



# INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

- I A S   S E L F   S T U D Y   G U I D E -

## **INSIGHTS** into EDITORIAL TV/Radio **Synopsis**

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INSIGHTS IAS

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**INSIGHTS into EDITORIAL****1. India remains in the best position to help us****Context:**

The Maldives remains in crisis after President Abdulla Yameen imposed emergency on February 5, following the Supreme Court overturning the imprisonment of his political rivals.

**Background: The series of events**

- Maldives government has declared state of emergency in wake of the on-going crisis with Supreme Court.
- President Abdullah Yameen had said that he declared an emergency in the country as the Supreme Court had a plan to overthrow his government by first making it dysfunctional through a series of orders including release of nine opposition leaders.
- Former President Abdul Gayoom and two Supreme Court judges including chief Justice were arrested after the declaration of emergency.
- In the later events, Maldives Supreme Court cancels its earlier decision to release nine opposition leaders, hours after police arrested the Chief Justice and another judge.
- The court's remaining three judges issued a statement saying the order has been revoked in light of the concerns raised by the president.
- Opposition parties have called for international help saying Presidents' moves are encroachment on the entire democratic system.
- Mohamed Nasheed wants India to intervene in the situation. He lists China's "land grab" and the threat of the Islamic State (IS) as bigger challenges.
- India has asked that the Maldives' government should abide by the court's original ruling and lift the emergency.

**Why did opposition call government's decision on the Emergency is illegal?**

- Government needs 43 MPs in the Majlis (Legislative body of Maldives) that must vote in favour of emergency. But they don't have that number in the house.
- This means that the emergency, and any extension to it, is illegal. It also means that any actions taken by the government or security forces using emergency powers are illegal.
- Meanwhile, the Chief Justice and another Supreme Court Justice have been illegally detained. This means anything decided by the remaining SC justices is invalid.

**Why did multiparty talks offer fail?**

- The government has offered multiparty talks to resolve the long pending issue.
- However, Opposition parties would like to see the government create an environment that is conducive to talks.
- They feel it is very difficult to sit down while the Chief Justice along with the former President and many political leaders are in jail, and there is emergency rule.
- Opposition wants President Yameen to create an environment where both sides can trust each other and sit down for talks.
- But, at present, the general view is that President Yameen is trying to buy time. The United Nations should be engaged in them as well.

**What is the real crisis in the Maldives?**

- The real crisis in the Maldives is not dealing with dictatorship. The real crisis in the Maldives springs from two recent developments.
- First one is that the development of a state within the Maldives by the IS. Second, attempts by emerging powers to change state type, with a view to drive land grab.
- During the last 40 years, Saudi Arabia has propagated a very narrow version of Islam that has created a breeding ground for jihadi movements.
- It is also worrying that the Maldives has sent the most number of people per capita than any country to fight for the IS. Hundreds of Maldivians have joined jihadi groups. The issue becomes a crisis as the IS would soon spread to the Maldives.

- Although land grabs are occurring worldwide, they are more common in countries where the protection of human rights is poor.
- Due to a combination of international and domestic drivers, the Maldives has become a flourishing land-grab paradise. China has increased its influence with more foreign direct investments without a proper scrutiny and competitive bidding
- The weapons in the new colonial arsenal are bribery, corruption and dubious investments.

#### What is it that anti-incumbent parties want India to do?

- India must be on the ground in Male with an envoy and try to ensure that President Yameen relents.
- Nasheed also called upon India to send an envoy backed by military to release judges and political detainees. He also requested US government to stop all financial transactions of Maldives regime leaders going through US banks.
- Maldives becoming an area of contestation, struck by the roles that India, China and the U.S now play in the Indian Ocean. Maldives seem to be a bit sandwiched there.
- The U.S., however, seems to be looking more and more inwards, and it is unlikely that US will exert their power in the ocean. So, India remains in the best position to help Maldives to get out of the present crisis.
- India must do to counter China's troublesome, but obviously attractive, influence in South Asia.
- India was the only country in the region, minus Bhutan, which didn't join China's Belt and Road Initiative (BRI). In the past, the Maldives became a middle-income country, primarily through development loans from the State Bank of India.
- India has the ability to provide more sustainable loans for Indian Ocean countries, and that is where it has an edge.

## 2. Planning for electric mobility

#### Context:

- Pollution is the largest environmental cause of disease and premature death in the world today.
- Last year, the Lancet Commission on Pollution and Health, attributed to air pollution an estimated 6.5 million premature deaths globally, with 1.1 million being from India.
- The World Health Organisation's urban air quality database had found four Indian cities to be among the world's 10 most polluted.
- As vehicular pollution is the main cause for deteriorating air quality in India, solutions like shift to Electric Vehicles (EV) is widely discussed.

#### Why is Pollution a major cause of concern?











- Pollution is one of the great existential challenges of the Anthropocene epoch. Pollution endangers the stability of the Earth's support systems.
- Pollution in low-income and middle-income countries is caused by industrial emissions, vehicular exhaust, and toxic chemicals.
- Fuel combustion is also a major source of the greenhouse gases and these short-lived climate pollutants drive climate change.
- Pollution is a major cause of concern as it disproportionately kills the poor and the vulnerable.
- Children are at high risk of pollution related disease and even extremely low-dose exposures to pollutants can result in disease.
- Pollution is very costly. Pollution-related diseases cause **productivity losses that reduce gross domestic product (GDP)** in low-income to middle-income countries by up to 2% per year.
- Pollution endangers planetary health and destroys ecosystems.
- The data from the **Global Burden of Disease study**, brings together comprehensive estimates on the effects of pollution on health, provides economic costs, and information on contaminated sites across the world for the first time.

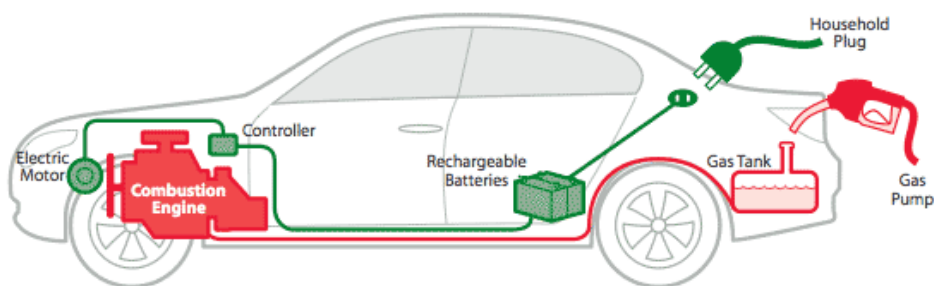
#### Can Electric Cars Solve Air Pollution Problems?

- Internal combustion engine vehicles are responsible for the vast majority of pollutants. Whereas Electric vehicles produce little or no pollution directly except pollution created at the power plant that provides their electricity.

- The electric vehicles reduce air emissions associated with typical internal combustion vehicles (ICVs), thereby decreasing the emission of environmentally damaging products such as carbon dioxide and nitrogen oxides.
- Since electric vehicles run on electricity generated from batteries and do not emit air pollutants, these vehicles are termed **zero emission vehicles (ZEV)**.
- While transforming from an ICV to EV based engines is to be an arduous task, the long term benefits could outweigh the hardships.
- But to reach a goal of moving towards electric mobility by 2030, India needs to address all fundamental issues immediately.

## Electric vs. Gasoline

No Tailpipe Emissions 	Greenhouse Gases/Pollution 
Utility Company 	OPEC 
100+/- Mile Range 	300+ Mile Range 
Hours to Recharge 	Minutes to Refuel 
2 cents per mile 	12 cents+ per mile 



### What are the fundamental issues that need to be taken care of?

#### 1. Coordination among various stakeholders:

- EVs, unlike ICE vehicles, involve several actors at the national, State and city levels, respectively
- Multiple ministries such as Road Transport and Highways, Housing and Urban Affairs, Heavy Industries, Power, New and Renewable Energy, External Affairs as well as national institutes such as NITI Aayog should work together.
- State and city-level players need to be involved so as to address several technical and infrastructural needs.

#### 2. Figuring out the best mode forward:

- Different countries have different approaches to increase the EV penetration.
- For example China has focussed on **Electric buses** as catalyst for EV penetration.
- On the other hand, Netherlands has captured the EV market using a simple yet well-crafted strategy of creating **charging infrastructure** and encouraging investment in charging technology. It's a major exporter of this technology too.
- Currently India is the largest exporter of two wheelers and auto-rickshaws. So, India has to choose its own strategy according to its own requirements to increase EV penetration.

#### 3. EV battery production:

- India does not produce lithium-ion (Li-ion) batteries currently, and companies making battery packs are dependent exclusively on imports from China.
- This is a cost-saving strategy as setting up a cell manufacturing unit in India would be expensive.
- But, accelerating EV use in India **should be linked to the "Make in India"** goal and domestic battery production.

4. Charging infrastructure:

- Charging infrastructure for electric vehicles in India has not been fully developed yet.
- EV charging is more than just using electricity. **It involves exchange of information** requiring a communication protocol.
- The three major EV users, China, Japan and the European Union, have their own charging technologies which are not interchangeable.
- The absence of a standard global infrastructure is a major deterrent for EV penetration in India, as creating infrastructure can be cost-intensive.
- The government needs to select or develop appropriate and safe charging technology that avoids multiplicity and reduces the cost of infrastructure.

5. Jobs and the economic impact:

- India is one of the largest producers of motor vehicles and the sector is estimated to provide direct and indirect employment to 3 crore people. And it is estimated to grow further.
- EVs have the potential to disrupt the mobility ecosystem, and, if implemented well, could have a positive impact on the economy as well as the urban environment.
- Hence, the impact on employment in the wake of shift to Electric vehicles needs to be thoroughly studied. Bold initiatives and robust investments in technological research are required to turn its EV dream into reality.

**Government Initiatives**

- The government has asked auto companies to start manufacturing electric vehicles in India, and is also studying global markets to come up with a policy surrounding electric mobility and storage.
- The Government started **Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME)** scheme which provides incentives for purchasing electric vehicle.
- Government is releasing tenders to increase charging infrastructure in the country. India will get its very first electric vehicle charging station in Nagpur.
- Karnataka state approved Electric Vehicle and Energy Storage Policy 2017.
- BS (Bharat Stage) protocol for Charging was formed to build the framework for future charging stations.

**3. Grid stability is key****Context:**

- Electricity is a major concern in rural India, especially for farmers. The Government of India has come up with an original plan to address this problem.
- With the objective of providing financial and water security to farmers, Government has come up with a scheme called **Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM).**
- Additionally, to ensure optimal use of this solar energy, and to incentivise farmers to shift to renewable energy, the government plans to purchase the surplus power through electricity distribution companies.
- Government must ensure that this ambitious plan to help farmers earn from solar power is properly studied and implemented.

**KUSUM**

The **KUSUM (Kisan Urja Suraksha evam Utthaan Mahabhiyan)** scheme was announced in the Union Budget in 2018.

**Features:**

- The government will spend 48,000 crore rupees over 10 years as central financial assistance (CFA).
- The scheme aims to encourage the **use of barren land** for setting up solar power plants.
- Scheme incentivizes farmers to run solar farm water pumps.
- This programme will help set up more than 28 GW of combined solar capacity through these solar pumps.
- Ministry of New and Renewable Energy will start implementing this scheme from the next fiscal year.

**What are the advantages of the scheme?**

- Transmission losses and power theft would drop significantly.
- As proposed in the scheme, the main priority will be to rely on Local generation of power.
- It promotes decentralized solar power production.
- The scheme would also promote energy efficiency, water conservation and water security to farmers.
- The government's plan to purchase the surplus power through electricity distribution companies will certainly increase agricultural incomes and reduce electricity losses.
- The sale of excess power from farmers will discourage overutilization of groundwater.

**Four components of the Scheme:**

- The scheme plans for setting up of 10,000 MW of **Decentralized Ground Mounted Grid Connected Solar Power Plants**
- Installation of 17.50 Lakh **Stand-alone Solar Pumps**
- Solarisation of 10 Lakh **Grid Connected Agriculture Pumps**
- 50 Thousand **Tube-wells/Lift Irrigation Projects** by Financial Year 2021-22.

**What are the limitations?**

- The feasibility of purchasing surplus solar power seems challenging. There is a need to address the issue of grid stability that this injection of surplus power is bound to create.
- Balancing of all power grids is more important. Because power generation should work round the clock as electricity generated can't be stored.
- The existing electrical gridlines were created to depend on reliable and controllable generators of coal, oil and even hydroelectric power.
- So, for inclusion of solar and wind power generators into the grid, a more precise balance will have to be created.
- Solar and wind power are fluctuating in nature which depend on sunlight and cloud conditions.
- Variations in weather patterns make it more difficult for the grid operator to predict the balance of electrical energy that will be required to meet the demand.
- So to maintain a consistent round-the-clock power delivery the grid operators will need to have a back-up source of power in the form of coal or oil.

**What is the need of the hour?**

- Because of India's sheer size, the variability factor considerably increases like when some areas have low consumption; others are likely to have high consumption.
- So, more stability can be achieved **by integrating the grids into all-India grids.**
- Attention also should be given to the stability of the grid; otherwise the grid network collapses due to the uncertainties of power supply and demand.
- Expected **advances in storage technology** would also significantly improve grid stability.
- Centre along with state governments should put in place adequate procedures to purchase the excess solar power from farmers.

**4. Adopting a 'wait and watch' approach****Context:**

- India and Iran have cultural, economic and other relations with each other since the last many centuries.
- During his recent India's visit, Iran's President has expressed willingness to share its vast oil and natural gas resources with India for the prosperity of its people and offered to simplify visa norms to strengthen the relations between the two countries.
- This visit took place in the wake of a huge push back against Tehran from some of its Arab neighbours, Israel and the Trump administration.

**Rising tensions in the Region:**

- Rouhani's visit took place against the background of rising tensions in the region.
- The situation in Afghanistan is worsening. Iran's relations with Saudi Arabia remain tense.
- Russian intervention has stabilised Syrian President Bashar al-Asad's position. However, the fragility in the region was visible in the recent shooting down of Iranian drone by Israel, and downing of an Israeli Air Force jet by Syrian air defence.
- Iran has also increased its role in Iraq, and activated links with the Taliban in Afghanistan, adding to the U.S.'s growing impatience and unhappiness.

