

9 PM Current Affairs Weekly Compilation

For UPSC CSE mains examination



2nd Week

Feb. 2024

Features :

Arranged as per syllabus Topics
Most complete coverage of major
News Papers editorials

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GS Paper 1

Subject: Geography

Topic: Geophysical Phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc.

El-Nino: Impact on food inflation in India

News: The article discusses about the likely impact of El-Nino on Indias food inflation.

What is El Niño and La-Nina phenomenon?

- 1) El Nino and La Nina are **complex weather patterns** resulting from variations in ocean temperatures in the Equatorial Pacific Region. They are opposite phases of the **El Nino-Southern Oscillation (ENSO) cycle**.
- 2) El Nino is a climate pattern that describes the **unusual warming** of surface waters in the **eastern tropical Pacific Ocean**. It is the **“warm phase”** of a larger phenomenon called the El Nino-Southern Oscillation (ENSO). It typically lasts **9 to 12 months**.
- 3) La Nina, the **“cool phase”** of ENSO, is a pattern that describes the unusual cooling of the tropical eastern Pacific. LA Nina events may last between **1 to 3 years**.

What is the impact of El Niño phenomenon on Indian monsoon?

- 1) **Weakening of Monsoon Winds:** During El Niño years, the trade winds across the Pacific Ocean gets **weakened**. This reduces their ability to **push moisture-laden** air towards the Indian subcontinent. As a result, the monsoon winds over the Indian Ocean and the Arabian Sea weaken, leading to a decrease in the **overall strength of the monsoon**.
- 2) **Shift in Rainfall Patterns:** The regions that receive **abundant rainfall** during the monsoon season may experience **below-average** rainfall, whereas regions that usually receive **less rainfall** may receive **more rainfall**.
- 3) **Delayed Onset and Early Withdrawal:** It can **delay** the onset of the monsoon season in India. Further, it can also lead to an **early withdrawal** of the monsoon, shortening the overall duration of the rainy season.

What are other factors that impact Indian monsoon?

- 1) **Indian Ocean Dipole** -This measures the difference in sea-surface temperatures on opposite sides of this ocean. The IOD has three phases such as Neutral, Positive and Negative IOD. A **positive IOD** leads to **greater** monsoon rainfall and more active (above normal rainfall) monsoon days in the Indian sub-continent while a **negative IOD** leads to **less** rainfall and more monsoon break days (no rainfall).
- 2) **Climate Change**-This has also added to **unpredictability** of Indian monsoon.

What is the significance of receding El Niño for Indian Economy?

- 1) **Boost to agriculture**-Adequate rainfall will ensure healthy farm harvests, leading to enhanced food grain production.
- 2) **Decline in food inflation**-A bumper harvest would ensure that food prices are under control.

3) **Strengthening Indian Rupee**-Controlled food inflation would allow India's central bank to control rupee's internal value so that it does not lose its purchasing power.

Subject: Indian Society

Topic: Salient features of Indian Society, Diversity of India

On Preserving India's Cultural Diversity and UCC – Strike a fine balance, have a just civil code

News: The article discusses how Indian civil laws and Constitution accommodate its cultural diversity. It also highlights the way forward for a UCC that is just.

A detailed article on the **Uniform Civil Code (UCC) Debate** can be [read here](#).

Background:

On February 7, Uttarakhand passed the Uniform Civil Code. Additionally, the Law Commission of India has invited views and proposals from the public about the Uniform Civil Code (UCC).

How do Indian civil laws and Constitution accommodate its cultural diversity?

1) **Religious Personal Laws:** Not just Muslims but even Hindus, Jains, Buddhists, Sikhs, Parsis, and Jews are governed by their own personal laws based on their religious identity.

For instance, even the reformed Hindu Marriage Act, 1955 insists on solemnisation of marriage, through saptapadi (seven steps around fire) and datta (invocation before fire).

2) **Regional Differences in Application of Personal Laws:** For instance, Kerala had abolished the Hindu Joint Family in 1975; Muslim marriage and divorces are registered in Bengal, Bihar, Odisha, Jharkhand under the 1876 law, and in Assam under 1935 law.

3) **Right to Preserve Cultural Diversity:** The fundamental right in Article 29(1) is dedicated exclusively to conserving the distinctive culture of all citizens.

4) **Indian Model of Secularism:** India decided not to adopt the French model of laïcité, which strictly prohibits bearing any religious outfit or marker in public and considers religion in public as a threat to the nation's secular fabric.

However, according to the authors, India's quest of preserving its multicultural diversity is sometimes antithetical with values such as secularism. State assistance to minority cultures has also been seen as 'appeasement of minorities.'

What should be the way forward for a just UCC?

1) **Ensure Multiculturalism:** Law Commission must remember that for a diverse and multicultural polity such as India, the proposed UCC must represent India's 'mosaic model' of multiculturalism.

Note: Mosaic Model describes a society in which cultural groups live and work together maintaining their unique heritages while being included in the larger fabric of society.

2) **Removal of Discriminatory Personal Laws:** Cultural diversity cannot justify continuation of unjust and discriminatory personal laws. Such provisions of the personal laws must go.

3) **Bottom-Up Reform:** Since each religious group has cultural autonomy, it is argued that the community should itself come forward to seek reforms by identifying the discriminatory and oppressive issues.

4) **Prevent Threat Perception among Communities:** When a community feels threatened in any way, community allegiance becomes much stronger. Therefore, the Law Commission should be accommodative and not contribute to the rise of reactive culturalism amongst different communities in India.

The Law Commission should strike a fine balance as it should aim to eliminate only those practices that do not meet the benchmarks set by the Constitution.

GS Paper 2

Subject: Indian Polity

Topic: Issues and challenges pertaining to the federal structure

On the Issues with Fiscal federalism

News: The article discusses the issues with fiscal federalism in India and suggests a way forward for the same.

Background:

The governments of some states in South India have objected to their share of taxes and the Union government's implementation of fiscal federalism.

Read more - [Fiscal Centralization in India – Explained Pointwise](#)

What are the issues with fiscal federalism in India?

- 1) **Disparity in Revenue Shares:** There are growing disparities between what is paid by states into the exchequer and what is received by some states. This is the complaint of southern states that they are taxed too much compared to poorer and more populous states.
- 2) **Rising Cesses and Surcharges:** In recent years, the sharp growth of cesses and duties (which are not part of the divisible pool of taxes), has led to an expansion of the resources available to the Union at the expense of those of the states.
- 3) **Conditional Transfers:** The Union government also attaches conditions to transfers on account of developmental schemes.

What should be the way forward?

- 1) **Political Solutions:** It must be addressed through skillful coalition building among the governments.
- 2) **Reduction of Borrowing Constraints on States:** The Union government should revisit the borrowing constraints placed on state investment funds, as suggested by Kerala.
- 3) **Reduction in Cesses and Surcharges:** The Union government should reduce the degree to which it uses cesses and duties to expand its share of tax collections.
- 4) **Minimise the discretionary aspect of transfers to states:** Some of these transfers can be made automatic. For other transfers, clear and non-discriminatory methods should be followed.

According to the author, the larger problem of the issues with fiscal federalism can be addressed only through political give and take. Given India's developmental needs, it is important that relations between the Centre and states are cordial.

Topic: Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies

The new process for picking Election Commissioners, what led to it

News: The article discusses the issues with the earlier process of appointing Election Commissioners and the Supreme Court's ruling regarding this. It also highlights issues with the current method of appointment.

A detailed article on **Appointments to the Election Commission** can be [read here](#).

Background:

The new Election Commissioner will be picked through a consultative process being adopted for the first time after a Supreme Court verdict and a new law.

What were the issues with the earlier process of appointing Election Commissioners?

1. The power to make appointments rested exclusively with the Executive (the Union government).
2. **Article 324(2)** specifies the President's role in appointing Election Commissioners, with the caveat that this appointment is subject to any law passed by Parliament. However, governments had not enacted such a law. Thus, the current appointment system was opaque and raised doubts about the institution's independence.

What was the Supreme Court's ruling regarding this?

The Court observed that it was evident that the founding fathers of the Constitution did not want the Executive to have exclusive authority in appointing Election Commission members.

It ruled that "the appointment shall be made on the advice of a Committee consisting of the PM, the Leader of the Opposition of the Lok Sabha (or the leader of the largest opposition Party in the Lok Sabha in terms of numerical strength), and the CJI."

However, the Court was careful to specify that these norms were "subject to any law to be made by Parliament".

What have been other recommendations in this regard?

- 1) **Dinesh Goswami committee:** It had recommended that the President consult the CJI and the Leader of the Opposition, or the leader of the largest Opposition group, for appointing the Chief Election Commissioner. For the other two Election Commissioners, the consultation was to involve the CJI, the Leader of the Opposition, and the Chief Election Commissioner.
- 2) **Law Commission's 255th report:** It suggested that a 3-member collegium or selection committee, comprising the PM, the Leader of the Opposition or the leader of the largest Opposition party in the Lok Sabha, and the CJI should be consulted.

