacturing and industrial giant, rivaling it in economic size and exceeding its surpluses, alongside challenging it in such new technologies as 5G. So, after decades of unchallenged American hegemony, another aspiring hegemon has emerged, with the resources to challenge American dominance across the board and deploying a new assertiveness under Xi Jinping. The U.S. is evolving a strategy to counteract China, much as the U.S. deployed "containment" during the Cold



Shashi Tharoor

the fourth-term Congress Member of Parliament (Lok Sabha) from Thiruvananthapuram, the author of 26 books including 'Pax Indica: India and the World of the 21st Century', and the Chairman of the Parliamentary Standing Committee on External Affairs

different from the Cold War's bipolarity, so must the contours of such a strategy – and India's reaction to it – differ from the past.

The U.S. and China are intertwined economies, unlike the total economic separation between the U.S. and the U.S.S.R. during the Cold War. Moreover, China's economic might makes its claim to global hegemony greater than the Soviet Union's ever was. China's indispensability to global supply chains and, therefore, to the world economy is precisely why some observers choose not to use the label "cold war" to describe the Sino-American bipolarity, preferring instead such terms as "competitive coexistence", "cold coexistence", or "conflictual coexistence". It was in recognition of this that American rhetoric shifted from "decoupling" from China – suggesting severance of ties – "to de-risking", which implies curbing risks while avoiding a hostile estrangement.

What is more, as superpowers rising from the ashes of the Second World War, the U.S. and U.S.S.R. were nearly equal militarily. But China is nearing parity with, and now, in some areas, threatens to outstrip the U.S. According to the Pentagon, the Chinese navy has surpassed America's in the number of battle-force ships over the past decade, owing to China's status as the world's top ship-producing nation by tonnage. Senior U.S. Air Force officials have also acknowledged the potential of the People's Liberation Army Air Force to become the world's largest air force. Yet, military commentators believe that at least till the PLA's centenary in 2027, there will remain a significant gap between China and the U.S. Unlike in the Cold War, proxy wars between the two rivals do not litter our world today. Nor is there much appetite for any in either Beijing or Washington. Positing a Cold War-level bipolarity then, overstates both the status quo and the threat China poses to the global order.

Not about ideology

In tussling with the U.S.S.R., America also aimed to establish the primacy of capitalism over communism and liberal democracy over single-party authoritarianism. The Sino-American competition, however, is not about ideology, much though Americans like to portray it otherwise. An ideological zeal to convert the world to communism does not galvanise China, which is really only interested in securing global hegemony for itself. Since 2020, Washington has futilely experimented with the Summit for Democracy, hoping to conflate its desire for subduing its foremost political and economic rival with championing democracy. But even Europeans are not buying into U.S. President Joe Biden's "democracy versus autocracy" binary. America's instinct to package all its vested interests as a crusade for democratising the globe has proven unsuccessful. So, instead of playing this game, China is glibly choosing to deride it as

of capitalism.

What also makes the Sino-American rivalry distinctive is that Russia, the successor state to the U.S.S.R., is never far from the action. Russia can play a menacing role in today's brewing bipolarity; given its size, abundant natural resources, and immense stockpile of nuclear weapons, it outranks most middle powers. Many, therefore, argue that America's bipolarity is not with China but the axis of China and Russia. Professor Josef Joffe, for instance, defines our world as a "Two-and-a-Half Power World", where Russia "is held back from full parity with the US and China by its lack of 'usable power'". Moscow, with an economy smaller than Italy's and a military budget that is only one-quarter of China's, is far from a third pole: but it is Beijing's junior partner, a fact manifest in China's support of Russia's Ukrainian misadventure, which demonstrates President Xi Jinping's resolve not to be intimidated by the West. Though China has no allies, only clients, its emerging nexus with Russia, North Korea and Iran could yet pose challenges from Taiwan to the South China Sea.

The new canvas of the Indo-Pacific

The greatest consequence of this geopolitical churn has been the creation of an entirely new canvas: the Indo-Pacific, a term encompassing three overlapping developments. These are China's goal of creating a blue water navy – a formidable naval force capable of operating and projecting power on the high seas – and becoming a transcontinental economic giant, India's emergence as a possible counterbalance to China, and the role that the U.S. will play in shaping the contours of the seemingly inevitable shift in power from the west to the east: from the Atlantic to the Indian and Pacific Oceans.

The vaunted Quad, comprising the U.S., India, Japan, and Australia, is driven by the vision of a "free and open Indo-Pacific", and has, more recently, been augmented by the "Squad" of the U.S., Japan, Australia, and the Philippines. Added to this is AUKUS, the trilateral security partnership for the Indo-Pacific between Australia, the United Kingdom, and the U.S., through which the U.S. and the U.K. assist Australia in acquiring nuclear-powered submarines. The Indo-Pacific arena symbolises the realignment of traditional alliances and geopolitical theatres.

With the Indo-Pacific emerging as a crucible of clashing Chinese and American ambitions, India's deepening ties with the U.S. and the Quad bristle with both challenges and opportunities. We cannot forget that only we, and not the other members of Quad, face a land threat from China. So, we must not be deterred from safeguarding our sovereignty by restoring the status quo ante along the China-Indian border, engaging with the Chinese economically where we must, bolstering our military deterrence, and promoting our geopolitical and economic interests on our own

India cannot allow itself to be reduced to a pawn in the renewed contest

Topic→ Sino-American Rivalry and Geopolitical Dynamics



Sino-American Rivalry

Global Hegemony: The competition between the U.S. and China is centered on global dominance, differing from the ideological clash of the U.S.S.R. era.



Democracy vs. Autocracy

Narrative Skepticism: The U.S.'s portrayal of its rivalry with China as a democracy vs. autocracy battle is not widely accepted, even among European allies.



China-Russia Relations

Strategic Partnership: China supports Russia's actions in Ukraine, despite Russia's relatively weaker economic and military status compared to China.



Geopolitical Tension: The region is a hotspot for geopolitical tension, driven by China's naval ambitions and India's potential role as a counterbalance.



Quad and AUKUS Alliances

Alliance Shift: The Quad (U.S., India, Japan, Australia) and AUKUS (Australia, U.K., U.S.) aim to ensure a "free and open Indo-Pacific."



India's Strategic Position



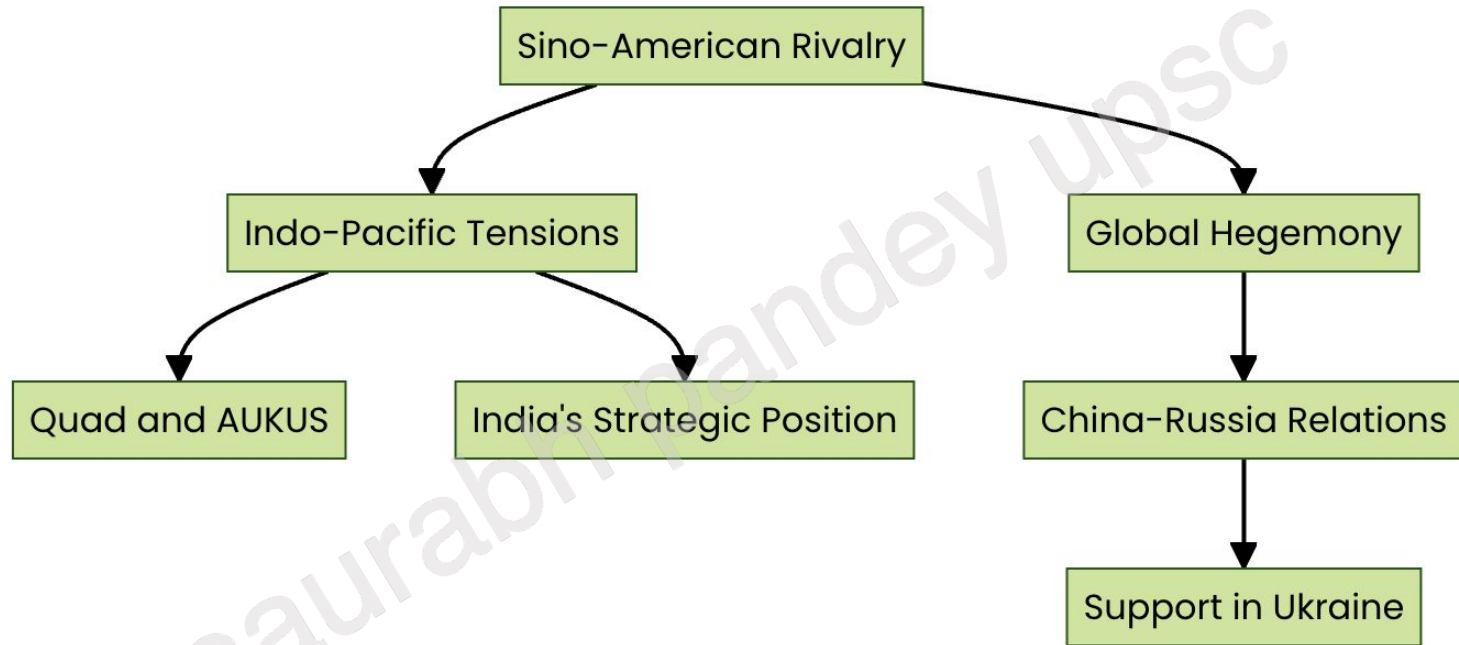
Balancing Act: India must manage its land threat from China while maintaining relationships within the Quad and protecting its sovereignty.



Geopolitical Realignment

Power Shift: The geopolitical landscape is shifting from West to East, with the Indo-Pacific as a critical arena for U.S.-China competition.

Summary: The Sino-American rivalry focuses on global dominance, with the Indo-Pacific as a key battleground influenced by alliances like the Quad and AUKUS. India seeks to maintain its sovereignty amidst these tensions



Essential business priorities in a changing world



Following the multiple exigencies of the recent past, the global economy appears to have stabilised this year, albeit with geopolitical risks remaining on the horizon. The G-20 economies displayed different growth rates in the first quarter of the year, with some growing more rapidly than expected, while others experienced setbacks. Within this scenario, businesses of the world have the potential to leverage new opportunities for growth and benefit from wider dispersal of developmental gains.

The B-20 process has been led by emerging economies over the last three years, and with the handover to South Africa later this year, an unprecedented agenda for the Global South has been catalysed. Businesses of both advanced and emerging economies have come together and identified key priorities and policy actions that will facilitate inclusive growth and development. At the same time, as lead players in the growth endeavour, businesses also must prioritise certain actions to align with emerging challenges faced by the world.

Focus on inclusive development

Equitable growth remains a top imperative as the world seeks to promote inclusive development. The tools for enabling this include skill development and education which will work towards empowering workers and building their capacity to adapt to changing industrial scenarios. Businesses must play a proactive role in offering tailored programmes for skilling and upskilling workers – particularly women – including through on-the-job training, working with academic institutions and developing curricula suited to evolving industry needs.

Financial access and tailored credit solutions along with diversity and inclusion policies have been highlighted by B-20 Brazil. In India, the convergence of Unified Payments Interface and digital access has transformed financial transactions, with over 530 million accounts opened under the landmark Jan Dhan Yojana. Such success at scale has many lessons for the



Chandrajit Banerjee

Director-General,
Confederation of
Indian Industry

In advanced and emerging economies, inclusive growth and development can become a reality if there is a focus on key policy actions that have been identified

world. Similarly, Africa's inclusion in the G-20 during the India presidency opens up a wealth of new opportunities in the continent. It is important for global businesses to expand their footprint in Africa to not only leverage its rapid growth and young demographics but also to support the continent's inclusion in global value chains.