### Background: India and Iran relationship

- It was during the late 1990s and the early years of the last decade that both countries achieved a degree of strategic convergence.
- Ties between the two countries gained a new momentum in 2001 when '**Tehran Declaration**' was signed which marked the areas of possible cooperation between the two countries.
- Continuing the trend, Iranian President visited India in 2003 and signed "**The New Delhi Declaration**". Ever since, the two countries have developed trade relations in several areas, mainly in Iranian crude oil.
- India has been a significant importer of Iranian oil, with Tehran emerging as the country's third largest oil supplier.
- A highway between **Zaranj and Delaram** is being built with financial support from India. This highway will give access to Afghanistan through Iran.
- The **Chabahar port** (situated in the Sistan-Balochistan province ) has also been jointly financed by Iran and India. It will give India access to the oil and gas resources in Iran and the Central Asian states. It is also viewed as a move to counter Pakistan's Gwadar port, which helps China extend its influence across the Arabian sea and Indian Ocean.
- The first phase of the port was inaugurated in December 2017. Iran had allowed a **wheat shipment of 15,000 tonnes for Afghanistan through Chabahar**.
- With an objective of increasing Trade connectivity the **International North-South Transport Corridor** is planned. It is the ship, rail, and road route for moving freight between India, Russia, Iran, Europe and Central Asia.

### Why was India's relationship with Iran strained?

- After, the U.S. declared Iran as part of the 'axis of evil', Iran's President Mahmoud Ahmadinejad accelerated Iran's nuclear enrichment programme.
- This led to more sanctions against Iran and India's economic engagement with Iran was impacted.
- **India's vote against Iran** in the International Atomic Energy Agency (IAEA) generated unhappiness in Tehran.
- The **JCPOA**, spearheaded by the Obama administration, eased sanctions, helping India increase its oil imports from Iran and reactivate work at Chabahar.
- But with Mr. Trump, Iran's uncertainties are increasing. In January, President Trump renewed the 120-day sanctions waiver but announced that this was the last time he was extending it.

#### JCPOA (Joint Comprehensive Plan of Action)

- JCPOA is an international nuclear deal agreed between **Iran** and **P5+1 (China, France, UK, USA, Russia and Germany) and EU**.
- The initial framework lifted economic sanctions on Iran and in return Iran would restrict country's controversial nuclear energy programme.
- The JCPOA was unanimously supported by the United Nations Security Council (**Resolution 2231**) enabling Security Council sanctions to be lifted.

### What is the problem now?

- The U.S. has imposed multiple and often overlapping sanctions on Iran pertaining not only to nuclear activities but also to missile testing, human rights, and terrorism.
- Since Trump election, the threat of the U.S. snapback has increased. It means that third country companies may now attract U.S. sanctions if they commit any relations with Iran.
- In addition to it, unrest took place in Iran with growing corruption. Part of the reason for the economic grievances is the slower than promised sanctions relief.
- US anti-Iran sentiment has been backed by Israel and Saudi Arabia. Both blame Iran for aggressive behaviour — the former with regard to the growing influence of Iran and Hezbollah in Syria and the latter for the prolonged war in Yemen which was initiated as a quick operation in 2015 by the Crown Prince to restore President A.M. Hadi.
- Russia, China, and the European countries have indicated their full support for the JCPOA.

### Highlights of Iran President's India visit

- India conveyed its support for the full and effective implementation of the JCPOA.
- India also expressed the need for strengthening consultations on Afghanistan, and enhancing regional connectivity by building on the Chabahar.

- **Nine MoUs were signed** relating to
  - avoidance of double taxation
  - visa simplification
  - cooperation in diverse fields including agriculture
  - traditional systems of medicine
  - health and medicine
  - postal cooperation
  - trade remedial measures
  - **a lease contract for an interim period of 18 months for Phase 1 of Chabahar.**

#### Challenges:

- The negotiations on the **Farzad-B gas** field remain stuck, with both sides blaming the other for shifting the goalposts. It was remained on paper because of Iranian unhappiness over India's stand in the IAEA.
- There was just a talk about an aluminium smelter plant and a urea plant to build up Indian investments in the Chabahar free trade zone.
- The railway link has been mentioned in the context of connectivity to Afghanistan but the economic rationale for the \$2 billion investment has been missing.
- An agreement on exploration of a rupee-rial arrangement was made which could provide an alternative channel for economic and commercial transactions in case of U.S. sanctions. The sanctity of this will need to be tested.
- Trade between the two countries has hovered around \$10 billion, with two-thirds of it accounted for in terms of oil imports from Iran while in contrast, that between India and the United Arab Emirates is \$60 billion.

#### Way Forward

- ✓ The near-term developments in its neighbourhood are a priority for Tehran even as India tries to find a balance with his stated preference to develop closer ties with both the U.S. and Israel.
- ✓ India and Iran are looking to swiftly conclude a preferential trade agreement and a bilateral investment treaty.
- ✓ Newly relaxed visa norms announced by Iran in addition to India's proposal for Indian businesses to invest in rupees in Iran are all moves in the right direction.
- ✓ Nonetheless, they may be insufficient to cement commercial ties if USA sanctions do return.
- ✓ India should give its full support for the effective implementation of the JCPOA. Only successful implementation of the JCPOA over a period of time can create the political space for additional negotiations.
- ✓ Both the nations can take leverage of their historical and civilizational relations to steer ties so much. The visit proved to be a much-needed reality check to the India-Iran partnership.

## 5. Can banking recover?

#### Context:

- State-owned Punjab National Bank (PNB) disclosed that it has discovered around Rs 11,400 crore worth of fraudulent transactions. The lender named firms and people associated with billionaire jeweller to conspire with some of its officials to defraud the bank using bank guarantees.
- This bank fraud is another cause of worry as the Indian banking system is already reeling under the pressure of growing NPAs, or non-performing assets.

#### What is the fraud about?

- The failure has occurred at many levels. From handful employees at the level of the bank; senior management and auditors who did not track these problematic transactions for years; even RBI for creating opacity with new financial instruments and The Finance Ministry for failing in its oversight and regulation are the major reasons for the current fraud.
- The main issue of the scam is with the new financial instrument, **the letter of undertaking (LoU).**
- The PNB scam relied on the existence of an unusual financial instrument, the letter of undertaking (LoU).
- This is a **bank guarantee** that enables a bank's customer to raise short-term credit from another Indian bank's foreign branch. It has to be another Indian bank.
- It was created by the **RBI as an additional incentive to importers** who could then avail of cheaper credit abroad.

**What is irregular about this?**

- In the normal course, when an importer goes to a bank to ask for such a guarantee, one of two things happens. One, the bank asks him for collateral before it gives a guarantee. Second, the bank sanctions a credit limit.
- That means it will evaluate the importer and says he is good to be given a loan for a certain amount.
- In the PNB fraud case, the bank employees had sent these guarantees (unauthorised letters of undertakings (LoUs)) in the absence of credit limits and collateral security.
- These LoUs which are equivalent to providing credit and should be recorded as contingent liabilities were not so recorded. In some cases, corresponding entries were made in the core banking system, but for lower amounts.
- When loans are not repaid — in this case vast amounts borrowed from other banks based on these LoUs were apparently siphoned off to shell companies.
- What was intended to be trade credit was misused, with no record and monitoring of the spending from those loans.

**Why is crony capitalism also a major reason for fraud?**

- Crony capitalism is an economy in which businesses thrive not as a result of risks they take, but through a nexus between a business class and the political class. Crony capitalism has its many forms.
- Some favoured companies are not declared wilful defaulters even when the government's own investigating agencies find that they are diverting funds.
- Those declared as wilful defaulters are neither punished nor prevented from leaving the country. In fact their names are not even made public, so they can continue to access loans from other banks.
- Some insolvent companies are made to sell their assets which are then purchased at throwaway prices by relatives or associates of the defaulting owners.
- Moreover, shell companies held by influential people continue to enable the siphoning of assets and money laundering in various forms.

**Is Privatisation answer to the prevailing Banking issues in India?**

- The current mess has become an excuse to demand the privatisation of state-held banks. However, privatisation unlikely would make things better for Indian banking.
- The key issue is one of poor regulation, and not ownership. Indeed, despite current trust in the public banking system is still visible because of sovereign guarantee.
- Poorly regulated private banks are even more prone to scams and failure as the financial sector is rife with information asymmetries and market imperfections.
- Private profit orientation generates incentives for managements to exploit loopholes in the rules and engage in risky behaviour. For instance, the subprime mortgage crisis of 2008-'10 was manufactured by major private banks in USA.
- The bailouts they then require tend to be even more expensive for the public exchequer because bank runs have to be prevented. Many private banks in Europe and USA had to be bailed out by governments.
- Private Banks are not safe from NPA issue. For instance, private banks such as Axis and ICICI also face large NPAs, often with the same companies that are defaulting on public banks.
- Cases of governance breakdowns are not a monopoly of PSB in India, many privately-owned banks also have been regularly identified with such errors.
- In fact, because of the opacity of banking practices, public banks are actually easier to regulate.

**Way forward**

- ✓ Banking failures have large social consequences given the deep financial linkages banks have with each other as well as with other parts of the economy.
- ✓ Privatisation is surely not the answer. It shows the acceptance of procedural weakness of the fiscal system and might mean much higher costs for the common man.
- ✓ The government may ask banks to go for more "hair cut" or write offs for NPAs.
- ✓ The Banking Regulation Act may be amended to give RBI more powers to monitor bank accounts of big defaulters.
- ✓ RBI wants stricter rules for joint lenders' forum (JLF) and oversight committee (OC) to curb NPAs.
- ✓ The NPA problem has to be tackled before the time a company starts defaulting. This needs an early risk assessment by the lenders.

- ✓ Strategic debt restructuring (SDR) scheme and sustainable structuring of stressed assets (S4A) has to be implemented in timely manner.
- ✓ Recovering from current Banking problems will require stricter adherence to sound banking rules and more transparency and accountability from both public and private players.

## 6. Stemming the tide of agrarian distress

### Context:

- India is mainly an agricultural country. Agriculture is the most important occupation for 60% of the population either directly or indirectly. It is the basic foundation of economic development.
- It is not merely a source of livelihood but a way of life. It is the main source of food, fodder and fuel.
- This year's budget has increased outlays to the agricultural sector and initiation of various programmes. However, there are some real challenges that need to be solved to address agrarian distress in India.

### What are the main challenges that need to be addressed?

#### 1. Regarding MSP price:

- Raise the minimum support price (MSP) by at least 50% above the cost of production. It should be extended to all crops.
- The production cost of any crop should include all actual expenses in cash and kind incurred in production and rent paid for leased land, imputed value of family labour plus interest paid.
- However, as per the current calculations, only actual paid cost and unpaid family labour is covered and the government has been giving MSP above 50% of that production cost figure.
- Sadly, the same practice will also be continued in the current budget year.
- While a workable formula for fixing MSP in consonance with the States will take time, the government must extend immediate help to farmers from rampant price volatility.
- In addition to it, States can continue with implementing various 'price deficiency payment schemes'.

#### 2. Develop and upgrade the existing rural haats into Gramin Agricultural Markets

- A corpus of ₹2,000 crore has been allocated in the name of the Agri-Market Infrastructure Fund for developing and upgrading marketing infrastructure.
- The real challenges are to ascertain the priority of the respective States towards it and ways to accelerate its pace.
- Under market reforms, it will also be important to link production centres with marketing through agri-value chains, which would require farmers to aggregate, form self-help groups, or farmer producer organisations to avoid exploitation of farmers.
- A hike in MSP should be supplemented with irrigation, and reduction in fertilizer cost.
- Another interrelated initiative is the launching of 'Operation Green' with an outlay of ₹500 crore to address the challenge of price volatility of perishable commodities.
- State governments need to bring various programmes under one roof, perhaps within the Agricultural Produce and Livestock Market Committee 2017, to help farmers.

#### 3. Increase institutional credit

- The share of agricultural credit in gross domestic product in agriculture and allied activities has increased from 10% in 1999-2000 to 41% in 2015-16.
- Targeting of the announced allocation to the poorer farmers and tenants in each State is the need of the hour.

### What are different price deficiency payment schemes implemented in different states?

While some have announced loan waivers, others are trying to fix farmers' problems originating from tumbling farm prices.

#### 1. Bhavantar Bhugtan Yojana (BBY) , Madhya Pradesh:

- It is essentially a price deficiency payment (PDP) scheme, being undertaken by the government of Madhya Pradesh.
- BBY applies to eight kharif crops — soybean, maize, urad, tur, moong, groundnut, til, ramtil.

- Under the BBY, farmers have to first register on a portal. Their sown area is verified by government officials.
  - Farmers are then asked to bring their produce to mandis at a time fixed by the state government.
  - Based on average productivity of a crop in the district and area cultivated by the farmer, the quantity of each produce that is eligible for deficiency payment is also determined by the government.
  - Farmers receive the difference between average sale price (ASP) and MSP directly into their bank accounts.
  - The ASP is calculated as the simple average of the weighted modal prices of the relevant crops in the regulated mandis of Madhya Pradesh and two adjoining states.
  - For kharif 2017-18, so far, data related to five crops (soybean, maize, groundnut, urad and moong) has been finalised for price deficiency payment.
  - The scheme seems interesting as it provides an alternative to physical procurement of commodities at minimum support prices (MSPs).
  - However, this scheme is not without limitations. 100% production of crops is yet to be covered under the scheme. Still a larger proportion of farmers are not registered on the portal.
2. The **Haryana government** has announced a somewhat similar scheme for four vegetables — potatoes, onions, tomatoes and cauliflower. In contrast to these programmes is the government of Telangana's input support scheme.
3. **Telangana's Farm Input Support Scheme:**
- The scheme's objective is to relieve farmers from taking loans from moneylenders by giving them Rs 4,000 per acre for the kharif and rabi seasons.
  - It is envisaged that the farmer will use this money for purchase of inputs ranging from seeds to fertilisers to machinery and hired labour.
  - The farmer is free to grow a crop of his choice and sell it anytime in a mandi of his choice.
  - This model is crop-neutral, more equitable, more transparent, and gives farmers the freedom to choose.
  - Incidentally, China has a similar scheme: It gives aggregate input subsidy support on a per acre basis.

### What's missing?

There are certain pressing issues not considered in this Budget that must be given closer attention.

1. Close to 52% of net sown area is still unirrigated and rainfed, in addition to the recurrence of floods and droughts due to climate change. The subject has not received due attention in this Budget.
2. Centre's plan to take up 96 districts deprived of irrigation with an allocation of ₹2,600 crore under the Prime Minister Krishi Sinchayee Yojana — Har Khet ko Pani need to be implemented effectively.
3. At the same time, **the Minor Irrigation Census 2013-14**, published in 2017, warns of a **tremendous increase in deep tube wells** to more than 2.6 million in 2013-14, from 1.45 million in 2006-07, and **the resultant decline in the ground water table**.
4. The Government need to keep in consider the condition of ground water table while implementing a programme with the State governments to enable farmers to install solar water pumps to irrigate fields.

