
# ANALOG IAS INSTITUTE

# samiksha

Comprehensive NEWS Analysis

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Week - 01

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## OTHER OPTIONALS

- ANTHROPOLOGY
- POLITICAL SCIENCE
- TELUGU LITERATURE
- HISTORY

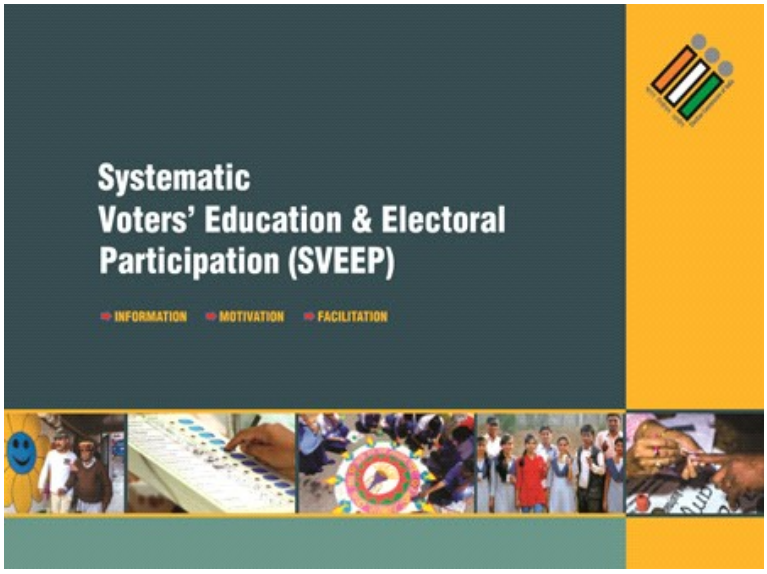
# Contents

# Polity and Governance

## 1. Systematic Voters Education and Electoral Participation (SVEEP)

**Context:**

Election Commission of India has launched a dedicated portal for the ECI's 'Systematic Voters Education and Electoral Participation' (SVEEP).




**Systematic Voters Education and Electoral Participation (SVEEP):**

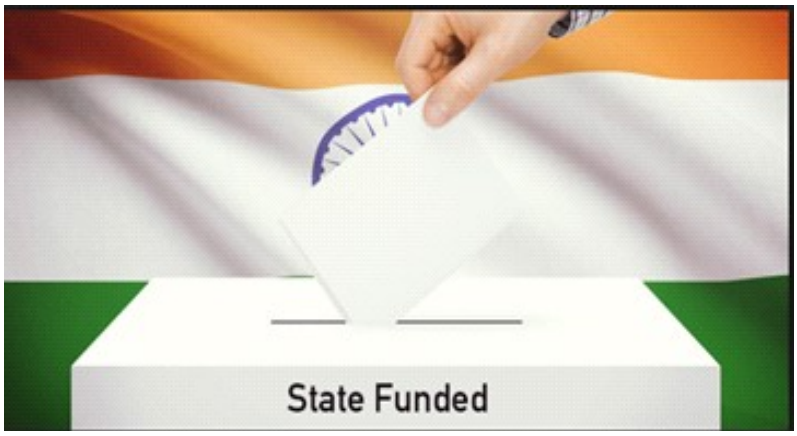
- SVEEP is a programme of multi interventions through different modes and media designed to educate citizens, electors and voters about the electoral process in order to increase their awareness and participation in the electoral processes.
- SVEEP is designed according to the socio-economic, cultural and demographic profile of the state as well as the history of electoral participation in previous rounds of elections and learning thereof.
- Now it includes enhanced interaction with the citizens through social media, online contests and voters' festivals; awareness about new initiatives of linking EPIC with AADHAAR and National Voters' Service Portal and a regularised yearly plan of activities.
- In addition to target groups of women, youth, urban voters and the marginalized sections, the inclusion of groups like service voters, NRIs, persons with disabilities, prospective voters/ students is of primary focus.

**State funding of elections**

Indian elections cost huge sums of money. This money hardly comes from contributions by sympathizers of the political party but from big corporate houses. Such contributions have largely come from undeclared income/ black money and this increases corruption in the electoral process. It highlights the need for implementing effective reforms in electoral finance.

**Why transparency in political funding:**

- As long as Indian politics is highly dependent on unaccounted money for its finances, there can be no decisive political will to eliminate black money




- Political parties spend huge amounts in election times however they report their income as only a fraction of what they spend. It is because the bulk of their spending is financed by unaccounted income = affected the integrity of governance, corrupted the civil service and promoted crony capitalism in the country.
- All these problems can be solved only if the sources of political funding are made fully transparent.

**What is State or Public Funding of elections?**

- It means that the government would provide funds to the candidates for contesting elections and meeting other election-related expenses instead of individual campaign contributions.
- It is meant to reduce corruption and undue corporate influence on politicians.
- It has to be noted that, there is already some sort of state funding exists in India. For example, free air time on public broadcasters, the provision of security, office space, utility subsidies and most importantly the exemption of registered parties in India from paying income tax under Section 13A of the Income Tax Act

**Advantages:**

- **Transparency**: Many recommend that state funding is the best possible way for achieving transparency and reduce corruption in the electoral process.
- **Fair elections**: As funds are equitably distributed among the parties by the government, it will bring a level playing field for new/growing parties on par with the established parties, thus ensuring fair elections.
- **Better Governance:** Candidates who are elected through a fair electoral process would be transparent and accountable in providing governance.
- **Eliminate criminal politics:** Candidates take up Criminal activities mainly to generate a huge amount of money for funding the elections. If elections doesn't require money from individuals = no need for criminal activities.
- **Political equality**: state funding ensures that certain powerful groups or individuals do not exercise undue influence in the electoral processes.

- **Poverty:** In societies where most citizens are under or just above the poverty line = they cannot be expected to donate huge sums to political parties or candidates.

Therefore if the latter receive at least a basic amount of money from the State = the country could have a multi-party system without people having to give up their scarce resources.

**Disadvantages:**

- **Fiscal deficit:** Many experts who are against the state funding idea wonder how a government that is dealing with deficit budgets can provide money to political parties for contesting elections. Notably, India collects only around 16% of GDP as the tax.
- **Misuse:** State funding may encourage every output to enter the political arena just to avail the state funds instead of aiming to win elections and undertake welfare activities.
- **Diversion of funds from Social objectives:** Considering that the state expenditure on key social sectors such as primary healthcare is really small = government providing money to political parties is a revolting idea.
- **Undisclosed funding:** State funding of elections will not stop parties from lobbying and getting undisclosed additional funds from the private sector.
- **Disconnect with people:** State funding would only increase the distance between political elites (party leaders, candidates) and ordinary people (party members, supporters, voters).

Hence State Funding is not the panacea for opaque funding of politics in India.

**Proposals of various commissions:**

Some major reports on state funding include those given by:

- Indrajit Gupta Committee on State Funding of Elections (1998),
- Law Commission Report on Reform of the Electoral Laws (1999),
- National Commission to Review the Working of the Constitution (2001) and
- The Second Administrative Reforms Commission (2008)

Except for the 2001 report, all other committees recommended partial state funding only in view of the economic situation of the country.

- The 1998 report mentioned that state funds should be provided only to registered national and state parties and that it should be given only in kind.
- The 1999 report supported the above point and also suggested implementing a strong regulatory framework, internal elections, accounting procedures, etc.

- The 2001 report also concurred with implementing a regulatory framework before thinking about state funding.

**Election commissions stand:**

Election Commission is not in favor of state funding due to the following reasons:

- **Cannot monitor expenditures:** EC will not be able to prohibit or check expenditures over and above which is provided by the state.
- **Radical changes needed:** For complete transparency, there have to be radical changes in the provisions with respect to receipt of funds by political parties, and the manner in which such funds are spent by them.
- **High election cost:** Considering the high cost of election campaigning in terms of media advertisements and public rallies, the use of state money in politics is a major concern.
- **The time is not yet ripe:** to opt for public funding of elections unless radical reforms such as decriminalization of politics, holistic electoral finance reforms, robust transparency, audit and strict legal regime for enforcement of anticorruption laws are implemented effectively.

**Experiences of other countries:**

- Experience in democratic countries like Germany, France, Denmark, Israel, Italy, Finland, Australia, etc. has revealed that public funding does not necessarily reduce the spending of political parties.
- The major point against state funding in these nations is that a political party is a free association of citizens and therefore should have financial independence.
- Furthermore, even partial funding leaves a loophole for candidates to pump in black money to increase the chances of their victory.

Thus the state funding is additional financial pressure on the state.

**Solutions:**

- **Eliminate Cash donations:** The cap of Rs 2000 for cash donations offers an opportunity for the flow of black money into elections. This should be eliminated altogether i.e., even Rs. 2000 should be paid through bonds or through online.
- **Intensive scrutiny:** of election expenditure incurred by parties and candidates is needed in order to ensure detection of black money in the system. An independent regulatory body could be established for this purpose.
- **Expand spending limit:** In India, the primary reason for the prevalence of black money in election spending is the unrealistically low limits fixed by the Election Commission of India on campaign expenditure by political parties and candidates. Therefore more realistic campaign spending limits should be set.

- **Simultaneous elections:** should be considered because a shorter campaign period will limit expenses incurred by parties.
- **National Election Fund:** as suggested by the former Chief Election Commissioner T.S. Krishnamurthy shall also be explored, to which all donors can contribute and the funds are distributed among the parties based on the votes they get or any other principle agreed by all parties. It will also protect the donors' identity and wipe out black money with an annual audit by CAG.
- **Parties under RTI:** Bringing political parties under the ambit of Right to Information (RTI) Act will solve the issue of black money usage, crony capitalism, etc

# International Relations

## 2. Robert Mueller's Trump Russia probe and its aftermath

**Why in news?**

- Special Counsel Robert Mueller, who was investigating the alleged Russian interference in the 2016 U.S. presidential election, handed over his report to the Justice Department earlier this month.
- While the full report, which runs into over 300 pages, is yet to be released to lawmakers or the public, Attorney-General William Barr released a summary of the report to Congress on March 24.