Ensuring better food security

Sustainable food systems and boosting food and nutrition security are another critical pillar of focus for encouraging sustainability efforts. Myriad factors including the impact of extreme weather events have exacerbated the global food crisis. The use of technology and other digital tools in promoting sustainable agricultural practices, reducing waste, and ensuring equitable access to nutritious food for all would be imperative. Businesses can play a pivotal role in addressing food security by advocating sustainable practices, investing in infrastructure and agricultural technologies such as precision farming and fostering collaborations with governments and international organisations for amplifying efforts on food security.

Second, accelerating resilient global trade flows is intrinsic to global growth, yet national security concerns and unfair trade practices are leading to rising tariffs and other hurdles that constrain the efficacy of trade. Organisations such as the World Trade Organization should be strengthened to identify and counter unfair trade practices while agreed interoperable taxonomies for environmental measures can bring in more clarity for businesses in industrial and trade policies aimed at sustainability.

The third priority that businesses must lead is digital transformation and innovation including Artificial Intelligence (AI) for the common good. Businesses must harness AI for responsible use in health care, climate change and resource management. It is also important for businesses to engage youth in developing innovative solutions to pressing contemporary issues and drive positive societal impact. Investments and

mentoring for social tech startups, digital platforms for research and development collaborations and developing science, technology, engineering and mathematics (STEM) talent should be taken up by corporates in mission mode.

The sustainability mission is the fourth priority for businesses. As the world accelerates towards net-zero transition, fair and just climate policies can enable businesses to work towards carbon mitigation. Availability of finance is required for all enterprises, and particularly for small and medium enterprises, to align with net zero targets. Building renewable energy capacity and greater use of biofuels and green hydrogen can be promoted by businesses. Industry should also be conscious about circular economy options and strive to inculcate sustainable business practices in their usual operations across the board.

Aiming for the highest standards

Above all, corporate governance of the highest standards must be prioritised by businesses, and this includes large global corporates and small and medium enterprises. It is the responsibility of the private industry to go beyond established best practices in compliances and regulatory systems to continually drive ethical operations. This will facilitate building trust between different stakeholders including the community, governments and businesses. Trust is today viewed as intrinsic to the growth process and ease of doing business across the world.

These are some of the issues that we would be working on through the B20 Global Institute that was envisaged during India's B20 leadership and is now taking off. With the participation of successive G-20 presidency countries, the institute will maintain alignment in policy suggestions, undertake action agendas to facilitate business competitiveness in the above areas and monitor outcomes. As the B20 recommendations are presented to the G-20 group, businesses of the world must take a key role in ensuring that our common global aspirations are catalysed to fruition.

Topic→ G-20 Economic Insights

Diverse Growth Rates

Varied Performance: G-20 economies displayed a range of growth rates in Q1, with some surpassing expectations and others encountering difficulties.

Emerging Economies Leadership

B-20 Process: Emerging economies are leading the B-20 process, with South Africa poised to focus on the Global South agenda.

Collaboration for Growth

United Efforts: Businesses from both advanced and emerging economies are collaborating to set priorities and policy actions for inclusive growth.

Focus on Skill Development



Equitable Growth: Emphasizing skill development and education, especially for women, to meet evolving industrial demands.

Financial Inclusion

Access and Solutions: Stressing the importance of financial access and customized credit solutions, highlighted by India's Jan Dhan Yojana.

Opportunities in Africa

G-20 Inclusion: Africa's inclusion in the G-20 under India's presidency opens new avenues for global business engagement.

Adaptation to Challenges

Strategic Actions: Businesses need to align with emerging global challenges to maintain their effectiveness in the growth landscape.



Food Security Focus

Sustainable food systems are crucial for enhancing food and nutrition security, especially during global crises worsened by extreme weather events.



Technology in Agriculture

Utilizing technology and digital tools is key to promoting sustainable agricultural practices, reducing waste, and ensuring equitable access to nutritious food.



Global Trade Resilience

Strengthening global trade is vital for growth, but national security concerns and unfair practices create barriers that need addressing.



AI for Good



Businesses should leverage Artificial Intelligence for responsible applications in healthcare, climate change, and resource management, while engaging youth in innovative solutions.



Sustainability Mission

Companies must prioritize sustainability, focusing on net-zero transitions, fair climate policies, and financing for small and medium enterprises to meet environmental targets.



Circular Economy

Emphasizing circular economy practices and sustainable business operations is necessary for long-term environmental health and resource management.



Renewable Energy Investment

Promoting renewable energy capacity and the use of biofuels and green hydrogen is essential for businesses aiming to align with sustainability goals

What does the new 'lady justice' statue signify?

What is the symbolism behind the change? How many cases are pending before courts in India?

Rangarajan. R

The story so far:

Last week, the Chief Justice of India unveiled the 'new lady justice' statue in the Supreme Court premises that replaced the 'original lady justice'. The new statue is clothed in a saree, has shed the blindfold and holds scales on one hand and the Indian Constitution on the other.

What is the background?

It is believed that the origin of the modern-day 'lady justice' is Justitia, the goddess of Justice in Roman mythology. 'Lady justice' is depicted with a blindfold, scales, and a sword. The blindfold was added during the Renaissance period (14th century) probably as a satire on the corrupt state of legal systems with judicial institutions turning a blind eye. It was only during the enlightenment period (17th-18th century) that it was reinterpreted as representing impartiality. It signifies that justice should be

administered without bias regardless of wealth, power and social status. The scales represent balance. It emphasises that courts must weigh both sides of an argument before delivering a judgment. Finally, the sword symbolises the power and authority of the law, signifying that the law can both protect and punish.

Why the change?

When the British established their control over India, they introduced their legal system. The hierarchy of courts from lower courts to the Supreme Court is a relic of the British system. It was during British rule that the 'lady justice' became a prominent symbol in India and was placed outside courtrooms.

The new statue is an attempt at decoloniality, with an aim to shed colonial symbols. The saree replacing the western attire brings the statue closer to Indian tradition. The removal of the blindfold and having eyes open is significant in the Indian context. It conveys that the law is not blind and it 'sees' everyone equally.

More importantly our social diversity, the discrimination faced by underprivileged sections, constitutional provisions and laws made for their upliftment require a nuanced approach of 'viewing' every case appropriately and delivering justice. The sword being replaced with the Constitution symbolises the supremacy of the Constitution and its value in our jurisprudence. The preserving of the scales goes on to show that the courts will continue weighing evidence impartially and hearing both sides before delivering its final judgment.

What urgent actions are needed?

The Supreme Court last week dismissed a Public Interest Litigation which sought a time frame of three years for disposal of over five crore cases pending in all courts of the country. The Supreme Court held that while the demand was desirable, it is practically impossible considering the flood of litigation faced by the justice delivery system. However, 'justice delayed is justice denied' and there are some

urgent actions needed in this regard with respect to the institution that delivers justice.

Firstly, the revised Memorandum of Procedure that deals with appointment of judges by the collegium has not been finalised for the past eight years. This needs to be finalised by the government and judiciary without any further delay to bring transparency and accountability to the process of appointment.

Secondly, the representation of backward classes, scheduled castes, schedule tribes, and religious minorities is less than 25% in the higher judiciary and women constitute less than 15%. The appointments to higher judiciary should reflect the social diversity of our country. Third, the High Courts invariably operate at only 60-70% strength thereby contributing to the huge pendency of over 60 lakh cases at present. The government needs to appoint collegium recommendations for High Courts without dragging its feet. The vacancies in lower courts, where 4.4 crore cases are pending, should also be filled by the States without backlog. Finally, cases dealing with the constitutional validity of amendments/laws and individual liberty should be heard on a priority basis by the higher judiciary. These measures would ensure that the new symbol is not just symbolic but reflects the actions taken for the delivery of fair and prompt justice.

Rangarajan R is a former IAS officer and author of 'Polity Simplified'. Views expressed are personal.

THE GIST

▼ The new statue is clothed in a saree, has shed the blindfold and holds scales on one hand and the Indian Constitution on the other.


▼ The new statue is an attempt at decoloniality, with an aim to shed colonial symbols.


▼ When the British established their control over India, they introduced their legal system. It was during the British rule that the original 'lady justice' became a prominent symbol in India and was placed outside courtrooms.


Topic →>New Statue Unveiled at the Supreme Court




Key Highlights

 New Statue Unveiled: The Chief Justice of India introduced a new 'lady justice' statue at the Supreme Court, replacing the original one.

 Cultural Representation: The new statue is dressed in a saree, reflecting Indian tradition and moving away from colonial symbols.

 Blindfold Removed: The statue no longer wears a blindfold, symbolizing that the law is aware of social inequalities and aims to address them.

 Scales of Justice: The scales remain, emphasizing the importance of impartiality and balance in judicial decisions.

— 📜 Constitution Over Sword: The sword has been replaced by the Indian Constitution, highlighting its supremacy and significance in the legal framework.

🌍 Decolonial Intent: The change is part of a broader effort to decolonize symbols within the Indian legal system, moving away from British colonial influences.

⚖️ Nuanced Justice: The new representation aims to ensure that justice is delivered with an understanding of social diversity and the challenges faced by underprivileged groups.

Summary

The new 'lady justice' statue in India symbolizes a shift towards cultural representation and a nuanced approach to justice, emphasizing the Constitution's supremacy and the importance of impartiality.

On climate finance to developing nations

Why are developing countries more vulnerable to climate change? How does the United Nations Framework Convention on Climate Change define climate finance? Why have the figures mentioned in the OECD report been called into question? Does India need climate financing?

EXPLAINER

Arjun Dutt
Gagan Sidhu

The story so far:

The 29th Conference of the Parties (COP29) of the UNFCCC to be held in Baku, Azerbaijan, from November 11 to 22 is expected to be a “finance COP” as key climate finance issues feature at the top of its agenda.

Are developing states more at risk?

Economically developing countries are among the most vulnerable to climate change's effects. This is because of geographical factors and, because their economies rely more on sectors like agriculture, which are particularly sensitive to climate change.

Despite being among the most vulnerable, developing countries have contributed relatively little to the cumulative emissions that cause climate change. According to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, developed countries account for 57% of cumulative global emissions since 1850 despite hosting smaller populations than the developing world. Developing countries also face competing developmental needs, vexing their ability to take climate action by themselves. The 2009 Copenhagen Accord had developed countries commit to providing \$100 billion a year in climate finance to developing countries by 2020, later also made applicable through 2025. A new mobilisation target for the post-2025 period is on the agenda at COP29.

What is climate finance?

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate finance as “local, national, or transnational financing – drawn from public, private, and alternative sources – that seeks to support mitigation and



Bleak waters: A sunrise over the polluted waters of Yamuna laden with foam on October 17. AFP

adaptation actions addressing climate change.” This specifies two aspects of climate finance: sources (public or private, and flowing either domestically or across borders) and end-uses (climate mitigation or adaptation). The Organisation for Economic Co-operation and Development (OECD) publishes reports on climate finance flows from developed to developing countries. They cover flows from four sources, including international public finance and the private finance mobilised by it. International public climate finance is composed of commercial and concessional loans, grants, equity and other instruments. Loans typically constitute the largest share (69.4% in 2022), followed by grants (28%). However, developing countries and observers such as Oxfam have noted several shortcomings with the OECD's reports. They have argued they should represent

actual disbursements and not simply commitments to provide climate finance; that a flow should be new and additional and not simply a reclassification of existing aid; and that only grants, or grant-equivalents of concessional finance, should be counted, not finance provided on a commercial basis.

Who needs climate finance?

Developing countries require external financing for climate action. According to the International Energy Agency (IEA), 675 million people in the developing world didn't have access to electric power in 2021. Developing countries need to universalise access and increase electricity consumption.

Developing countries also have smaller domestic financial systems relative to their GDPs and face higher costs of capital. For instance, the cost of capital for solar photovoltaic and storage

technologies is about twice as high in developing economies than in developed ones, according to the IEA. Therefore, if developing countries are to balance development and climate action, external finance should be made available.