What is the current procedure because of the SC judgment?

The Centre introduced a Bill in Parliament last year which establishes a **committee** comprising the **Prime Minister**, the **Leader of Opposition in the Lok Sabha**, and a **Cabinet Minister** nominated by the PM.

The selection will be made from 5 names shortlisted by a screening panel headed by the Law Minister and comprising 2 Union secretaries.

What issues remain plague the new appointment process?

The appointment process raises concerns regarding its potential to undermine the reforms sought by the Court. For instance, the proposed committee's composition effectively sidelines the Leader of Opposition, who could be consistently outvoted by the PM and the union minister.

Subject: Social Justice

Topic: Mechanisms, laws, institutions and bodies constituted for the protection and betterment of vulnerable sections

SWATI Portal to address gender imbalance in Indian Science

New: The article discusses efforts to reduce gender gaps in Indian science. It mentions the launch of SWATI on February 11, a portal aiming to list every woman in Indian science. It also highlights past initiatives and policies to support women in STEM fields.

What are India's past efforts to address gender imbalance in Indian science?

2004 INSA Report: The Indian National Science Academy's report was a pioneering effort, being the first government-supported document to discuss the gender gap in STEM fields. It highlighted discrimination based on gender and caste in the workplace.

2008 Initiatives:

Lilavati's Daughters: The Indian Academy of Sciences (IASc) released this compendium to showcase the achievements of women scientists.

National Conference: Organized by a Department of Science and Technology task force, it included over a thousand women scientists. Significant promises were made by then Science Minister Kapil Sibal, including flexible working hours, in-house creches, and research grants for women scientists. However, the committee for implementing these measures was not successful.

2010 IASc Report: This report, by a team of sociologists and scientists, focused on why women scientists leave academia. It revealed that while men mostly blamed family and sociocultural factors, women pointed to a lack of opportunities and organizational barriers.

Recent Progressive Policies: The **Gender Advancement for Transforming Institutions (GATI)** charter and the draft **Science, Technology and Innovation Policy (STIP) 2020** have adopted more inclusive and progressive language. These policies consider factors like caste, transgender identity, and gender-neutral parental leave, showing an evolution in approach.

SWATI Portal Launch in 2024: SWATI, launched on February 11, 2024, is a portal aimed at listing all women in science in India. It was first announced in 2021 but only recently became active.

What is the significance of SWATI Portal?

1. **Comprehensive Database:** SWATI aims to list every woman in Indian science, creating a unique and extensive database.
2. **Inclusivity:** It includes all non-male genders, recognizing diversity in the scientific community.

3. **Breaking Barriers:** By not limiting to those with PhDs, SWATI acknowledges various capacities in which women contribute to science.
4. **Increased Visibility:** The portal can enhance visibility and representation of women in STEM fields.
5. **Step Towards Equality:** SWATI represents a significant effort towards addressing the gender gap in Indian science, promoting more equitable participation.

Way forward

For a better future, India needs to fully implement existing promises like flexible work hours and support for women in science. It's crucial to involve women in creating policies and recognize broader issues like caste and transgender identity, as in recent policies. The SWATI portal should be used effectively to support and connect all women in science.

Subject: International Relations

Topic: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests

Qatar Releases Indian Navy personnel who faced death row

News: The article discusses the returning of the Indian Navy personnel earlier sentenced to death in Qatar.

Background:

Recently, the eight Indian Navy veterans who had been in Qatari custody since August 30, 2022 were released.

Earlier, the men were given the death penalty by a lower court in Qatar on October 26, 2023. Subsequently, a court of appeals in Doha struck down the death penalty on December 28.

For more on this issue, [read here](#).

What is the significance of this event?

To bring citizens back home while ensuring that the growing economic and strategic ties between India and Qatar are not derailed in the process, is a good achievement of India's foreign policy. The episode shows how deep and broad bilateral ties have become.

What does this episode show in terms of India's foreign policy?

1. **Improving Relations with Gulf Countries:** India has moved on from its earlier stance of viewing the Middle East only through the prism of Pakistan or Israel-Palestine. This has resulted in strengthening of India's bilateral relations in the Gulf.
2. **Energy Cooperation:** Qatar is a major supplier of energy to India. The two countries have signed a **\$78 billion LNG deal** that extended an existing agreement on supply of liquefied natural gas till 2048.
3. **Indian Diaspora and Remittances:** At least 8 lakh Indian workers are employed in the Gulf country which continues to be a major source of foreign remittances to the Indian economy.

What are the challenges?

- 1) **Points of Contention with Qatar:** These include the anti-India propaganda from Qatar-based media outlets and support for religious radicals in India.
- 2) **Prisoners in Gulf Countries:** Both the United Arab Emirates and Qatar hold around 3,000 Indian prisoners in their prisons and the prisons in the Gulf region hold more than half of the total Indian prisoners in foreign jails.

On Strengthening of India's Ties with the Gulf

News: The article discusses the achievements of India's diplomacy in the Gulf. It also mentions the factors behind the transformation of India-Gulf relations.

Background:

The Prime Minister is on a visit to the United Arab Emirates and Qatar.

What have been the achievements of India's diplomacy in the Gulf?

1. **Inauguration of the BAPS temple in Abu Dhabi:** A large Hindu temple would be built in the deeply Islamic and conservative Arabian peninsula with full state support.
2. **Release of 8 Indian ex-naval personnel by Qatar.**

What are the factors behind the transformation of India-Gulf relations?

- 1) **Diplomatic Effort:** For a long time, the Middle East did not figure in the political priorities of Indian diplomacy. However, since 2014, PM has travelled 15 times to the Middle East. Developing a personal connection with the emirs was also undertaken.
- 2) **Political Efforts:** Earlier India showed little interest in Arab political and economic life. That has changed through the setting up of the I2U2 group in 2022 and the India-Middle East-Europe Economic Corridor.
- 3) **Dropping the Religious Lens in Diplomacy:** Earlier, there was an overestimation of the religious factor binding the Gulf and Pakistan, and an underestimation of the depth of goodwill in Arabia for India and the desire for greater cooperation. This approach has been discarded.
- 4) **Strategic Economic Cooperation:** India's focus in the past was on oil purchases, labour exports, and hard currency remittances. The potential of the Gulf to accelerate India's economic growth has now started receiving attention. This has opened unlimited possibilities for long-term economic partnerships with India.
- 5) **Defence Collaboration:** The Gulf countries are trying to diversify their defence partnerships amid the shifting regional geopolitics and are looking to India to act as a regional security provider. The scale and scope of India's military exchanges with the Gulf have grown.

A privileged strategic partnership-India and U.A.E.

News-The article highlights the robust bilateral relationship between India and U.A.E.

Context- Prime Minister Narendra Modi will pay **visit** to the United Arab Emirates (UAE) from February 13-14, 2024, to **inaugurate** a temple in Abu Dhabi.

What is the status of India-U.A. E relations?

The upcoming visit will be the Prime minister's **seventh visit** to the UAE since 2015 and the third in the last eight months. Further, UAE President was felicitated in a road show when he was in Gandhinagar in January

this year as the chief guest of the **10th Vibrant Gujarat Summit**.

In this short duration, India's relationship with UAE has evolved into becoming one of the most **prominent bilateral relationships** for New Delhi.

What are the Areas of cooperation between India-U.A.E. relationship?

1) **Strategic cooperation**-a) India is a part of a number of important groupings such as **the I2U2 or the West Asian Quad comprising India, Israel, the United States and the UAE**.

b) The UAE is also part of the **India-Middle East-Europe Economic Corridor (IMEEC)** infrastructure project that was signed during the G-20 summit in Delhi. This is aimed to counter **China's Belt and road** initiative in the region.

2) **Energy cooperation**- The UAE is **only nation** from the gulf region which has strategic **oil reserves stored** in India. An agreement was signed by Indian Strategic Petroleum Reserves Ltd (ISPRL) and the Abu Dhabi National Oil Company to invest in the strategic crude oil storage facility in Mangaluru.

3) **Economic cooperation**-

a) The UAE is India's **third-largest trading partner** and India's **second-largest export destination**. The bilateral trade between the two countries grew to \$85 billion in 2022-23.

b) The UAE is also the **fourth-largest overall investor** in India.

c) The **India-UAE Comprehensive Economic Partnership Agreement** aims to increase trade in services to \$115 billion in five years.

d) The Indian government has also approved the signing and ratification of a **bilateral investment treaty** with the UAE.

4) **Technical cooperation**- India and U.A.E. have a robust **financial technology** cooperation. For example-

a) The **RuPay card**, a key component of India's Digital Public Infrastructure (DPI), is accepted in the UAE.

b) From July 2023, the **rupee** was accepted for transactions at **Dubai's airports**.

c) India and the UAE have operationalized a **rupee-dirham settlement system** where the Indian Oil Corporation made a rupee payment to the Abu Dhabi National Oil Company for crude oil imports.