**Why was the probe launched?**

- The special counsel "did not find that the Trump campaign or anyone associated with it conspired or coordinated with Russia in its effort to influence the 2016 U.S. presidential election."
- There were two main Russian efforts to influence the 2016 election: "disinformation and social media operations" and "computer hacking designed to gather and disseminate information to influence the election."
- The report also pointed out that many Russians were indicted for their activities.

**Whether Trump obstructed justice:**

Mueller laid out evidence for and against the obstruction of justice charge but reached no conclusion. While the report does not conclude that the President committed a crime, it also does not exonerate him."

**Way ahead:**

The President has claimed moral victory. However, The Democrats have indicated that they will not give up the issue. So while Mr. Trump will try to use the report for his political benefits, other legal troubles could be awaiting him.

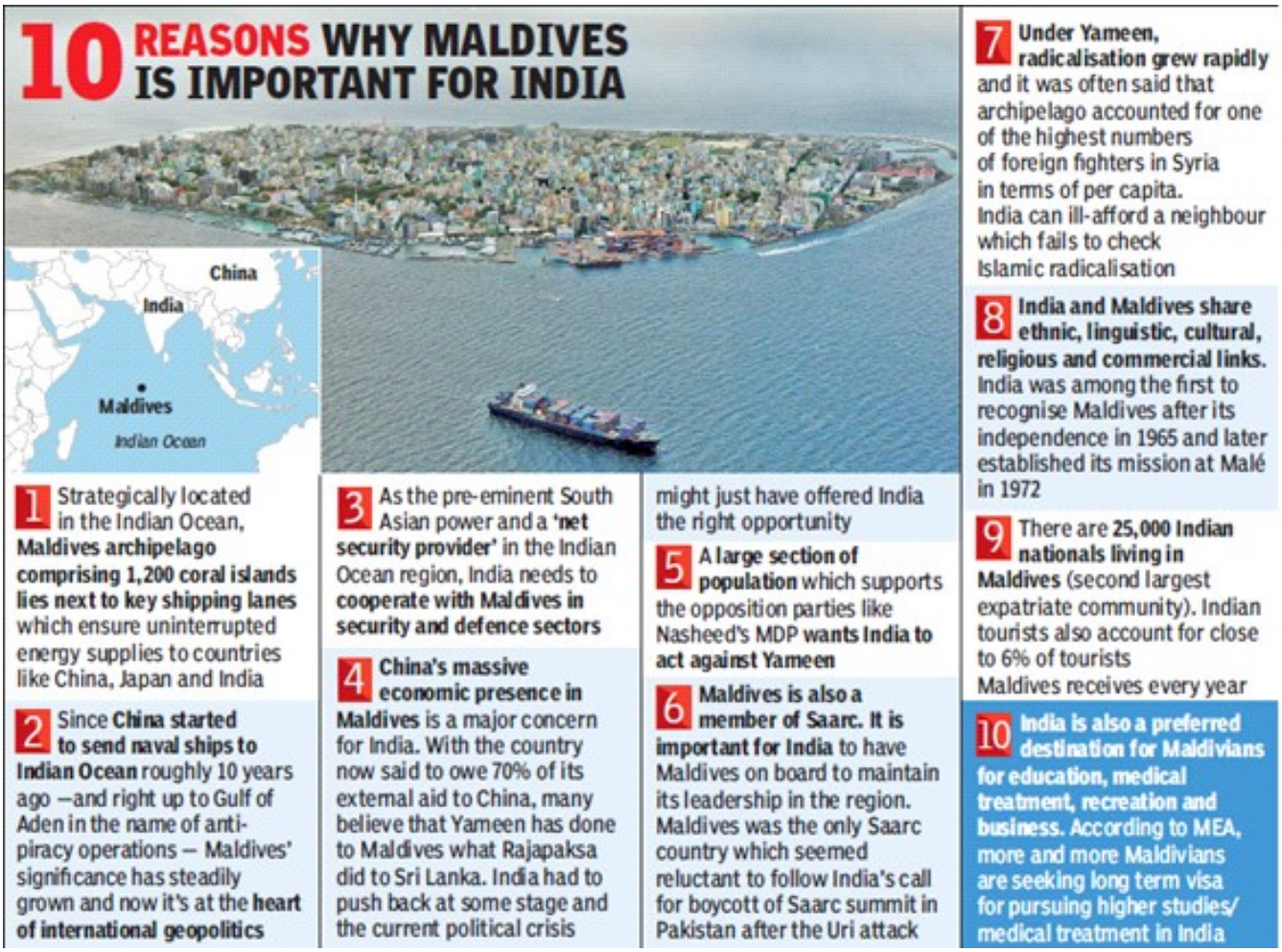
## 3. Maldives Election

**Why in news?**

- Preliminary results showed that the Maldives Democratic Party (MDP) led by President Ibrahim Mohamed Solih and former President Mohamed Nasheed have won more than 60 seats in the 87-member parliament.
- This is for the first time when a single party has won the majority on its own in Parliament since multi-party democracy was established in 2008.

**Importance of Maldives:**

- The Maldives, long a popular tourist destination, has grown in strategic




importance in recent years as China and India to establish their influence in the region, and as Beijing pushes ahead with its global trade and infrastructure plan.

- Spread over nearly 1,200 islands spanning more than 90,000 sq km, key shipping lanes where Beijing and New Delhi compete to pursue their often-conflicting maritime strategies pass through this tiny Indian Ocean nation.
- Though small, the Maldives is India's important neighbour. India's Prime Minister Narendra Modi called the Maldives "a valued partner in the Indian Ocean neighbourhood".
- India-Maldives "ties are built on a very strong foundation" the contours of which are defined by shared strategic, security, economic and developmental goals.
- However, the bilateral ties are not without irritants, which can be seen in two broad areas: political and strategic.

**Highlights of recent visit of Solih to India, December 2018:**

India and Maldives signed the following agreements:

- Agreement on the Facilitation of Visa Arrangements.
- MoU on Cultural Cooperation and for Establishing Mutual Cooperation to Improve the Ecosystem for Agribusiness.
- Joint Declaration of Intent on Cooperation in the field of ICT and Electronics.

India and Maldives agreed to work together to create institutional linkages and to establish a framework of cooperation in the following areas:

- Health cooperation issues particularly cancer treatment.
- Mutual Legal Assistance on Criminal Matters.
- Investment promotion.
- Human Resource Development.
- Tourism and climate change.
- Private sector involvement in development of housing and infrastructure.
- Water and sewerage systems in the outlying islands of Maldives.
- Combating terrorism and piracy in the Indian Ocean.
- Reforming the UN General Assembly and the Security Council.

India announced financial assistance of US $ 1.4 billion in the form of budgetary support, currency swap and concessional lines of credit for socio-economic development of Maldives.Both agreed to strengthen cooperation to enhance maritime security in the IOR through coordinated patrolling and aerial surveillance, exchange of information and capacity building.Maldives expressed its support for India's candidature for permanent membership of UNSC and India's candidature for a non-permanent seat for the year 2020-21. India on its part welcomed Maldives' re-entry into Commonwealth.

# Economy

## 4. Serious setback: on SC setting aside RBI's 'Feb. 12 circular'

**Context**

The Supreme Court struck down Reserve Bank of India's February 12 circular and ruled it as unconstitutional.

**What is February 12 circular?**

- The circular completely revamped the rules tackling non-productive assets (NPAs). The circular was issued under the power enshrined by Section 35AA of the Banking Regulation Act. The section says that the central government may, by order, authorise the RBI to issue directions to any banking company to initiate insolvency resolution process in respect of a default, under IBC.
- Under the new framework, the apex bank discontinued programmes for banks to restructure their defaulted loans and made the Insolvency and Bankruptcy Code as the main tool to deal with defaulters. The circular was aimed at breaking the nexus between banks and defaulters, both of whom were content to evergreen loans under available schemes. Some tools to deals with the stressed asset are
  - corporate debt restructuring (CDR),
  - Framework for Revitalising Distressed Assets
  - Flexible Structuring of Existing Long-Term Project Loans,
  - sustainable structuring of stressed assets (S4A),
  - strategic debt restructuring (SDR),
  - Change in Ownership outside SDR
- The framework made it mandatory for banks to identify signs of incipient stress in loan accounts and classify stressed assets as Special Mention Account (SMA), immediately on default.
- Even a single day's default in debt servicing would require reporting to the RBI and implementation of Resolution Plan.
- Under the revised framework, banks were given 180 days to resolve defaulting accounts of over Rs 2,000 crore.
- If banks failed to implement a resolution plan within the timeline, they were required to take the company to National Company Law Tribunal (NCLT) for insolvency proceedings within 15 days of the end of the 180-day period.
- Banks, too, would face penalties in case of failure to comply with the guidelines.

**Issues with February 12 circular**

- **Less time to tackle bad loan:** Several companies from the power and

shipping sectors had challenged the circular, arguing that the time given by the RBI was not enough to tackle bad debt.

- **One-size-fits-all approach:** The circular failed to take into account the peculiarities of specific industries or borrowers. RBI failed to take into account of some sectors such as power sectors which were laid low by externalities beyond the control of borrowers.
- **Violates article 14** – 180-day limit to all sectors of the economy without going into the special problems faced by each sector treat unequal equally, and, therefore, violative of Article 14 of the Constitution of India.
- **Section 35AA of the Banking Regulation Act:** This section granted specific power but RBI uses it in general approach. This section ruled as unconstitutional by the Supreme Court.