How much does India need?

India has both short-term and long-term climate targets. By 2030, India aims to install 500 GW of generating capacity from non-fossil-fuel sources; five million metric tonnes per annum of green hydrogen (GH2) production capacity; and differentiated levels of penetration for various Electric Vehicle (EV) categories. The authors have estimated (as part of a co-authored report) that achieving 450 GW of renewable energy by 2030 will require an additional ₹16.8 lakh crore investment. Per the National Green Hydrogen Mission, India's GH2 target will need ₹8 lakh crore. Consumers will also need to spend around ₹16 lakh crore to purchase EVs to achieve this vision. A long-term perspective reveals a greater requirement: ₹850 lakh crore in investments between 2020 and 2070 to achieve net-zero emissions.

What should the NCQG quantum be?

Determining a new annual climate finance mobilisation target – called the New Collective Quantified Goal (NCQG) – is a top priority. The NCQG should include flows that are (i) actual disbursements, not just commitments; (ii) new and additional (iii) public capital in the form of direct grants; and (iv) private capital that is mobilised by public capital. However, organically flowing private finance to developing countries should not be counted. An independent high-level expert group constituted by the presidencies of COP26 and COP27 has already determined that developing countries (excluding China) will require around \$1 trillion in external finance by 2030.

Arjun Dutt and Gagan Sidhu are, respectively, senior programme lead and director of the CEEW Centre for Energy Finance.

THE GIST

➤ Economically developing countries are among the most vulnerable to climate change's effects because of geographical factors that expose them to more climate risk.

➤ The United Nations Framework Convention on Climate Change (UNFCCC) defines climate finance as “local, national, or transnational financing – drawn from public, private, and alternative sources – that seeks to support mitigation and adaptation actions addressing climate change.”

➤ The Organisation for Economic Co-operation and Development (OECD) publishes reports on climate finance flows from developed to developing countries.

Topic→COP29: Key Highlights and Focus Areas



COP29 Location and Dates

Event: 29th Conference of the Parties (COP29)

Location: Baku, Azerbaijan

Dates: November 11 to 22



Focus on Climate Finance

Priority: Key climate finance issues

Significance: Referred to as a "finance COP"



Vulnerability of Developing Countries

Factors: Geographical and economic reliance on sensitive sectors like agriculture

Impact: High vulnerability to climate change



Cumulative Emissions Disparity



Contribution: Developed countries responsible for 57% of global emissions since 1850

Population: Smaller compared to developing nations



Climate Finance Commitments

2009 Copenhagen Accord: \$100 billion annually by 2020 from developed to developing countries

Future Discussions: New target post-2025 at COP29



Definition of Climate Finance

UNFCCC Definition: Financing from various sources for climate change mitigation and adaptation



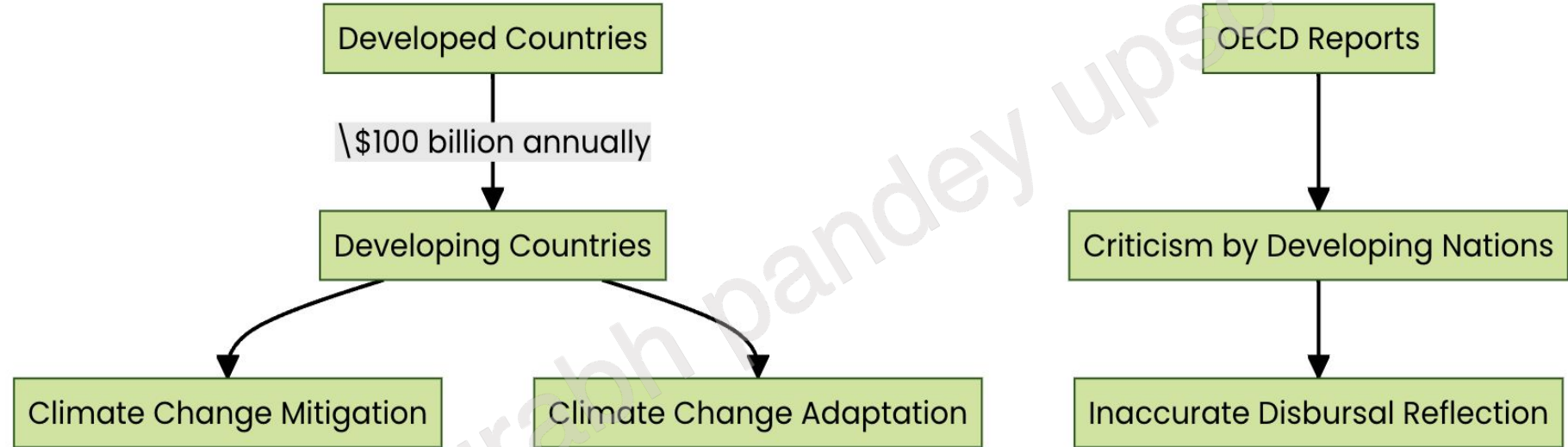
OECD Reports and Criticism

Reports: OECD on climate finance flows

Criticism: Developing countries and organizations like Oxfam argue reports don't reflect actual disbursements and include reclassified aid

saurabh pandey ipsc

Climate Finance Flow:



Summary: COP29 in Baku will focus on climate finance, addressing the vulnerabilities of developing countries and the need for new financial commitments post-2025.



Need for Climate Finance

Developing countries require external financing for climate action.

Many lack access to electricity and face high capital costs.



Electricity Access

In 2021, 675 million people in developing nations did not have access to electric power.

Highlights the urgent need for universal access.



Investment Requirements in India

India aims for significant renewable energy targets by 2030.

Requires investments of:

- ₹16.8 lakh crore for 450 GW of renewable energy.

- ₹8 lakh crore for green hydrogen.

- ₹16 lakh crore for electric vehicles.

saurabh pandey upsc



Long-term Investment Needs



To achieve net-zero emissions, India will require ₹850 lakh crore in investments from 2020 to 2070.



New Collective Quantified Goal (NCQG)

A new annual climate finance mobilization target is essential.

Focus on actual disbursements, new public capital, and private capital mobilized by public funds.

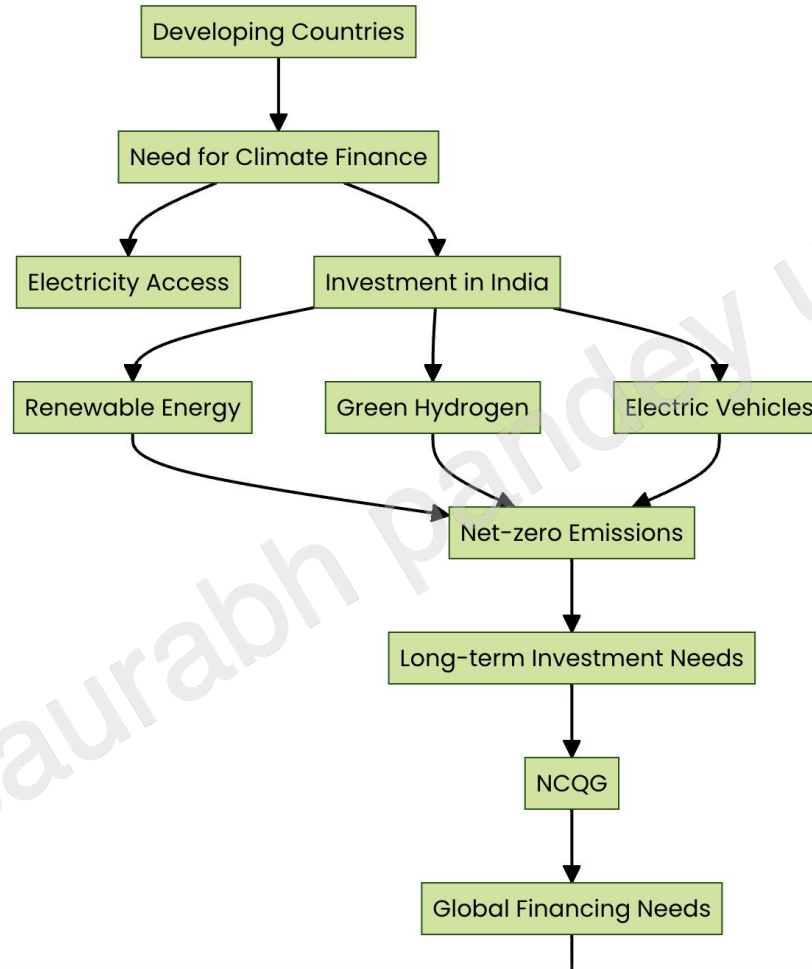


Global Financing Needs

An expert group estimates that developing countries (excluding China) will need around \$1 trillion in external finance by 2030.



Focus on Actual Disbursements-The NCQG should prioritize actual financial flows rather than mere commitments to ensure effective climate action._____



Gateway at Galathea Bay: the new major port can be a game changer

T.E. Raja Simhan

A quarter century after Kamarajar Port was named the country's 12th major port, the mega international container transshipment port (ICTP) at Galathea Bay – in the Great Nicobar island in the Bay of Bengal – has been notified as the 13th major port.

This paves the way for the development of the port, which could prove a game changer for maritime trade in the region.

The ICTP, with a 20 metre natural draught, will be strategically located on the East-West international trade and shipping route in proximity to transshipment terminals like Singapore, Klang and Colombo.



It is also a part of the rapidly evolving Indo-Pacific geopolitical region. As a gateway to the region, it will capture transshipment cargo from Indian east coast ports, as also Bangladesh and Myanmar.

The Great Nicobar island, part of the Union territory of Andaman and Nicobar islands, is 40

nautical miles from Malacca Strait – the international shipping channel catering to about 35% of the annual global sea trade. Currently, nearly 75% of India's transshipped cargo is handled at overseas ports. Colombo, Singapore and Klang cumulatively handle more than 85% of this cargo, with 45% going to Colombo port. The ICTP can save Indian ports \$200-220 million each year in transshipment charges.

Eco-sensitive zone

However, the port's development faces several challenges, since it is in an ecologically sensitive region.

As per a government source, "Consultants will have to plan without affect-

ing the region's eco-sensitivity. That is the mandate. They will accordingly seek proposals from contractors and implement these in a phased manner."

The ICTP is envisaged to be developed in four phases at an estimated cost of ₹41,000 crore. Phase 1 is expected to be commissioned in 2028 with a handling capacity of around 4 million TEUs, which will go up to 16 million TEUs in the final stage of development. The estimated cost for phase 1 is ₹18,000 crore, which covers dredging, reclamation, construction of breakwaters, berths, storage areas and buildings among other things.

(The writer is with The Hindu businessline)

Topic→ ICTP at Galathea Bay: India's 13th Major Port



Overview



New Major Port: The international container transshipment port (ICTP) ICTP at Galathea Bay is recognized as India's 13th major port, following Kamarajar Port.




Strategic Location: Positioned on the East-West international trade route, it is near key transshipment terminals like Singapore, Klang, and Colombo.





Economic Impact: The port could save Indian ports \$200-220 million annually in transshipment charges, currently dominated by overseas ports.



Geopolitical Significance: Located in the Indo-Pacific region, it will facilitate transshipment cargo from Indian east coast ports, Bangladesh, and Myanmar. __

-  Environmental Concerns: Development must consider the ecological sensitivity of the region, with plans to implement changes in a phased manner.

 Phased Development: The port will be developed in four phases, with an estimated total cost of ₹41,000 crore; Phase 1 is set for completion in 2028.

 Capacity Growth: Initial handling capacity will be around 4 million TEUs, expanding to 16 million TEUs in the final phase.