### Way Forward

- ✓ A **location-specific policy for irrigation** with the identification of suitability of medium-major irrigation projects and/or minor or micro irrigation facilities is required to protect farmers from the adverse impacts of climate change.
- ✓ It must be supplemented with **timely completion of pending canal irrigation projects**, and **strengthening of the National Agricultural Insurance Scheme** by an increase in compensation and timely advice on weather.
- ✓ **Technological interventions** that update farmers about sowing and harvesting time and extension services can help prevent misfortunes.
- ✓ Investment in **agricultural research and development** (Ag R&D) should be increased.
- ✓ More **drought and pest-resistant crops** are needed, along with better irrigation technology.
- ✓ Farmers also require interventions in the seed sector to raise production and diversify to alternate crops to induce higher growth.
- ✓ The government should assure doable action plans that quickly rescue famers from price or crop failure.

## 7. Going grey

### Context:

- The Financial Action Task Force (FATF) has decided to place Pakistan back on its watch list, or “grey list”, from June subjecting it to direct monitoring and intense scrutiny by the International Co-operation Review Group (ICRG) on terror financing
- ‘Grey list’ comprises nations that are not doing enough to combat terrorism financing.

### Why did FATF decide to place Pakistan on its watch list?

- Pakistan had been on the same list from 2012 to 2015.
- The decision is overdue, given Pakistan’s blatant violation of its obligations to crack down on groups banned by the Security Council 1267 sanctions committee that monitors groups affiliated to the Taliban such as the Lashkar-e-Taiba, Jaish-e-Mohammed and the Haqqani network.
- Their leaders like Hafiz Saeed and Masood Azhar continue to hold public rallies and freely garner support and donations.
- Both the LeT and JeM, continue to praise and claim credit for terror attacks in India. They have grown their bases in Pakistan, with fortress-like headquarters in Muridke and Bahawalpur that the authorities turn a blind eye to.
- By doing this, successive Pakistani governments shown disregard for the outcry against terrorism worldwide.
- One violation was a Pakistani court’s bail to Zaki-ur-Rehman Lakhvi, LeT operational commander and a key planner of the November 2008 Mumbai terror attacks.
- Under the 1267 sanctions ruling, banned entities can get no funds, yet Lakhvi received the bail amount, and the authorities have since lost track of him.

### What is UNSC resolution 1267?

- UNSC resolution 1267 was adopted in 1999.
- Under this, the UNSC designated Osama bin Laden and associates as terrorists. It also established a sanctions regime to cover individuals and entities associated with Al-Qaida, Osama bin Laden and Taliban wherever located.
- Since US invasion of Afghanistan in 2001, the sanctions have been applied to individuals and organizations in all parts of the world.

### Who supported this resolution against Pakistan?

- The resolution against Pakistan was moved by the US because Islamabad is not doing enough to comply with anti-terrorist financing and anti-money laundering regulations.
- The initial push came from the US, UK, France and Germany to get Pakistan placed on the Financial Action Task Force’s “grey” list.
- Earlier, the Saudi Arabia-led GCC and Turkey had objected to the listing. Western powers, including the US, France and UK, worked on the GCC to also join the consensus.
- China also removed its earlier objections to the move.

### What are the implications for Pakistan now?

- Once placed in the “grey list”, countries face risk of downgrade by multilateral lenders like IMF, World Bank, ADB etc. And further reduction in their risk-rating by agencies.
- It may impede Pakistan’s access to global markets to attract foreign investments at a time when its foreign reserves are dwindling and external deficits are widening.

### What is FATF?

The Financial Action Task Force (FATF) is an **inter-governmental body** established in 1989.

- The FATF is a “policy-making body” which works to generate the necessary political will to bring about national legislative and regulatory reforms in these areas.
- The FATF has developed a series of Recommendations that are recognised as the international standard for combating of money laundering and the financing of terrorism and proliferation of weapons of mass destruction.
- The FATF monitors the progress of its members in implementing necessary measures, reviews money laundering and terrorist financing counter-measures.
- It promotes the adoption and implementation of appropriate measures globally.

### The objectives of the FATF:

- To set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.

- Some kind of pressure is increased up with financial censures on its banks and businesses and targeted sanctions imposed against specific law enforcement and intelligence officials.
- If Islamabad will not comply with the obligations then the country runs the risk of being included on to the blacklist of the FATF that currently features Iran and North Korea.
- As a reaction to this move, authorities in Pakistan recently confiscated all properties of the Jamaat-ud-Dawa (JuD) and its charity arm, the Falah-e-Insaniat Foundation (FIF).

### Conclusion

- ❖ The hope is that such sanctions will persuade Pakistan to stop state support for these terror groups and become a responsible player on the global stage and a responsive neighbour.

## 8. Is AI a danger to humanity?

### What is Artificial Intelligence?

- Since the invention of computers, their capability to perform various tasks went on growing exponentially. Their processing speed has increased and size is reduced phenomenally with respect to time. Artificial Intelligence pursues creating the computers as intelligent as humans.
- Artificial Intelligence is a way of making a **computer or a software** think intelligently, in the similar manner the intelligent humans think.
- AI is associated with superlative memory, calculative power, decision-making capacity, high speeds of action.

### What are some of the applications of AI?

- AI plays crucial role in strategic games and it is being used in games such as chess, poker where machine can think of large number of possible positions based on empirical knowledge.
- It is possible to interact with the computer that understands natural language spoken by humans. E.g. Sophia is an AI based social humanoid robot.
- There are some applications which integrate machine, software, and special information to impart reasoning and advising. E.g. Google search engine.
- AI is being used by Doctors as clinical expert system to diagnose the patient.
- AI based Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature and movement etc. They are capable of learning from their mistakes and they can adapt to the new environment.

### What are the giant leaps in AI?

- ❖ The rise of AI importance in health and medicine is clearly evident. It was recently reported that heart diseases can be predicted with machine learning.
- ❖ Health care and medicine become affordable and accessible with AI taking centre stage in telemedicine and quick diagnosis.
- ❖ Water and energy networks become accessible and widely usable when AI can mediate the use of different sources. AI machines can replace humans to physically go to, and service, remote locations.
- ❖ AI is in a nascent stage and is being shaped by innovators across the world. There will be many kinds of AI and many kinds of species augmented by AI. It's important to get more people to participate in the building and shaping of AI.
- ❖ Inclusive AI will mean that more of society will be able to enjoy its benefits and participate in shaping the future.

### What are Strong and weak AI?

- ✚ We have “weak AI” all around us from translation Apps to facial recognition on social networks.
- ✚ AI has just become a buzzword for any form of algorithmic decision-making or usage of big data combined with self-improvement. Weak AI builds on mathematical techniques.
- ✚ Apart from computational power, AI requires numerous amounts of data to learn. This data can either be generated by the machine itself or it has to be provided data.
- ✚ Strong AI is a type of ‘thinking’ machines’.
- ✚ By using AI Google is helping all persons with hearing impairment; by using AI for real-time image recognition, visually impaired persons are provided a chance to have the world in front of them narrated to them.

- ✚ The beneficial uses of AI cannot be denied. Despite the beneficial uses of AI, scientists and leading thinkers like Stephen Hawking, Nick Bostrom, and Elon Musk warn us about the dangers of AI and the coming technological singularity.

#### What are the concerns about AI?

- AI is an attempt to create super intelligent machines that can do things far better than humans. But the real worry about these technologies is the emphasis on intelligence rather than other characteristics of human beings.
- AI has not been used to get rid of poverty, to have more equitable distribution of wealth, or to make people more content with what they have.
- The types of AI we have, including war machines, will primarily be dictated by profit for the companies that make them.
- Being human is about living with others and learning to live within our limitations. Vulnerability, decay and death characterise any living form. Super intelligent AI machines may harm this balance.
- These thinking machines may know how to manipulate humans to the extent that humans will not be able to see their negative effects.
- All technologies come with a cost (not just economic but also social and psychological) and we have very little idea of the cost that AI will extract from us.

#### What is the need of the hour?

- ✓ Ethical norms regarding uses of AI and our ability to regulate them in an intelligent and beneficial manner should keep pace with the fast changing technological capabilities.
- ✓ That is why we need AI researchers to actively involve ethicists in their work.
- ✓ Some of the world's largest companies like Baidu, Google, Alibaba, Facebook, Tencent, Amazon, Microsoft are cornering the market for AI researchers. They also need to employ ethicists.
- ✓ Additionally, regulators across the world need to be working closely with these academics and citizens' groups to put brakes on both the harmful uses and effects of AI.
- ✓ For governments to regulate, we need to have clear theories of harms and trade-offs, and that is where researchers really need to make their mark felt: by engaging in public discourse and debate on what AI ethics and regulation should look like.

## 9. Rolling back free trade?

- US President imposed heavy tariffs on imported steel and aluminium to boost the US industry. He said, US industry has been suffering from "unfair" business practices and this move has sparked fears of a global trade war.
- The president said he would exempt Canada and Mexico as "a special case" while negotiating for changes to the North American Free Trade Agreement.
- The European Union has responded by warning that it will retaliate with tariffs on a range of US imports.

#### Why are these tariffs global in nature?

- A 25% duty on steel and 10% on aluminium imports is imposed for an unspecified period. US President's America First agenda, would mainly impact traditional allies of the United States.
- Unlike the punitive tariffs that the United States imposes on "dumped" or unfairly subsidised goods from specified countries, these steel and aluminium measures would apply to all countries.
- They are "safeguard" tariffs. The aim of these measures is to stop a sudden, unforeseen and damaging import surge that could seriously damage a particular industry.

#### What is the impact of new tariffs?

- The E.U. is the top trading partner of the United States in goods, and it is the top U.S. export market.
- Unfortunately, it could once again revive protectionist sentiment which has been on the wane following the recovery from the global economic meltdown.
- As a result, US's traditional allies, who will be hit the most from the tariffs, have warned of bilateral retaliation on a range of US imports including peanut butter, cranberries and orange juice.

**Why is this measure hard to challenge quickly?**

- In justifying the measure, the administration invoked a national security law, departing from an international consensus not to impose trade barriers.
- Countries are allowed to this kind of recourse under the General Agreement on Tariffs and Trade in times of war and other emergencies.
- Safeguard tariffs are legal under World Trade Organization (WTO) rules, but the checks and balances on them are weak.
- If the complainants go to the WTO and litigate, they may lose their right to compensation and simply open up years of legal battling.
- A tit-for-tat trade war may begin, as they impose unsanctioned measures to even up the score.
- The same thing can be seen in European Union's response which warned that it will retaliate with tariffs on a range of US imports.

**What is the collateral damage?**

- Although apparently intended to help US steel and aluminium makers, the tariffs could lower profits for companies as well as increasing prices for consumers.
- In U.S., the latest levy is expected to put at risk millions of manufacturing jobs that rely on these metals.
- American steel and aluminium manufacturers will get a boost, but it's not clear that they actually have the capacity to meet a huge surge in demand.
- Other sectors of American manufacturing could be hurt by rising steel and aluminium prices. The tariffs would raise the cost of raw materials for automakers like Ford (E) and General Motors (GM).
- Conversely, it is unlikely to create significant new employment in these two sectors.
- Many trade economists say Trump's zero-sum, "mercantilist" view of trade is misguided and that he is wrong to think trade deficits are always bad.
- In addition to it, Republicans opposed to President's approach worry that the hefty tariffs could undermine recent tax initiatives to lure investment.

**What are other countries saying?**

- A trade war triggered by safeguard tariffs would open a new wound in the global trading system.
- China has warned that it would have a "huge impact" on the global trading order.
- Australia's trade minister said that the imposition of a tariff like this will do nothing other than distort trade, and ultimately will lead to a loss of jobs.
- These measures severely damage multilateral trade mechanisms represented by the World Trade Organization and will surely have huge impact on normal international trade order.

**10. It is time to have a debate on proportional representation**

- Various electoral reforms like improving transparency in party funding and holding simultaneous elections are being debated in our country.
- In country's electoral process there are wide range of challenges posed by electoral bonds, the concerns over the tampering of electronic voting machines (EVMs), and the problems with the first-past-the-post system.

**Are Electoral Bonds the solution for making political funding Transparent?**

- Free and fair elections are not possible without transparency in political funding.
- Earlier, all donations above ₹20,000 were disclosed to the EC. Political parties accept donations in crores and convert them into cheques of ₹20,000 — and this is more than 75% of all collection of political parties where sources are unknown.
- Now, with electoral bonds, 100% source will be unknown.

**Electoral Bonds**

- An electoral bond is an interest free banking instrument for political funding. It can be purchased in SBI for 10 days in January, April, July and October. It will increase to 30days during LS election year.
- Bonds are available only in specifies denominations.
- The bearer bond will ensure anonymity. They can be brought with a cheque or electronic money.

- The government has decided to give precedence to the donors' wish to be anonymous for two reasons: one, other parties would make a beeline for their donations, and two, fear of political reprisal from those not getting the donation.
- The real reason probably was that they don't want the quid pro quo to get known.
- There is one good thing about electoral bonds: cash transactions will not happen as people will have to buy bonds through the bank.
- With the introduction of electoral bonds, the donors' desire for transparency has got preference over citizens' desire for transparency and the people's right to know.

#### **Is the removal of the 7.5% capping on corporate donations a good idea?**

- There exists no limit on the number of electoral bonds that a corporate entity can purchase. The earlier cap of 7.5% of net profits of past three years that companies could donate to political parties has been removed.
- The reason for capping is that the companies should not start influencing political processes.
- With the removal of cap, there is possibility of companies involving more in crony capitalism.

#### **What could be the better solution other than electoral bonds for transparent political funding?**

- One solution may be having a National Electoral Fund, where companies can donate without indicating preference for any political party and thereby avoiding the reprisal they claim to fear.
- The fund can be distributed to all parties transparently on the basis of actual performance.
- Major political parties have been demanding an end to electoral corruption, and state funding of elections.
- However, state funding has been opposed as that will be impossible to monitor, and suggesting state funding of political parties, which may be easy to monitor.

#### **Is a simultaneous election, an idea which has been mooted by the Prime Minister a good idea?**

- Money in elections is the source of all corruption. Continuous elections whether at state level or national level, will increase this corruption.
- Communalism and casteism are at a peak during elections. Hateful, divisive politics is the consequence of frequent elections. For all these reasons conducting simultaneous elections is a good idea.
- The arguments against that idea are also seems to be strong. National and local issues are different and depend on their local dynamics.
- Interestingly, initially the Prime Minister had mentioned that there should be simultaneous elections at all three levels. Somewhere down the line, the third tier has disappeared from the debate.
- India is a federal country. Regional parties have an increasingly important role to play. If they feel threatened by the proposal, they are bound to oppose it, making consensus impossible.
- In a scenario where 29 State governments have come to power with absolute majority, if at the Centre the government falls, why should the States suffer?
- But in an era of coalition governments, there is the possibility of governments falling, when a partner chooses to leave.

#### **Why does proportional representation (PR) not suited in India in its present context?**

- FPTP is the best system for its simplicity but PR systems is not practical for India. There is also an apprehension that PR carries the threat of further dividing our society on caste, religious and other lines.
- However, there are limitations as well in FPTP. For instance, in 2014 elections, one party with third largest vote share of 20% could not win even a single seat.
- This is not good for a democracy like India in the long run. It is also time to have a national debate on this. We could look at the German model where they have a mixed system — half PR and half FPTP.