**Time line of February 12 Circular**

- **February 12, 2018:** RBI releases revised circular on Resolution of Stressed Assets
- **August 2018:** Power Producers Association, Sugar and Shipping companies move High Court against circular.
- **August 2018:** Allahabad High Court refuses to stay RBI February 12 circular; asks RBI and the government to hold consultations.
- **September 2018:** The government uses never-before-used section 7 to hold consultations with RBI on February 12 circular among other issues.
- **September 2018:** Supreme Court stays RBI February 12 circular for power, sugar and shipping companies until ruling in the matter.
- **April 2, 2019:** Supreme Court ruled February 12 circular as unconstitutional

**SC order on February 12 circular**

The court was dealing with a bunch of petitions challenging the Constitutional validity of Sections 35AA and 35AB of the Banking Regulation Act, 1949. Sections 35AA and 35AB were introduced by an amendment to the Banking Regulation Act in May 2017.

- Under Section 35AA, The Central Government may, by order, authorise the Reserve Bank to issue directions to any banking company or banking companies to initiate insolvency resolution process in respect of a default, under the provisions of the Insolvency and Bankruptcy Code, 2016.

The Supreme Court ruled that the Reserve Bank of India's February 12, 2018 circular was ultra vires. Apex court ruled that RBI could direct initiation of insolvency under the Insolvency and Bankruptcy Code, 2016 only with the authorisation of the Central government and also only in the "specific cases of resolution of non-performing assets" and not generally across the board.

**Impact of SC order**

1. **Relief to specific sectors:** SC order may give relief to sectors such as power and shipyard. Defaulting borrowers in those cases may challenge banks
2. **Less provisioning requirement for banks**: The decision opens up the possibility of less provisioning requirements as they could drop the tag of non-performing asset (NPA) in the case of some borrowers.
3. **Setback to debt resolution:** This order may delay the timely resolution of stressed assets. The voiding of the February 12, 2018 circular could slow down and complicate the resolution process for loans aggregating to as much as ¹†3.80 lakh crore across 70 large borrowers, according to data from the rating agency ICRA.
4. **Spinoff effect:** The judgment is also a big setback for the central bank, which was planning to extend these norms to non-banking finance companies (NBFCs) as well.
5. **Impact credit disciple**: It is important that we ensure discipline so that money borrowed from financial institutions is repaid. With this order, credit discipline is being compromised.

**Way Ahead**

The Supreme Court decision is the correction of a flaw and will provide flexibility to banks to restructure stressed assets without going through the formal bankruptcy resolution system. The issue needs to be relooked by both RBI and central government to arrive at a new regulation, which will ensure that the financial discipline from borrowers should continue.

## 5. Non-Banking financial company (NBFCs)

Lower-rated companies are still finding it difficult to raise funds due to aversion in bank lending to non-banking finance companies (NBFCs), rise of credit costs for these companies in the last six months and Heavy borrowings by public sector companies.

**About:**

- A NBFC is a company registered under **the Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/stocks/bonds/debentures/securities issued by Government or local authority or other marketable securities of a like nature.
- **RBI, under the RBI Act 1934 has the power to** register, lay down policy, issue directions, inspect, regulate, supervise and exercise surveillance over NBFCs that meet the 50-50 criteria of principal business.

**Banks vs NBFCs:**

NBFCs lend and make investments and hence their activities are akin to that of banks; however, there are a few differences as given below:

1. NBFC cannot accept demand deposits;
2. NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself;
3. Deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.

**Systemically important NBFCs:**

- NBFCs whose asset size is of ₹ 500 cr or more as per last audited balance sheet are considered as systemically important NBFCs.
- The rationale for such classification is that the activities of such NBFCs will have a bearing on the financial stability of the overall economy.

## 6. Securities Appellate Tribunal

The Securities Appellate Tribunal (SAT) was recently forced to calculate simple interest in a matter after the SEBI and broker Prebon Yamane (India) failed to arrive at a consensus on the manner and the amount on which simple interest had to be calculated.

**About:**

- **Type of Body:** Securities Appellate Tribunal (SAT) is a statutory body established under the provisions of Section 15K of the Securities and Exchange Board of India Act, 1992.
- Mandate: To hear and dispose of appeals against orders passed by the
  - Securities and Exchange Board of India (SEBI),
  - Pension Fund Regulatory and Development Authority (PFRDA) and
  - Insurance Regulatory Development Authority of India (IRDAI).

**Composition:**

- SAT consists of a Presiding Officer & Two other members.
- The Presiding officer of SAT shall be appointed by the Central

Government in consultation with the Chief Justice of India or his nominee.

- **Location of Tribunal:** Mumbai.

## 7. Fourth Industrial Revolution

**Context:**

The UAE Government has announced granting long-term visas for the top 100 start-ups from the Arab region, which are working towards the Fourth Industrial Revolution. The 100 Arab start-ups were selected at the World Economic Forum on the Middle East and North Africa, held in Jordan between 6-7th April.

- The Fourth Industrial Revolution represents a fundamental change in the way we live, work and relate to one another. It is a new chapter in human development, enabled by extraordinary technology advances commensurate with those of the first, second and third industrial revolutions. These advances are merging the physical, digital and biological worlds in ways that create both huge promise and potential peril.
- The Fourth Industrial Revolution is about more than just technology-driven change; it is an opportunity to help everyone, including leaders, policy-makers and people from all income groups and nations, to harness converging technologies in order to create an inclusive, human-centred future.

**Comparison with Other Industrial Revolution:**

**1st industrial revolution:** The first Industrial Revolution began in Britain in the last quarter of the 18th century with the mechanisation of the textile industry, harnessing of steam power, and birth of the modern factory.

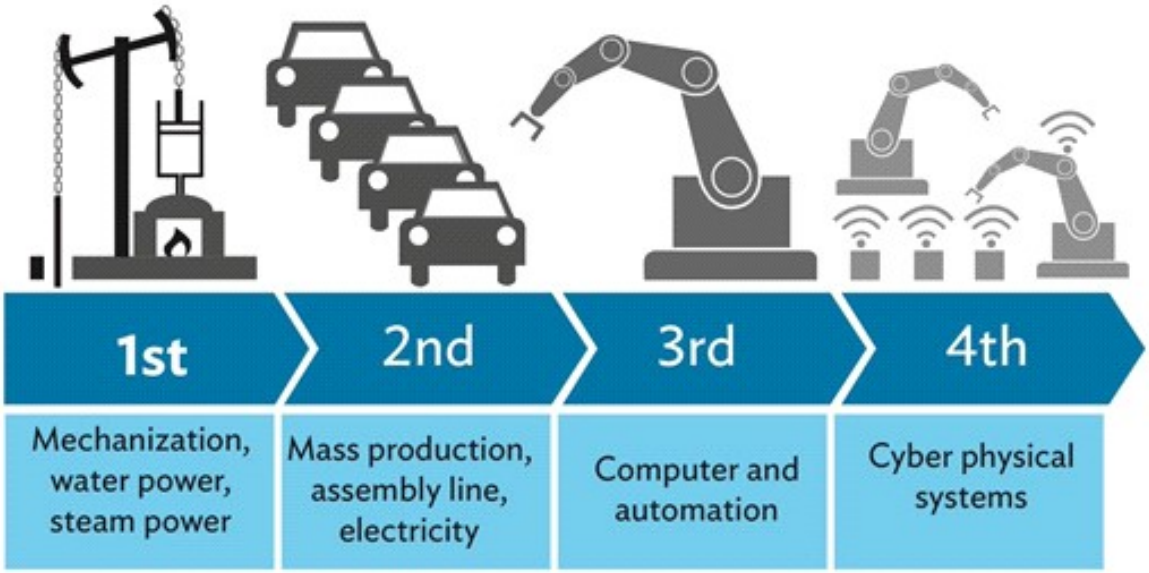
**2nd industrial revolution:** The Second Industrial Revolution, from the last third of the nineteenth century to the outbreak of World War I, was powered by developments in electricity, transportation, chemicals, steel, and mass production and consumption. Industrialization spread even further – to Japan after the Meiji Restoration and deep into Russia, which was booming at the outset of World War I. During this era, factories could produce countless numbers of identical products quickly and cheaply.

**3rd industrial revolution:** The third industrial revolution, beginning c. 1970, was digital — and applied electronics and information technology to processes of production. Mass customisation and additive manufacturing — the so-called '3D printing' — are its key concepts, and its applications, yet to be imagined fully, are quite mind-boggling.

**How different will be the 4th industrial revolution?**

There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: **velocity, scope, and systems impact**.

Figure 1: Illustration of the Four Industrial Revolutions




- The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace.
- Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance.
- The 4th revolution will be characterized by the advent of cyber-physical systems which, while being reliant on the technologies and infrastructure of the third industrial revolution, represent entirely new ways in which technology becomes embedded within societies and even our human bodies. Examples include genome editing, new forms of machine intelligence, and breakthrough approaches to governance that rely on cryptographic methods such as blockchain.
- Hence, it can be said that the 4th industrial revolution is conceptualized as an upgrade on the third revolution and is marked by a fusion of technologies straddling the physical, digital and biological worlds.

**Benefits:**

Like the revolutions that preceded it, the Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world.

- By gaining access to the digital world, consumers will be benefited in several ways. With the advent of new technology, we get to use more and more efficient products.
- In the future, technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity.
- Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth.

**What are the challenges?**

Economists have pointed out that the 4th revolution could yield greater inequality, particularly in its potential to disrupt labor markets.

- As automation substitutes for labor across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labor.
- With this revolution, it is also possible that in the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into "low-skill/low-pay" and "high-skill/high-pay" segments, which in turn will lead to an increase in social tensions.
- In addition to being a key economic concern, inequality represents the greatest societal concern associated with the Fourth Industrial Revolution. The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital—the innovators, shareholders, and investors—which explains the rising gap in wealth between those dependent on capital versus labor.

**Impact on the Government**

As the physical, digital, and biological worlds continue to converge, new technologies and platforms will increasingly enable citizens to engage with governments, voice their opinions, coordinate their efforts, and even circumvent the supervision of public authorities.