Summary: The ICTP at Galathea Bay is set to become India's 13th major port, enhancing maritime trade while facing environmental challenges and planned for phased development.

Pakistan constitutional amendment Bill caps Chief Justice's tenure to three years

Press Trust of India
ISLAMABAD

The Senate on Sunday passed the controversial 26th Constitution Amendment Bill, capping Pakistan's Chief Justice's tenure for three years, amid opposition from jailed former Prime Minister Imran Khan's party.

The upper house of parliament voted 65-4 to approve the 26th Constitutional Amendment Bill with the required two-thirds majority. The government needed the support of 64 members.

The Bill, approved by the Cabinet earlier in the day with the consensus among the ruling coalition partners, was presented in



Shehbaz Sharif

the Senate by Law Minister Azam Nazeer Tarar.

"I... wish to introduce a bill further to amend the Constitution of the Islamic Republic of Pakistan, the Constitution 26th Amendment Bill, 2024," Tarar said as he presented the bill in the upper house.

"Is it opposed?" asked

Senate Chairman Yousaf Raza Gilani, to which he received no response from the Senate members.

The Bill included 22 clauses of amendments. The upper House passed the Bill clause-wise and all clauses got the support of 65 senators.

The magic number was achieved after Jamiat Ulema-e-Islam-Fazl's five senators and two lawmakers of Balochistan National Party-Mengal voted in favour of the Bill. The BNP-M favoured the amendment despite, violating the party line to abstain during the process.

"Sixty-five members are in favour of the motion regarding the bill and four oppose the bill....and con-

sequently the bill has been passed," Gilani said, announcing the result.

The Bill set up a 12-member commission to appoint the chief justice who will be appointed for three years.

The Bill will now go to the National Assembly, where it needs a two-thirds majority to clear the hurdle. Finally, it should receive the nod of the president to become part of the constitution.

Earlier in the day, the Cabinet approved the proposed draft of the controversial bill during a meeting chaired by Prime Minister Shehbaz Sharif after seeking consensus from the coalition partners, his office said.

IR IN NEWS




The Senate of Pakistan passed the 26th Constitution Amendment Bill, limiting the Chief Justice's tenure to three years.





The vote was overwhelmingly in favor, with a tally of 65-4, achieving the necessary two-thirds majority.




The ruling coalition partners reached a consensus to support the bill, which was approved by the Cabinet earlier that day.

—  Law Minister Azam Nazeer Tarar introduced the bill in the Senate, _____, emphasizing its purpose to amend the Constitution.

 Senate Chairman Yousaf Raza Gilani inquired about opposition to the bill, receiving no objections from members.

 The amendment consists of 22 clauses, all of which received support from the senators during the clause-wise voting.

 The bill faced opposition from the party of jailed former Prime Minister Imran Khan.

Bangladesh court rules that Parliament cannot remove judges

Press Trust of India

DHAKA

Bangladesh's Supreme Court on Sunday reinstated the Supreme Judicial Council with authority to investigate allegations of judicial misconduct, while upholding its previous ruling that declared the 16th constitutional amendment, which transferred the power of removing judges to parliament, as "illegal".

"The order was passed by a six-member Bench of the Supreme Court's apex Appellate Division led by Chief Justice Syed Refaat Ahmed," Supreme Court lawyer Ruhul Kuddus told reporters after the apex court announced its judgement.

Mr. Kuddus, who was present in the hearing, said the ruling reinforced the original constitutional provisions.

The verdict also meant scrapping of the 16th constitutional amendment, passed during deposed Prime Minister Sheikh Hasina's regime, giving the task of impeaching judges to Parliament instead of the Supreme Judicial Council comprising apex court judges.

The 16th Amendment

was passed in January 2014, relieving the Supreme Judicial Council of its authority of removing judges for incompetence or misconduct.

However, a three-member High Court bench in May 2016 declared the 16th Amendment unconstitutional, which was challenged by the state in January 2017.

Led by then Chief Justice Surendra Kumar Sinha, a seven-judge Appellate Division bench upheld the High Court's ruling in July 2017, declaring the 16th constitutional amendment as "illegal". Following the judgement, the Hasina government filed a petition asking the apex court to review its decision, which was settled with the Sunday's judgment of the top court.


The 2017 Supreme Court ruling on the matter brought Justice Sinha into clear conflict with the then government, eventually leading to his forced resignation while he was abroad, and he has remained outside Bangladesh since.


A student-led mass uprising ended Hasina's nearly 15-year rule, forcing her to leave the country on August 5.



The 16th constitutional amendment was passed during Prime


Topic---> 16th Amendment ACT (IR IN NEWS)

 **Supreme Judicial Council Reinstated:** Bangladesh's Supreme Court reinstated the Supreme Judicial Council to investigate judicial misconduct allegations.

 **16th Amendment Declared Illegal:** The court upheld its previous ruling that the 16th constitutional amendment, which transferred the power to remove judges to parliament, is illegal.

 **Reinforcement of Original Provisions:** The verdict reinforces the original constitutional provisions regarding the removal of judges.

 **Scrapping of 16th Amendment:** The ruling effectively scrapped the 16th amendment, which was passed during Sheikh Hasina's regime.

 **Timeline of Events:** The 16th Amendment was passed in January 2014, and a High Court bench declared it unconstitutional in May 2016.

saurabh pandey upsc

At the threshold

India has managed to keep the number of cases under one in 10,000 for two consecutive years now

■ Kala-azar is a slow progressing indigenous disease caused by a protozoan parasite of genus *Leishmania*

■ In India, *Leishmania donovani* is the only parasite causing this disease

■ The parasite primarily infects the reticuloendothelial system and may be found in abundance in bone marrow, spleen and liver



Some sandfly species are vectors of Kala-azar

■ Post Kala-azar Dermal Leishmaniasis (PKDL) is a condition when *Leishmania donovani* invades skin cells, resides and develops there and manifests as dermal lesions

■ Some of the Kala-azar cases manifests PKDL after a few years of treatment

Source: Health Ministry, National Centre for Vector-Borne Diseases Control

What are the stress factors for Indian Railways?

Why has there been a spate of accidents across railway zones? Will 'Kavach' coverage and overhauling of signalling systems help? Is it earning enough from passenger and freight services to plough back profits for upgradation, maintenance and paying salaries?

Vasudevan Mukunth

The story so far:

In October 17, eight coaches of the Agartala-Lokmanya Tilak Express derailed in Assam with no casualties. On October 11, a passenger train rear-ended a stationary goods train near Chennai, also with no casualties. Indian trains have been involved in multiple accidents of late. The Balasore accident on June 2, 2023, had the greatest death toll, more than 275, yet pressure on the Railways to improve safety competes with pressures straining its subsistence.

How common are accidents?

The number of railway accidents dropped from 1,390 per year in the 1960s to 80 per year in the last decade. There were still 34 consequential accidents in 2021-2022, 48 in 2022-23, and 40 in 2023-2024. A consequential accident injures and/or kills people, damages railway infrastructure, and disrupts rail traffic.

According to public records, 55.8% of all accidents involving trains have been due to the failure of Railway staff and another 28.4% due to failures on the part of non-staff people. Equipment failure accounted for 6.2%. In both the Balasore and the Kavaraipettai accidents, officials blamed the signalling system.

What is 'Kavach'?

The 'Kavach' automatic train protection system is designed to prevent collisions using devices that allow pilots to track the relative location of their vehicles and which can actuate alarms and automated braking protocols.

By February 2024, the Railways had installed 'Kavach' on 1,465 route km, or 2% of its total route length. After the Balasore accident, Union

The Railways is caught between providing an affordable travelling option and being a profitable business

Railway Minister Ashwini Vaishnaw said 'Kavach' would be implemented in "mission mode". It costs ₹50 lakh per kilometre and ₹70 lakh per locomotive. An analysis by *The Hindu* found the all-inclusive cost of implementation over a decade to be less than 2% of the Railways' annual capex. When faced with criticism of the slow implementation, officials have deferred to declines in accident incidence and mortality over the years. But experts have said comparing current and past accident rates is misguided because advanced safety technologies didn't exist earlier and that the government has the means today to eliminate collisions.

Since 1990-1991, the Railways has classified nearly 70% of all major accidents as derailments, but only 2% of them were due to collisions. 'Kavach' also may not have prevented the Kavaraipettai accident because the relevant error happened beyond the minimum margins 'Kavach' requires to assist.

What is the operating ratio?

The operating ratio (OR) – the amount the Railways spends to earn ₹100 – in 2024-2025 is estimated to be ₹98.2, a small improvement from 2023-2024 (₹98.7) but a decline from ₹97.8 in 2016. A higher OR leaves less for capex and the Railways more dependent on budgetary support and Extra-Budgetary Resources (EBRs). In 2016-2017, the BJP government brought the railway budget under the regular budget after nine decades of separation. One outcome was easier access for the Railways to gross budgetary support. As for EBRs: the Railways' dues have ballooned to 17% of its revenue receipts today from 10% in 2015-2016.

How are freight services faring?

The Railways' two main internal revenue sources are passenger services and freight. The latter accounts for 65%. While revenue from both sources is increasing, freight rates increased more than three times as fast as passenger rates in 2009-2019, NITI Aayog has estimated.

According to the draft National Rail Plan, nearly 30% of the railway network is utilised to more than 100% capacity. This has translated to slow freight movement – around 26 km/hr in 2016 – and slower revenue growth. Of the Dedicated Freight Corridors (DFCs) the government mooted in 2005, only the eastern DFC is fully operational. The western DFC is partly ready; the east coast, east-west sub-corridor, and north-south sub-corridor DFCs, amounting to 3,958 km, are still in planning. Freight revenue also depends on the freight basket. Coal accounted for half of the freight revenue and 45% of volume in the

2024-2025 budget estimate. However, the government has been adding more renewable energy sources while pushing industries to reduce their dependence on fossil fuels, including coal.

The Railways also needs to keep up existing equipment, including replacing tracks and wagons and maintaining trackside infrastructure. But in the 2023-2024 budget, capital outlay for track renewal dropped to 7.2%. Appropriations to the Depreciation Reserve Fund also fell 96% in the BJP's first term; the government had moved these resources to the Rashtriya Rail Sanraksha Kosh safety fund created in 2017-2018. The Standing Committee on Railways said then the latter wouldn't be able to pay to repair or replace depreciating assets.

What about passenger services' revenue?

The Railways' freight profit is offset significantly by passenger losses. In 2019-2020, the revenue from passenger services was a little over ₹50,000 crore and loss, ₹63,364 crore. In 2021-2022 – a pandemic year in which many trains had to be cancelled – passenger services incurred a loss of ₹68,269 crore. In a July 2024 analysis, PRL Legislative Research estimated the revenue from passenger services was ₹80,000 crore in 2024-2025.

PRL also estimated the Railways had a passenger traffic of 11 lakh passenger km, expected to increase to 12.4 lakh in 2024-2025 thanks to the addition of new trains – including the Vande Bharats – on high-traffic routes. The Railways has also replaced many of the more affordably ticketed sleeper and second-class coaches with the more expensive AC coaches, all to increase passenger revenue. However, it last rationalised passenger fares in 2020.

How is safety affected?

For a long time now, the Railways has been caught between two aspirations: providing an affordable travelling option to the Indian people versus being a profitable business.

The Railways' losses are compounded by growing wage and pension bills and fuel costs. Locomotive pilots have also reported stressful working conditions, including 12-hour shifts, especially in zones with large freight volumes, and shifting standard operating procedures.