5) **Climate change cooperation**-PM Modi attended the COP 28 climate summit held in Dubai. To address the issue of finance, India and the UAE co-launched the **Global Green Credit Initiative**.

What are the areas of divergence between India and U.A.E.?

1) There are challenges like **unclear regulations, labour laws** and transparency faced by Indian businesses' in U.A.E.

2) The UAE and Iran have **territorial disputes** between them. Any escalation in this will affect India's **trade and energy security**.

3) The UAE is home to a large number of Indians. There are so many blue-collar workers and **manual laborers** as well. They face many issues such as **terrible working and living conditions**, and **discrimination** in treatment vis-a-vis other workers.

India and UAE display great convergence and **mutual respect** at all levels. There are certain divergences, but those exist even among the **best of friendly nations**.

Topic: India and its neighborhood

On the Importance of Indian Ocean for India

News: The article discusses the historical importance of the Indian Ocean for India. It also highlights why focusing on the Indian Ocean is important for India in current times.

What was the reason for the large historical contribution of India to global economy?

India had been the largest economy in the world in the first millennium with a share of almost **33% of the world's GDP**. According to the author, this was not due to its population size (as claimed by some experts), but because of the control of Indian rulers over the oceans at that time. They had developed powerful **merchant and military navies** and established **trade with the Arabs** in the West and into **South China Sea territories**, crossing the Malayan Peninsula in the East.

What are the historical references with regard to the importance of the Ocean?

- 1) **Sea-Trading Communities and Kingdoms:** Sea traders of south India like Manigramam Chettis and Nanadesis, and Kings like the Andhras, Pallavas and Cholas were prominent players.
- 2) **Maritime Administration:** Kautilya's Arthashastra talks about the functions of officers like port commissioners and harbour masters.
- 3) **Separate Shipping Department:** The Board of Shipping was one of the six important departments of the Mauryan empire.

What led to a decline in India's dominance of the seas?

According to the author, a lack of attention to the seas led to an eventual decline of India's dominance of the seas.

- 1) **British Era:** The British didn't develop a strong blue-water presence during their rule over India. The Royal Indian Navy was small for a country of India's size.
- 2) **Post-Independence Era:** The lack of attention to the seas continued, with the governments giving **greater priority to land-based warfare**. India declined in areas like shipbuilding and naval vessels. For instance, Indian Navy has less than 200 combat vessels (US has 400 and China has 500).

Why is focusing on the Indian Ocean important for India?

The Indian Ocean is the world's 3rd-largest ocean. Its maritime trade routes manage almost 70% of the world's container traffic.

Importance for India:

- a. **Trade Route:** 80% of India's external trade and 90% of the energy trade happens through it.
- b. **Prominence of the Indo-Pacific in Geopolitics:** The global power axis has shifted away from the Pacific-Atlantic to the Indo-Pacific in India's neighbourhood now.
- c. **Civilisational Importance:** It carried India's cultural and civilisational imprint across its shores and created a vast sphere of India's civilisational influence.

What recent steps have been taken by the government in this regard?

7th Indian Ocean Conference: It seeks to address non-traditional challenges common to nations of the region, such as climate change, ocean levels, natural disasters and supply chain disruptions.

Topic: Important International institutions, agencies and fora- their structure, mandate

India could help shape a whole new global consensus

News: The article discusses the events shaping global geopolitics and the role India can play in evolving a new global consensus.

Read about **India at Davos 2024** [here](#).

World leaders had expected an economic order shaped by hyper-globalization - a world where conflicts would become marginal thanks to increased economic interconnectedness, global identities, and where global institutions would effectively mediate inter-state challenges.

But today's world is being shaped differently by the forces of geopolitics in various ways.

What are the events shaping global geopolitics today?

- a. **Ukraine war**
- b. **Israel-Hamas conflict**
- c. **Threats to sea-lanes** that are critical for global trade.
- d. **China challenge**
- e. **Strategic ties between the West and China** are destabilized.
- f. **Pandemic and its aftermath:** It has alerted nations to the need for self-reliance in critical sectors and minimal exposure to supply chains overseas.
- g. **Disenchantment with globalisation:** Energy prices have gone up, with hopes of a global economic recovery again doubtful.
- h. **Rising Prominence of the Global South:** It is the Global South that is likely to drive global growth in the coming years, with India being one of the top performers.

It is, therefore, imperative for the developing world to have this reality better reflected in the agenda of platforms such as the World Economic Forum.

How is India better placed to provide leadership?

- 1) **India's Rising Stature:** India is in a geopolitical and geo-economic sweet spot. The developed world looking inwards, and China's aggressiveness has led to a leadership vacuum that needs to be filled.
- 2) **Significant Presence at Davos Summit:** India's significant presence at Davos this year underlined India's willingness to project its growing economic heft, innovation and tech.
- 3) **Trust-based Relations:** India's ability to craft trust-based partnerships with multiple players at the same time is a sign of its self-confidence and the trust of others to bet on India at a time of geopolitical turmoil.

From climate and energy transitions to the regulation of artificial intelligence, the role of the Global South and nations such as India should be critical. India should evolve a new consensus that could challenge the old Davos Consensus.

GS Paper 3

Subject: Indian Economy

Topic: Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment

Avoiding the Middle-Income Trap

News: The article discusses the reasons for countries getting stuck in the Middle-Income Trap. It also highlights the characteristics of High-Income countries and India's status on those parameters.

A detailed article on the **Middle-Income Trap** can be [read here](#).

What are the future projections for India's income levels?

In 2018, the government set a target of achieving a gross domestic product (GDP) of \$5 trillion by 2025. This mark looks likely to be crossed by 2027.

In per capita terms, a \$5 trillion GDP means \$3,600- 3,700 per capita, which is categorised as "lower-middle income" by the **World Bank** (between \$1,136 and \$4,465). "Upper-middle income" is \$4,466- \$13,845, and anything above is considered "high income".

India should become an upper-middle income country by around 2030. However, many nations get stuck within that income band for decades, and some never become high-income.

What are the reasons for countries getting trapped in upper-middle income levels?

1. **Base effect:** This leads to a mathematical slowdown due to a larger base (reference).
2. **Slower Productivity Gains:** Growth also tends to slow since productivity gains become more difficult.
3. **Demographic Factors:** By the time countries hit the high end of upper-middle income, population growth is low, and the workforce is older and smaller.

What are the characteristics of High-Income countries and India's status on those parameters?

Characteristics of High-Income Countries	India's situation
1) Highly educated populations and educational systems, which help improve productivity.	Most of the workforce has less than 10 years of schooling.
2) Good laws and law enforcement, which leads to a safe physical and legal environment.	India has a continuous undercurrent of violence. For instance, Kashmir, Manipur, Chhattisgarh. This can lead to internet shutdowns, which cripple the digital economy.
3) Easily understood, moderate tax codes, applied fairly by honest officials.	India has complicated tax and commercial codes, and corruption is also a prevailing issue.
4) Reasonably good social security provisions.	India has some welfare outreach but low spends on healthcare.
5) Almost all high-income countries are high-end democracies.	India is classified as "Partially Free" and its democracy rankings have deteriorated.

6) Freely convertible currencies.	Due to tight currency controls, we don't have a freely convertible rupee.
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What should be the way forward for India?

1. **Improving Female Labour Force Participation:** India is seeing lower population growth rates. However, India has very low female labour force participation. Hence, it can expand the workforce by inducing more women to work.
2. **Changing the Business Environment:** A huge legislative and administrative effort to change the business environment of India will be required.
3. **Improving Democracy Rankings:** Pushing India back up to a "free" status in democracy rankings would also be required.

On the Issues with Services-led Export Strategy

News: The article discusses the issues with services-led export strategy. It also highlights steps that should be undertaken in order to augment India's manufacturing sector exports.

India's economic growth has been led by robust consumption, with net exports acting as a drag. The share of private consumption to GDP growth has been at **55.6%**, while that of net exports has been at **-9.8%** for the past 2 decades ending 2023-24.

In this context, a suggestion is made that India should focus primarily on **high value-added services** rather than **low-value-added manufacturing exports** to boost its exports.

What is the sector-wise performance of India's economy?

- 1) **Rise in Share of Manufacturing:** In the last decade, the share of manufacturing in India's real GDP moved up from 17.3% to 17.7%. India's manufacturing exports comprise 34% of total goods and services exports.
- 2) **Decline in Share of Agriculture:** The share of the agriculture sector declined from 16.5% to 14.4%.
- 3) **Rise in Share of Services:** The services sector rose from 51.1% to 54.6%. India's service exports comprise 42% of total goods and services exports.

What are the issues with a service-led export strategy?