- Simultaneously, governments will gain new technological powers to increase their control over populations, based on pervasive surveillance systems and the ability to control digital infrastructure.
- On the whole, however, governments will increasingly face pressure to change their current approach to public engagement and policymaking, as their central role of conducting policy diminishes owing to new sources of competition and the redistribution and decentralization of power that new technologies make possible.
- Ultimately, the ability of government systems and public authorities to adapt will determine their survival. If they prove capable of embracing a world of disruptive change, subjecting their structures to the levels of transparency and efficiency that will enable them to maintain their competitive edge, they will endure. If they cannot evolve, they will face increasing trouble.

**CENTRE FOR THE FOURTH INDUSTRIAL REVOLUTION?**

- In October 2018, Prime Minister Narendra Modi launched the Centre for the Fourth Industrial Revolution.
- The centre would be based in Maharashtra.
- The centre is being setup by World Economic Forum (WEF). NITI Aayog will coordinate the partnership on behalf of the government and the work of the centre among multiple ministries.

- The new centre will work in collaboration with the government on a national level to co-design new policy frameworks for emerging technology alongside leaders from business, academia, start-ups and international organizations.

**Conclusion:**

In its most pessimistic, dehumanized form, the Fourth Industrial Revolution may indeed have the potential to "robotize" humanity and thus to deprive us of our heart and soul. But as a complement to the best parts of human nature—creativity, empathy, stewardship—it can also lift humanity into a new collective and moral consciousness based on a shared sense of destiny. It is incumbent on us all to make sure the latter prevails. We should thus grasp the opportunity and power we have to shape the Fourth Industrial Revolution and direct it toward a future that reflects our common objectives and values.

# Geography and Environment

## 8. Cases of Aravalli Destruction

Recently Supreme Court has warned Haryana Government from allowing anything which may harm Aravalli. Court warned government due to a Bill passed by the Haryana Assembly on February 27, which looks for opening up the Aravalli's to non-forest activity and seeking to egitimise past constructions.

**A timeline of Supreme Court Orders regarding mining in Aravalli**

- In 1992, the Supreme Court ordered that in future the approval from Central government would be needed for all mining and industrial activity in the region.
- The Supreme Court in 1996 had directed mining leases could not be renewed within two to five- kilometre radius of Badkhal without permission from the central and state pollution control boards.
- In 2002, the Supreme Court banned mining activities in Haryana following large scale devastation in Faridabad and neighbouring areas
- To avoid Supreme Court judgement, Rajasthan State Mining and Geology Department redefined a hill. As per their definition, any raised area less than 100 metre cannot be categorised as hill.
- In 2009, the Supreme Court banned mining throughout the Aravallis again.
- In 2018, Supreme Court asks for complete demolition of the Kant enclave, residential complex of about 424.84 acres in the forest range of Aravalli, and directs the company to fully reimburse those who invested in the property.

**About Aravalli**

Aravallis are the oldest mountain range in India and one of the oldest mountain systems of world.

Approximately 800 km long, the mountain range is spread towards northeast across the states of Gujarat, Rajasthan, Haryana and Delhi. These are Fold Mountains of which rocks are formed primarily of folded crust, when two convergent plates move towards each other by the process called orogenic movement.

**Major Significance of Aravalli**

- In earlier decades, Aravalli hills region had a thick forest cover which used to act as a green barrier and acted as an effective shield against desertification of capital.
- It has rich reserves of rose-coloured quartz, zinc, copper, lead, rock phosphate, gypsum, marble, soap stone and silica sand, popularly known in the construction industry as Badarpur sand.

- The Aravalli are rich in biodiversity and functions as a ground water recharge zone for the regions around that absorb rainwater and revive the ground water level.
- Haryana has only 3.59 percent of forest cover which is the lowest in the country and
- Aravalli is the only area that has some forest areas.

**Effects of Aravalli degradation**

- 31 hill ranges of the Aravallis in Rajasthan had vanished due to illegal quarrying.
- There is documented evidence of leopards, striped hyenas, golden jackals, nilgais, palm civets, wild pigs, rhesus macaque, pea fowls and Indian crested porcupines thriving there. Many of these animals have been vanished from there.
- Rivers like Banas, Luni, Sahibi and Sakhi, originated in the Aravalli. The rivers are now dead.
- Many water bodies such as famous Badkhal lake has been dried up and new water bodies due to depression left by illegal miners are popping up.
- Another effect of mining is that due to crushing and mining of stones the air pollution is very high around these areas. The main air pollutants in the mining areas is particulate matter especially Respirable Particulate Matter (RPM).
- The shrinking habitat in the Aravalli forced wild animals like leopards, hyenas and nilgais to venture into areas outside the forest in search of food and water, leading to human- animal conflict.
- The hydrological system in Gurgaon and adjacent areas is under threat, with altered natural draining patterns.

**Why Mining is so prevalent?**

**Neglect by state governments**

- CAG report on mining in Rajasthan highlighted the major loophole in administration and will to stop illegal mining. Following are some findings:
- 87 lakh metric tonnes of minerals were illegally excavated in a period of five years in Rajasthan districts between 2011-17.
- Mines were operated without renewing the Consent to Operate.
- Mineral production was enhanced without obtaining the Environmental Clearance and there was excess excavation of minerals by the lease holders.
- There were inadequacies in preventive measures for illegal mining as well as in follow up of the illegal mining cases detected.

- Supreme Court's order of ban on Aravalli were violated and mining leases falling in Aravalli mountain range were granted, renewed and extended.
- Ministry of Environment and Forest also granted Environmental Clearance for mining lease despite the area falling under the Aravalli hill range.

**Demand for building material**

- Due to demand of residential areas in Delhi-NCR demand for building material is on all-time high.
- The Aravallis are rich in minerals and mining in the hill range for red badarpur sand, silica, quartz and other stones has been on for decades.
- Providing construction material for the above objective.

**Way forward**

- **People's participation:** There is no way to stop illegal mining if government machinery is not willing to stop it. But as government extract power from people; if citizens living around Aravalli show a will to protect it and put pressure on government, it can be done. For example, Mangar Bani, a sacred forest in Faridabad has been protected by the local habitants and in 2016; due to public pressure Haryana government notified it as a 'no construction zone'. Ten years ago, a patch of greenery on Delhi-Gurgaon border called Aravalli Biodiversity Park was just barren land. Around 2009, the Municipal Corporation of Gurgaon declared it a biodiversity park and partnered with civil society, corporate and residents to plant trees and restores the forest. Today, it has nearly 200 species of plants, 183 species of birds, numerous species of reptiles and insects.
- More environmentally sustainable and scientific mining: there is no need to ban mining completely as these hills are rich in many useful minerals. There is need to allow more environmentally sustainable and scientific mining as construction material has to be sourced from somewhere. If not from the Aravallis, it will come from someplace else.

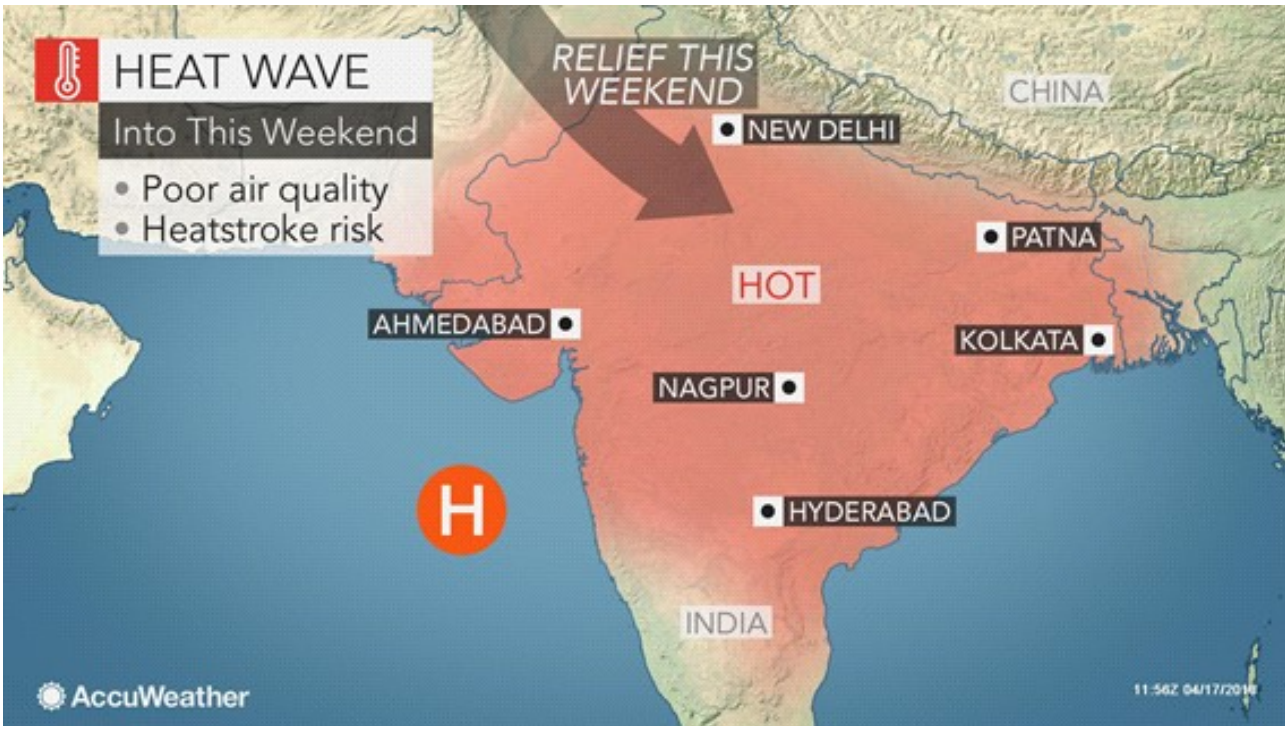
## 9. Heat Waves

**Why in news?**

According to India Meteorological Department (IMD), Heat wave conditions will continue to prevail in many parts of the country including Rajasthan, Madhya Pradesh and in isolated pockets over Haryana, Gujarat and Vidarbha in coming days.