The high network congestion is likewise exemplified by the limited utility of 'Kavach' as well as the failure of a homegrown system, based on walkie-talkies, to alert trackside workers to oncoming trains. "The system does not work fully ... where a number of trains ply in a single block section at close intervals and signals are placed 1 km apart," Mr. Vaishnaw told the Rajya Sabha in 2023. In sum, the Railways' inability to generate revenue to plug gaps in the gross budgetary support, burgeoning demands on its revenue receipts, and growing pressure to ease congestion and improve physical capacity mean it's constantly playing catch-up.



Accident prone: The Mysuru-Darbhanga Express rammed a goods train due to signal failure at Kavaraipettai station on October 11. B. JOTHY RAMALINGAM

Topic→ Indian Railways: Challenges and Developments



Kavach System

Objective: The **Kavach** automatic train protection system is designed to prevent collisions using tracking devices and automated braking protocols.



Implementation Status

Current Reach: As of February 2024, **Kavach** has been installed on 1,465 route km, which is only 2% of the total railway route length.



Cost of Implementation



Financials: The cost is ₹50 lakh per km and ₹70 lakh per locomotive. Over a decade, this cost is less than 2% of the Railways' annual capital expenditure.



Operating Ratio

Financial Efficiency: The operating ratio for 2024-2025 is estimated at ₹98.2, showing a decline in financial efficiency, which limits capital expenditure.



Freight Services



Revenue Contribution: Freight services contribute 65% of railway revenue.

Challenges: Slow freight movement and reliance on coal are issues, with only one of the proposed Dedicated Freight Corridors fully operational.



Passenger Services Losses

Financial Losses: Passenger services face significant losses, with projected revenue of ₹80,000 crore in 2024-2025, challenged by high operational costs and fare stagnation since 2020.



Safety Concerns

Operational Challenges: High congestion, inadequate systems like Kavach, and stressful working conditions for locomotive pilots impact overall operational efficiency.

Summary

The Indian Railways is dealing with safety, financial efficiency, and operational challenges, especially in implementing the **Kavach** system and managing passenger and freight services.

saurabh pandey upsc

How will a classical status help languages?

What does this mean for Marathi, Bengali, Assamese, Pali and Prakrit? On what basis is such a status accorded?

Priscilla Jebaraj

The story so far:
The Union Cabinet approved classical status for five languages earlier this month – Marathi, Bengali, Assamese, Pali, and Prakrit – by tweaking the criteria for the declaration.

What makes a language classical?
When the new UP-led Union government introduced the classical status for Indian languages in 2004, it defined them using three criteria: that its oldest texts or recorded history dated back over a thousand years; that it had a body of ancient literature considered a valuable heritage by generations of speakers; and that its literary tradition must be original and not borrowed from another speech community. Tamil was the first language declared to be classical. In 2005, these criteria were tweaked to push back the historical requirement to 1,500 to 2,000 years and to stipulate that “the classical language and literature being distinct from moderns, there may also be a discontinuity between the classical language and its later forms or its offshoots.” Under these norms, five more languages were declared as classical over the next decade: Sanskrit, Telugu, Kannada, Malayalam, and Odia.

How did these languages attain this status?
In 2002, the Culture committee was set up to develop the proposal for Marathi to be declared a classical language with evidence from old documents. It was finally submitted to the Union Culture Ministry’s Linguistic Experts Committee (LEC) in November 2003, says Salimur Moin, chairman of the Maharashtra State Literature and Culture Board. In July 2014, then Congress Chief Minister Prithvi Singh Chaudhary presented the proposal to the newly elected Modi-led government of the Centre, and State governments led by the BJP and Shiv Sena continued to pursue the matter for a decade. “Over a lakh people’s proposals to the President, MPs in Parliament, someone went to court,” says Dr. More. Noting that Marathi has a lean 2,000-year-old continuous history, he claimed that Mahanastri Prakrit was an original language, unlike other forms of Prakrit which are derivatives.

In July 2004, the LEC removed the requirement that any proposed language’s literary tradition must be original and not borrowed from another speech community, and added a requirement for “knowledge texts, especially prose texts in addition to poetry, epigraphical and inscriptional evidence”. It also said a classical language “could be” distinct from its current form.


These new criteria paved the way for not just Marathi, but also Bengali and Assamese, which are also modern languages in current use. “We submitted a 292-page report to the Culture Ministry in March 2020 tracing the history of Assamese to prove its antiquity. Stone inscriptions go as far back as the third century AD. There are copper plates and manuscripts written on the bark of the Sanchitree, as well as extensive folklore and folk songs in Assamese,” Kalidhar Sukla, former president of the Assam Sahitya Sabha said, noting that the popular drive to protect Assamese comes from a colonial history of attempted language erasure. West Bengal Chief Minister Mamata Banerjee had, in January 2024, sent a four-volume report to the Centre, seeking classical status for Bengali on the grounds of concrete evidence proving that it existed as a written language as far back as the 3rd or 4th century BCE.

What lies ahead for the newly declared classical languages?
“It is important that the language in which Nobel Prize winner Rabindranath Tagore wrote is recognised as a classical language, at a time when many people are reluctant to speak in Bengali,” says Nripendra Prasad Bhaduri, a writer, historian and book critic. “So many Bengali works are awaiting translation. Bengali dialects also need support. This will also help research proposals in Bangla to get central funds.” The Centre has funded universities for Sanskrit and Tamil and centres of excellence and university chairs for the other existing classical languages, as well as national and international awards. Central budget grants for classical languages have risen from 58 crore for Tamil in the last decade to 7.7 crore for Malayalam since 2020. “There are so many rock inscriptions in Assamese which are yet to be deciphered, and this will support researchers seeking to study the ancient language and translate Assamese classics,” says Mr. Sukla. “But we also hope it will give a flip to the learning and use of modern Assamese, given the rise of

Topic-- > Classical Status Approval for Languages




Overview of Classical Status Approval


 Classical Status Approval: The Union Cabinet has approved classical status for five languages: Marathi, Bengali, Assamese, Pali, and Prakrit.

Criteria for Classical Languages


 Initial Criteria: Established in 2004, requiring a history of over 1,000 years, a body of ancient literature, and an original literary tradition.


 Revised Criteria (2005): Extended the historical requirement to 1,500-2,000 years, acknowledging potential discontinuity between classical and modern forms.

Marathi's Journey to Recognition


 Proposal and Evidence: The Pathare committee proposed Marathi's classical status in 2012, with evidence submitted in 2013, leading to a decade-long pursuit for recognition.

Updated Criteria and Evidence

 **New Criteria (2024):** The Linguistic Experts Committee (LEC) updated the criteria, removing the originality requirement and adding the need for prose texts and inscriptional evidence.

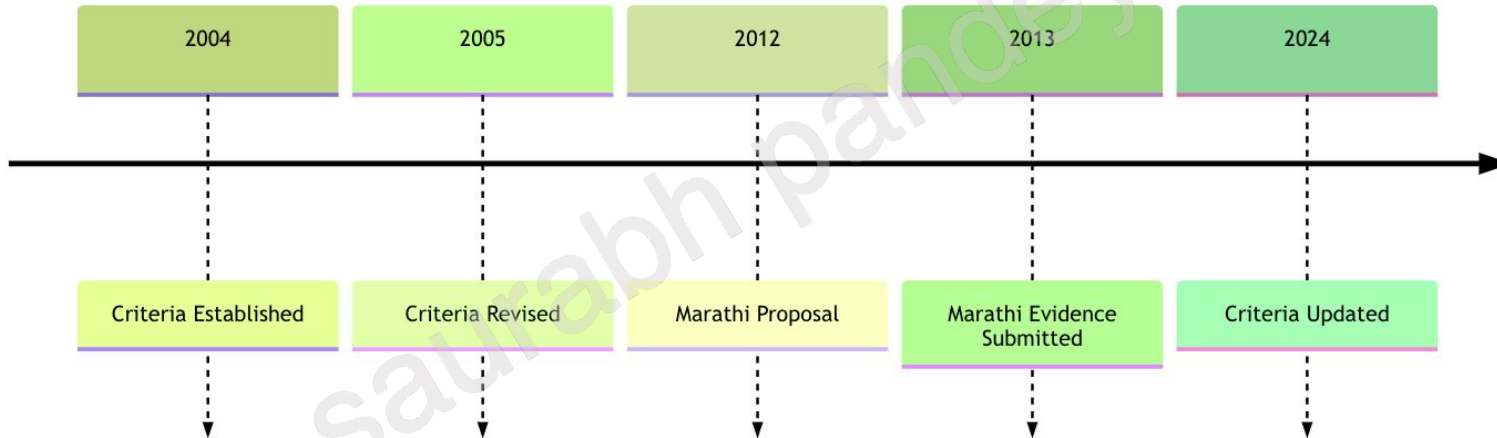
 **Assamese and Bengali Evidence:** Assamese's status supported by a 392-page historical report; Bengali's claim backed by a four-volume report tracing its written existence to the 3rd or 4th century BCE.

Cultural Significance

 **Cultural Movement:** The push for classical status reflects efforts to preserve and recognize the historical significance of these languages amidst colonial histories of language erasure.

Timeline of Criteria Changes and Language Recognition:

Timeline of Classical Language Criteria and Recognition



Did Google violate antitrust laws in Epic battle?



Why has a U.S. judge ordered the tech giant to open up its Play Store to third-party apps? What happened when Epic's CEO Tim Sweeney took issue with Google's cut from every transaction made through Android devices? What happened to the lawsuit with Apple?

John Xavier

The story so far:

In October 7, U.S. District Judge James Donato issued an injunction against Alphabet-owned Google, ordering the tech giant to open up its Play Store to third-party apps. The ruling prohibits Google from cutting exclusive deals with app developers and phone manufacturers, requiring them to pre-install the Play Store on their devices. Furthermore, Google is now required to allow app developers to offer alternative payment options within their apps.

What has been Google's response?

Google has already appealed the decision, and in a company blog post, it expressed concerns that the ruling could undermine consumer privacy and security, make it more difficult for developers to promote their apps, and reduce competition on mobile devices. But the court's decision is seen by many as a crucial turning point in the ongoing battle between developers and app store operators over market control.

What's the background to this injunction?

Legal tensions between app developers and major app store operators like Google and Apple have been escalating for several years. A major

The implications of these rulings, especially the injunction against Google, could be profound for the app economy

flashpoint came in August 2020, when Tencent-backed Epic Games – the maker of Fortnite – introduced a direct payment option in its app, bypassing both Google's and Apple's mandatory in-app billing systems. By doing so, Epic circumvented the hefty commissions that both platforms charge developers for in-app purchases and subscriptions. For Epic Games, these commissions typically range from 15-30%.

Fortnite, which operates under a free-to-play model, generates revenue through in-app purchases and other gameplay-related items. Epic's CEO Tim Sweeney took issue with Google's cut from every transaction made through Android devices, believing it was unjust and restrictive. In retaliation, both Google and Apple removed Fortnite from their respective app stores, leading Epic to file two separate antitrust lawsuits – one against Google and the other against Apple. This move was seen as a direct challenge to the tech giants' dominance in the app store economy and brought the issue of digital monopolies to the forefront.

The legal battle between Epic Games and Google has been drawn out over several years, with various pieces of evidence surfacing during the trial. A key argument from Epic was that Google's practices – such as making exclusive agreements with developers and enforcing the use of its own billing system – were inherently anti-competitive. Google had made deals with companies like Activision Blizzard and Nintendo, offering incentives such as lower commissions to get their apps and games onto the Play Store while requiring them to use Google's billing system.

The case was a jury trial, and in December 2023, the jury unanimously found that Google had engaged in anti-competitive practices that harmed Epic's business and stifled competition for other developers. This ruling ultimately led to Judge Donato's injunction.

How do Epic's lawsuits against Google and Apple differ?