According to the author, service exports can't be an engine of growth due to the following reasons:

1. **Deepen the Formal-Informal Divide:** India's labour market has a large informal component. Increasing service exports will harm the low-skilled workers at the lower end of the manufacturing value chain and thereby deepen the divide.
2. **Mass Employment Generation:** Manufacturing sector employment in India is **11.7% of total employment**. This is lower than in developing countries like Vietnam (21.4%) and China (28.7%). Thus, manufacturing-sector growth is required to generate mass employment.

Thus, according to the author, Indian policy can't afford to focus on service exports at the cost of our current employment-oriented manufacturing thrust.

What should be the way forward for India regarding manufacturing sector exports?

- 1) **Take Advantage of Comparative Advantage:** India enjoys a comparative advantage in the case of textiles and clothing, consumer goods, chemicals, footwear, ores and metals.

2) **Favourable Policymaking:** Policies such as 'Make in India' initiative, Production Linked Incentive scheme, Stand-up India, Startup India, National Logistics policy, PM MITRA, FAME India, etc. can transform the manufacturing sector.

3) **Focus on Labour-Intensive Sectors:** The share of low-skill manufacturing exports (leather, textiles, etc.) in overall exports is declining. This should be increased.

4) **Focusing on Services subsectors:** Wholesale and retail trade, and transportation and storage sectors contribute the most to value added in manufacturing exports. Those components of service exports should be focused upon, so that manufacturing exports also benefit.

On the Positive Signs for Indian Economy – India is well on its way to becoming Viksit Bharat

News: The article discusses the monetary and fiscal policies that point to a phase of steady growth and moderate inflation in the future for India.

A detailed article on **Interim Budget 2024** can be [read here](#).

According to the author, monetary and fiscal policies have put in place conditions for a phase of steady growth and moderate inflation. The Interim Budget has focused on infrastructure development, innovation and connectivity which will lead towards a Viksit Bharat.

What are India's economic projections as per the [Monetary Policy Committee \(MPC\)](#)?

- 1) The forecast for GDP growth in 2024-25 has been kept at 7%.
- 2) The projection for Headline inflation has been reduced to 4.5%.

What are the development and regulatory policy changes announced by the MPC?

- 1) **Information Sharing:** RBI has extended the requirement of the Key Fact Statement (which includes information on interest rates and the financial commitment associated with a loan) to cover all retail and MSME loans and advances. This will empower customers to make informed decisions about their borrowing.
- 2) **Technology Initiative for Payment Authentication:** A "Framework for authentication of digital payment transactions" will be explored. Along with this, enhancing the robustness of the [Aadhaar Enabled Payment System \(AePS\)](#) will be undertaken. These initiatives will help in preventing digital frauds.
- 3) **Adoption of CBDC:** Changes proposed in the Central Bank Digital Currency could help people onboard into the CBDC architecture.

What are the positive signs for the Indian economy?

- 1) **Rise in Capital Expenditure:** As per the interim budget, the overall allocation for capital expenditure is equivalent to 5.6% of GDP and implies a growth of around 13%.
- 2) **Lower Primary Deficit:** It is expected to lower by 80 basis points to 1.5% of the GDP in FY25. In FY21 the primary deficit was more than 5% of the GDP.
- 3) **Debt Reduction:** Public debt as a percentage of the GDP has also reduced and is expected to decline by 90 basis points in FY25 from its level of 58.1% in FY24.
- 4) **Reduction in Fiscal Deficit:** If growth and inflation move along expected lines, the fiscal deficit will be lower than the 5.1% target.

What are the positive signs for the Rural economy?

- 1) **Infrastructure Development:** Significant improvements in physical (road/rail) infrastructure is ensuring seamless last mile connectivity. The integration of cities, urban centres and satellite nodes with far flung rural areas will have to be accounted for in calculating rural demand.
- 2) **Rising Rural Wages:** Median wages of rural labourers during FY14-FY23 (November) have shown a rising trend.
- 3) **Lakhpati Didi Initiative:** The target of increasing the lakhpati didi numbers through the 8.3 million plus self-help groups in the recent budget is also a positive sign for the rural economy.

Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

India's dependence on external oil suppliers -Ensuring energy security

News: The article explains that the International Energy Agency (IEA) predicts a rise in global oil demand by 2030. India will be the main driver of this demand.

What are the major findings of the International Energy Agency (IEA)?

The IEA projects global crude oil demand to grow up to the year 2030. India is projected to be the largest driver of this demand growth.

India's oil consumption is expected to increase by almost 1.2 million barrels a day from 2023 to 2030.

This increase accounts for about one-third of the total global crude oil demand growth.

The total global increase in crude oil demand is expected to be about 3.2 million barrels a day over this period.

By 2030, India's oil consumption is projected to reach 6.6 million barrels per day.

What are the concerns for India's dependence on external oil suppliers?

1. **Economic and Security Vulnerability:** India's reliance on external oil suppliers poses a significant risk to its economy and security. Fluctuations in global oil prices can severely affect India's external accounts and fiscal situation.
2. **Inflation and Slowed Growth:** High oil prices can drive up inflation, slow economic growth, and lead to political unrest.
3. **Geopolitical Tensions Affecting Supply Chains:** Fossil fuel supply chains are vulnerable to geopolitical tensions, particularly in West Asia.

What should be done?

1. **Increase Domestic Oil Exploration:** India should focus on discovering and exploiting domestic oil resources to reduce dependence on external suppliers.
2. **Encourage Private Investment:** The government should incentivize private sector investment in oil exploration within the country.
3. **Expand Overseas Operations:** Indian oil companies should be encouraged to operate in foreign countries to secure additional oil supply.
4. **Support Renewable Energy:** Accelerating the installation of solar and wind power capacity will help diversify India's energy sources and reduce oil dependency.
5. **Address Policy Issues:** Policy efforts should prioritize moderating investor risk and maximizing long-term benefits over short-term revenue generation.

6. **Financial and Diplomatic Support:** India should provide financial and diplomatic support to secure its crude oil supply chain, both domestically and abroad.

India's renewable energy (RE) status-Renewable power, when it isn't sunny or windy

News: The article discusses India's efforts to increase its renewable energy capacity to 500 GW by 2030, focusing on solar and wind energy.

What is India's renewable energy (RE) status?

India aims to achieve 500 GW of renewable energy by 2030. So far, 72 GW of solar and 44 GW of wind energy have been installed.

Peak power demand is projected to grow from 240 GW in FY24 to 285 GW in FY28, with deficits of 10-15 GW, mainly in the evenings.

What challenges has India faced in achieving its renewable energy (RE) goals?

1. **Energy Demand Fluctuations:** The country faces fluctuations in demand across different seasons and times of the day, especially peaking in the evenings, requiring a more dynamic energy supply system.
2. **Storage Capacity Constraints:** Adequate storage solutions like batteries and pumped hydro are crucial but currently insufficient, impacting the ability to balance supply with varying demand.
3. **Infrastructure Development Needs:** Building sufficient infrastructure, including transmission systems, is essential to support the expanding renewable capacity.
4. **Reliance on Long-Term PPAs:** The reliance on 25-year power purchase agreements (PPAs) with state discoms is noted. These long-term agreements are crucial for financial stability in renewable projects but may limit flexibility in responding to changing market conditions.
5. **Discoms' Reluctance:** Some reluctance from discoms to fully embrace 'must run' renewable energy. This hesitation can impact the seamless integration and consistent utilization of renewable energy sources into the national grid.

What initiatives has India taken for achieving its renewable energy (RE) goals?

1. **Implementing 'Must Run' Status:** Renewable energy projects, particularly solar and wind, have been accorded a 'must run' status, ensuring their continuous operation except in case of safety issues.
2. **Supportive Government Policies:** Introduction of favorable policies such as late payment surcharge waivers, inter-state transmission system charge waivers, and renewable purchase obligations to boost renewable energy growth.
3. **Increased Competition and Foreign Investment:** The renewable sector has seen a rise in competition among **Independent Power Producers (IPPs)** and an **influx of foreign investments**. This influx of competition and capital boosts innovation, leading to more efficient, cost-effective renewable energy solutions.
4. **Development of Power Exchange Markets:** India is developing power exchange markets to efficiently manage excess renewable energy. These markets enable the sale of surplus power, balancing supply and demand. This not only ensures grid stability but also enhances the financial viability of renewable energy projects.
5. **Innovative Bidding Processes:** Recent bids require renewable energy generators to match hourly demand, enhancing the reliability and comparability of renewable energy to traditional power sources. For instance, in the recent firm and dispatchable RE (FDRE) bids invited by SECI, generators are required to match round the clock (RTC) demand of discoms on a 15-minute basis.

What should be done?

1. **Enhance Storage Capacities:** Increase investment in **storage solutions like batteries and pumped hydro** to manage the intermittency of solar and wind energy.
2. **Strengthen Grid Infrastructure:** Develop robust grid infrastructure to support the increased load from renewable sources and ensure efficient energy distribution.
3. **Promote Diverse Renewable Sources:** Combine different renewable sources, like solar and wind, with storage to provide a more consistent energy supply.
4. **Support Discoms in Transition:** Assist discoms in integrating renewable energy into their systems, ensuring smoother adoption and operation.