#### **Should we go back to paper ballots?**

- No. Because our EVMs have stood the test of time.
- Every political party has raised questions about EVMs at different times. And when with the same machines they come to power, they go silent.
- Introduction of voter verifiable paper audit trail (VVPAT) makes the system transparent and fool proof.
- The EC has now committed to the Supreme Court that every election in future would be with 100% VVPAT. The Gujarat and Himachal Pradesh elections were the first-ever full VVPAT elections.

**What is to be done to enhance the credibility of the EC?**

- ✓ The main problem lies in the process of appointment of Election Commissioners. They are appointed by the government of the day with no consultation with the Opposition.
- ✓ We should have a collegium to appoint the CEC like we have a collegium system for the CVC (Central Vigilance Commissioner) and the CIC (Central Information Commissioner).

**11. Rooftop energy**

- In Bengaluru, the Laser Mapping Technology — light detection and ranging (LiDAR) — is being used for mapping its potential to generate rooftop solar energy.
- Over the fortnight, a helicopter armed with LiDAR system will fly across the city. It will cover an approximate area of 1,100 sq. km, generating high resolution images of rooftops of buildings in the city.

**How does LiDAR works?**

- The LiDAR technology will send pulsed laser light on to the rooftop of a building and translate the reflected light into data points.
- Based on objects such as trees surrounding the rooftop, shadow-free area available for solar power generation will be calculated and an estimate will be arrived at as to the capacity of solar generation of each building in the city.
- Once the data is collated and presented to the Energy Department, residents of the city will be able to check the capacity of solar power generation of the rooftops of their respective buildings.
- This looks similar to **Google's Project Sunroof**, which is currently available only in America.

**What is the objective and targets of National Solar Mission?**

- The Jawaharlal Nehru National Solar Mission, also known as National Solar Mission, is one of the eight key National Missions of India's National Action Plan on Climate Change (NAPCC).
- The objective of the National Solar Mission is to establish India as a global leader in solar energy, by creating the policy conditions for its development across the country.
- The Mission has set the ambitious target of deploying 1, 00,000 MW of grid connected solar power by 2022.
- The target will comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects.
- The mission is aimed at reducing the cost of solar power generation in the country through long term policy; large scale deployment goals and aggressive R&D.

**How does Bengaluru's mission help in exploiting solar power potential?**

- Bengaluru's aerial mission to produce a three dimensional map of rooftop solar power potential using Light Detection and Ranging (LiDAR) data can give this key source of power a big boost.
- A survey helps determine usable rooftops, separating them from green spaces, and analyses the quality of the solar resource.
- With steady urbanisation, solar maps of this kind will help electricity utilities come up with good business cases and investment vehicles and give residents an opportunity to become partners in the effort.
- As part of Bengaluru's mission, residents will be able to check their solar power production potential online from the same portal where electricity bills are paid.

**What is the significance of Rooftop Solar?**

- Rooftop solar installations are needed if the target of creating 40 GW of capacity connected to the grid by 2022 is to be realised.
- Major solar projects that connect to the grid often face the challenge of land acquisition and transmission connectivity.
- This has led to a delay in planned capacity coming on stream during 2017: nearly 3,600 MW did not get commissioned during the last quarter, out of a scheduled 5,100 MW.
- Rooftop solar represents only about 11% of the country's 19,516 MW of total installed capacity at the start of 2018. Rooftop solar can be exploited to achieve this target.

### What is to be done to improve growth of rooftop solar power?

- Rooftop solar power growth has demonstrated an overall positive trend in the recent quarters. But this will need to be scaled up massively to achieve the national target.
- Domestic policy has to evaluate the impact of factors such as imposition of safeguard duty and anti-dumping duty on imports, and levy of the goods and services tax on photovoltaic modules.
- The policy should be attuned to the overall objective of augmenting capacity.
- The Centre should come up with incentives, given the enormous investment potential waiting to be tapped and the real estate that can be rented.
- The southern States and Rajasthan together host the bulk of national solar infrastructure on a large scale. With some forward-looking policymaking, they can continue to lead by adding rooftop capacity.

### Conclusion

- ✓ India, which is a founder-member of the International Solar Alliance launched in Paris during the climate change conference more than two years ago, must strive to be a global leader.
- ✓ Initiatives such as the Bengaluru mapping project can contribute to assessments of both real potential and risk. The same kind of project can be implemented in other major cities as well to assess the rooftop solar power potential.
- ✓ This is crucial for projects on a large scale involving significant exposure for financial institutions, including banks.
- ✓ With on-going improvements to solar cell efficiency and battery technology, rooftops will only get more attractive in the future.

## 12. A new NAM for the new norm

- A renewed state of political and military tension between opposing geopolitical power-blocs, in the form of Cold War, is breaking out with one bloc led by Russia and China and the other led by the United States, European Union and NATO.
- At the same time, the 17th Non-Aligned Movement (NAM) summit in Venezuela's Margarita Island proved to be a failure because only 12 heads of states attended from the 120-member group. India was also represented by its Vice president instead of Head of the government.
- However, the current changing global politics and major global problems like terrorism makes NAM platform highly relevant.

### Background: Non-Aligned Movement (NAM)

- The Non-Aligned Movement was formed during the Cold War as an organization of States that did not seek to formally align themselves with either the United States or the Soviet Union, but sought to remain independent or neutral.
- It identifies the right of independent judgment, the struggle against imperialism and neo-colonialism, and the use of moderation in relations with all big powers as the three basic elements that have influenced its approach.

### How the term "Cold War II" gained currency and relevance?

- The 'Cold War II' term has been used to describe on-going renewed tensions between Western nations and Russia & China.
- Cold War II" gained currency and relevance as tensions between Russia and the West escalated throughout the 2014 pro-Russian unrest in Ukraine followed by the Russian military intervention.
- The United States has identified both China and Russia as adversaries. Whereas, leaders of China and Russia are strong and determined to stand up to US President Doctrines of ultra-nationalism and nuclear hegemony.
- Russia announced that it has invincible doomsday machines like an underwater drone armed with a nuclear warhead powerful enough to sweep away coastal facilities, aircraft carriers and a hypersonic vehicle.
- Cuban "axis of evil" has emerged once again under Iran's leadership. This time it is a three-cornered Cold War, without any corner having committed countries to act together as military allies.
- Some observers judged the Syrian Civil War to be a proxy war between Russia and the United States.
- However, current tensions and ideologies of both sides are not similar to those of the original Cold War. Also, today Russia is far more integrated with the outside world which may constrain Russian actions.

### Why is NAM needed?

- NAM establishes itself as a deliberative and coordinating platform for the developing countries as it deals with newly emerging problems from global warming, debt-affected low income countries to UN reforms.
- The world is more violent and big power rivalries from Middle East and North Africa to the South China Sea have increased in recent times.

- NAM provides an alternative medium to tackle these issues in fresh and innovative ways.
- NAM declaration has several elements which developing nations need to take note of. These included—to decisively addressing the challenges posed in the areas of peace, economic and social development, human rights and international cooperation, to promote the peaceful settlement of disputes.

#### What is objective behind Nonalignment 2.0?

- NAM is anathema today even to those who helped shape it and partied in it for years. It can be observed in 17th Non-Aligned Movement (NAM) summit in 2016 which was attended by only 12 Heads of the states from the 120 member group.
- India was one of its leaders. India had a stake in its integrity and India worked tirelessly to keep it on the middle road. India fought to keep Egypt within it when every Arab country wanted it to be ousted.
- Even while building alliances with others, we availed of the NAM umbrella to promote our national strategies when it suited us.
- NAM was effectively used for UN Reform, where we blocked an effort by the U.S. and others to add Germany and Japan as permanent members and close the doors for further expansion.
- An effort was made in 2012 to craft a 'Nonalignment 2.0' in the context of the new global situation, India's growing importance and the rivalry between the U.S. and China.
- The report moved the concept of nonalignment away from its origins.
- It reiterated that India needed to move quickly to extend its global role and influence and India must remain true to its aspiration of creating a new and alternative universality.
- In a situation where the world is no longer bifurcated between two dominant powers, nonalignment today will require managing complicated coalitions and opportunities in an environment that is not structurally settled.

#### Where does India stand today?

- India recently has become a defence partner of the U.S. and a member of the "Quadrilateral".
- Both China and Russia, which have been identified as adversaries in the U.S. world view, have their problems with India.
- Doklam and the Maldives have shown that China is in no mood for a compromise.
- In fact, China has attributed the increase of its defence budget to the formation of the Quadrilateral, which is being seen as a direct threat to China.

#### Way Forward

- ✓ An obvious way is to revive NAM by breathing new life into it and making it fit to deal with the new norm to suit current multipolar world.
- ✓ A partnership of near equals like IBSA (India, Brazil and South Africa) with similar interests without any ideological conflict is probably the best model to follow.
- ✓ Something on the lines of the G-15 organised by India and like-minded countries some years ago could be put together with the objective of dealing with the issues like climate change, terrorism and protectionism.
- ✓ The members may have links with the U.S., China and Russia, but should be able to work together without the undue influence of the three.

## 13. The cost of education

#### Context:

- Charging of exorbitant fees in private schools is a major cause of concern in India. Steep hike in tuition fees along with additional costs such as fees for transport, extra-curricular activities and sports will add much burden on parents.
- Regulating school fees is one of the most significant legal and political challenges policymakers in India face.
- Schools justify their fee hike as the costs of maintaining a fully functional private school with quality teaching and world-class infrastructure are quite steep.
- In this context, balancing the autonomy of private schools and their public welfare function becomes a contentious issue.

### Can private schools arbitrarily hike fees?

- Parents in urban areas are increasingly turning to private schools, where learning outcomes are better. However, with more autonomy these private institutions are charging exorbitant fee.
- The constitutional basis for regulating the fees charged by private schools was considered by the Supreme Court in T.M.A. Pai Foundation v. State of Karnataka (2002).
- The Supreme Court held that regulatory measures imposed on private schools must ensure the maintenance of proper academic standards, atmosphere and infrastructure and the prevent maladministration
- In Islamic Academy of Education and Anr. v. State of Karnataka and Ors (2003), a Constitution Bench of the Supreme Court held that these institutions can have the autonomy to generate “surplus” which must be used for their betterment and growth. However, the word ‘surplus’ is not clearly defined.
- Last year, the Supreme Court ruled that any private school in Delhi running on land allotted by the Delhi Development Authority (DDA) has to take the permission of the Delhi government before hiking the fees.
- While private schools have the autonomy to generate surplus, there has to be a balance between autonomy of such institutions and the measures taken to prevent commercialisation of education.

### How did different states respond to prevent schools from charging exorbitant prices?

- Several State governments have either enacted fee regulation laws or are in the process of framing them.
- Tamil Nadu follows the fee fixation model whereby a government committee is empowered to verify and approve fee structures proposed by private schools.
- Karnataka is for a formula that caps fees for schools by way of framing rules under its school education legislation.
- Maharashtra has a weakly enforced legislation to regulate fees and has multiple government bodies to approve school fees. Recently, the Maharashtra government’s decision to cap proposed fee hikes at 15% was widely criticised by schools.
- The Self-Financed Independent Schools Act 2017 of Andhra Pradesh, which encourages private schools to open, gives them freedom of admission and fees, and removes corruption from board affiliation.
- In Kolkata, about 5,500 Government-aided schools have been brought under the direct control of the State Government.
- Recently, the Gujarat High Court has upheld the Gujarat Self-financed Schools (Regularisation of Fees) Act, which imposes caps on the fees that private schools can charge, as legally valid. Though it is now being reconsidered by the Supreme Court. The court has directed the government to not take any coercive steps against schools in the interim period.

### Then why is there a concern?

- Different State’s models to curb fee hike menace are affected by the challenges of weak implementation, a lack of capacity and constant legal challenges posed by private school associations.
- According to the CAG report, it is found that many private schools collect money from parents under false heads, while at the same time, teachers are being underpaid, and accounts misrepresented.
- Existing legislative efforts have made an incomplete assessment of the deeper problems with financial management and accounting practices adopted by private schools.

### What are some of the considerations for effective policy?

- Efforts are on to regularise the fee structure in the Indian schools. Following are some of the considerations for effective education policy.
- There needs to be a jurisprudential clarity on what private schools can or cannot do, how much “surplus” they can make, or what “commercialisation” actually means.
- The state should clearly articulate the objectives behind regulating fee. It must be acknowledged that schools are free to set their fee structure and the state can only verify whether the fee charged is reasonable and does not amount to profiteering.
- There is a need for transparency in private school finances. For instance, to Andhra model, we can add a requirement for extensive disclosure on each school’s website giving all fees, staff qualifications, details of infrastructure, strengths and weaknesses for parent to know before selecting a school.

- The measures such as regular government supervised audits, generating capacity in State-level Departments of Education, regular inspections, and stricter sanctions for fraudulent reporting could be considered.
- A fee hike should be used for improving the quality of education and not for profiteering.
- It is also crucial that a regulation strikes a balance between protecting the interests of students and parents, and preserving the autonomy of schools.

## 14. The French connections

### Context:

- French President's visit to India aims at strengthening the bilateral economic, political and strategic dimension of engagement between the two countries.
- During the talks both the leaders reviewed the progress achieved in bilateral relations and exchanged views on regional and international issues of mutual interest.
- Besides, the visit is also aimed at forging not only strong manufacturing and technology partnerships, but also greater people to people contacts.

### Why is France important to India?

- France and India have a very long history of bilateral cooperation in defence, security, space and high technology.
- France is the 9th largest foreign investor in India with a cumulative investment of over 6 billion dollars from April 2000 to October 2017.
- Indian Ocean region will be very important in future peace and development and both the countries will release the Indian Ocean cooperation Joint Strategic Vision.
- Today, with Brexit and the weakening of the leadership of German Chancellor, French President has positioned himself as the most credible interlocutor in Europe.
- In the international context, India and France can benefit from a shared understanding of the challenges that the world is facing today like the global uncertainties produced by Trump's disruptive foreign policy and Chinese aggressive policies.
- India and France are working together to implement the Paris Agreement on Climate Change which US President has renounced.

### Indo-France Relationship: Background

- France has always been sympathetic to similar Indian claims based on its ancient civilisation.
- Defence cooperation with France began in the 1950s when India acquired the Ouragan aircraft and continued with the Mystères, Jaguar (Anglo-French), Mirage 2000.
- Both countries started joint naval exercises 'Varuna' in 1983.
- France has historically shown more understanding of our strategic programmes than others. It was the first western country with which we established a Strategic Partnership.
- France is the first country with which we initiated a Strategic Dialogue after our 1998 nuclear tests when France refused to impose bilateral any sanctions on us and displayed a far greater understanding of India's security compulsions compared to other countries.
- France helped India set up the Sriharikota launch site assisted in engine development and hosting of payloads.
- After the Cold War, France decided that its preferred partner in the Indian Ocean Region would be India.
- It was the first P-5 country to support India's claim for a permanent seat in an expanded and reformed UN Security Council.