**What is a Heat Wave?**

- A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the North-Western parts of India.




- Heat Waves typically occur between March and June, and in some rare cases even extend till July. The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death.

The Indian Meteorological Department (IMD) has given the following criteria for Heat Waves:

- Heat Wave need not be considered till maximum temperature of a station reaches atleast 40*C for Plains and atleast 30*C for Hilly regions
- When normal maximum temperature of a station is less than or equal to 40*C Heat Wave Departure from normal is 5*C to 6*C Severe Heat Wave Departure from normal is 7*C or more
- When normal maximum temperature of a station is more than 40*C Heat Wave Departure from normal is 4*C to 5*C Severe Heat Wave Departure from normal is 6*C or more
- When actual maximum temperature remains 45*C or more irrespective of normal maximum temperature, heat waves should be declared. Higher daily peak temperatures and longer, more intense heat waves are becomingly increasingly frequent globally due to climate change. India too is feeling the impact of climate change in terms of increased instances of heat waves which are more intense in nature with each passing year, and have a devastating impact on human health thereby increasing the number of heat wave casualties.

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### Health Impacts of Heat Waves

The health impacts of Heat Waves typically involve dehydration, heat cramps, heat exhaustion and/or heat stroke. The signs and symptoms are as follows:

- Heat Cramps: Ederna (swelling) and Syncope (Fainting) generally accompanied by fever below 39*C i.e.102*F.
- Heat Exhaustion: Fatigue, weakness, dizziness, headache, nausea, vomiting, muscle cramps and sweating.

Heat Stoke: Body temperatures of 40*C i.e. 104*F or more along with delirium, seizures or coma. This is a potential fatal condition.

### Lessons from Ahmedabad Heat Action Plan 2015

The city of Ahmedabad had a major heat wave in May 2010, which led to 1,344 deaths registered. In this background, Ahmedabad Municipal Corporation (AMC) prepared the Heat Action Plan (HAP or Plan) which aims to implement four key strategies:

1. Building Public Awareness and Community Outreach to communicate the risks of heat waves.
2. Initiating an Early Warning System and Inter-Agency Coordination to alert residents of predicted high and extreme temperatures.
3. Capacity Building Among Health Care Professionals so as to respond to heat-related illnesses.
4. Reducing Heat Exposure and Promoting Adaptive Measures like mapping of high-risk areas of the city, increasing outreach and communication on prevention methods, access to potable drinking water and cooling spaces during extreme heat days.

## 10. Chytridiomycosis

### Why in news?

An international study has determined that a fungal disease – called chytridiomycosis – has caused dramatic population declines in more than 500 amphibian species – mostly frogs, but also toads and salamanders – including 90 extinctions.

### About:

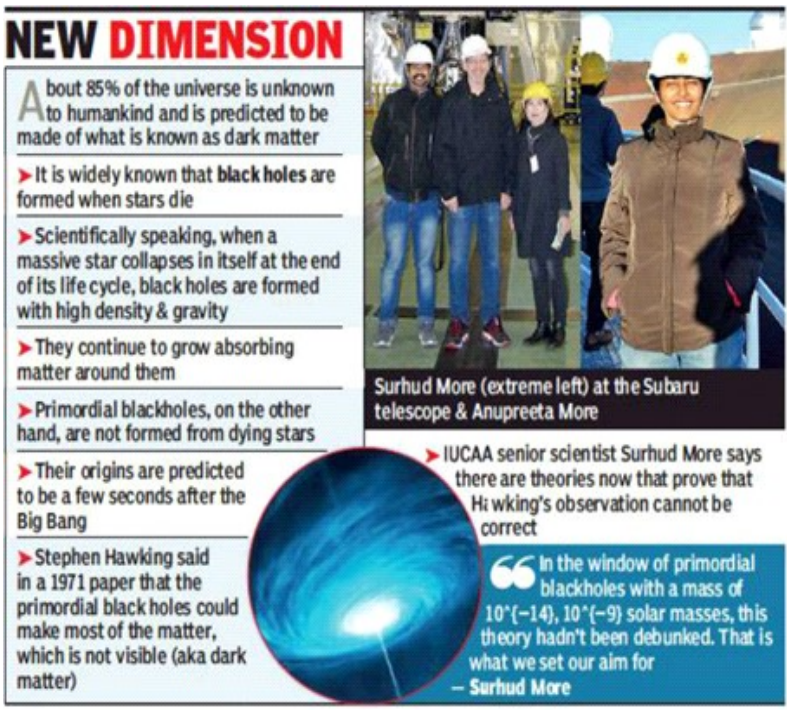
- Chytridiomycosis is a deadly contagious disease affectin
- g amphibians.
- Chytridiomycosis is caused by a fungus—Batrachochytrium dendrobatidis.

- It is caused by a fungus that attacks the skin of frogs, toads and other amphibians. As the creatures use their skin to breathe and regulate their bodies' water levels, the damage caused by the disease eventually leads to heart failure and death.
- A prominent US biologist, disclosed at the World Organisation for Animal Health Aquatic Conference in Santiago, Chile that Chytridiomycosis has descended into a global pandemic that has already wiped out 90 species. He described it as "the first global wild disease issue."
- Currently, the disease is most widespread in Latin America and Australia, with trade with Asia—where the fungus originated—blamed for the spread.

## 11. Dark matter

**Why in news?**

Scientists in a study published in the journal Nature Astronomy have put the Stephen Hawking theory to its most rigorous test to date, saying dark matter is not made up of primordial black holes smaller than a tenth of a millimetre.




**About:**

The term 'dark' is used to denote the unknown. So dark energy corresponds to an unknown energy. And dark matter corresponds to unknown matter whose properties are not clear to scientists.

- According to NASA, Dark matter seems to outweigh visible matter roughly six to one, making up about 27% of the universe.
- Roughly 68% of the universe is dark energy. Dark matter makes up about 27%. The rest visible matter is 5% of the universe.

It is called as Dark Matter because unlike normal matter (i.e. stars and galaxies), dark matter does not interact with the electromagnetic force.

- **Detection:** As it does not interact with the electromagnetic force, thus it does not absorb, reflect or emit light or electromagnetic radiation of any kind. And this makes it extremely hard to spot/detect. It can be detected only through its gravitational effects.

- **Importance:** Its gravitational force prevents stars in our Milky Way from flying apart.

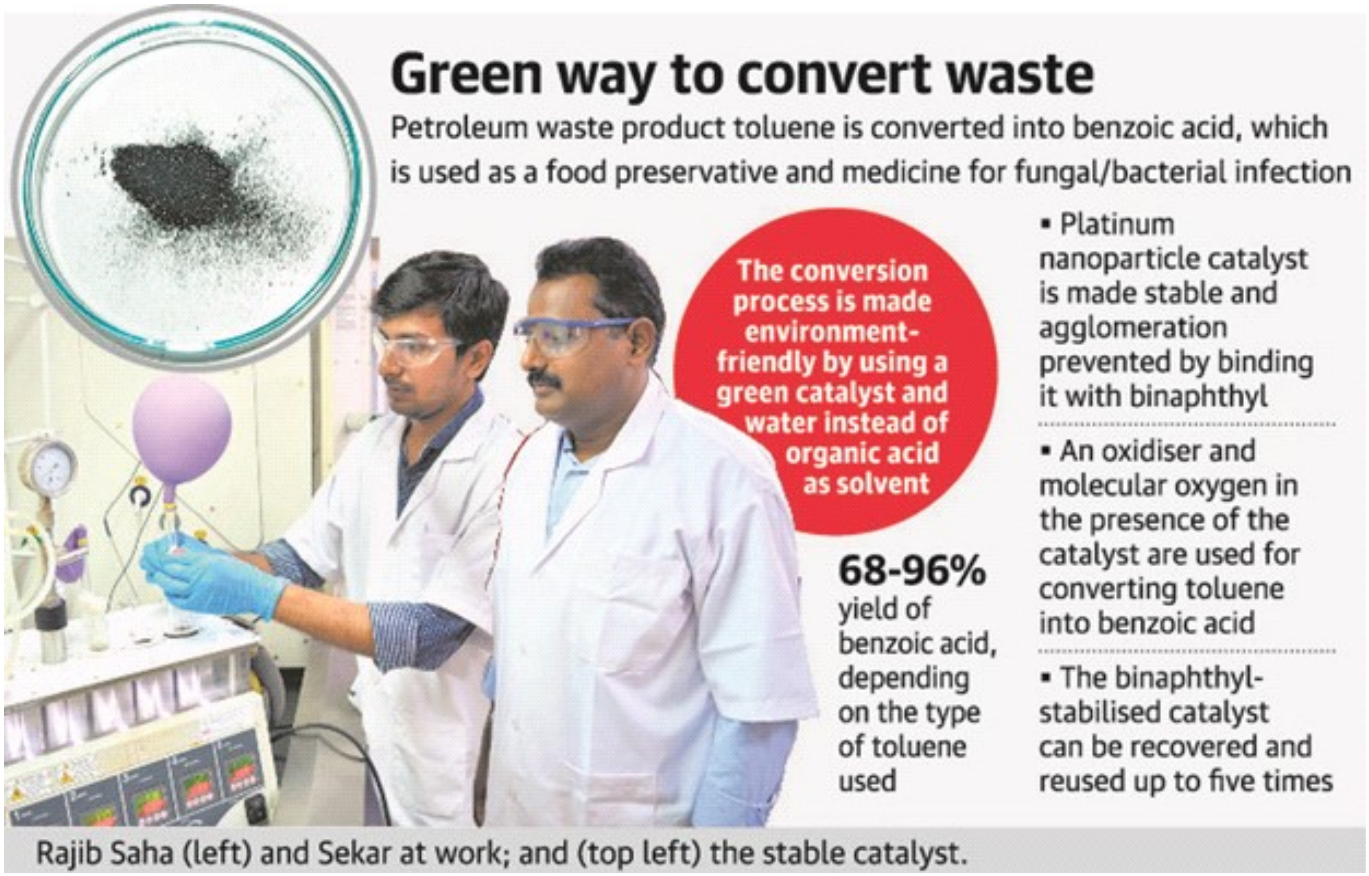
**Summary of the recent study published in the journal Nature Astronomy:**

- Attempts to detect dark matter particles using underground experiments or Large Hadron Collider have failed so far.
- This has led scientists to consider Hawking's 1974 theory of the existence of primordial black holes, born shortly after the Big Bang, and his speculation that they could make up a large fraction of the elusive dark matter scientists are trying to discover.
- Researchers used the gravitational lensing effect to look for primordial black holes between Earth and the Andromeda galaxy.
- The team's results showed primordial black holes can contribute no more than 0.1 per cent of all dark matter mass. Therefore, it is unlikely the theory is true.