While Epic filed similar antitrust lawsuits against both Google and Apple, the outcomes of these two cases have been quite different. Epic's lawsuit against Apple, which was a bench trial,

resulted in a mixed ruling. U.S. District Judge Yvonne Gonzalez Rogers found that while Apple was not a monopoly in the app marketplace, it had still imposed some anti-competitive policies. The court ordered Apple to allow developers to offer payment options for in-app purchases, but Epic was required to pay damages for violating Apple's developer agreement.

However, the injunction against Google presents a stark contrast. As the Google case was tried before a jury, Epic had a greater opportunity to present evidence of Google's exclusive agreements with other developers, which helped convince the jury that Google had violated antitrust laws. This difference in how the cases were handled – bench trial versus jury trial – had a significant impact on the outcomes.

How will it impact the app economy?

The implications of these rulings, especially the injunction against Google, could be profound for the app economy, which is valued at over \$250 billion and is largely controlled by Google Play Store and Apple's App Store. First, Google and Apple will need to revise their app store policies to accommodate more developer-friendly terms, such as allowing alternative payment methods and perhaps reducing the commissions they charge on in-app transactions.

Moreover, the injunction against Google could open the door for alternative app stores, which would reduce the near-total control Google and Apple have over app distribution. For consumers, this might mean lower prices for apps, subscriptions, and in-app purchases, as developers will no longer be forced to pay high commissions to app store operators. The knock-on effect could be significant, allowing smaller developers to pass on savings to consumers and potentially lowering the barrier to entry for new app makers.


However, one potential downside is app discoverability. Today, developers only need to create and promote their apps on two major platforms – Google's Play Store and Apple's App Store. But in a world with multiple app stores, smaller developers may find it harder to get noticed and attract customers across these fragmented marketplaces. Overall, these legal decisions mark a major shift in how the app economy may operate going forward. They reflect growing scrutiny of big tech companies and their influence over digital marketplaces, which could pave the way for more open competition and fairer terms for developers.




Game changer: In 2020, Epic Games introduced a direct payment option. AFP


Topic→ Legal Battle Between Google and Epic Games

Key Developments in the Legal Dispute

 **Injunction Issued:** On October 7, U.S. District Judge James Donato mandated that Google must open its Play Store to third-party apps and allow alternative payment methods.

 **Google's Appeal:** Google has filed an appeal against this ruling, citing concerns over potential impacts on consumer privacy, security, and competition.

 **Background of Legal Tensions:** The conflict between app developers and major app store operators has been intensifying, notably highlighted by Epic Games' actions in August 2020.

 **Epic Games' Challenge:** Epic Games introduced a direct payment option in Fortnite, bypassing Google's billing system, which led to its removal from the Play Store and subsequent antitrust lawsuits.



Commission Disputes: Epic Games criticized Google's commission rates (15-30%) on in-app purchases as unjust and restrictive, prompting legal action against both Google and Apple.



Jury's Verdict: In December 2023, a jury unanimously found that Google engaged in anti-competitive practices that harmed Epic's business and stifled competition.

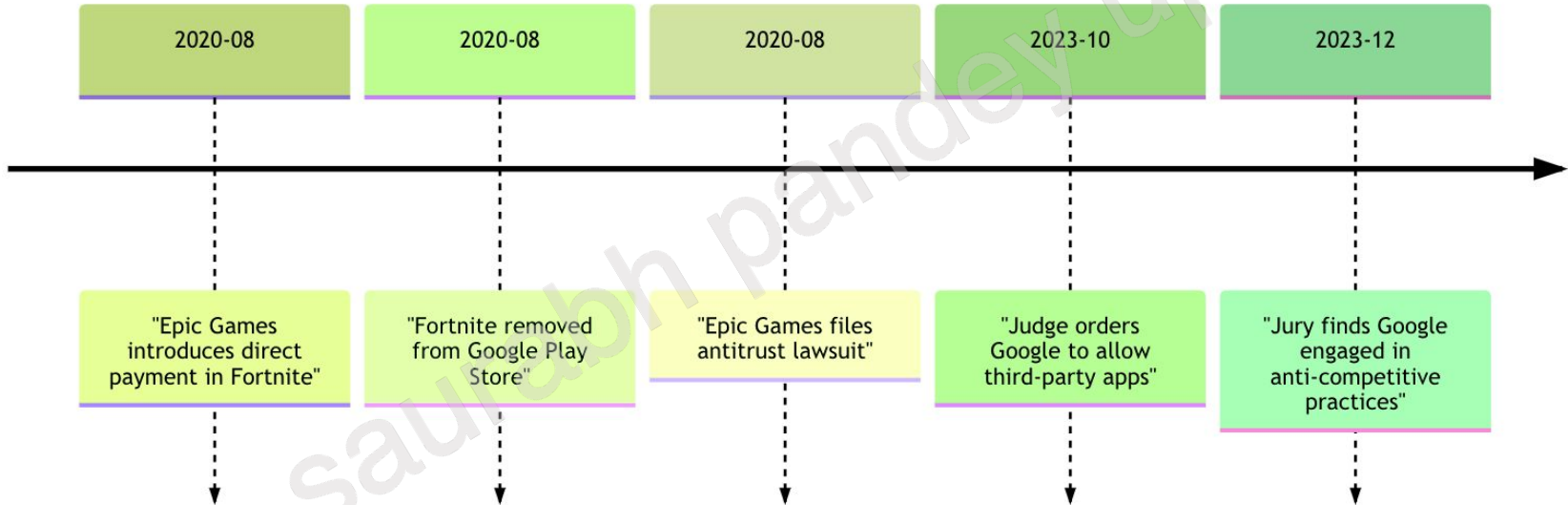


Market Control Battle: The case is seen as a pivotal moment in the ongoing struggle between app developers and app store operators over market control.


Summary: A U.S. District Judge has ruled against Google, requiring it to allow third-party apps and alternative payment options, amidst ongoing legal battles with Epic Games over anti-competitive practices.


Legal Conflict Timeline:


Timeline of Google vs. Epic Games Legal Battle





Key Developments in the App Economy


 App Economy Value: The app economy is valued at over \$250 billion, with major players being Google Play Store and Apple's App Store.


 Policy Revisions: Google and Apple are expected to revise their app store policies to be more developer-friendly, including options for alternative payment methods and reduced commissions.

 Lower Prices for Consumers: These policy changes could lead to lower prices for apps, subscriptions, and in-app purchases as developers save on high commissions.

 Rise of Alternative App Stores: Legal actions against Google may encourage the growth of alternative app stores, reducing the dominance of Google and Apple in app distribution.

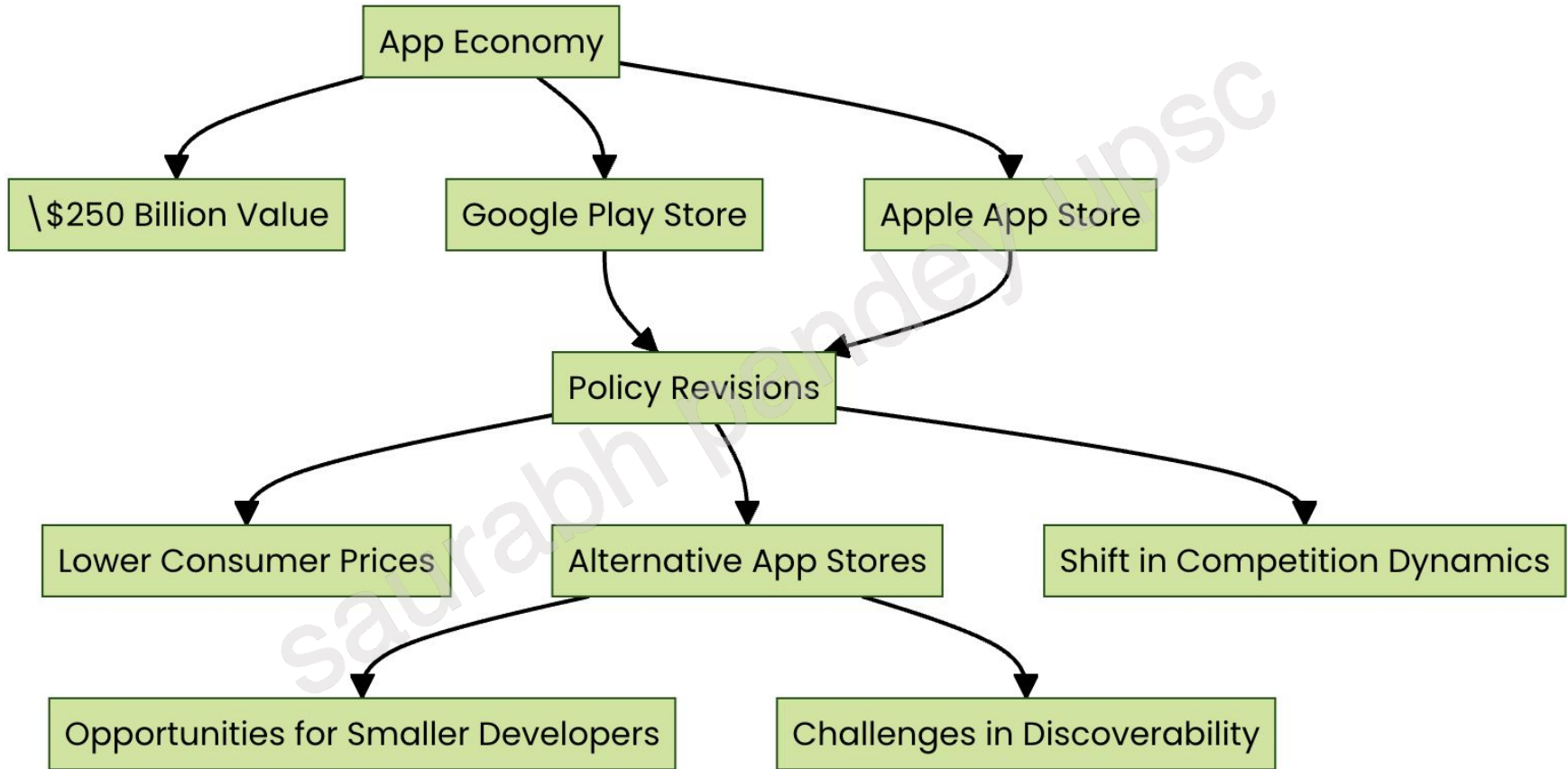
-  **Opportunities for Smaller Developers:** Smaller developers could benefit from reduced costs, enabling them to pass savings to consumers and lowering entry barriers for new app creators.

 **Challenges in App Discoverability:** The emergence of multiple app stores may pose challenges for smaller developers in terms of app discoverability and customer attraction in a fragmented market.

 **Shift in Competition Dynamics:** Legal rulings suggest a significant shift towards more open competition and fairer terms for developers, highlighting increased scrutiny of major tech companies.

Summary: Legal rulings against Google and Apple have the potential to reshape the app economy by fostering competition, reducing consumer costs, and challenging the dominance of major app stores_____

App Economy Dynamics:



Plankton balloon to six times their size to reach ocean surface

The Hindu Bureau

Many plankton journey from the cold, dark depths of our oceans to the surface, only to eventually drift down again into the darkness in a perpetual rhythm. Yet, how single-celled phytoplankton, most of which have no appendages to help them swim, make this pilgrimage has remained a mystery. In a paper published in the journal *Current Biol-*

ogy, researchers describe a species of bioluminescent phytoplankton, called *Pyrocystis noctiluca*, that balloons to six times their original size of a few hundred microns.

Phytoplankton are, on average, 5%-10% heavier than seawater, meaning that if they want to remain at the surface to photosynthesize, they have to find a way to beat gravity. The researchers discovered that *P. noctiluca* cells be-

have more like little submarines which can control their density so they can choose where they want to reach the ocean's surface.