### What are the outcomes of recent France President's visit?

1. New Delhi and Paris signed 14 agreements in various fields of cooperation including nuclear energy, environment, narcotic drugs and people to people ties.
2. Both the countries reiterated their strong condemnation of terrorism in all its forms and manifestations including cross-border terrorism and terror-related incidents in France and India.
3. Also affirmed that terrorism cannot be justified on any grounds and it should not be associated with any religion, creed, nationality and ethnicity.
4. On trade, the two sides emphasized the importance of regular and sustained economic cooperation dialogue through the India-France Joint Committee.
5. MoUs were signed regarding the provision of reciprocal logistics support to each other's armed forces, exchange and reciprocal protection of classified information and developing shared space studies and assets for maritime awareness.
6. India and France have agreed to mutually recognize academic qualifications to help students.

**India – France strategic partnership:****Defence:**

1. An agreement for building six Scorpène submarines in India with French help was signed in 2005.
2. Similarly, technology sharing and acquisitions of short range missiles and radar equipment were concluded.
3. Joint exercises between the air forces (Garuda series) and the armies (Shakti) were instituted in 2003 and 2011, respectively.
4. The government-to-government agreement for 36 Rafale aircrafts has taken place. The ambitious offset target of 50% (nearly ₹25,000 crore), properly implemented, can help in building up India's budding aerospace industry.

**Energy Sector:**

1. An agreement was signed about a decade ago for building six EPR (European Pressurized Reactors) nuclear power reactors with a total capacity of 9.6 GW for which negotiations have been on-going between the Nuclear Power Corporation of India (NPCIL) and Areva.
2. On green energy, the International Solar Alliance is set in motion jointly by India and France.
3. France offered an extra \$861.5 million by 2022 for solar projects in developing countries.
4. The agreement on the industrial way forward between NPCIL and EdF(Areva) affirms that work at Jaitapur will commence before the end of 2018.

**Maritime cooperation:**

1. Like India, France has expressed concern about China's growing presence in the Indian Ocean Region.
2. French overseas territories in the Indian and the Pacific Oceans provide it with the second largest exclusive economic zone globally. It has long maintained bases in Reunion Islands and Djibouti and established one in Abu Dhabi in 2009.
3. This regional dimension is reflected in the Vision Statement on cooperation in the Indian Ocean Region.
4. Strengthening cooperation with France, particularly in the western Indian Ocean Region makes eminent strategic sense even as India develops its presence in Oman (Duqm) and Seychelles (Assumption Island).
5. More synergy between the two navies in the Gulf area where France has a base (in Abu Dhabi) and better mutual understanding of the implications of a Chinese base in Gwadar is important for India.

**Trade between two countries:**

1. Trade has grown in recent years but at \$10 billion is half of the trade with Germany.
2. Nearly \$16 billion worth of agreements at the business summit were signed. There are nearly 1,000 French companies present in while over a hundred Indian businesses have established a presence in France.
3. In the past, Indian companies saw the U.K. as the entry point for Europe; now with Brexit approaching, India can also look at France as its entry point for Europe.

**Space:**

1. Earlier France assisted India to setup Sriharikota launch site.
2. Today, it is a relationship of near equals and the 'vision statement' refers to world class joint missions for space situational awareness, high resolution earth observation missions with applications in meteorology, oceanography and cartography.
3. Inter-planetary exploration and space transportation systems are cutting edge science and technology areas that have also been identified.

**Urban Development:**

1. Another area identified was urban planning and management of services like housing, transport, water, sanitation using the public private partnership model which the French have employed successfully.
2. The flagship programme of Smart Cities in which France is focussing on Chandigarh, Nagpur and Puducherry is taking shape as more than half the business agreements signed related to electric mobility, water supply, waste management and smart grids.

**Education links:**

1. The most significant agreement was the focus on youth and student exchanges.
2. Currently about 2,500 Indians go to France annually to pursue higher education, compared to more than 250,000 from China.
3. A target has been set to raise it to 10,000 by 2020.
4. The agreement on mutual recognition of academic degrees and the follow-on Knowledge Summit, where 14 MoUs between educational and scientific institutions were signed.

**Tourism:**

1. A target of a million Indian tourists and 335,000 French tourists has been set for 2020.
2. While there are only about 20 flights a week between India and France, there are four times as many to Germany and 10 times as many to the U.K. So no of flights between India and France has to be increased.

## 15. The lowdown on the audit regulator

**Context:**

- Union Cabinet has approved establishment of **National Financial Reporting Authority (NFRA)**. It is a big step forward in regulating the financial audit of large companies.
- The decision comes against the backdrop of various auditing lapses in the banking sector, including the Rs. 12,700 crore fraud at Punjab National Bank.

**What does Companies Act, 2013 say about NFRA?**

- As per the Companies Act, 2013 the NFRA is tasked with multiple jobs like recommending accounting and auditing standards, ensuring compliance with them and overseeing the quality of service of the accounting and audit professions.
- It has also been given the power to investigate matters of professional misconduct by chartered accountants or CA firms, impose penalty and debar the CA or firm for up to 10 years.
- No other body shall initiate any proceedings in such matters of misconduct where the National Financial Reporting Authority has initiated an investigation.
- NFRA shall have the power to investigate, either suo motu or on a reference made to it.
- It will have the same powers as are vested in a civil court under the Code of Civil Procedure, 1908, while trying a suit.

**How did the need of setting up of NFRA come now?**

- While many provisions of the Companies Act, 2013 came into force on April 1, 2014, the setting up of the NFRA, a key recommendation, was delayed.
- The decision appears to have been prompted by the latest bank scam of ₹12,636 crore Punjab National Bank fraud that went undetected by auditors.
- The Institute of Chartered Accountants of India (ICAI) had initially voiced its discontent with the idea of a regulator for the sector, saying the existing structure was adequate.
- The government has clarified that the roles of the new regulator and those of the ICAI will not overlap.

### Cabinet approves establishment of National Financial Reporting Authority



- The need for establishing NFRA has arisen in the wake of accounting scams, to establish independent regulators.
- This will help enforcement of auditing standards & quality of audits to strengthen the independence of audit firms & quality of audits.
- This will enhance investor and public confidence in financial disclosures of companies.

**What is NFRA?**

- The NFRA is to be an independent regulator overseeing the auditing profession. Its creation was first recommended by the Standing Committee on Finance in its 21st report.
- The NFRA will act as an independent regulator for the auditing profession which was one of the key changes brought in by the Companies Act 2013.
- NFRA would be an oversight body for auditors and its jurisdiction would extend to all listed companies as well as large unlisted public companies.
- The regulator will have a chairman, three full-time members, and one secretary — though no decision has yet been taken on who will fill these posts.

**What are the roles of NFRA, ICAI and QRB in auditing?**

- The NFRA would cover all listed companies and large unlisted companies, the benchmark size for which would be set down in the rules.
- Institute of Chartered Accountants of India (ICAI) will continue to have monopoly on training and qualifying chartered accountants, giving them licence to practice and regulating them including scrutinising audit quality.
- Smaller unlisted companies would continue to be audited by the ICAI.
- NFRA is not meant to replace the disciplinary jurisdiction of the ICAI.
- The ICAI would continue to play its advisory role with respect to accounting and auditing standards and policies by making its recommendations to the NFRA.
- The Quality Review Board (QRB) would continue quality audits for private limited companies, and public unlisted companies below the prescribed threshold.
- The NFRA would also have the power to refer cases to the QRB as and when it decided to do so.

**Why does it matter?**

- Most of the major economies of the world have independent audit regulators.
- India, as an emerging economy should also have an independent audit regulator. The need for such a body is further reinforced after several financial accounting scams, the most recent of which was the Punjab National Bank scam.
- However, the idea for an NFRA came following the Satyam scam in 2009, following which the Standing Committee on Finance recommended the creation of an audit regulator.

**Way ahead**

- ✓ Apart from its audit regulator role, the NFRA will have the power to debar erring auditors or audit firm for up to 10 years and impose significant fines on them.
- ✓ According to the Companies Act, 2013, the NFRA will have powers to impose a fine of not less than ₹1 lakh, but the amount can extend up to five times of the fees received in case of individuals.
- ✓ The need of the hour is that the government has to set the rules that will stipulate the jurisdiction of the NFRA.
- ✓ Government should also set a limit on the size of an unlisted company that comes under the purview of the NFRA.

**16. In a plastics world****Context:**

- Plastics are detrimental to human health because of the chemicals used in their production. These chemicals are used to change the properties of plastics. Humans are exposed to such toxins through air and water, through food such as fish, or direct contact with plastic products.
- Last year December, 193 nations signed pledge to tackle 'global crisis' of plastic in the oceans.
- Countries agreed to start monitoring the amount of plastic they put into the ocean and to explore ways to make it illegal to dump waste in the seas.

**Why do we need to act now?**

- If current pollution rates continue, there will be more plastic in the sea than fish by 2050, said the United Nations Environment Programme (UNEP).
- Nearly eight million tonnes of plastic – bottles, packaging and other waste – are dumped into the ocean every year. This plastic waste is then killing marine life and entering the human food chain.
- According to the UN Environment Programme, the global production of plastics has reached at over 300 million tonnes a year.

**Common sources of Plastic pollution**

- Merchant ships expel cargo, sewage, used medical equipment, and other types of waste that contain plastic into the ocean.
- The largest ocean-based source of plastic pollution is discarded fishing gear (including traps and nets).
- Continental plastic litter such as Food Wrappers & Containers, Bottles and container caps, Plastic bags, Straws and stirrers etc. enters the ocean largely through storm-water runoff.

**What is 'Great Pacific Garbage Patch' of plastic debris?**

- Five large mega-gyres—great whirlpools where currents collide—in the North and South Atlantic, the North and South Pacific, and the Indian Ocean have become filled with garbage.
- The enormous collection of detritus that floats in the Pacific Ocean, halfway between Hawaii and California is known as **Great Pacific Garbage Patch (GPGP)**.
- The GPGP is a galaxy of garbage composed of a network of plastic, large and small.

- Micro plastics (particles of less than 5 mm) such as those used in scrubbers and cosmetics, ingested by marine animals can cause accumulation of certain chemicals and result in physiological impacts. Micro plastics can impair reproduction and development and alter how species function.
- Like greenhouse gases, plastic is also not constrained by national boundaries, because it migrates via water and air currents and settles in benthic sediments.
- Majority of ocean's area is beyond national jurisdictions which resulted into "garbage patches" in oceanic gyres by the accumulation of plastic waste from different nations.
- Unlike POPs (Persistent Organic Pollutants) or chlorofluorocarbons (CFCs), Plastic pollution has received little attention in terms of international agreements.
- The health impact of the presence of polypropylene, polyethylene terephthalate and other chemicals in drinking water, food and even inhaled air may not yet be clear, but indisputably these are contaminants.
- No single solution will stop marine plastic pollution. Hence an internationally agreed and a legally binding instrument are required.

#### What are some of the efforts at International level to curb Plastic waste?

- Local policies and actions such as bans on micro beads and single-use plastic bags are spreading across the globe, but there are only a handful of international documents focused on plastic pollution.
- International Convention for the Prevention of Pollution from Ships, later modified as **MARPOL**, is an international agreement that addresses plastic pollution. MARPOL, which bans ships from dumping plastic at sea, was a great first step.
- But even after MARPOL came into force, dumping of plastic waste into sea has not reduced. Steps to prevent plastic waste lack defined reduction targets, methods to monitor progress.
- In 2011, the National Oceanic and Atmospheric Administration (NOAA) in the United States and UNEP created **the Honolulu Strategy**—a planning tool to reduce plastic pollution and its impacts.
- In 2012, a voluntary commitment of a significant reduction of marine debris was introduced at Rio+20 with a deadline of 2025.
- In February 2017, **UNEP announced the Clean Seas campaign**, asking for individuals, industries, and member states to voluntarily commit to an action of their choice to reduce plastic pollution.
- Recently, at the **United Nations Environment Assembly in Nairobi**, more than 193 nations passed a resolution to eliminate plastic pollution in our seas. However, it's not a legally binding treaty.

#### What are the solutions?

- Local actions are required for mitigating plastic pollution, using mechanisms such as bans on plastic bags, maximum daily limits for emissions into watersheds, and incentives for fishing gear retrieval.
- Countries should come together to establish measurable reduction targets for plastic waste. A meaningful international agreement—one with clearly defined waste reduction targets is the need of the hour.
- Effective policies must take into account all stages of the lifecycle of plastic—connecting producers to users and ultimately to waste managers.
- Fossil fuel subsidies incentivise the plastic market. Hence, Countries should end fossil fuel subsidies. Annually, 4–8% of oil is used to produce raw plastic.
- India has a major problem dealing with plastics, particularly single-use shopping bags that reach dumping sites, rivers and wetlands along with other waste.
- The most efficient way to deal with the pollution is to control the production and distribution of plastics.
- Banning single-use bags and making consumers pay a significant amount for the more durable ones is a feasible solution.
- Enforcing the Solid Waste Management Rules, 2016, which require segregation of waste will retrieve materials and greatly reduce the burden on the environment.
- Waste separation can be achieved in partnership with the community, and presents a major employment opportunity.

#### Conclusion

- ✓ As the European Union's vision 2030 document on creating a circular plastic economy explains, the answer lies in changing the very nature of plastics, from cheap and disposable to durable, reusable and fully recyclable.
- ✓ Marine plastic pollution is a "planetary crisis," and we should hope for a "Paris-style" global treaty aimed at tackling it.

## 17. Awash in water crises

### Context:

- Recently released United Nations World Water Development Report, 2018 stressed upon Nature based solutions to address many of the world's water challenges. These solutions are also aligned with the aims of the 2030 Agenda for Sustainable Development.
- Report also says that Business-as-usual approaches to water security are no longer viable.

### The world's water: challenges

- The world's population is expected to increase to nearly 10 billion people by 2050, with two-thirds of them living in cities.
- The global demand for water has been increasing at a rate of about 1% per year over the past decades as a function of population growth, economic development and changing consumption patterns.
- Industrial and domestic demand for water will increase much faster. An estimated 80% of industrial and municipal wastewater is released without any prior treatment, with harmful impacts on human health and ecosystems.
- The global water cycle is intensifying due to climate change, with wetter regions generally becoming wetter and drier regions becoming even drier.
- Ecosystem degradation is a leading cause of increasing water resources management challenges. Urbanisation, de-forestation, intensification of agriculture has further added to the existing water challenges.
- The International Water Management Institute estimates that total demand could increase from 680 billion cubic metres (BCM) to 833 BCM by 2025 and to 900 BCM by 2050.
- India also faces major threats to its water security, with most water bodies near urban centres heavily polluted. A Central Pollution Control Board report indicates that almost half of India's inter-State rivers are polluted.
- Inter-State disputes over river resources are also becoming more intense and widespread.