Topic: Changes in industrial policy and their effects on industrial growth

India's mobile phone industry-Mobile PLI

News: This article discusses the growth of India's mobile phone industry due to government policies like tax cuts and incentives. It covers the industry's challenges, dependence on imports, and possible future scenarios, including developing local manufacturing and becoming a global player.

What is the current state of India's mobile phone industry?

1. India's mobile phone sector has grown significantly, with exports nearly doubling from \$7.2 billion in 2022 to \$14 billion in 2023.
2. One in four phones produced in India is now exported.
3. The government's reduction of import tariffs on certain mobile phone components from 15% to 10% aims to further bolster this growth.

How have government policies impacted India's mobile phone industry?

Three key government decisions have boosted the industry:

1. A 20% import tax on mobile phones to reduce imports.
2. Lower import taxes on components, ranging from 0-10%, created tax arbitrage, attracting manufacturers to produce locally.
3. The introduction of the Production Linked Incentive (PLI) scheme, offering 4-6% cash incentives based on incremental production, further stimulated the industry.

What are the challenges in India's mobile phone industry?

1. **High Production but Low Investment:** The industry has produced mobile phones valued at ₹4.12 trillion with a relatively low investment of only ₹7,400 crore. This indicates that for every rupee invested, ₹55 is generated in production, suggesting a focus on assembly rather than comprehensive manufacturing.
2. **Reliance on Incentives:** There's a concern about the industry's reliance on government incentives like the PLI scheme. Many manufacturers might reduce or stop production once these incentives are withdrawn, indicating a lack of long-term sustainability.
3. **Dependency on Imported Components:** The industry heavily depends on importing high-end components, which is a significant vulnerability.

4. **Past Instances of Disruption:** Examples like Nokia, which faced major tax disputes and labor issues leading to the closure of its plant, show the potential for regulatory and labor challenges within the industry.

What are the potential growth scenarios of India's mobile phone industry?

1. **Continuation of Current Trends:** India might keep extending incentives like the PLI scheme and further reduce import duties. But this would uphold high production and export figures but wouldn't greatly advance manufacturing depth or technological prowess.
2. **Potential Disruption:** There's a risk that major mobile phone companies could cease their operations in India if they find more attractive incentives elsewhere. A crucial factor that could disrupt the industry is the potential compliance with a World Trade Organization (WTO) ruling that may require India to reduce its mobile phone tariffs from 20% to zero, challenging the existing tax benefits that have been boosting local manufacturing. Additionally, India's heavy reliance on China for essential mobile phone components could be a significant vulnerability.
3. **Development of a Local Component Ecosystem:** The most sustainable growth scenario involves following Nokia's example to foster a local ecosystem for component manufacturing. By incentivizing companies to produce key components locally, India could reduce import reliance and aim to become a global supplier in specific high-value areas, thereby achieving a more robust and self-sufficient industry.

On Building a Robust Manufacturing Sector – India's true manufacturing rival is Vietnam, not China

News: The article discusses the steps India should take in order to build a robust computer and electronics manufacturing industry.

Background:

The US recently appealed India to make the business environment easier and transparent or risk losing foreign direct investment. Earlier, Japanese Foreign Minister also requested cooperation to improve the investment environment in India.

This is a reflection of the fact that many countries want India to succeed economically in order to build a viable alternative to China.

What should India do to build a robust computer and electronics manufacturing industry?

- 1) **Export-Driven instead of Focusing on the Domestic Market:** Instead of concentrating on the domestic market, it should become regionally competitive and export-driven. A domestic market alone isn't enough to sustain large and complicated electronics supply chains.
- 2) **Recognising Competition:** India should remember that it doesn't hold a monopoly over business migration away from China. Countries, particularly Vietnam and others such as Mexico, Thailand, Indonesia and Czech Republic are also in competition in the computer and electronics sector.
- 3) **Cutting Import Duties:** For more than **85% of the tariff categories within electronics**, India's duties are higher than its competitors. These high import duties lead to companies catering to local consumers but makes them less competitive in the export market. Hence, cutting import duties should be a priority.
- 4) **Provide Other Incentives:** These include tax breaks, dedicated free-trade or industrial zones, discounted utilities like water and electricity, free land and commitments to supply workers.

What has the govt done in this regard?

The government recently reduced tariffs on a range of imported components, including battery covers, lenses, antennae and mechanical parts to 10% from 15%.

India should understand that it's competing for investment to drive export manufacturing, and that its business environment doesn't compare well with regional rivals like Vietnam.

Challenges with India's service-driven growth - Why India needs deep industrialization

News: The article discusses India's struggle with industrial growth and high unemployment. It critiques the focus on high-skill, service-based growth, arguing it increases inequality and neglects mass education, which is essential for successful industrialization and overall economic development.

What are the factors affecting India's industrial growth?

1. **Stagnant Manufacturing Sector:** Manufacturing has consistently been below 20% in output and employment for 75 years.
2. **Ineffective 1991 Reforms:** These reforms, aimed at labor-intensive industrialization, failed to significantly boost the manufacturing sector.
3. **High Unemployment:** Persistent unemployment issues, including chronic disguised unemployment, reflect industrial challenges.
4. **Widening Trade Deficit:** Driven by an increase in imported goods, indicating a lack of domestic manufacturing capacity.
5. **Shift to Service-Based Growth:** Since the late 1980s, the focus has been on high-skill, service-driven growth, which hasn't absorbed labor from agriculture effectively.
6. **Neglect of Mass Education:** Emphasis on higher education at the expense of mass schooling has led to a workforce not adequately equipped for industrial jobs.
7. **Cultural Impact on Industrial Growth:** Cultural factors, such as the undervaluing of certain vocational skills (like electrical and welding work), have hindered the development of the manufacturing sector.

Why is deep industrialisation important for India?

1. **Broad-based Employment:** Deep industrialization offers more employment opportunities, absorbing labor from sectors like agriculture, unlike the limited absorption capacity of service-driven growth.
2. **Economic Stability:** A strong industrial base can lead to more stable economic growth and reduce dependence on imports, addressing India's widening trade deficit.
3. **Skill Development:** Industrial growth encourages the development of a wide range of skills, benefiting from a focus on both vocational and higher education.
4. **Innovation and Efficiency:** Deep industrialization fosters innovation, leading to increased efficiency and competitiveness in the global market.

What are the challenges with India's service-driven growth?

1. **Limited Employment Absorption:** Service-driven growth since the late 1980s couldn't adequately absorb labor exiting agriculture, unlike manufacturing.
2. **Requirement for High Skills:** The service sector demands a highly skilled workforce, which India struggles to supply due to educational inequalities.
3. **Increased Inequality:** Service sector growth leads to higher inequality. The Gini index for regular wages in services is 44, compared to 35 in manufacturing.

4. **Neglect of Mass Education:** A focus on higher education over mass schooling contributed to a workforce ill-equipped for service sector jobs.
5. **Elite Dominance:** Higher education institutions fostered elites who advanced in the IT sector but contributed to stagnation in broader industrial areas.
6. **Limited Rural Entrepreneurship:** Compared to countries like China, India's poor human capital endowment in rural areas hampers entrepreneurship, crucial for service sector growth.

What should be done?

1. **Diversify Industrial Strategy:** Instead of solely focusing on high-skill, service-driven growth, India should diversify its industrial strategy to include and boost manufacturing.
2. **Address Educational Inequality:** Tackling the disparity in education quality between rural and urban areas, and among different social classes, is vital to creating a more equitable and capable workforce.
3. **Support Rural Entrepreneurship:** Encouraging entrepreneurship in rural areas can help absorb labor from agriculture and contribute to more balanced economic growth.
4. **Cultural Shift in Work Value:** Cultivating a culture that respects and values all forms of work, including manual and vocational labor, is essential for comprehensive industrial development.

Topic: Government budgeting

India's Research and Development spending - R&D spend

News: The article discusses India's plan to set up a ₹1 lakh crore fund for long-term (fifty year), interest-free loans to boost private sector research and innovation, especially in new and important sectors (sunrise domains).

What is the current status of India's Research and Development spending?

India's overall research and development (R&D) spending in 2020-21 was ₹1.27 lakh crore.

The private sector's contribution was 36.4% of the **National Gross Expenditure on R&D (GERD)**. In comparison, the central government contributed 43.7%, state governments 6.7%, higher education 8.8%, and public sector industry 4.4%.

Despite absolute increases in R&D spending (from ₹1.1 lakh crore in 2009-10 to ₹1.27 lakh crore in 2020-21), as a percentage of GDP, it declined from 0.82% to around 0.64%.

In the more technologically advanced countries, GERD accounts for at least 1% of GDP. Even Brazil (1.16%) and South Africa (0.83%) have a higher GERD-to-GDP ratio.

What models of Research and Development have other countries followed?