# Science and Technology

## 12. IIT Madras converts petroleum waste toluene into useful product

Using platinum nanocatalyst, a two-member team at the Indian Institute of Technology (IIT) Madras has successfully converted petroleum waste-product toluene into benzoic acid.



Rajib Saha (left) and Sekar at work; and (top left) the stable catalyst.

**About:**

- **Benzoic acid (or $C_6H_5COOH$),** is a colourless crystalline solid and a simple aromatic carboxylic acid. Benzoic acid is used as a food preservative and medicine for fungal/bacterial infection.
- **Toluene is converted into benzoic acid** through selective and controlled oxidation in the presence of a catalyst — **binaphthyl-stabilised platinum nanoparticles (Pt-BNP).**
- Organic reactions are carried out using organic solvents, which makes it expensive and also generates toxic waste.
- So in a departure from current practice, the team has used water as solvent to make it environment-friendly.
- Also, a green oxidant (70% aqueous tert-butyl hydroperoxide or TBHP) is used for converting toluene into benzoic acid.
- GRSE becomes 'first' Indian shipyard to deliver 100 warships

## 13. Garden Reach Ship Builders and Engineers Ltd (GRSE)

**Context:**

Garden Reach Ship Builders and Engineers Ltd (GRSE) became the "first Indian shipyard" to build and deliver 100 warships.

**IN LCU L-56:**

- GRSE Chairman and Managing Director, Rear Admiral (Retd) V K Saxena, formally handed over the 100th warship — 'IN LCU L-56' — to the Indian Navy.
- The 100th warship, a Landing Craft Utility (LCU), is the sixth of an order of eight such vessels from the Navy.

**Important Info:**

**Garden Reach Shipbuilders & Engineers Ltd (GRSE)?**

- Garden Reach Shipbuilders & Engineers Ltd (GRSE), is one of India's leading shipyards. It builds and repairs commercial and naval vessels.
- **Location:** It is located in Kolkata, West Bengal on the eastern bank of the Hooghly River.
- **Establishment:** It was Founded in 1884 as a small privately owned company. The company was nationalised by the Government of India in 1960.
- **Status:** It is a government of India Undertaking **under Ministry of Defence.** It was awarded the **Miniratna status**, with accompanying financial and operational autonomy in 2006.
- **Key highlights:** It built India's first indigenous warship–the INS Ajay, in the year 1961.

## 14. Mission Shakti

Recently, the DRDO's anti-satellite missile system (ASAT) project named Mission Shakti successfully destroyed a live satellite in the Low Earth Orbit (LEO) (300 km altitude). With this test, India became the fourth country after the US, Russia, and China to achieve the feat. It is considered to be a milestone for the institutions and a significant development in terms of strengthening the country's overall security. However, the test also sparked controversy regarding space militarization and space debris.


**Anti-Satellite Missile System (ASAT):**

- ASAT is a weapon system designed to hit and destroy moving satellites in space by means of missiles launched from the ground.
- The development of such systems has a long history fuelled by the cold war tensions between the United States and the former Soviet Union.
- In 1985, the United States had used an anti-satellite system to destroy its P-781 satellite. Anti-satellite weapons regained popularity after China conducted an anti satellite missile test in 2007 targeting the Chinese weather satellite FY-1C.
- A year later, the United States launched 'Operation Burnt Forest' to intercept and destroy a non-functioning US National Reconnaissance Office (NRO) satellite named USA-193.

**Mission Shakti:**

- India has been experiencing rapid development in its space programme particularly in the last 5 years with the launch of Mangalyaan mission to Mars and the government's approval for Gaganyaan Mission to take Indians to outer space.
- India has undertaken 102 spacecraft missions comprising satellites for earth observation, communication, experimental, navigation, scientic research and exploration, education, etc. Thus India's space programme is an important pillar for India's economic, security and social infrastructure.
- Therefore Mission Shakti is meant to safeguard our space assets and defend the country's interests in outer space. The aim of the mission is also to destroy those satellites orbiting around the Earth aimlessly even after outliving its utility.
- Mission Shakti targeted the micro-satellite named Microsat R which was launched by ISRO in 2007 and was orbiting at a distance of 300 km (LEO) from the Earth surface. The test was carried out from the Dr.

A.P.J Abdul Kalam Island launch complex off the coast of Odisha by the DRDO.

**Key features of the mission:**

- **Technology:** DRDO's ballistic missile defence interceptor was utilized. The Kinetic kill space technology has also been used in the test.
- **Test and Debris:** Test was conducted on lower atmosphere to make sure there is no space debris. Whatever debris created will decay and fall onto the earth within 2 weeks

**Arguments in favor:**

- **Capability to destroy enemy satellites:** The mission proves India's capability to shoot down a live satellite and disrupt the communication system of any hostile country trying to invade India's air space. It can cripple enemy infrastructure without causing a threat to human lives.
- **Protecting our space assets:** It will serve as a credible deterrence against threats to our growing space assets from long-range missiles and proliferation in the types and numbers of missiles.
- **India among the elite group:** With this mission, India joined the select club of countries such as the US, China, and Russia who have achieved this capability of bringing down live satellites orbiting earth.
- **Indigenous initiative:** Indigenously developed technologies are used in this mission as India was kept away from acquiring key technologies for decades = forcing the country to develop its own space and nuclear capabilities.
- **Spin-off effect:** India can also directly or indirectly exploit ASAT technology for civilian commercial purposes at both domestic and international level.
- **Drafting international space law:** With this test, India has attained the space capacity to be considered a credible nation to play a role in drafting a future international law on prevention of arms race in outer space. It has to be noted that, India was not a nuclear weapons state when the Non-proliferation Treaty was signed in 1968.

**Arguments against:**

- **Space weaponization:** It will spur Pakistan to enter into the competition mode and start developing its own anti-satellite weapon systems leading to the militarization of the space in the neighborhood which is not good for India's security.
- **Space Debris Issue:** The destruction of satellites into smaller pieces adds to the already existing space debris which will collide with the operational satellites and makes them dysfunctional.
- **Targeting high orbit satellites:** Most of the satellites of the countries are placed in high earth orbit of around 30,000 km or even higher = India has to improve its capabilities to target them.

- **Election gimmick:** The timing of the launch of the mission just before the election is viewed by many as an election gimmick to lure voters thus violating the Model Code of Conduct of the Election Commission.
- **Violation of international law:** India is alleged to have violated the Outer space treaty to which it is a signatory

**India's stand:**

- India maintains that it has not violated the Outer Space treaty since the treaty only prohibits weapons of mass destruction in space, not ordinary weapons which are meant for the safety and security of India's space assets.
- India is against the militarization of Outer space and supports international initiatives to strengthen the safety and security of space-based assets. It also maintains that space should be used only for peaceful purposes

**International treaties regarding outer space:**

- **UN Outer Space Treaty 1967:** It bans only weapons of mass destruction in outer space, not ordinary weapons. India ratified it in 1982.
- **UN Transparency and Confidence Building Measures (TCBMs):** It requires countries to do the following register their space objects with the UN register, pre-launch notifications etc. India is currently sharing this information with the UN.
- **Inter-Agency Space Debris Coordination Committee (IADC):** It is an inter-governmental forum meant for the coordination of activities regarding the issue of man-made and natural space debris. India participates in IADC activities with respect to space debris management, undertaking SOPA (Space Object Proximity Awareness) and COLA (Collision Avoidance) Analysis.
- **UN resolution on No First Placement of Weapons on Outer Space:** India has supported it.

**Other technologies like ASAT:**

- Missile based weapon systems are not the only means to destroy satellites. There are many ways to bring down the satellites without directly destroying them as follows.
- Jamming the satellite's communication system by interfering with its radio signals.
- Sending another satellite that approaches the target satellite close enough to make it deviate from its orbit without actually destroying it.
- Another option is to cripple the sensors of the satellites by using ground-based lasers which makes them partially blind so that they could not work properly.
- However, these technologies are still in the experimental stage.

Mission Shakti has made the Indians truly proud since the technologies used were wholly indigenous. The mission's success should not be used by the political parties for the electoral gains and also our premier institutions such as DRDO and ISRO should be protected from any kind of political meddling.