### How can Nature-based solutions address water challenges?

- Goal 6 of the 2030 Agenda for Sustainable Development recognises the importance of sustainable management of water and sanitation.
- Nature-based solutions are essential to meet this goal.
- Nature-based solutions (NBS) are supported by nature and use natural processes to contribute to the improved management of water.
- An NBS can involve conserving or rehabilitating natural ecosystems and can be applied both at micro and macro levels.
- NBS support a circular economy that is restorative and regenerative by design and promotes greater resource productivity. NBS aims to reduce waste and avoid pollution, including through reuse and recycling.
- Green infrastructure for water refers to the natural systems that provide water resources management is the application of NBS.
- Reducing Emissions from Deforestation and Forest Degradation (REDD+) is the application of a nature-based approach for managing the global climate.
- NBS also offer opportunities to reduce conflicts between sectors over water use through improved system performance.

### Different types of NBS solutions

- Natural methods like reforestation and forest conservation, reconnecting rivers to flood plains, wetland restoration and water harvesting will regulate the water supply.
- Agricultural systems that conserve ecosystem services by using practices such as conservation tillage, crop diversification, legume intensification and biological pest control.

### UN World Water Development Report

- The United Nations World Water Development Report (WWDR) is a global report that provides a comprehensive assessment of the world's freshwater resources.
- It is produced annually by the **World Water Assessment Programme** and released by **UN-Water**.
- The Report examines the ways that the world's water resources are being managed and the varied water problems that different regions of the world are experiencing.
- The Report also offers recommendations on how freshwater resources could be managed more sustainably.
- The topic of this year's report is "**Nature-based Solutions for Water**".

- The environmental co-benefits of nature-based solutions decrease pressures on land conversion and reduced pollution, erosion and water requirements.
- Constructed wetlands for wastewater treatment can also be a cost-effective and provides adequate supply of water for irrigation and additional benefits that include energy production.
- Natural and constructed wetlands also biodegrade or immobilise a range of emerging pollutants.
- Watershed management is another nature-based solution that will spur local economic development, job creation, biodiversity protection and climate resilience.
- NBS for addressing water availability in urban settlements are of great importance. . Managing water flows through urban landscapes can improve water resources availability.
- Catchment management outside urban areas, improved recycling of water within urban water cycles, green infrastructure within urban boundaries are some of the Nature based solutions for improving water resources availability.

#### Way forward

- ✓ Nature-based solutions are closely aligned with traditional and local knowledge including those held by indigenous and tribal peoples in the context of water variability and change.
- ✓ Effective NBS require Intersectoral collaboration, for example between those working with water management, agriculture, forestry, urban planning, and ecological protection.
- ✓ Harmonizing multiple policy areas at global, international, national, provincial and local scales is a key need for sustainable development. NBS offer a means to operationalize policy across scales.
- ✓ NBS applications need to be based less on generalized assumptions, and better assessed and designed specifically for local applications.

## 18. Is the economy back on track?

#### Context:

- Though there were disturbances on account of demonetisation and the goods and services tax (GST) for a short term, the recent indicators like Index of Industrial Production and GDP growth rates shows that our economy is back on track.
- Exports which accounts for 15% of GDP started picking up due to revival of India's major markets such as the U.S., Eurozone and Japan since September 2017.
- Though there are protests by the youth, farmers and traders because of the hardships they face, employment-generating sectors like construction have gradually started reviving.
- The latest quarterly growth data suggest that the economy is growing at more than 7% per annum. For 2016-17, the Central Statistics Office revised the fixed capital formation growth to 10.1%.

#### What are the major challenges to Indian economy?

- A major challenge is the worsening rural crisis. The rural economy's contribution to GDP may not be significant. But in terms of aggregate demand, the rural population impacts more than 50% of the market base. Solving rural crisis is very crucial for the growth we are looking for.
- On the agricultural front, farmers do not have direct access to the market. They are deprived of the benefit of increasing market prices of agriculture produce which mostly goes to middlemen. This is the fundamental problems that need to be addressed and corrective steps need to be initiated.
- Similarly, farmers should be enabled to play their role as an effective supply force in the market and be in a position to sell their produce at a competitive price. That is possible only when adequate infrastructure support is built for them rather on repeatedly depending on traditional approaches like MSP or farm loan waivers.
- On the external front, the government faces several major challenges: the Federal Reserve's hike, rising crude oil prices, and the move towards protectionism by India's major export market, the U.S.
- Withdrawal by foreign institutional investors in response to federal hikes may weaken the Indian currency and end up in a higher import bill, especially on the crude oil front, if exports do not pick up.
- Protectionism is growing, the U.S. has lowered the corporate tax rate sharply so capital inflows may slow down.
- So, the government has to bring about strong reform measures. Domestic institutional investors such as LIC, UTI, or public sector banks can be encouraged to invest in the market.

**Why is growth of unorganised sector more important?**

- The unorganised sector accounts for about 45% of the GDP. It has been badly hit by demonetisation and GST. The non-agriculture component of this sector contributes to 31% of the GDP.
- The unorganised sector employs 94% of the Indian workforce. A decline in this component impacts employment. Trade, a large component of this sector, has also been hurt.
- The estimation of quarterly growth is largely based on corporate sector data. The data for the unorganised non-agriculture sector are obtained only in reference years. So the official data is unable to represent the reality of the un-organized sector.
- The efficiency due to GST benefits the organised sector but adversely impacts the unorganised sector due to complexity of the tax design.
- The decline in the unorganised sector has impacted demand. Large parts of the economy have not seen an increase in capacity utilisation.
- Growing NPAs in the banking sector increased the pressure on the smaller players in terms of getting credit that they need for investments.
- We may see reasonably strong recovery in terms of growth rates of 7%, but the problem is that the smaller units are suffering which is bad news for employment.
- Hence the government needed to sharply increase public investment for the growth of this sector.

**Conclusion**

- ✓ The corporate India is well on its way to recovery. It's time to shift the focus to non-corporate India.

## Rajya Sabha TV, AIR Synopsis

### 1. Commercial Mining of Coal

- Link: <https://youtu.be/dEOtJnl-AqY>
- **Opening up commercial coal** mining for Indian and foreign companies in the **private sector** the **Cabinet Committee for Economic Affairs** approved the **methodology for auction of coalmines/blocks for sale of the commodity** on 20 February 2018. The move has been defined as the **most ambitious reform of the sector since its nationalisation in 1973**.

#### Analysis:

- **Coal** accounts for **around 70 % of India's power generation**. Other modes of power generation used are **hydro, wind, solar, biomass, nuclear, gas and diesel**.
- The move for **energy security through assured coal supply** is expected to gain attention from **major private players like** Rio Tinto, BHP, Vedanta, Anglo American, Glencore and Adani group.
- The **auction** will be done on an **online transparent platform**. The **bid parameter** will be the price offer in **Rupees/Tonne**, which **will be paid to the State government** on the actual production of coal.
- This reform is expected to **bring efficacy into the coal sector** by moving from an era of **monopoly to competition**. It will increase competitiveness and **allow the use of best possible technology** in the sector.
- Till now, the Public Sector Undertaking, **Coal India was the only commercial miner** in the country for **more than four decades**. The Maharatna company accounts for around 82% of the coal production in India. It produced 554.14 million tonnes of raw coal in 2016-17.
- **Productivity of Coal India is still a concern**. Coal is a very crucial raw material which is **used in power sector and also in cement and metal sectors**. So, there needs to be some **benchmarking against the competitive players** in the market.
- Options of **captive mining** were given in the past. Captive coal mining means the coal is taken out by a company (mostly steel producing and electricity generating) **for its own use** and it won't be able to sell it in the market. But it is better to **bring these players directly and in a transparent way into commercial mining**. Captive mines have not been productive as a steel producing company may not be good at mining coal.
- India despite having a **huge amount of coal reserves, imports a lot of coal**, spending billions of dollars. This is because India chose **monopoly for mining domestic coal**, which is **incapable of meeting domestic demands**. For this reason, captive mining was allowed but, it proved to be inefficient. So, there is need to **bring in commercial mining by other companies** that will allow them to **sell the coal in open market**.
- **In long term**, India needs to look at coal to gas, coal to liquid and ultimately coal to fertilizers & chemicals. China has already put up a lot of coal gasifiers. **Coal gasification** is the process of producing **syngas** (CO, H<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub> and H<sub>2</sub>O) from coal and water, air and/or oxygen. This can be used for **electricity generation, converting syngas to gasoline and diesel, converting methane to LNG, etc.**
- **Mining in India** has been very **inefficient as mainly open cast mining is done**. Deep underground mining is not always done. But once competition comes into picture, underground mining will be done. This requires a lot of safety precautions and their enforcements.
- **Indian coal is high in ash content**, but it is very low in Sulphur. So, **coal beneficiation** should be done to reduce the ash content and **improve its grade**. This will **reduce the transportation cost** of the coal which is **done mainly by railways**.

#### Conclusion:

- ✓ The **arrival of private players** in the coal mining practices can **bring a lot of better things** in picture. More efficient mining, better efficient of the given mine, going deep underground and better quality of coal can be produced. This shall be **helpful for the Indian economy and power sector in particular**.

## 2. India-Vietnam Bilateral Ties

Link: <https://youtu.be/Ec8KrIOVw9E>

- President of Vietnam Tran Dai Quang was in India on a 3 day visit which saw the signing of 3 MoUs on nuclear cooperation, agriculture and trade. Each of these are set to tighten India's ties in light of its Act East policy.
- Quang also backed India's permanent membership in UN Security Council. Recently Prime Minister of Vietnam had also participated in India's Republic Day Parade in January 2018.



### Analysis:

- Both the states expressed immense satisfaction on **comprehensive strategic partnership**. The position in South East Asia has been changing rapidly and the two countries India and Vietnam **need to interact at the highest political level** from time to time. The recent visit has shown that there are various areas in which the two countries can work together.
- India-Vietnam relation has **completed about 45 years of diplomatic bilateral relations**. Concerns and ambitions of both the countries are quite similar. The relationship has been **progressing very well in the past decade** and that is why **such specific MoUs** in fields of nuclear, agriculture have been made.
- **India** has been consistently **supporting the Freedom of Navigation, unimpeded flow of commerce** and it is supporting Vietnamese and some positions of some other nations in relation to **South China Sea**. India is adhering to international laws and UN Convention on the Law of the Sea (**UNCLOS**).
- **Vietnam supports India's Act East Policy** and it believes that India can do a lot of balancing in South Asia as far as other powers are concerned. India is expected by Vietnam and other South East Asian countries to play a stronger role in the region – on the **strategic (Indo Pacific issue) and on the economic side**. But, bilateral economic ties and trade need to be improved more between India and ASEAN countries if strategic relations are to be improved. **China has relatively better economic relations** with South East Asian countries which is a **cause of concern for India**.
- **Shared common security perceptions and strategic convergence in Indo-Pacific region** propel both the countries to have good **defence and security cooperation**. **Maritime security cooperation** was talked in **ASEAN India commemorative summit**. Vietnam and India have been cooperating in many ways like in **Milan exercises**. Many other South East Asian countries are also participating in these exercises. India has been providing training to Vietnamese submarines.
- Some of the ASEAN countries including Vietnam are interested in building ties with the **Quad group (India, US, Japan and Australia)**. To **counter the presence of China** which has been rising very rapidly relations with other countries like India and Quad group is important for Vietnam.
- **Energy sector** is a crucial area where much can be done like **deals of ONGC with Vietnamese companies**. But, China has been raising concerns about this.
- **Trilateral highway** is expected to be ready in the next 5 years between **India, Myanmar and Thailand** and, its extension to Vietnam would be also a reality. This will help in driving directly from Indian soil to Vietnam.
- India and Vietnam have been looking at **partners for Oil and Gas exploration** which may be Japan, Russia, etc. But, the geopolitics in the region involved may preclude it.
- India and Vietnam need to do more in many areas like **defence weapons systems, missiles, etc** and also in helping Vietnam in establishing their indigenous defence industry.
- There are many institutions in Vietnam which study about India. But, such study in India about Vietnam had been lacking. A **Centre for Vietnamese study in New Delhi was launched** by the president of Vietnam which is quite historic. He also spoke that the relation can be improved not only by interactions by businessmen but also by citizens at large.

### Conclusion:

- ✓ **Time bound delivery of specific projects** between India and ASEAN countries should be looked at. Relation roles in the fields of political, economic, strategic field including defence and security which are in the upward trajectory.

- ✓ It can be **expected that political relations get improved in the coming 5 years** when the diplomatic relations complete 50 years between the two nations. But **India needs to improve economic ties with Vietnam** to achieve the set target up to 2020.
- ✓ Scholars have now been saying that **BIMSTEC** which has two South East Asian countries namely, Myanmar and Thailand should **consider to expand itself to Vietnam, Laos and Cambodia**. Then it will be a very powerful body and **lasting link between India and ASEAN**.

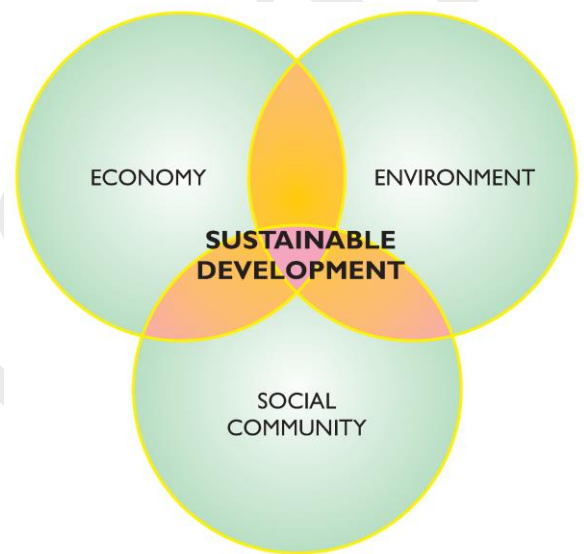
### 3. Towards a Sustainable Future

Link: [https://youtu.be/3PhX\\_76ScA](https://youtu.be/3PhX_76ScA)

- The **World Sustainable Development Summit 2018** concluded in New Delhi on **18 Feb 2018** and **endorsed Amaravati** as the world's most sustainable capital.
- More than 200 delegates from around the world took part in it.
- Participants included policy makers from bilateral and multi-lateral institutions, researchers, think-tankers, diplomats and corporates.