1. **United States:** Adopted **Vannevar Bush's model** focusing on fundamental research to drive technological growth. This approach has been a cornerstone of the U.S.'s post-war innovation strategy.
2. **Japan and South Korea:** Followed a **"techno-nationalist"** path since the late 20th century. This model emphasizes building interconnectedness among universities, research institutes, companies, and governments. It's aimed at fostering a collaborative environment for technological advancement.
3. **Germany, South Korea, and the United States:** Notably high private sector contributions to R&D, with percentages of national GERDs being 67%, 79%, and 75%, respectively, illustrating a **strong private-sector-led R&D model**.

Why is increasing public sector Research and Development important?

1. **Improving Research Quality:** Increasing public sector R&D, especially at the state level, is crucial for enhancing the quality of research facilities in state universities. This helps researchers focus on locally relevant problems.
2. **Bridging Lab to Market:** Higher public sector investment in R&D can help overcome the bottleneck of transitioning research from the lab bench to practical, market-ready applications, fostering innovation.
3. **Stewarding Long-term, Risk-laden Innovation:** Public sector involvement is important for innovations that take decades to develop and involve significant risks, which the state is better equipped to manage than private entities.

What is the challenge with India's new R&D fund?

1. **Effective Allocation:** The challenge lies in how the ₹1 lakh crore will be distributed among various sectors, ensuring effective and strategic use.
2. **Meeting Diverse Demands:** There is a need to address the demands from multiple domains like telecommunications, healthcare, finance, transport, and space flight, all vying for a share of the fund.
3. **Focus on 'Sunrise Sectors':** The finance minister emphasized supporting 'sunrise sectors', but even within these, there are numerous fields, each resource-intensive and requiring significant investment.
4. **Sustainability Concerns:** A major challenge is ensuring that the funding supports innovation that is not only technologically advanced but also environmentally sustainable.

Way forward

India must strategically prioritize the allocation of the ₹1 lakh crore R&D fund to essential 'sunrise sectors'. Establishing robust policy frameworks is crucial for equitable and sustainable innovation. Additionally, enhancing public sector R&D, particularly at state levels, is vital for balanced and impactful technological advancement.

Subject: Agriculture

Topic: Issues related to direct and indirect farm subsidies and minimum support prices

On Recent Farmers' Protest Demands – Farm reforms remain a challenge yet to be met

News: The article discusses the demands of the recent farmers' protest. It also highlights the issues with the government buying farm produce and the steps that should be taken in this regard.

Background:

Farmer groups from Punjab have recently clashed with police and threatened to storm Delhi just before the national polls.

What are the demands of the farmers?

- 1) India's withdrawal from the World Trade Organization and freezing all free-trade pacts.
- 2) Reinstating of the Land Acquisition Act of 2013.

- 3) Pension of ₹10,000 a month for every farmer aged above 60.
- 4) The limit on rural job-guarantee work-days to be doubled to 200 and its daily wage upped to ₹700.
- 5) Dropping of all cases against last time's protestors.
- 6) Law to back minimum support price (MSP) for all commodities as a government assurance.

What are the issues with government buying farm produce?

The government is a bulk buyer of foodgrain and other farm produce to offer free or cheap food to the masses. However, this leads to:

- 1) Distortion of cropping patterns.
- 2) Incentivizing the overproduction of carbohydrate-heavy crops like wheat and rice.
- 3) It ignores the changing food habits of people. For instance, people may want protein-rich edibles and vegetables cheapened by better acreage and cold chains (for perishables).

What should be the way forward?

- 1) **Aligning Farm Incentives with Market Forces:** For evolving dietary demands of the people to be satisfied more efficiently, farm incentives must be aligned better with market forces. For this, old restrictions must be eased, and markets should have multiple buyers.
- 2) **Focusing on Reforms Instead of Legalising MSP:** MSPs for mandatory state procurement should not be legalised, since markets cannot function properly with price floors and caps. Farms reforms are the way forward.
- 3) **Governments should not Control Agri Exports:** Another sign of the Centre's comfort with state-controlled farming is the recent export bans imposed on non-basmati rice and onions. These moves deprive farmers of a chance to maximize earnings.

Topic: Land reforms in India

Land in India causing inequality

News: The article discusses how land in India is unfairly used, causing more inequality. It talks about three issues: landowners making money without productive use, the government owning but poorly managing land, and the misuse of shared natural resources, harming the environment and communities.

How is land in India causing inequality?

1. **Unequal Returns from Land Ownership:** Wealth from land in India often comes from scarcity rents rather than productive use. For example, in Mumbai, former textile mills and factories were transformed into expensive real estate for the wealthy, not the common people.
2. **Government Land Mismanagement:** The Indian government, as the largest landowner, is inefficient in managing its land. Significant amounts of government land in major cities, like the prime locations occupied by elite clubs in Delhi, are used for the benefit of the rich instead of addressing urban housing issues.
3. **Exploitation of Common Lands:** Common lands, meant for public use, are frequently encroached upon for projects favoring the affluent. This includes environmental degradation in areas like the Western Ghats and exclusive access to natural resources, adversely affecting local and indigenous communities.

What should be done?

1. **Reform Land Ownership:** Shift focus from earning through land scarcity to productive use. This can prevent wealth concentration among a few landowners.
2. **Improve Government Land Management:** The government should effectively manage its vast land holdings to benefit the broader population. For instance, using government land in cities to reduce slums.
3. **Protect Common Lands:** Ensure common lands are used for the collective good, not just for the rich. This involves preventing environmental degradation and maintaining equitable access for all communities.
4. **Promote Inclusive Policies:** Develop policies that encourage equitable land distribution and use, supporting inclusive growth rather than catering to the wealthy minority.

Subject: Science & Technology

Topic: Indigenization of technology and developing new technology

Issues with science in India - The wrong cooks spoiling the scientific broth

News: The article discusses the need for Indian science to focus more on real-life problems and interdisciplinary approaches, involving humanities and social sciences, rather than just traditional scientific methods. It emphasizes collaboration, multidisciplinary thinking, and engagement with broader society to solve complex issues.

How is science perceived in India?

Science in India is widely regarded as a means to develop intelligence and unbiased citizenship. The prevailing belief is that a science-focused education fosters objectivity and scientific thinking in students. However, there is criticism that many Indian scientists lack a fully developed scientific temper, often prioritizing power over genuine knowledge.

What are the issues with science in India?

1. **Partial Scientific Temperament:** Scientists in India are often more focused on power than on fully developing their scientific understanding.
2. **Reliance on Western Publications:** There's a strong preference for knowledge from western journals, while local Indian research is undervalued.
3. **Global Appeal Over Local Relevance:** Indian research tends to prioritize topics with international interest, like hypothetical global phenomena, rather than local issues such as pollution in Bengaluru's Bellandur Lake.
4. **Lack of Holistic Approaches:** The article notes a deficiency in interdisciplinary methods, with a need for integrating sciences with humanities and social sciences to tackle complex societal problems.

What should be done?

1. **Redeploy Scientific Efforts:** Redirect a significant portion of scientific resources to the science-society interface to solve real-life problems, rather than solely pursuing academically driven or globally appealing research.

2. **Integrate Humanities and Social Sciences:** Encourage the integration of natural sciences with human sciences, such as psychology, sociology, and philosophy, to better understand and address the societal impact of scientific work.
3. **Foster Multidirectional Knowledge Flow:** Create institutional linkages that encourage knowledge exchange between scientists and external communities, breaking down barriers between different disciplines and the public.

Topic: Developments and their applications and effects in everyday life

On Concerns Associated with the Neuralink

News: The article discusses the ethical and legal concerns associated with Neuralink.

A detailed article on **Brain-Computer Interface** can be [read here](#).

Background:

Elon Musk announced recently that the first human implantation of the **Neuralink device** — called Telepathy — has been achieved and the recovery and initial data collection are in progress and going well.

What is Neuralink?

Neuralink is a tech startup, and its product is a chip that is a surgically implantable device. It can record a massive amount of data from individual neurons and transmit it to a computer, which in turn can read the intention coded in that data to execute a certain task.

What are the intended objectives of Neuralink?

- 1) **Short-Term: Controlling Digital Devices:** It will give people affected by paralysis the ability to control digital devices through thought and intention. This will be helpful for a clinically and neurologically disabled population.
- 2) **Long-Term: Creating a Brain-Computer Interface:** It aims to “create a generalised brain interface to unlock human potential.” In other words, to change and enhance cognitive abilities (the brain's ability to perform core tasks like thinking, memorizing, visualizing, interpreting surroundings) in healthy humans.

What are the ethical and legal concerns arising out of this?