'Natural part'

On a research vessel off the coast of Hawaii, one of the authors stumbled upon a bloom of *P. noctiluca* and surprisingly found two very different sizes in their nets. Videos helped the team see the cells doing the massive inflation. To

test what effects this rapid growth might have on the plankton, the research team utilised their novel "gravity machine." By altering water pressure and density within the gravity machine, the team can create a virtual reality environment mimicking the ocean's depths.

With the machine, the team discovered that inflated cells were less dense than the surrounding seawater, letting them escape

the downward pull of gravity and float toward the virtual surface.

Further investigation showed this expansion happens as a natural part of the plankton's cell cycle. Once a single-celled plankton divides into two, an internal structure called a vacuole, a kind of flexible water tank, filters in fresh water, causing the two new cells to massively grow in size. These two daughter cells, now swelled with the

lighter freshwater, sail upward. "So, what happens during normal time? You are making a lot of proteins, you have tons of sunlight, and you make a lot of biomass until you get heavier and you sink. Then, you do cell division in the deeper waters and use inflation to get back to the size of the mother," Manu Prakash, a marine biologist and bioengineer at Stanford University said in a release.

Topic→ Plankton Migration



Plankton Migration: Plankton, including phytoplankton, move between the ocean's depths and surface in a continuous cycle.



Phytoplankton Size Change: The bioluminescent phytoplankton species *Pyrocystis noctiluca* can expand to six times its original size.



Density Control: *P. noctiluca* can adjust its density to remain buoyant and reach the ocean surface for photosynthesis.



Research Discovery: Researchers observed different sizes of *P. noctiluca* during a study off the coast of Hawaii, leading to insights about their growth.



Gravity Machine Experiment: A novel "gravity machine" was used to simulate ocean conditions, revealing how inflated cells can float due to being less dense than seawater.



Cell Cycle Mechanism: The expansion of *P. noctiluca* occurs naturally during its cell cycle, particularly after cell division when vacuoles fill with freshwater.



Biomass Production: The plankton produce biomass through photosynthesis until they become too heavy and sink, after which they can use inflation to return to their original size.

Summary: Researchers have discovered how the bioluminescent phytoplankton *Pyrocystis noctiluca* can control its density and size to navigate between ocean depths and the surface.

Tea drinking across India



**SPEAKING OF
SCIENCE**

D. Balasubramanian

Tea plants came to India from China and Southeastern Asia about three centuries ago, brought here by India by the British colonialists. While experimenting to introduce tea in India, they noticed that tea plants with thicker leaves also grew in Assam, and these, when planted in India, responded very well. (We must add that tea is also grown in some areas in Karnataka, Kerala, and Tamil Nadu, though not in amounts comparable to that in the Northeast). Recently, Uttaranchal and U.P. have also started grow-

ing tea. Today, India has the largest total consumption of tea (540,000 metric tonnes of tea, or 620 grams per capita). And India is the world's fourth largest exporter of tea and generates about \$800 million.

According to the National Sample Survey Organization, India consumes 15 times more tea than coffee. In North India, tea has become the main daily drink there, both in urban and rural areas. A cup of it costs just ₹8 to ₹10, affordable for all. In contrast, even in South India (the home for coffee), a cup of tea is Rs.10 while coffee costs ₹15 to ₹20.

Chemical components

Several publications in the journals *Food Chemistry* and *Food Science and Human*



India consumes 540,000 metric tonnes of tea each year. AFP

Wellness have described the chemical molecules in tea leaves. They point out that these leaves are rich in aroma, which gives tea its fragrance. A 2015 paper in the journal *Food Science and Human Wellness* offers some examples of such aroma-filled compounds. In our daily diet, we have

them in carrots, pumpkins, and sweet potatoes. Among the non-volatile examples, we have foodstuffs such as salt, sugar, calcium, and fruits, which are rich in vitamins and minerals.

Tea leaves are also rich in vitamins, and protective compounds that help in

improving blood pressure, and cardiovascular health, reducing diabetes risk, improving gut health, alleviating stress and anxiety, improving attention and focus, and improving attention. In these, tea scores better than coffee, since tea has less caffeine, which is a nervous system stimulant. This is also why children are not advised to drink either of these.

The authors of the 2015 paper found that the aroma of tea leaves is due to the presence of carotenoids such as volatile compounds called carotenoids such as lycopene, lutein, and Jasmonate. On the other hand, the taste of food is due to non-volatile compounds such as sugar, salt, iron, and calcium.

In daily food cooked and made at home, these

flavours come by using iron, salt, calcium, and sugar on one hand, and vegetables such as carrots, sweet potatoes, and fresh vegetables on the other. In India, the Central Food Technology and Research Institute (CSIR-CFTRI) at Mysuru (and its branches elsewhere), is involved in studying antioxidants, polyphenols, and other health-promoting molecules in Indian food.

As mentioned above, more Indians drink tea rather than coffee. What then are the benefits of drinking tea over coffee? Tea has less caffeine than coffee. Tea has more antioxidants than coffee beans, but some scientists claim that coffee is better against diabetes than tea. So, depending on your taste, you may choose!

Topic-- >> Tea in India: A Comprehensive Overview



Origin of Tea in India

Tea plants were introduced to India from China and Southeastern Asia by British colonialists around three centuries ago.

Tea Cultivation Regions

Assam is the primary region for tea cultivation in India.

Other regions include Karnataka, Kerala, Tamil Nadu, Uttaranchal, and U.P.

Tea Consumption

India has the largest total tea consumption globally, at 540,000 metric tonnes. Average consumption is 620 grams per capita, which is 15 times more than coffee.



Economic Impact

India ranks as the fourth-largest tea exporter in the world.

Tea exports generate approximately \$800 million.



Health Benefits

Tea leaves are rich in vitamins and protective compounds.

Benefits include improved cardiovascular health, reduced diabetes risk, and stress alleviation.



Cost Comparison

A cup of tea costs ₹8 to ₹10 in North India and ₹10 in South India.

Coffee prices range from ₹15 to ₹20.

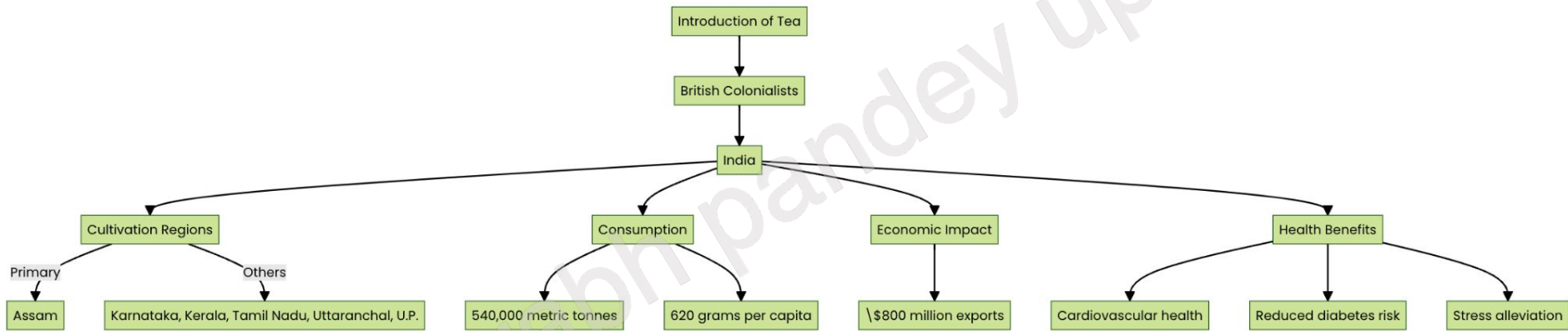


Chemical Composition

Tea leaves contain aroma-rich compounds like carotenoids.

Tea has more antioxidants than coffee, though coffee may have advantages against diabetes.

Summary: Tea, introduced to India by British colonialists, is now the most consumed beverage in the country, known for its health benefits and economic significance.





Question Corner

Gene copies

When did the duplication of a gene responsible for breaking down complex carbohydrate starch in the mouth occur?

It has long been known that humans carry multiple copies of a gene that allows us to begin breaking down complex carbohydrate starch in the mouth. However, it has been difficult to determine how and when the number of these genes expanded. A new study reveals how the duplication of this gene – known as the salivary amylase gene (AMY1) – may not only have helped shape human adaptation to starchy foods but may have occurred as

far back as more than 8,00,000 years ago. It showcases how early duplications set the stage for the wide genetic variation that still exists today, influencing how humans digest starchy foods. The research team found that pre-agricultural hunter-gatherers had an average of four to eight AMY1 copies per diploid cell, suggesting that humans were already walking around Eurasia with variety of high AMY1 copy numbers well before they started domesticating plants and eating excess amounts of starch.

Readers may send their questions / answers to questioncorner@thehindu.co.in

Topic→ The salivary amylase gene (AMY1)



The salivary amylase gene (AMY1) is responsible for breaking down complex carbohydrate starch in the mouth.



The duplication of the AMY1 gene may have occurred over 800,000 years ago.



This gene duplication helped shape human adaptation to starchy foods.



Pre-agricultural hunter-gatherers had an average of four to eight copies of the AMY1 gene per diploid cell.



High AMY1 copy numbers existed in humans before the domestication of plants and increased starch consumption.



The study highlights the genetic variation in AMY1 that influences starch digestion in modern humans.



Early gene duplications set the stage for the wide genetic variation observed today.








Summary: The duplication of the salivary amylase gene (AMY1), crucial for starch digestion, occurred over 800,000 years ago, influencing human adaptation to starchy diets.



Carbon dioxide emissions from fires increase by 60%

A major new study reveals that carbon dioxide emissions from forest fires have surged by 60% globally since 2001, and almost tripled in some of the most climate-sensitive northern boreal forests. In one of the largest pyromes – regions where forest fire patterns are affected by similar environmental, human, and climatic controls – that spans boreal forests in Eurasia and North America, emissions from fires tripled between 2001 and 2023.

Topic→CO2 From Forest Fire

-  Carbon dioxide emissions from forest fires have increased by 60% globally since 2001.
-  In some northern boreal forests, emissions have nearly tripled.
-  The study highlights a significant rise in emissions in the largest pyromes, which are regions influenced by similar environmental and climatic factors.
-  The affected pyromes include boreal forests in both Eurasia and North America.
-  The timeframe for this increase in emissions spans from 2001 to 2023.
-  The findings indicate a concerning trend in forest fire emissions, particularly in climate-sensitive areas.
-  The study underscores the impact of climate change on forest fire patterns and emissions.


Summary: A new study shows a 60% global increase in carbon dioxide emissions from forest fires since 2001, with emissions tripling in some northern boreal forests.





Ultra-processed foods pose dangers for people

Consuming more ultra-processed foods is closely linked with higher blood sugar levels in people with Type 2 diabetes, a study has found. The researchers describe how – even more than just the presence of sugar and salt in the diet – having more ultra-processed foods laden with additives can lead to higher average blood glucose levels over a period of months, a measure called HbA1C. Studies have indicated ultra-processed foods linked to higher rates of cardiovascular disease, obesity, and early death.

Topic→ Ultra Processed foods

 Increased consumption of ultra-processed foods is associated with higher blood sugar levels in individuals with Type 2 diabetes.


 The study highlights that additives in ultra-processed foods contribute more to elevated blood glucose levels than just sugar and salt.

 Higher average blood glucose levels are measured by HbA1C over several months.

 Ultra-processed foods are also linked to increased rates of cardiovascular disease.

 There is a correlation between ultra-processed food consumption and obesity.

 The consumption of these foods is associated with a higher risk of early death.

 The findings emphasize the importance of dietary choices for managing Type 2 diabetes and overall health.