#### Analysis:

- It is an **annual event organised by The Energy and Resources Institute (TERI)**. TERI is a **Non-Profit Research institute located in Delhi**, established in **1974** and formally known as **Tata Energy and Resource Institute**. Its activities have scope in climate change, energy efficiency, renewable energy, biotechnology and social transformation.
- **LaBL (Lightning a Billion Lives)** and **Green Olympiad** are also organized by TERI. **Green Rating for Integrated habitat (GRIHA)** is a national rating system for **green buildings** in India conceived by TERI. The institute also releases a plethora of **publications like TerraGreen and TEDDY**.
- It brought together global leaders and thinkers in the field of **sustainable development, energy and environment sectors** on a common platform.
- Due to increasing population, expanding cities, disappearing forests and shrinking natural habitats, the last few decades have seen the emergence of development that is also sustainable. Urbanisation, concrete buildings and expanding roadways is put forward as the parameter for development. But, it is also argued that this expansion is destructive too. **Sustainable development is the balancing act between these two thought processes**.
- Sustainable development can be thought as three points of a cone:
  1. **Livelihoods and incomes** for all should **increase**.
  2. The **efficiency of inputs** like water, electricity, fertilisers, etc required should **increase** and,
  3. The **waste produced** in this process should be **minimum**.
- Sustainable development thus implies a development that:
  1. Keeps **needs of future generations** in mind
  2. Removes poverty, simplifies daily chores and improves quality of life
  3. Use only as many resources as can be replenished.
- The **timeline for development** in modern century has been-
  - 17<sup>th</sup> century:** Invention of **Steam engine**
  - 18<sup>th</sup> century:** **Industrial Revolution** started depleting natural resources at a faster pace than could be replenished.
  - 20<sup>th</sup> century:** Industrialisation started an irreversible change in the environment, in way of achieving economic developments.



- **Climate change is impacting geological, biological and ecological systems** leading to large scale **environmental hazards for all living beings** on the planet. Smaller countries are also paying the price of rapid development in larger countries.
- The **ocean is running out of oxygen** at a rapid speed causing the **deaths of marine life** and the **number of hurricanes** has also increased. Even a 1°C more rise in temperature on Earth can drastically increase **melting of glaciers and increase sea level**.
- The world is divided on the **question of responsibility to environmental degradation**. The developed countries stand on one side and the developing & poor countries on the other side.
- China and India are believed to be the largest emitters of CO<sub>2</sub>. But, **according to a list released in 2015** by the European Commission,
  - **CO<sub>2</sub> emissions country-wise are:** China (29.51%), US (14.34%), European Union (9.62%), India (6.81%), Russia (4.88%), Japan (3.47%), Canada (1.54%), Saudi Arabia (1.4%)
  - **The per capita emissions of CO<sub>2</sub> are:** China (7.7), US (16.1), European Union (6.9), India (1.9), Canada (19), Saudi Arabia (16)
- The **2016 Paris Agreement** gave some hope in the fight against climate change. But due to pulling out of US out from it, it may be difficult to achieve the set target of keeping global temperature well under 2° There is now need for other developed countries to increase their efforts.
- **United Nations** has set the **Sustainable Development Goals** whose targets are **to be achieved by 2030**. These goals have **replaced the Millennium Development Goals** which **ended in 2015** and, focusses on climate change as well beyond poverty, health, etc. India has established the NITI Aayog to achieve these goals.

#### Conclusion:

- ✓ **World population** which is 760 crores is **likely to reach 900 crores by 2050**. To fulfil the needs of this fast multiplying population, forests are being chopped off to make settlements, agricultural lands are losing fertility due to excessive use of chemicals, and natural resources are consumed at a fast pace.
- ✓ The **policy makers and governments all over the world as well as the citizens** thus, need to work effectively to achieve the targets of protecting the environment and resources on earth.

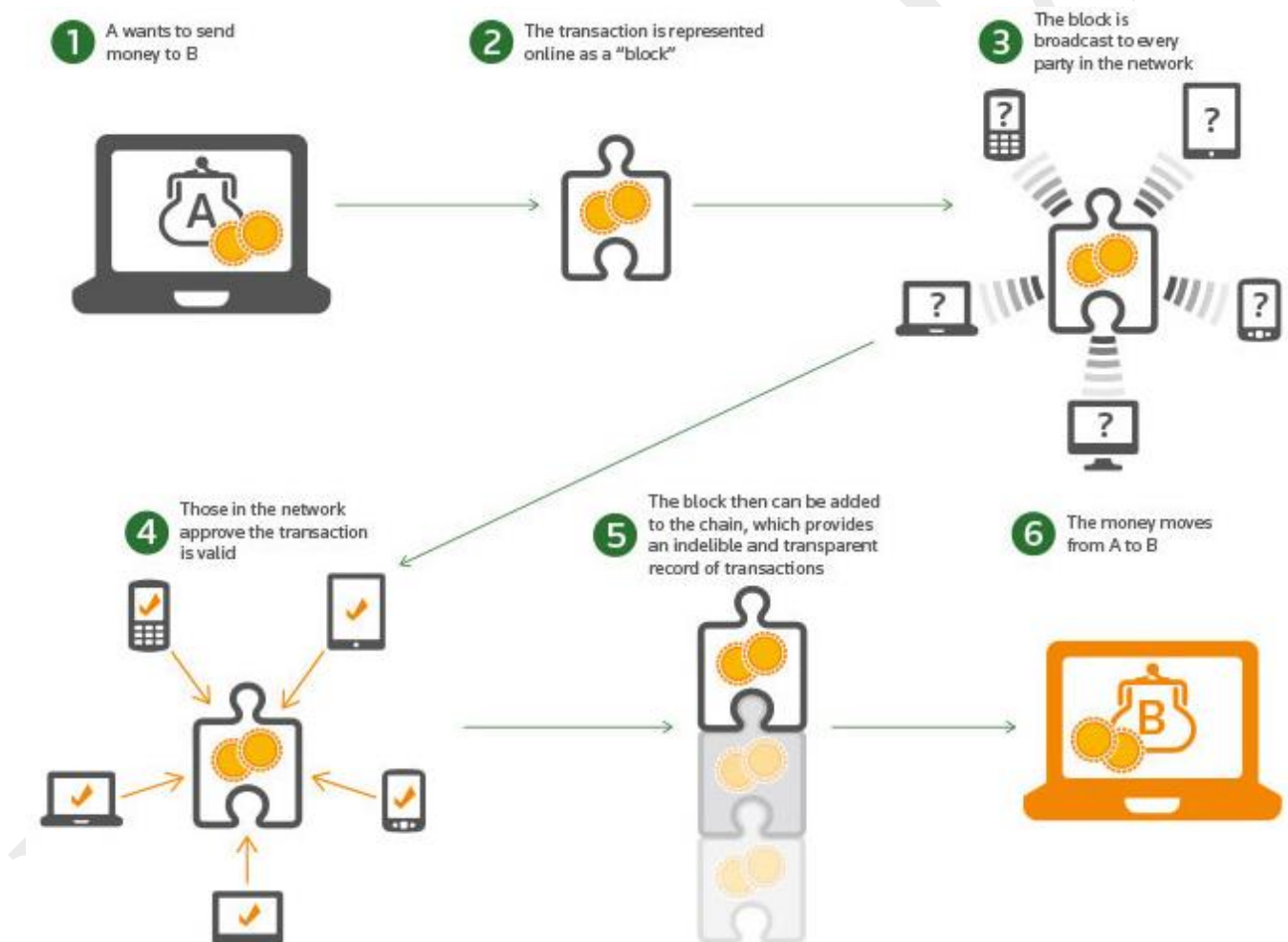
## 4. Blockchain Technology

- Link: <https://youtu.be/CNdIUD9H2E>
- **Bitcoins and similar cryptocurrencies** have gained popularity in recent times. **Transactions** done by these methods are **recorded in a public distributed ledger** called a **blockchain**.
- This **revolutionary invention of modern times** connects all information from the first step of a transaction to the very last one. It thus, creates a **chain of blocks of information**. However, questions have also been raised about how trustworthy cryptocurrency transactions are.

#### Analysis:

- **Digital currency (electronic money)** is a type of currency available only **in digital form, not in physical (such as banknotes and coins)**. It allows **instantaneous transactions** and borderless transfer-of-ownership. These may be used to **buy physical goods and services** but may be limited to certain communities. It may be centralized or decentralised.
- The **medium of exchange** has changed a lot with times. It has **progressed from barter system**, gold coins, paper notes, ATM and debit cards to the digital currencies. The most important function of any medium of exchange is **to be widely acceptable** and have really **stable purchasing power**.
- **Blockchain technology** is a **network of computers** that all have **same history of transactions**. The transactions are recorded as **blocks of networks** and held by **multiple people at the same time**. The database is thus **not centralised**.
- **Instead of a company in the middle**, there is a **bunch of software codes** to help with the transactions in blockchain.
- **Timeline of blockchain** is:
  1. **1991:** First work on chain of blocks **by Stuart Haber and Scott Stornetta**.
  2. **1992:** Bayer, Haber and Stornetta improved efficiency of technology by making several data to be collected in one block.

- **2008: First block of chain was conceptualised by Santoshi Nakamoto.**
  - **2016:** Russia announced pilot project based on the technology for automated voting systems.
- **Blockchain** has numerous **emerging applications**- banking and financial services, insurance, electronic governance, cybersecurity, real estate, education, health care sectors, etc. Thus, it has the **ability to transform the way nations and individuals work** in their day-to-day applications.
- Consider the **example of Wikipedia**. Information provided by no one contributor is the basis, nor it is controlled by any individual. All users who have a fair information can contribute, but Wikipedia controls the central server database.
- **Uses and possibilities** of blockchain are:
  1. Confidential communication of cryptocurrency.
  2. Safe, cost effective and fast bank transactions.
- Secure legal documents, health data, notaries and personal documents.
  1. Distribution of land records and government financial assistance.
  2. Cloudstorage, digital identification, smart communication and digital voting.



- **Government of India** is preparing for performing **research on blockchain**. **NITI Aayog** has said that this technology can be helpful for **agricultural sector**. Various other sectors like health and education **where a chain of events is there**, this technology can be useful.
- **Blockchain** has the ability to **provide transparency** and trust in a **decentralised manner**.
- **Blockchain** itself is not a currency but, an advanced **technology that facilitates the use of cryptocurrency**. It is not possible to use virtual currency without blockchain.
- In purchase done **in real world**, a **cash is paid** for buying goods. But, when a purchase is done **online**, a **mediator has to facilitate** the transaction. This is done by a **digital wallet** like Similarly, **the bank acts as a mediator** when a transfer of money is done to other bank accounts and maintains a ledger for it.

- A **blockchain** is a **virtual ledger** that **eliminates the role of banks/ facilitators** and allows **direct transactions between peer to peer**. There is **no central server** for communication. All the **users are at the same level** and communicate with each other. It is a very democratic system.
- The information in blockchain remains confidential. Any transaction is confirmed in it only after **millions of calculations per second** are done to **validate it**. So, blockchains are **considered very safe**.
- **Digital transactions** have **increased manifold in India**, mainly after the demonetisation step. But, India is still facing **issues like cyber security** and strict laws on cyber-crime. For this reason, **India has second highest number of digital fraud cases in the Asia-Pacific** region behind Indonesia.
- **Governments of several economies** including India are now looking at **blockchain as an opportunity and issues** related to it both. **Paper currencies** are printed at specific places and amount that makes its frauds **traceable**. But the **bitcoins used in blockchain** can be **"mined" anywhere** and are so difficult to keep a track on.
- **Prevailing cyber laws in India** touch almost all aspects of **transactions and activities** involving the internet, www and cyber space (**IT Act 2000** and amended in 2008, **section 463** of IPC, and **section 420**). But in today's techno-savvy environment the world is becoming **more and more digitally sophisticated and so are the crimes**. **India's cyber laws are lacking** in this respect.
- **Online transactions** are prone to fraud and blockchains are seen as a solution to this problem. Every single transaction is written in a block and then chains are built comprising of each transaction. But it's important to make it legal.

#### Conclusion:

- ✓ It is the **age of technological revolution** in which every technology is replaced by another better technology. **Biotechnology and genetics** in the field of medicine, **robotics and Artificial Intelligence** and **e-commerce** in economy have dramatically changed conventional ways of working. **Financial sector has been at the forefront of digitalisation**.
- ✓ Blockchain can help in reducing the need of intermediaries and increase more peer to peer contacts in future. **Steps taken by Government of India** like demonetisation, implementation of GST and e-way bill, BHIM app and RuPay cards are aimed at **bringing up a cashless society and transparency in governance**.

## 5. The Solar Age

Link: <https://youtu.be/DjT03m9JZaw>

- As **one of the fastest growing economies** in the world today, **India** is facing an **unprecedented demand for energy**. Energy consumption has nearly doubled in India since 2000 and is expected to grow manifolds in the coming few decades. Realising the situation, the **government** has put in many efforts to **increase its renewable energy production**.
- At the inaugural **International Solar Alliance Summit 2018** in Delhi PM Modi presented a **10-point action plan to promote solar energy**.

#### Analysis:

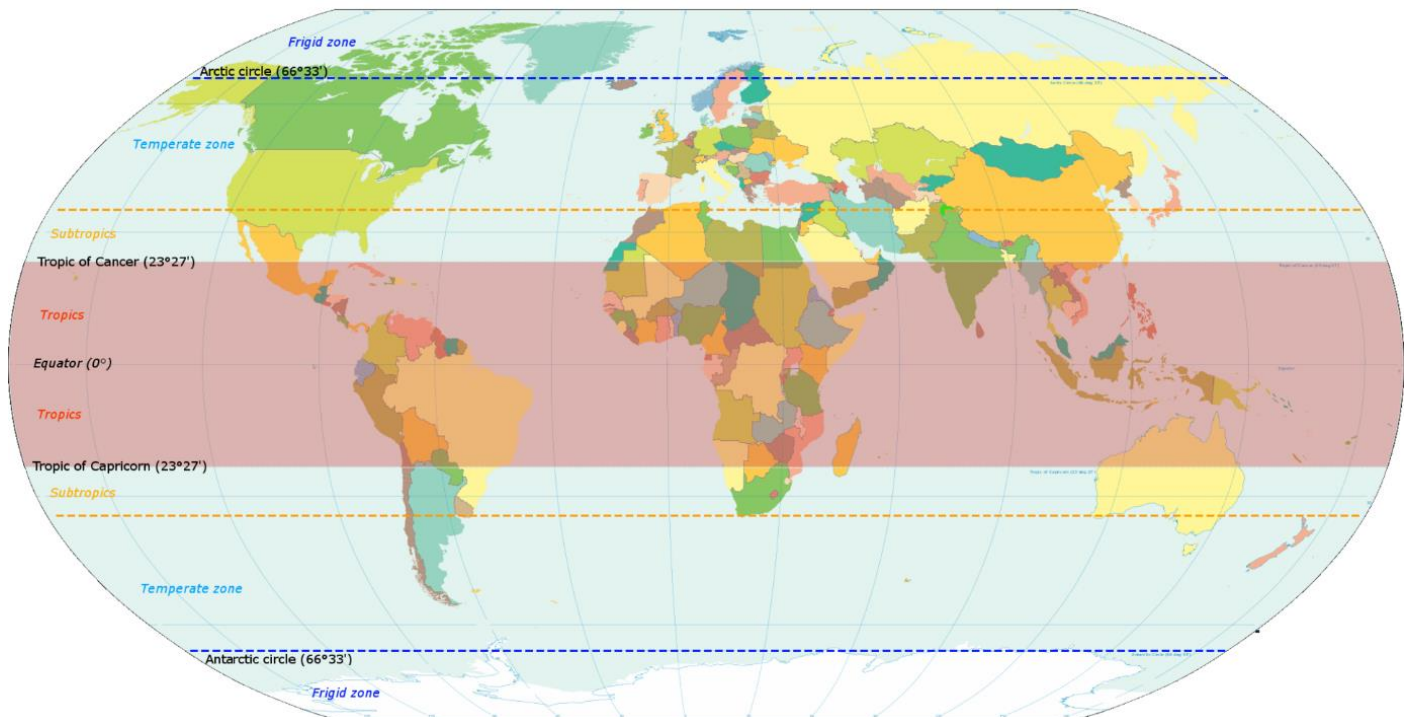
- Energy comes by two sources:
  1. Non-renewable or conventional: Oil, gas and coal.
  2. Renewable or non-conventional: Solar, wind, water and biomass.