- 1) **Safety Concerns:** The recording electrodes as part of the chip in the brain may lead to micro-injuries in the brain. This may lead to microbleeds, strokes or other forms of brain injuries, and cause serious neurological conditions such as neurodegeneration.
- 2) **Ethical Concerns:** Data ownership is an extremely important ethical issue. There is no clarity on who the recorded data belongs to – the subjects or Neuralink.
- 3) **Lack of Transparency:** Replicability and the scrutiny of the raw data from the scientific community is important for any scientific innovation. However, there has been mystery over the development of Neuralink and pre-clinical testing results.
- 4) **Outside Regulatory Oversight:** Its clinical trial has not been registered (at clinicaltrials.gov). Due to this, it is difficult to determine the conditions under which these trials will be conducted.

What should be the way forward?

Neuralink should be more open about the data it generates and about its device since secrecy does not instill confidence and trust.

Express View on India's CAR T-cell therapy

News: India has approved a new CAR T-cell therapy developed at Tata Memorial Centre and IIT Bombay. This therapy customizes T-cells from the patient's body to fight cancer.

What is CAR T- cell?

Chimeric antigen receptor (CAR) T-cell therapies represent a quantum leap in the sophistication of cancer treatment.

For more information [read here](#)

What is CAR T-cell therapy?

CAR T-cell therapy is a personalized cancer treatment. It involves taking a patient's own T-cells, a type of immune cell, and modifying them in a laboratory to target cancer cells. These enhanced cells are then put back into the patient's body to fight the cancer. This method has shown success in treating advanced leukemias and lymphomas. In India, a 64-year-old former army doctor became cancer-free after receiving this therapy, marking a significant achievement.

For more information [read here](#)

What are the benefits of the new CAR T-cell therapy developed by India?

1. **Targeted Therapy:** CAR T-cell therapy involves modifying a patient's T-cells to target and fight cancer cells specifically.
2. **Effective Against Advanced Cancer:** It has shown success in eradicating advanced leukemias and lymphomas, as evidenced by the treatment of a 64-year-old former army doctor in India.
3. **Less Harsh than Chemotherapy:** This therapy is less demanding and has fewer side effects compared to traditional treatments like chemotherapy.
4. **Affordability in India:** In India, this therapy costs about Rs 40 lakh, which is about a tenth of its cost in the US, making it a more affordable cancer treatment option in the Indian context.
5. **Customized for Each Patient:** The treatment is personalized, with T-cells being grown and modified for each individual patient.

On R&D Funding and Deep Tech – Why the Union Budget's plans for deep tech and research funding are significant

News: The article discusses the importance of Deep Tech and highlights the government's initiatives in this regard. It also states the challenges in the funding of Deep Tech projects.

Background:

The Interim Budget included an announcement of a Rs 1 lakh crore fund to provide long-term, low-cost or zero-interest loans for R&D. A new scheme to strengthen deep-tech capabilities in the defense sector was also announced.

What is Deep Tech?

Deep tech refers to advanced and disruptive technologies that have the potential to cause transformative change and provide solutions for the future. It is used to describe cutting-edge research in nanotechnology, biotechnology, material sciences, quantum technologies, semiconductors, artificial intelligence, data sciences, robotics, 3D printing, etc.

What is the importance of Deep Tech?

1. These technologies can help **address complex global challenges like** climate change, hunger, epidemics, energy access, mobility, physical and digital infrastructure, and cyber security.
2. They can also **enhance productivity** and drive economic growth and create jobs in coming years.
3. There are also associated benefits in **terms of spin-off technologies** (tech derived from a parent technology), trained manpower, entrepreneurship and technology exports.

With its large base of relatively high-quality science and engineering manpower and a well-established technology culture, India can be one of the frontrunners in Deep Tech.

What has the government done in this regard?

The government has tried to incentivize research in these areas by the following:

- 1) **National Mission on Transformative Mobility and Battery Storage.**
- 2) [National Quantum Mission.](#)
- 3) [National Deep Tech Startup Policy](#): A policy framework to create an enabling environment for companies working in these technology areas was finalized.
- 4) [National Research Foundation \(NRF\)](#): Rs 1 lakh crore corpus to finance R&D. Startups and other private sector ventures are expected to be the main beneficiaries.

However, there have been only nominal increases in budgetary allocations of India's science and research departments in the Interim Budget.

What are the main provisions of the National Deep Tech Startup Policy?

The policy seeks to address specific challenges faced by technology startups and provide them with a platform to compete and collaborate with the best in the world.

It talks about the following:

- a) Create opportunities for long-term funding;
- b) A simplified but stronger intellectual property rights regime;
- c) Tax incentives;
- d) A conducive regulatory framework;
- e) Development of standards and certifications;
- f) Nurturing of talent;
- g) Linkages between industry, research centers, and educational institutions.

What are the challenges in the funding of Deep Tech projects?

- 1) **Capital-Intensive Sector**: Most deep tech projects are time- and money-intensive, with relatively high funding requirements.
- 2) **India's Low Expenditure on R&D**: It is far below the global average, and significantly lower than the scientifically advanced countries. India currently spends just about 0.65% of GDP on R&D. The global average is about 1.8%.

3) **Lack of Private Sector Participation:** Expectations of the infusion of private sector money into research have been disappointing. Finance has been both unpredictable and inadequate.

4) **Bureaucratic Delays:** Even where funds are available, delays and interruptions in disbursement often affect projects. Complex bureaucratic requirements contribute to delays.

On HAPS (High-Altitude Pseudo-Satellite vehicles)

News: The article discusses HAPS (High-Altitude Pseudo-Satellite vehicles) and its applications and advantages. It also highlights the engineering challenges in developing HAPS?

Read more about **High-Altitude Pseudo-Satellite vehicles (HAPS)** [here](#).

Background:

Last week, the Bengaluru-based National Aerospace Laboratories (NAL) successfully flew a prototype of a new-generation unmanned aerial vehicle (UAV) that is being seen as a huge technology breakthrough.

Why was this UAV different?

It can fly at great heights, about **20 km from the ground**. It runs entirely on **solar power** and can remain in the air for months.

Such UAVs belong to a class of flying objects called **HAPS (high-altitude pseudo-satellite vehicles)**, or **HALE (high-altitude long-endurance vehicles)**.

HAPS are meant to fly in the stratosphere (region between 17 and 23 km above the earth's surface) since wind speed is very low and ideal for light-weight aircraft to remain stable.

No country has mastered this technology yet. However, the successful test flight shows that India has capabilities like some other countries trying to develop this technology.

What are the possible uses of HAPS?

- a. Surveillance and monitoring.
- b. Disaster management.

Why are HAPS better than currently available technologies?

1) **Comparison with Drones:** Normal UAVs, or drones are mostly battery-powered and cannot remain in the air beyond a few hours. They fly at relatively low levels, because of which their vision is restricted to small areas.

However, it can easily keep an eye over 200 sq km of area.

2) **Comparison with Satellites:** Satellites in low-earth orbits are continuously moving with respect to Earth. They cannot constantly keep an eye on the target area. Geostationary satellites (36,000 km above the ground) can keep a constant gaze over one area but are expensive, and once deployed, cannot be repurposed or reoriented.

However, HAPS can be easily redeployed over another location, or can be reequipped with a different payload.

What are the engineering challenges in developing HAPS?

1) **Solar Power issue:** The biggest challenge is to generate enough solar power to keep the aircraft flying, the payloads operating, and the batteries charging.

2) **High Battery Density Required:** Because of limitations of space and weight, solar cells and batteries need

to have very high efficiency (in terms of energy density - the amount of energy stored in a battery in proportion to its weight).

3) **Design-related challenges:** The aircraft needs to be extremely lightweight to minimize the power requirement, but it also has to be stable at the same time.

4) **Low Temperatures:** Temperatures in the stratosphere can drop to -50 degree Celsius or lower. Electronics need to be kept warmer, and this forms an additional burden on power resources.

5) **Low Air Density:** Air density in the stratosphere is just about 7% of what it is at sea level. That creates complications in producing lift and thrust.

The AI opportunity

News: The article discusses the advantages India possesses in the field of AI. It also highlights the positive prospects and challenges it entails.

Background:

Recently, Microsoft's CEO gave a statement on skilling up 2 million Indians in the use of artificial intelligence (AI). This signals their desire to shape the Indian AI ecosystem in a big way.

What are the advantages India possesses in the field of AI?

1. **AI Engineers:** The Indian IT services sector is witnessing the lowest fresh hiring in decades. The surplus engineers could now migrate to the AI field as investment in this space is expected to increase.
2. **Diversity of Languages:** There are 8-10 Indian languages with over 50 million speakers each and a rich vernacular literature. These could lead to the development of many variations on ChatGPT set in various Indian languages.
3. **Data Generation:** Cheap data plans, high smartphone penetration, and a thrust towards providing services via the digital public infrastructure has led to India having the highest data consumption in the world. Thus, data is being generated at an ever-increasing pace.
4. **5G Penetration:** As 5G penetration increases, many internet of things (IoT) related applications that rely on high-speed and AI algorithms will increase. This availability of data makes India an ideal training ground for AI.
5. **Favourable Government Policy:** The government is also focusing on AI-related research and a significant increase in computing capacity.
6. **Hardware and Chip Design:** There is also a focus on building indigenous capacity in electronics hardware and semiconductor fabrication, with India already being a leading hub for chip design.
7. **Collaborations with Academia:** Several academic institutions such as IIT Madras already have testbeds and research labs focused on AI-related areas.