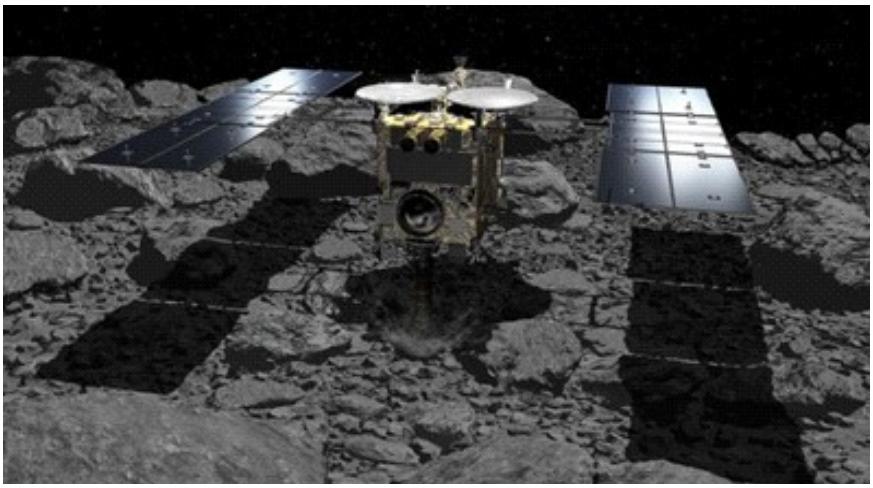
Both DRDO and ISRO are committed to building a strong India, which would be instrumental in maintaining peace in the region. India never had any interest in space weaponization and neither does it want to take it up now. However strong military capabilities are necessary for maintaining the peace in the region. Thus mission Shakti is a step towards muscle-building, not muscle-flexing

## 15. Hayabusa -2

**Context:**

Japan's Hayabusa2 spacecraft released an explosive onto an Ryugu asteroid to make a crater on its surface and collect underground samples to find possible clues to the origin of the solar system.

- Hayabusa2 is an asteroid sample-return mission operated by the Japanese space agency, JAXA. It follows on from Hayabusa mission which returned asteroid samples in 2010. Hayabusa2 was launched on 3 December 2014 and rendezvoused with near-Earth asteroid 162173 Ryugu on 27 June 2018.



- Hayabusa2 carries multiple science payloads for remote sensing, sampling, and four small rovers that will investigate the asteroid surface to inform the environmental and geological context of the samples collected.

The Hayabusa2 payload incorporates multiple scientific instruments:

- Remote sensing: Optical Navigation Camera (ONC-T, ONC-W1, ONC-W2), Near-Infrared Camera (NIR3), Thermal-Infrared Camera (TIR), Light Detection And Ranging (LIDAR).
- Sampling: Sampling device (SMP), Small Carry-on Impactor (SCI), Deployable Camera (DCAM3).
- Four rovers: Mobile Asteroid Surface Scout (MASCOT), Rover-1A, Rover-1B, Rover-2.

**The scientific objectives of Hayabusa2 mission are twofold:**

- To characterize the asteroid from remote sensing observations (with multispectral cameras, near-infrared spectrometer, thermal infrared imager, laser altimeter) on a macroscopic scale
- To analyse the samples returned from the asteroid on a microscopic scale.

**Significance of the mission**

Ryugu is a C-type asteroid – a relic from the early days of the Solar System.

Scientists think that C-type asteroids contain both organic matter, and trapped water, and might have been responsible for bringing both to Earth, thereby providing the planet with the materials necessary for life to originate.

## 16. FAME 2 Scheme

**Context:**

Recently NITI Aayog & Rocky Mountain Institute (RMI) released Technical Analysis of FAME II Scheme. The Report looks at potential saving in areas of energy, oil and carbon emissions.

- FAME India is a part of the *National Electric Mobility Mission Plan*. Main thrust of FAME is to encourage electric vehicles by providing subsidies. *FAME focuses on 4 areas i.e.* Technology development, Demand Creation, Pilot Projects and Charging Infrastructure.

**Key highlights from the report:**

- Effects of FAME II will go beyond the vehicles that are eligible under the FAME II.
- There is considerable energy and CO2 savings associated with the two, three, and four-wheeled vehicles and buses covered by FAME II over their lifetime, as well as the potential savings associated with greater adoption levels by 2030.
- The electric buses covered under FAME II will account for 3.8 billion vehicle kilometers travelled (e-vkt) over their lifetime.
- In order to capture the potential opportunity in 2030, batteries must remain a key focal point as they will continue to be the key cost driver of EVs.
- Vehicles eligible under FAME II scheme can cumulatively save 5.4 million tonnes of oil equivalent over their lifetime worth Rs 17.2 thousand crores.
- EVs sold through 2030 could cumulatively save 474 million tonnes of oil equivalent (Mtoe) worth INR 15 lakh crore and generate net CO2 savings of 846 million tonnes over their operational lifetime.

**Salient features of FAME 2 scheme**

- Faster Adoption and Manufacturing of Hybrid and Electric Vehicles,


or FAME 2 scheme aims to boost electric mobility and increase the number of electric vehicles in commercial fleets.

- Target: The outlay of ₹ 10,000 crore has been made for three years till 2022 for FAME 2 scheme.
- The government will offer the incentives for electric buses, three-wheelers and four-wheelers to be used for commercial purposes.
- Plug-in hybrid vehicles and those with a sizeable lithium-ion battery and electric motor will also be included in the scheme and fiscal support offered depending on the size of the battery.

**How will FAME 2 scheme help improve charging infrastructure?**

- The centre will invest in setting up charging stations, with the active participation of public sector units and private players.
- It has also been proposed to provide one slow-charging unit for every electric bus and one fast-charging station for 10 electric buses.
- Projects for charging infrastructure will include those needed to extend electrification for running vehicles such as pantograph charging and flash charging.
- FAME 2 will also encourage interlinking of renewable energy sources with charging infrastructure.

**Way Forward:**

India needs auto industry's active participation to ease electric mobility transition. The auto and battery industries could collaborate to enhance customer awareness, promote domestic manufacturing, promote new business models, conduct R&D for EVs and components, consider new business models to promote EVs.

- Government should focus on a phased manufacturing plan to promote EVs, provide fiscal and non-fiscal incentives for phased manufacturing of EVs and batteries. Different government departments can consider a bouquet of potential policies, such as congestion pricing, ZEV credits, low emission/exclusion zones, parking policies, etc. to drive adoption of EVs.

## 17. EAT–LANCET Report

**Context:**

The EAT-Lancet Commission's 'Food Planet Health', was formally released for India recently at the headquarters of the Food Safety and Standards Authority of India (FSSAI).

**About:**

- The report stated that transformation to healthy diets by 2050 will require substantial dietary shifts.
- The report was authored by 37 international experts, including two from India, has been put together by EAT, the science-based global platform for food system transformation, and the journal **The Lancet.**


**Highlights of the report**

- The EAT-Lancet Commission's report, for the first time proposes scientific targets for what constitutes a healthy diet derived from a sustainable food system.
- It added that healthy diets had an optimal caloric intake and consisted largely of a diversity of plant-based foods and low amounts of animal-source foods, contained unsaturated rather than saturated fats, and limited amounts of refined grains, highly processed foods and added sugars.

- The report also called for doubling in the consumption of healthy foods such as fruits, vegetables, legumes and nuts, and a greater than 50 per cent reduction in global consumption of less healthy foods.
- EAT-Lancet also proposed a country-specific report for a reference diet for India, which was supported by the country's apex food regulator, which stated that the National Institute of Nutrition (NIN), Hyderabad.

**GAIN:** The Global Alliance for Improved Nutrition (GAIN) is a global initiative launched by the United Nations in 2012 to make nutritious food more affordable.

- It is an independent non-profit foundation based in Geneva, Switzerland.

**Way Forward**

- The EAT-Lancet Commission's report, for the first time proposes scientific targets for what constitutes a healthy diet derived from a sustainable food system.
- "With 1.35 billion people, that is, 1 out of 6 people globally here in India, India would soon surpass China to become the most populated nation in the world, and that too on one-third of the landmass of China. Feeding all our people a healthy diet in a sustainable manner without compromising on our ecology and environment is going to be the most important challenge for us in the coming decades,".

## 18. 5G Network

**Why in news?**

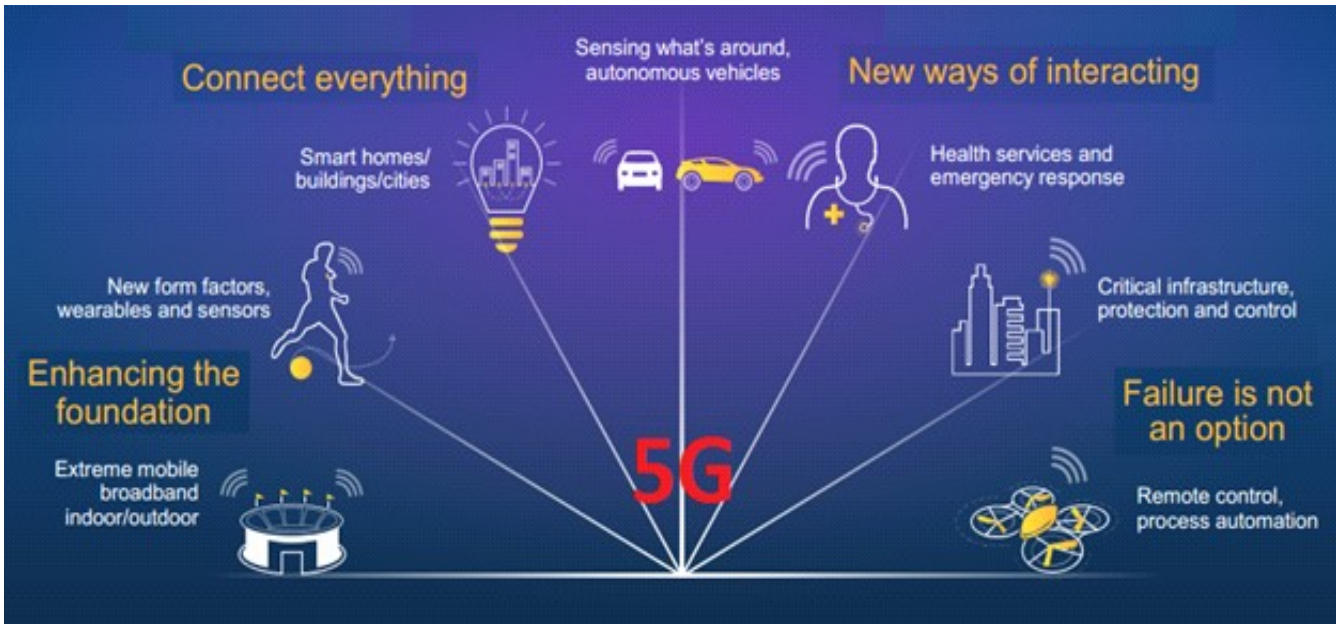
South Korea launched the world's first nationwide 5G mobile networks. Until now, no mobile networks have offered nationwide 5G access.