Summary: A study reveals that ultra-processed foods significantly raise blood sugar levels in Type 2 diabetes patients, contributing to various health risks



Ultra-processed foods pose dangers for people

Consuming more ultra-processed foods is closely linked with higher blood sugar levels in people with Type 2 diabetes, a study has found. The researchers describe how – even more than just the presence of sugar and salt in the diet – having more ultra-processed foods laden with additives can lead to higher average blood glucose levels over a period of months, a measure called HbA1C. Studies have indicated ultra-processed foods linked to higher rates of cardiovascular disease, obesity, and early death.

— **Topic→ RSV VACCINE**



A study analyzed the effectiveness of the respiratory syncytial virus (RSV) vaccine using real-world data.



The vaccine is highly effective in older adults, including those with immunocompromising conditions.



RSV vaccination offers approximately 80% protection against disease and hospitalization.



It also reduces the risk of ICU admission and death due to respiratory infections.



The vaccine provides protection against less severe disease in adults visiting emergency departments without requiring hospitalization.



The findings highlight the importance of RSV vaccination in vulnerable populations.



The study underscores the potential benefits of vaccination in improving health outcomes for older adults.

Summary: The RSV vaccine is highly effective, providing around 80% protection against severe disease and hospitalization in older adults, including those with weakened immune systems.

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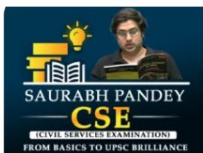


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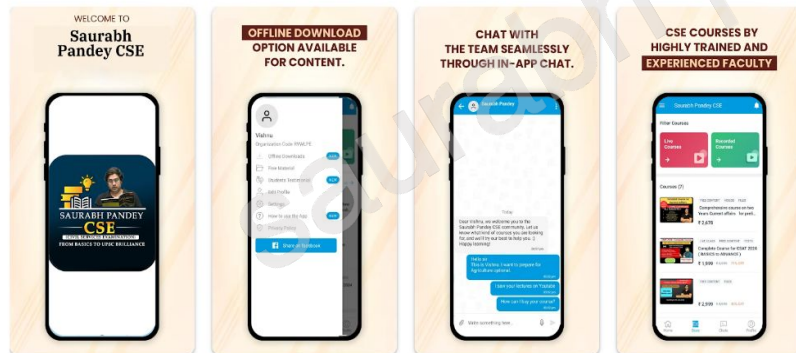
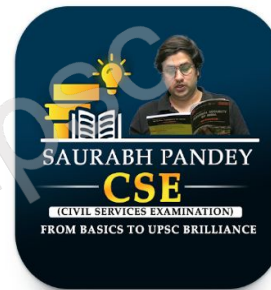
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Q 1- ELECTORAL REFORM

— Topic→ Committee On Simultaneous election

The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi, has accepted the recommendations of the High-Level Committee on Simultaneous Elections under the chairmanship of former President Shri Ram Nath Kovind.

Simultaneous elections: Recommendations of high-level committee

1. Elections have been held simultaneously between 1951 and 1967.

2. Law Commission (1999): One election to Lok Sabha and all state assemblies.

3. Panel of Experts (2015): suggest methods for simultaneous elections.

4. High-Level Committee on Simultaneous Elections: Ram Nath Kovind extensively consulted various stakeholders including political parties.

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Purnachandra Education Hub watching live session sir

Purnachandra Education Hub back to old theme

Simran Gautam good morning sir

8th april 2021

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14th jan 2023



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Bound supremacy

Parliamentary sovereignty isn't undone
by the basic structure doctrine

It is fairly well-known that parliamentary legislation is subject to two limitations under the Constitution of India. One is by judicial review, or the power of constitutional courts to review legislation for possible violation of any fundamental right. Another is that no amendment to the Constitution should have the effect of destroying any of its basic features. While the first limitation is set out in Article 32, under which laws inconsistent with or in derogation of fundamental rights are void, the second limitation is based on the 'basic structure' doctrine evolved by the Supreme Court. Vice-President Jitendra Dhanoo's remarks questioning the basic structure doctrine propounded in the landmark Kesavananda Bharati (case 1973) does not reflect the correct position of law. In his view, the basic structure doctrine has usurped parliamentary sovereignty and goes against the democratic imperative that the elected legislature should reign supreme. His particular concern seems justified: that the Supreme Court prevented the National Judicial Appointments Commission, a body to appoint judges to the superior courts in the country, from coming into existence by striking down the relevant amendment to the Constitution and a parliamentary law to give effect to it. But it is difficult not to see his attack on the basic structure doctrine as part of the current dispensation's tirade against the judiciary and its grievance that it does not have enough say in the appointment of judges.

The idea that the basic structure doctrine undermines parliamentary sovereignty is simply wrong. Parliament is sovereign in its domain, but it is still bound by the limitations imposed by the Constitution. Mr. Dhanoo seems to have a problem with any sort of limitation on Parliament's jurisdiction to amend the Constitution. Surely, he could not have forgotten that the basic structure doctrine had helped save the Constitution from being undermined through the misuse of parliamentary majority. The main purpose of the doctrine is to ensure that some fundamental features of the Constitution are not legislated out of existence. It has been invoked to strike down amendments only in a few cases, but many others have survived basic structure challenges. Parliamentary majority is transient, but essential features of the Constitution such as the rule of law, parliamentary form of government, separation of powers, the idea of equality, and free and fair elections ought to be perennially protected from legislative excess. It may be open to a new Constituent Assembly to come up with another constitution that changes these fundamental concepts, but a legislature formed under the current Constitution cannot be allowed to change its core identity.

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28th dec 2022



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Q 4 --CAG --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --28th dec 2022



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on the Human Development Index.

However, health experts say this fact that India's fertility rate is declining due to a variety of factors, including increased literacy rates, increase in the age of marriage and so forth, should prompt measures to offer exemptions from the government, decision to general health workers to launch campaigns on oral cancer awareness, push vaccination and screening for all girls.

What is the CAG audit report on Assam's NRC?

The story so far

The story so far

The audit flagged concerns in a compliance report of irregularities in the NRC update project in Assam tabled in the Assam Assembly on December 24.

What is the CAG's concern?

What is the CAG's concern?

The story so far:

- A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

11th october 2022

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Q 5 --local bodies and urban bodies --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --11th october 2022

- The Constitution mandates that panchayats and municipalities shall be elected every five years and enjoins States to devolve functions and responsibilities to them through law.
- This is regarded as a design weakness, but on closer look, is not one.
- Given diverse habitation patterns, political and social history, it makes sense to mandate States to assign functions to local governments.

20th January 2022



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Democratise and empower city governments

The general approach towards urban empowerment, including financial



THIRUKUMAR SINGH PANWAR

The Reserve Bank of India (RBI) in a report, "State Finance, Study of Budgets of 2021-22", released in November 2021 (<https://rbidocs.rbi.org.in/writereaddoc/2021-22>), wrote "With the third-tier governments in India playing a frontline role in combating the pandemic by implementing containment strategies, healthcare... their finances have come under severe strain, forcing them to call down expenditures and mobilise funding from various sources."

The RBI further commented that the functional autonomy of civic bodies must increase and their governance structure strengthened. This could happen by "empowering them financially through higher resource availability".

It is interesting that the RBI did echo the recommendations of the 14th Finance Commission report on local bodies that emphasised city government structures and financial empowerment. The addition in the RBI report is that the praxis and the objective reality from during the need to empower civic bodies, which continues even now.

However, there is only partial truth in the report. The emphasis is on resource availability, but how this will happen is not highlighted. At the most, it speaks only about generating more resources at the local level.

The essence
While correctly identifying the role of the city governments in meeting the challenges the pandemic has thrown up, the report also points to the draining of resources. An RBI survey of 221 municipal corporations (MC20-23) re-

vealed that most of them saw a decline in revenues; in contrast, their expenditure rose by almost 71.2%.

The RBI report also highlights the limited coverage of property tax and its failure in shoring up municipal corporation revenues. Organisation for Economic Co-operation and Development (OECD) data show that India has the lowest property tax collection rate in the world – i.e., property tax to GDP ratio, but this explains only one part of the story.

An old problem continues

During the pandemic, while leaders from the Prime Minister to Chief Ministers to District Magistrates were seen taking a call on disaster mitigation strategies, city mayors were found missing. Why? Because under the disaster management plan of action, cities are at the forefront to fight the pandemic. However, the elected leadership finds no place in it. It is not just in disaster mitigation. The old approach of treating cities as adjuncts of State governments continues to dominate the policy paradigm.

The only exception to the rule has been the people's plan model of Kerala where 40% of the State's plan budget was for local bodies (directly) with a transfer of important subjects such as planning, etc. This paved the way for a new dimension to urban governance.

Functional autonomy

The RBI report has been right in highlighting that functional autonomy of urban local bodies is not allowed. But this should happen through the transfer of functions, finances and functionaries to city governments. Without these, functional autonomy would be empty rhetoric. There are nearly 5,000 statutory towns and an equal number of census towns in India. Nearly 38% of the population lives in urban centres. And almost 90% of government revenue flows from urban centres.

Before value added tax and other centralised taxation systems, but this was also the period of neo-liberal reforms, so the generation of own resources and a slow withdrawal of the state could



be witnessed. Though the democratic transfer of 18 subjects was an important element, and necessary, there was, however, no mention of financial empowerment. It was linked merely to the idea of "competitive cities" to attract investments in the urban centres by making their structures and land use flexible. We now know that not much investment has happened, and cities have not really been able to enhance their financial capabilities.

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Functional autonomy

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capabilities, has remained piecemeal in India

non-earmarking municipalities dependent on octroi, in both cities have strong bases of industrial production. But this source of revenue collection was taken away by the State and the central governments. Instead, finance commissions recommended grants to urban local bodies based on a formula of demographic profile. Previously, while almost 55% of the total revenue expenditure of urban centres was met by octroi (6.4% of GDP), now, the grant covers only 15% of expenditure. In such a situation, it is difficult for the towns to sustain their ability to perform their basic minimum functions, especially with the latest Pay Commission recommendations.

This has resulted in a vicious cycle of burdening people more with taxes and further privatisation/outourcing of the services of the municipalities. This is a pan-India phenomenon and the grading of cities and urban policies are linked to this.

Now with Goods and Services Tax, the ability to tax has been "completely robbed"; cities find themselves in a worse state than States.

The often-cited example is how cities in the Scandinavian countries have been able to raise money from city residents. Cities are not just for the people; they are a part of the decision-making process.

RBI leadership in the cities must be selected for a term of five years. In some cities, the term of the mayor is for a year. Likewise, the third tier of government must be transferred to the cities with a period of five years.

Thus, in this exercise by the RBI, the good part is that there has been at least a mention of cities, with local bodies as important centres of governance.

centres of governance, where democratic decentralisation can bring in amazing results (as seen in Kerala). There will be transparency and adequate participation of the people.

Second, cities should not be considered as entrepreneurial spaces where the sole driving force is to make them competitive to attract investments. We have seen how fallacious this argument is. They must be considered as spaces for planned development by giving adequate attention to resources.

Our cities are hardly prepared for the impact of climate change; nor do they have adaptive strategies. The recommendations for quantitative and qualitative data must be immediately provided to the cities to ensure a disaster risk reduction plan keeping vulnerable communities in mind.

Nothing "smarter"
Fourth, a piecemeal approach such as the concept of "smarter cities" must be abandoned altogether. This approach further widens the gap between different sets of people. Rather, the grants from the State must be enhanced and cities asked to draw up their plans for the next five years.

Thus, in this exercise by the RBI, the good part is that there has been at least a mention of cities, with local bodies as important centres of governance.

Thirukumar Singh Panwar is a former directly elected Mayor, Mayor of Ghaziabad and an urban practitioner. He is also an active member of the International Planning Research Institute (IPRI), Delhi.

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