What are the prospects and applications of AI in India?

- 1) **High Future Growth Prospects:** AI could contribute around **10% of India's GDP** by the time the \$5trillion mark is achieved.
- 2) **Investment Opportunities:** Given a vibrant startup ecosystem, private-sector research on AI is expected to lead to an increase in investment opportunities.
- 3) **Application in Sectors:** Experts believe it can transform sectors like agriculture, logistics, energy, healthcare, and financial services.
- 4) **Job Creation:** It is also likely to create jobs requiring sophisticated skills.

What are the challenges?

Threat to Job Creation: AI could replace the need for humans in various functions. Even large Indian IT firms working with labour cost advantages may suffer.

Such unintended consequences will need to be addressed.

Subject: Environment

Topic: Environmental pollution and degradation

Significance of recognizing the pattern of global warming

News: According to the author, no one has been able to fully **explain the patterns of warming associated with the earth's surface, when the temperature** exceeds 1.5 degrees C warming threshold.

What is the 1.5 degrees C warming threshold?

This was included in the **Paris Agreement** after intense negotiations by member-countries of the **U.N. Framework Convention on Climate Change (UNFCCC)**. However, 1.5 degrees C is not a **scientific threshold**. This number was based on understanding of European politicians who felt in 1990s that they can achieve a target of limiting the temperature below 2 degrees C.

What are the different methods used to measure temperature change?

At present, there are various methods to measure the temperature change. The new study published in **nature** has discussed so called “**palaeo proxies**” method.

This method uses chemical evidence stored in various **organic matter**, such as **corals, stalactites, and stalagmites**, to approximate the temperature at some point in the past.

In this method, researchers carefully calibrate the **various chemical compounds** assimilated by some species into their biogenic materials — such as calcium carbonate. This helps in establishing the **relationships between those chemicals and the prevailing local temperature**.

What is the limitation of this method?

- 1) Present methods are limited in the sense that they **extrapolate** the data from a single location and use historical evidence to draw **global conclusions**.
- 2) Based on this method, they calculate **global temperature averages** without considering **spatial variations**. **For example**, there has been no studies to explain some **unusual patterns** like impacts of El-Nino on the amount and the distribution of the **2023 unusual Indian monsoons**.
- 3) There is only indirect **evidence of temperature changes** with respect to a baseline temperature. This evidence can't measure the **actual overall temperatures**.

What should be done?

There is a critical need to understand the specific patterns of warming on a global scale, instead of focusing on breaching threshold, because-

- 1) Recognizing warming patterns is important to **manage the disasters** associated with global warming.
- 2) The local warmings and cooling's and their magnitudes determine the net effect of global warming in a particular locality hence they **cannot be generalized**.
- 3) We need to recognize patterns to **adapt** to the changing seasons and to minimize impact on **lives, livelihoods, and economies**.

Conclusion

It is important to keep the **global warming patterns in mind** rather than focusing a lot on **arbitrary threshold number** that do not have a scientific basis.

Phasing out fossil fuels equitably - Equity concerns in banning fossil fuel extraction

News: The article discusses the challenges and debates surrounding the reduction of fossil fuel use to combat climate change. It highlights the different capacities and needs of various countries in transitioning away from fossil fuels, considering economic and legal aspects.

What is the current state of climate change litigation and fossil fuel policies?

1. **Inadequate Response to Climate Change:** Governments and corporations have not effectively tackled climate change, leading to increased climate change litigation worldwide.
2. Momentum is also growing in favor of a **Fossil Fuel Non-Proliferation Treaty**. For more information on Fossil Fuel Non-Proliferation Treaty [Read This Article](#)
3. **Coal Elimination Proposal:** An academic proposal recommends ending coal mining and burning by 2030. This aligns with the Production Gap Report, highlighting a discrepancy between current fossil fuel production plans (produce 110% more fossil fuels by 2030) and the Paris Agreement's goal to limit warming to 1.5° Celsius.
4. **Recent Climate Conferences' Stance:** COP26 in Glasgow (2021) and COP28 in Dubai (2023) focused on reducing coal use and transitioning to net-zero emissions by 2050.

What are the challenges in phasing out fossil fuels equitably?

1. **Economic Dependence on Fossil Fuels:** Countries like Azerbaijan, Congo, Iraq, Nigeria, Oman, and Timor Leste heavily rely on fossil fuel revenues, making it challenging to phase out without impacting their economies.
2. **Diversification of Economy:** Wealthier nations such as Canada, the USA, and the UK have more diversified economies and higher per capita incomes, facilitating easier transition from fossil fuels.
3. **Employment Concerns:** In countries with a significant number of jobs tied to the fossil fuel sector, like India, phasing out fossil fuels could lead to major employment challenges.
4. **Aligning with Climate Change Principles:** The challenge lies in integrating the Fossil Fuel Non-Proliferation Treaty with the principles of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) and Nationally Determined Contributions (NDC) of the climate change regime. This involves balancing global objectives with individual countries' unique circumstances and capacities.

What does International Law say about fossil fuel use?

1. **Rights to Natural Resources:** International law allows states to use their natural resources for economic development.
2. **Obligation to Prevent Harm:** There's a caveat that states must not cause significant harm to other states, especially in the context of trans-boundary natural resources.

3. **Environmental Impact Assessments (EIA):** The International Court of Justice (ICJ) in the Pulp Mills Case (2010) declared conducting trans-boundary EIAs as part of customary international law.
4. **Global Commons Uncertainty:** The application of these laws to global issues like fossil fuel extraction and its impact on global warming is less clear.
5. **Human Rights Considerations:** Western scholars argue for the need to conduct EIAs for fossil fuel extraction's impact on global warming and its human rights consequences on local and indigenous populations.

What is India's situation in the fossil fuel transition?

1. **Heavy Reliance on Fossil Fuels:** India predominantly depends on fossil fuels for energy, with a significant part of its power sector rooted in coal.
2. **Employment Impact:** Nearly 3.6 million people across 159 districts are employed directly or indirectly in the coal mining and power sector.
3. **COP26 Stance:** India advocated for "phasing down" rather than "phasing out" coal, indicating a preference for a gradual transition.
4. **Subsidy Scrutiny:** India's subsidies on kerosene oil have been criticized for inconsistency with the Paris Agreement, highlighting the complexities in balancing economic needs with environmental commitments.

Subject: Internal Security

Topic: Challenges to internal security

Different judicial interpretations regarding UAPA

News: The article discusses how the Supreme Court, on February 7, denied bail to Gurwinder Singh, involved in a Khalistan module case, under the strict UAPA law. It explains that the usual principle of 'bail being the rule and jail the exception' does not apply under UAPA.

What are the different judicial interpretations regarding UAPA?

1. **Zahoor Ahmed Shah Watali v NIA (2019):** The Supreme Court ruled that **courts should not deeply analyze evidence for bail under UAPA, but rather accept it at face value.**
2. **Delhi High Court's Ruling (2021):** Granted bail to three student activists, Asif Iqbal Tanha, Devangana Kalita, and Natasha Narwal, focusing on specific charges required by the police rather than broad accusations.
3. **Bombay High Court's Decision on Anand Teltumbde:** Granted bail citing no direct link in the evidence to the crime, showing a **nuanced interpretation of the evidence required under UAPA.**
4. **Union of India vs KA Najeeb (February 2021):** The Supreme Court allowed bail under UAPA when the accused had been incarcerated for a significant period, **acknowledging the need for balancing UAPA's strictness with the right to a speedy trial.**
5. **Vernon Gonsalves v State of Maharashtra (July 2023):** Suggested a need for surface-level analysis of evidence's probative value at the bail stage, showing a shift from the Watali ruling.

What are the impacts of rulings on the UAPA law about granting bail?

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1. **Strict Bail Criteria:** Under Section 43D (5) of the UAPA, bail is not to be granted if the court, based on the police report and case diary, finds reasonable grounds to believe the accusations are prima facie true.
2. **Role of Public Prosecutor:** The section mandates that the Public Prosecutor must be heard before any decision on bail is made.
3. **Shifted Burden of Proof:** Unlike ordinary criminal law, this section shifts the burden onto the accused to demonstrate that the accusations are not prima facie true, which is a significant deviation from the general principle of 'innocent until proven guilty'.
4. **Restrictive Application:** The law, through this section, narrows down the scope for bail, especially in cases involving offences under Chapters IV and VI of the UAPA, making it exceptionally challenging for the accused to secure bail.

Way forward

The way forward should involve a larger bench of the Supreme Court resolving the contradictions between rulings of same strength judge benches, like those in Watali and Gonsalves. This would establish a clearer, more consistent legal framework for interpreting UAPA's bail provisions, balancing national security with the accused's rights.