**What is 5G technology?**

5G is a fifth generation wireless communication technology that has very high reliability, spectrum bands and speed which is around 10 plus Gbps (20 times that of 4G). It is based on IEEE 802.11ac standard of broadband connectivity. But a formal standard has not been set yet. The final standard for 5G will be established by the International Telecommunications Union(ITU).

**Advantages**

- With very high speed, 5G allows access to high-bandwidth multimedia such as HD videos, movies and games which can be downloaded in seconds.
- It enables high-speed data services that have industrial applications. It supports critical applications like financial transactions and healthcare.
- It will help incorporate Articial Intelligence (AI) in our daily lives. It will enable cloud systems to stream software updates, music and navigation data to driverless cars seamlessly.




- It will also facilitate vehicle-vehicle communications in order to keep a safe distance from each other = fewer car accidents + less traffic congestion.
- It will facilitate the ecosystem for the Internet of Things (IoT) by enabling smart devices to exchange data seamlessly.
- With greater speed comes digital growth that will result in GDP rise and employment generation in the country. In the field of telemedicine, 5G enables instantaneous transmission of video and data = surgeons can operate remotely with a robotic scalpel.

**Disadvantages**

- It is still in progress and research on its viability is going on. The speed on such scale (10,000 Mbps) is difficult to achieve considering the incompetent technological support in most parts of the world.
- Many of the old devices would not support 5G. Therefore all of them need to be replaced with new ones. Developing infrastructure for 5G is expensive. Security and privacy issue are yet to be resolved.

**Challenges in adopting 5G in India**

- India lacks strong backhaul for the transition to 5G.
- Backhaul is a network that links cell sites to the central exchange.
- However, 80% of cell sites in India are connected through microwave backhaul (high latency+limited capacity) and only 20% sites are connected through ber communication (low latency+unlimited capacity).
- Indian market is yet to adapt to 4G completely and has not completely evolved to experience an AI revolution.

5G technology would require newer handsets with the latest hardware which would mean the replacement of older phones with new and costlier phones (undesirable for low-income people).

**India's Initiatives**

- Bharatnet project was launched in 2017 for providing digital infrastructure on a non-discriminatory basis by an affordable broadband connectivity for all households. The objective is to facilitate the delivery of e-health, e-governance, e-banking, eeducation, Internet and other services to rural areas.
- National Optical Fibre Network (NOFN) aims at bringing a broadband revolution in rural areas. Its objective is to connect all the Gram Panchayats in the country with 100 Mbps connectivity.
- As we have seen earlier, bre provides strong backhaul, thus facilitates the adoption of 5G. National Telecom Policy – from March 2018 onwards, the government has initiated measures to introduce 5G technology in India through the National Telecom Policy (NTP).
- It aims to reach 100% teledensity, high-speed internet highways and delivery of citizen-centric services electronically.
- High-level forum to develop 5G roadmap – Recently, the Department of Telecommunications set up a high-level forum to evaluate roadmaps and create a strategy to adopt 5G in the country by 2020. Waivers for Private telecoms -The government also announced a subsidy of Rs 3,600 crore to private telecom players such as Bharti Airtel, Vodafone India, and Reliance Jio to establish Wi-Fi in rural areas as part of the second phase of the BharatNet project.

**Way forward**

Earlier deployment of 5G technology in India will help companies design and manufacture 5G products and solutions in India, thus creating some essential Intellectual Property Rights (IPR) in the 5G standard. It is high time that India strengthens the domestic telecommunication manufacturing market to enable local industries to capture both domestic as well as global market.

# Miscellaneous

## 19. Konyak Dance

Around 4,700 Konyak Naga women came together in an attempt to set a Guinness World Record for the "Largest Traditional Konyak Dance".

**About Konyak Tribes**

The Konyaks are one of the major Naga tribes. They are easily distinguishable from other Naga tribes by their pierced ears; and tattoos which they have all over their faces, hands, chests, arms, and calves. Facial tattoos were earned for taking an enemy's head.

- Aoleng, a festival celebrated in the first week of April to welcome the spring, is the biggest festival of the Konyaks.
- Another festival, 'Lao Ong Mo', is the traditional harvest festival celebrated in the months of August/September.

The programme was organized at Mon during the 'Aoleang Monyu festival' of the Konyak tribe, held between April 1 and 3 every year to welcome the spring.

In their attempt, Konyak people danced to the beats of traditional instruments and sang a ceremonial song for five minutes and one second. The official declaration on the record to be announced by the Guinness authorities is expected within five days. The event was organized by the Konyak Union with an aim to preserve the cultural heritage of the people and also to promote tourism.

## 20. Ramappa Temple

Ramappa temple is in the waiting list to be recognized as a standalone UNESCO site, the first in Telangana.

**About:**

- **Names:** Ramappa Temple is also known as the Ramalingeswara temple. The temple is named after the sculptor Ramappa, who built it, and is perhaps the only temple in India to be named after a craftsman who built it, rather than the king who commissioned it or its presiding deity.
- **Location:** It lies in a valley at Palampet village, near Warangal, Telangana.

- **History:** An inscription in the temple dates it to the year 1213 AD, during the period of the Kakatiya Dynasty rule.

**Features:**

- The temple is a Shivalaya, where Lord Ramalingeswara is worshipped.
- It stands on a 6 ft high star-shaped platform.
- The main structure is in a reddish sandstone.
- The temple columns are made of black basalt and are carved as mythical animals or female dancers or musicians, and are the masterpieces of Kakatiya art, notable for their delicate carving, sensuous postures and elongated bodies and heads.

## 21. Zayed Medal: PM Narendra Modi awarded UAE's top civilian honour

Prime Minister Narendra Modi has been awarded Zayed Medal (Order of Zayed), highest civilian honour of United Arab Emirates (UAE). He received this honour in appreciation of PM Narendra Modi's role in consolidating longstanding friendship and joint strategic cooperation between India and UAE. He has played pivotal role in enhancing bilateral ties between both countries to level of comprehensive strategic relations.

**Zayed Medal (Order of Zayed)**

- It is highest decoration awarded by UAE to kings, presidents and heads of states. It consists of collar cantered by medallion bearing name 'Zayed', the founding father of UAE.
- In the past, it has been given to leaders of several countries, including Chinese President Xi Jinping, Russian President Vladimir Putin and Queen of United Kingdom Elizabeth II, former President of Pakistan General Pervez Musharraf.

**India-UAE during tenure of PM Modi**

- India and UAE share warm relations and it has received impetus after Prime Minister Modi to the gulf nation in 2015.
- It was further strengthen after Crown Prince visited India in 2017 as Chief Guest for Republic Day celebrations in New Delhi on request of PM Modi. UAE is one of few countries PM Modi has visited twice first in 2015 and later in February 2018.
- Bilateral trade between both countries stood at about US $50 billion in 2017, making India second largest trading partner of UAE. While, UAE is India's third largest trading partner (after China and US). Moreover, UAE is India's second largest export destination, accounting for over US $31 billion for the year 2016-17.
- Commercial relations between both countries are anchored by energy cooperation, trade, investments by UAE in India and investments & businesses driven by Indian expatriates in UAE.

- UAE accounts for 8% of India's total oil imports and are fifth largest supplier of crude oil to India. It is also part of International Solar Alliance (ISA), which is headquartered in Gurugram, India.

**Other awards received by PM Modi**

1. **King Abdulaziz Sash:** Saudi Arabia's highest civilian award in 2016 for his role in strengthening cooperation between the two countries.
2. **Seoul Peace Prize for 2018:** It was awarded for his contribution to international cooperation and fostering global economic growth.

## 22. Neelakurinji

**Context:**

Wildlife experts say the recent large-scale wildfires on the grasslands where Neelakurinji (Strobilanthes kunthiiana) blossomed widely in the year 2018, after a period of 12 years could have wiped out all the seeds of the endemic flowers from the area.

- The Forest Department suspects that the recent wildfires were man-made. Some areas are still engulfed in flames in the Munnar region. About 1,000 ha of forestland, grantis and eucalyptus plantations and grasslands have been destroyed in the fire.
- **Distribution:** It is a shrub prominently found in the shola forests of the Western Ghats. Besides it is also seen in the Shevroys in the Eastern Ghats.
- **Blooming period:** The blue flowers of Neelakurinji blossoms only once in 12 years.
- **Conservation:** Core area of Kurinjimala Sanctuary, in Idukki district of Kerala, protects the kurinji.
- **Cultural significance:** Nilgiri Hills (Literally meaning the blue mountains), got their name from the blue flowers of Neelakurinji. The Paliyan tribes (in Tamil Nadu) use it as a reference to calculate their age.

## 23. Domkhar Rock art sanctuary

**Context:**

Domkhar Rock Art Sanctuary, inspite of having prehistoric 500-odd petroglyphs (Rock Art) is neglected by Government organisations such as

the Archeological Survey of India, the Indira Gandhi National Centre for the Arts, INTACH, and the State government.

**About:**

Domkhar is a tiny village located by the banks of the Indus, 160 kilometres away from Leh.

Domkhar Rock Art Sanctuary was established in 2012 with the efforts of Stanzin Thangjuk, a farmer who has been instrumental in single-handedly protecting these rock carvings.

**Features:**

- It has 500-odd petroglyphs (Rock Art) spread all along the Indus with boulders etched deep with prehistoric carvings of men and beasts.
- The archaic scripts on these rocks are similar to those found among the nomadic tribes of the steppe region of Central Asia who lived 2,000 years ago.
- They are believed to be over two millennia old.

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