					
Solar	Wind	Geo	Hydro	Bio	Tide

Today about 80% of world's energy is produced from conventional sources.

- With **rapid industrialisation and urbanisation**, India's **energy needs are growing** by the day. **Rising thermal power production** (which are coal or gas fired) is not a sustainable choice as it **harms the environment**. So, **solar power** can be a **viable choice** which is clean, environment friendly, cost effective and also sustainable.
- At the **first summit of International Solar Alliance (ISA) 2018**, PM of India Narendra Modi and French president Emmanuel Macron talked about **promoting solar energy** and expectations for the next decade.
- **India's electricity sector** has **one National Grid** with an **installed capacity of 334.40 GW** as on 31 January 2018. **Thermal power** that comes at the **heavy cost of the environment** accounts for **about 70% of it**.

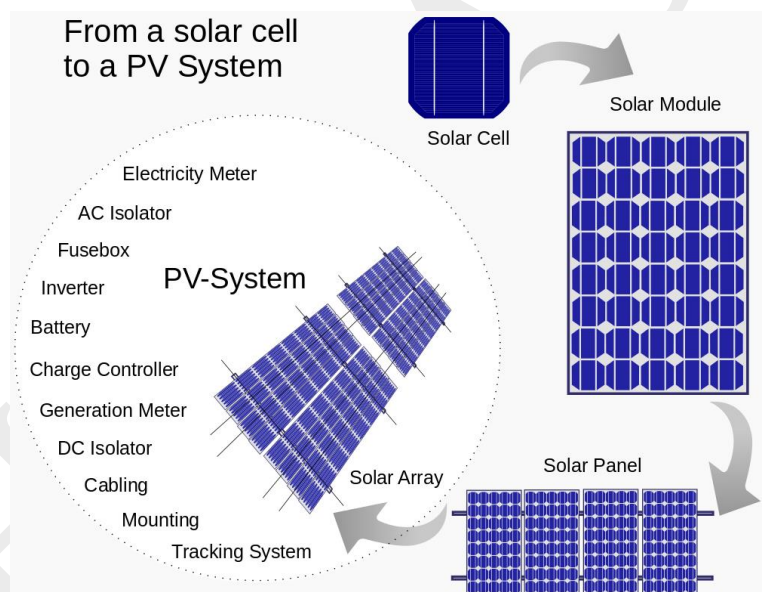
- **India** is a country which has **very good availability of sun rays** at many places. This can help in increasing its electricity generation.



- The **International Solar Alliance** can prove to be a major step in this direction.
  1. It is an alliance of **more than 121 countries**, most of them being ‘sunshine’ countries **lying between tropic of cancer and Capricorn**.
  2. It was **launched in 2015** by PM of India Narendra Modi and then French president Francois Hollande.
  3. ISA countries have agreed to work together in the **field of solar energy**.
  4. It aims to provide affordable, clean, green and renewable energy to the member countries.
  5. **Delhi ISA summit** focussed on various such aspects and also on **rural electrification, off-grid solar power** and use of **solar energy for irrigation**, etc.
- **ISA** aims to reach the goal of producing **over 1000GW of solar power by 2030**. To achieve this target, it will need an **investment of Rs.65 lakh crore** for which it has entered into agreements with the **World Bank, European Investment Bank and European Bank for reconstruction and development**.
- The United Nations report on global trends in renewable energy investment report in 2016 ranks **India among top 10 nations investing in renewable energy**.
- **India’s signing of 2015 Paris Climate agreement** has given a push for its solar energy projects. In January 2015 the **Indian government** expanded its solar plans, **targeting US\$100 billion** in investment and **100 GW of solar capacity by 2022**.
- The **Paris Agreement** is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with **greenhouse gas emissions mitigation**, adaptation and finance starting in the year 2020. **As of February 2018, 195 UNFCCC members** have signed the agreement. It aims to keep **global temperatures to below 2°C** in this century, which otherwise can trigger rise in **sea levels** and cause **droughts and fires**.
- **India’s solar power generation capacity has increased rapidly:**
  - On 26 May 2014 = 2,650 MW
  - On 31 Jan 2018 = More than 20,000 MW (20GW) (It was initially targeted for 2022)
  - Target set to reach in 2022 = 1 lakh MW (100 GW)
- In **Nov 2015 India and France signed international solar energy agreement** aimed to reduce cost, boost technology and promote research of solar energy.
- India is leading several nations that are adversely affected by climate change and working on an alternative source of energy.
- To serve the energy **needs of over 1 billion people** is a **huge task** for any country or government. It is more for India when it is trying to make a place among developed countries in the world. **India’s energy**

**consumption is expected to grow 4.2%/year.** So, solar energy is considered to be the best way to address its power shortage.

- The grid system in India still faces many structural problems like technical losses in the network and high level of non-payment of electricity.
- **NITI Aayog** has said a **cumulative capacity target of 175 GW** has been declared for the year 2022 for renewable energy.
- Government of India has been pushing forward the installation of solar power capacities. For example:
  1. **India's largest floating solar power plant** was set up on the **Banasura Sagar reservoir in Wayanad, Kerala.**
  2. With a capacity of 1,000 MW, on beginning of 2017 **Kurnool Ultra Mega solar park, Andhra Pradesh** was the world's **largest** solar park.
  3. With a generating capacity of **648 MW at a single location, Kamuthi solar power project, Tamil Nadu** is the **world's second largest** solar park. It was built in 2016-2017.
  4. States like Andhra Pradesh, Rajasthan, Tamil Nadu, Gujarat, Maharashtra, etc have been increasing their solar installation capacities rapidly.
- **Photovoltaic solar panels** absorb sunlight as a source of energy to generate electricity. A **solar cell** is an electrical device that converts the energy of light directly into electricity by the **photovoltaic effect**. A **semiconductor material** like **Silicon** is used for the purpose.
- **The initial installation costs of solar energy panel are high.** But, in long-term use the cost reduces significantly. The installations can be done on **community level** to share the installation costs and benefit all.



#### Conclusion:

- ✓ **Energy** is one of the **fundamental requirements of the economic development**, required for agriculture, industry, transportation, housing or trade.
- ✓ **Proper use of energy** needs to focus on its **optimum use and distribution**.
- ✓ Apart from **efforts done by governments** by their policies and programmes, the **citizens** in every area shall also be committed to use **alternative sources of energy to maintain its sustainability**.

## 6. In Depth Nuclear Agni-II Increasing Strike Range

Link: <https://youtu.be/CSfX4e4tQ1w>

India's strategic forces **test fired Agni II** on Feb 20, 2018 on medium to intermediate range **nuclear capable ballistic missile**. The test was conducted from **Dr. Abdul Kalam Island, Odisha** as a part of annual programmes to test the combat readiness of Indian Army missile forces.

#### Analysis:

- In Indian history, **Mysorean rockets were the first iron cased rockets** that were successfully deployed for **military use**. These were used by **Hyder Ali and Tipu Sultan** successfully against the British East India Company in 18<sup>th</sup>
- Post-independence, **Defence Research and Development Organisation (DRDO)** was formed in 1958 for **military's research and development** under the control of Ministry of Defence. The **Integrated Guided Missile Development Programme (IGMDP)** was launched in 1982-83 by the Indian Government which saw the projects of:
  1. **Prithvi** (Short range surface to surface missile)
  2. **Trishul** (short range surface to air missile)
  3. **Aakash** (Medium range surface to air missile)
  4. **Nag** (Third generation anti-tank missile)
  5. **Agni-I** (Agni missile was later separated from the IGMDP due to its strategic importance)

- After India test-fired the **first Prithvi missile in 1988**, and the **Agni Missile in 1989**, the **Missile Technology Control Regime decided to restrict missile technologies to India**. To counter this move, **IGMDP with the help of DRDO laboratories made India capable of making all the technologies indigenously** over time.
- After the **successful competition of IGMDP on 8 Jan 2008**, India now develops all its current and future missile as independent projects, with private companies and foreign partners (like Brahmos with Russia).
- **Dhanush** is the **naval version of Prithvi missile**. It can carry payloads up to 500 kg and target both **land-based and sea-based targets**.
- The **K family of missiles** is a series of **submarine launched ballistic missiles** developed by India. They are reported to be faster, lighter and stealthier than their Agni missile counterparts. Example: **K-15 (or Sagarika), K-4, K-5 and K-6**.
- A **ballistic missile** is a missile with a high, arching trajectory, which is initially powered and guided but **falls under gravity on its target**.
- A **cruise missile** is a low-flying missile which is **guided to its target by an on-board computer**. Modern cruise missiles can travel at **supersonic or subsonic speeds**. Supersonic travel is rate of travel of an object that exceeds the speeds of sound (**Mach 1 = 343m/s**).
- Example: **Tomahawk (United States), Nirbhay (India) and Brahmos (India)**.
- **Brahmos** is the **fastest supersonic cruise missile** in the world with a speed of Mach 2.8 – 3 at present. **Russia** supplies 65 % of its components including its **ramjet engine**. **Brahmos II** with a speed of **Mach 7-8** is currently under development.
- **Nirbhay** is a long range, all-weather subsonic cruise missile designed and developed in India by DRDO. It can carry conventional and nuclear warheads.
- **India is now a member of three export control regimes** –
  1. the Missile Technology Control Regime (since 2016),
  2. Wassenaar Arrangement (since December 2017) and
  3. Australia Group (since January 2018).
    - Biological and Chemical Weapons Convention have also been signed by India.
    - But, **India has not signed Comprehensive Nuclear Test-Ban Treaty and Nuclear Non-Proliferation Treaty**.
- **Agni missiles are long range nuclear-capable surface to surface ballistic missile**. Its specifications are:

Ballistic Missile	Weight (kg)	Payload (tonnes)	Length (m)	Dia. (m)	Type of range	Operational range (in km)
Agni-I	12,000	1.0	15	1.0	Medium	700-900
Agni-II	16,000	0.75-1.0	21	1.0	Medium	2,000-3,500
Agni-III	44,000	2.0-2.5	17	2.0	Intermediate	3,500-5,000
Agni-IV	17,000	0.8-1.0	20		Intermediate	3000-4000
Agni-V	50,000	1.5	17.5	2.0	Intercontinental	Over 5,000
Agni-VI (Under development)	55,000	1.0		1.1	Intercontinental	8,000-10,000

- **India has a second use (no first-use) nuclear policy** which means it can use it only when an enemy does on it. But for that a **deterrence mechanism** is needed which is a **strategy intended to dissuade an enemy** from taking an action not yet started. This is done by **showing one's capability and strategy**.
- The **Agni missiles** have an advanced **high-accuracy navigation system**. It uses an **inertial navigation system** that uses a **computer, motion sensors and rotation sensors** to continuously calculate the orientation and velocity of moving object.
- **Agni II uses a two-stage solid propellant** It is developed by advanced systems laboratory along with other **DRDO laboratories**. It is integrated by **Bharat Dynamics Limited, Hyderabad**.
- The lesser the distance travelled by a missile, the more payload it can carry.
- The first prototype of Agni-II was launched on 11 April 1999. A launch on 7 April 2013 was conducted by Strategic Forces Command. It was inducted into the Indian Army in 2004.
- Agni-II was upgraded to a **nuclear warhead** after the **Pokhran-2 test in 1998**.
- The **recent successful trial of Agni-II** on 20 Feb 2018 **reconfirms Indian Army's readiness**. It has also shown an **accuracy within (30-40) m of range** in hitting the target.

- With **rising challenges from China and Pakistan**, it is important to test the missiles and remove any shortcomings. Technical problems, for example, have occurred in some of the previous launches in the second stage when the warhead separates.
- **With Agni-V, India** has entered into the list of countries possessing **Intercontinental Ballistic Missiles (ICBM)**. Other countries in the list are **Russia, United States, France, North Korea and China**.
- **An ICBM** is a guided ballistic missile with a **minimum range of 5,500 km** primarily designed for nuclear weapons delivery. Similarly, conventional, chemical, and biological weapons can also be delivered with varying effectiveness.
- Russia, China and United States have one of the world's most powerful missiles that can travel between 10,000-15,000 km. Examples:

Missile Type	Maximum Range (km)	Country
R 36	16,000	Russia
Dongfeng 5 and 41	15,000	China
Hwasong-15	13,000	North Korea
RS-26 Rubezh	12,600	Russia
LGM-30 Minuteman III	13,000	United States
Trident I	12,000	United States
M 51	10,000	France
Agni V	8,000	India

- For India, the concern presently is **China** which is **way ahead in missile technology** and capability and has a battle-ready army. **Pakistan** is also improving its arsenal. In response to Agni V, Pakistan is working on ICBM which is said to be working on ICBM 'Taimur'. **Shaheen-III** (range of 2750 km), **Shaheen-II** (range of 2,500 km) and **Shaheen-I** (range of 750 km) are ballistic missiles of Pakistan.

#### Analysis:

- **India** has **travelled a long way** since the **development of its IGMDP programme** in indigenously developing its missiles technology **by the help of DRDO laboratories**. With missiles like Agni, Brahmos, etc India has developed a **good deterrence mechanism**.
- But, **China** which has seen standoff with India in recent past is **way ahead in these technologies**. So **recent successful testing of Agni II is a good move** and India should keep its readiness and efficiency in missile striking capabilities on track with its **Strategic Forces Command**.