

## 29 Nov 2020: UPSC Exam Comprehensive News Analysis

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### B. GS 2 Related

**Category: INTERNATIONAL RELATIONS**

## 1. What does the killing mean for Iran?

**Context:** Mohsen Fakhrizadeh, a leading Iranian nuclear scientist and a brigadier general in the Islamic Revolutionary Guard has been assassinated in Tehran.

### **Details:**

#### *Who is he?*

- Mohsen Fakhrizadeh is believed to have played a pivotal role in Iran's nuclear programme in the 1990s and the early 2000's decade.
- He was also a key figure in Iran's defence programmes and security calculus.

#### *Timing of his death.*

- His assassination has come at a time where there was an expectancy in a shift in policy towards Iran by the USA due to change in the leadership, moving from "maximum pressure" policy of outgoing President Donald Trump.
- The policy followed by Donald Trump, which placed severe sanctions on Iran and undertook operations to target key figures of Iran had taken both US and Iran to the brink of war, thus threatening regional peace and security.

#### *P5+1 nuclear deal*

- The nuclear deal was signed in 2015 under the efforts of the previous US administration led by Barack Obama to curb the stockpiling of low enriched uranium.
- The unilateral pullout by Donald Trump administration from the nuclear deal in may 2018 led to Iran violating the terms of the agreement and expand its nuclear arsenal.

### **West Asian Triangle**

- The 3 key regional players of West Asia are Iran, Israel, Saudi Arabia. Saudi Arabia and Israel are wary of Iran's nuclear programme from being revived and Iran's bargain would be to seek lifting of sanctions which could make it stronger.
- The US is involved in talks with Israel and Saudi Arabia to maintain the balance of power and subsequently establish peace in the region.

### **Iran's options**

- Though various intelligence reports have hinted at the role of Israel in the assassination, Iran cannot retaliate without the help of Hezbollah, a Lebanese Shia militia-cum-political party, who have the capacity to attack Israel from its bases in the southern parts of Lebanon.
- In a similar situation in 2019 when the US imposed sanctions, Iran chose to target oil tankers in the Strait of Hormuz or the oil installations of the Sunni monarchies across the Gulf region.
- Iran's response to an assassination of its leader Soliemani was to target US bases in neighbouring Iraq.

1. Pressure mounting on Iran

- US sanctions have crippled Iran's economy with high persistent inflation and skyrocketing unemployment rate along with Israel's covert and overt operations have raised questions over the defence and security arrangements.
- Iran's allies Syria and Russia have turned a 'blind-eye' towards persistent attack from Israeli jets on Iranian assets and militia across the border in Syria.

2. Dilemma

- Full-blown retaliation would only escalate the tensions in the region, which could, in turn, present an opportunity to the US and its allies to impose severe sanctions, it could also hurt the global image of Iran and maybe seen as a 'mischief monger' of West Asia.
- Showing restraint would appear as a 'backward step' and this would further erode the diminishing image of the Iranian leadership in both within and outside the border.

**Impact On India**

- West Asia being part of India's extended neighbourhood, instability in the region can have economic, security implications on India.
- Further US sanctions on Iran might put India in a tough spot, especially when India is seeing Chabahar port as the gateway to Central Asia and Iran is one of the key crude oil suppliers to India and also not to forget India enjoys civilizational ties with Iran.
- Escalation of ties will also cause fluctuation in crude oil supplies not only from Iran but from West Asia, which could increase the crude oil prices and it can further have a domino effect on various sectors of Indian economy which is already reeling under COVID stress.

To learn more about the **U.S.- Iran Crisis** from the **RSTV – The Big Picture**, [Click here](#).

## C. GS 3 Related

### Category: SCIENCE AND TECHNOLOGY

#### 1. RT-LAMP: a new technology for detecting COVID-19

**Context:** The high infective rate of the novel coronavirus, SARSCoV2 causing the [Coronavirus disease 2019](#) has meant that testing needs to be large in scale and accurate in diagnosis.

**Details:**

- The currently deployed Real-time reverse transcription-polymerase chain reaction (RT-PCR) test and the COVID-19 serology tests have highlighted the need to have a diagnostic tool that is accurate, scalable and quick.
- The challenges with the Real-time reverse transcription-polymerase chain reaction (RT-PCR) test and its drawbacks has highlighted the need to have an improved diagnostic tool. The RT-LAMP (Reverse Transcriptase loop-mediated isothermal amplification) technology offers hope in this context.

The drawbacks experienced with the RT-PCR tests are as follows:

1. **Cost**- The test requires expensive and complex apparatus.
2. **Human Resource training**- This would require high financial outlays.
3. **Specificity and sensitivity**- Currently it is estimated to be around 95% and there is a possibility of false-negative results, which can have cast doubts in the minds of Health practitioners and policymakers.
4. **Time**- Turnaround time is estimated to be around 10 hours and this can stretch to higher range in remote areas. The high time interval will hinder efforts to contain the spread of the disease.

The serology tests which is used to discern antigens associated with COVID-19, though it has the advantage of being time-saving, it has been found wanting on the accuracy, the high false positives/negatives have cast aspersions.

### **RT-LAMP (Reverse Transcriptase loop-mediated isothermal amplification) technology.**

- Loop-mediated isothermal amplification, or LAMP, is an assay that can be used for viral RNA detection. Reverse-transcription LAMP (RT-LAMP) allows for quicker analysis of genetic material than traditional PCR and has been successfully used in the detection of the COVID-19 virus
- This is a one-step nucleic acid amplification method to multiply specific sequences of RNA of the coronavirus.
- Here, the RNA is first made into cDNA (copy DNA) by the usual reverse transcription (the process in cells by which an enzyme makes a copy of DNA from RNA. The enzyme that makes the DNA copy is called **reverse transcriptase** and is found in retroviruses), then the DNA is amplified by the LAMP technique.

### **Advantages associated with Reverse-Transcription LAMP (RT-LAMP)**

1. **Time**- Result will be obtained within a span of 30 minutes and in addition, the positive samples are amplified in around 10 minutes. Such a short testing time duration helps to meet the increasing demand for testing.
2. **Temperature**- The desired temperature for DNA amplification in LAMP technology is 65 degrees celsius whereas RT-PCR testing requires a set of temperatures for DNA amplification, ranging from 92 degrees Celsius to 56 degrees celsius, thus needing thermal cylinders which would inflate the cost.
3. **Quantity of DNA amplified**- Several hundred thousand times more than the RT-PCR test, therefore the final assay is possible with a simple colour reaction, removing the need for very costly real-time PCR machines.
4. **Reagents storage**- Reagents used for chemical analysis can be stored at around 4 degrees celsius in LAMP technology whereas they need to be stored and transported at around -20 degree celsius, thus requiring deep freezers, which in turn leads to an escalation of costs.
5. **Simpler procedure** entails minimum skill and minimum infrastructure thus paving the way for massive deployment.
6. **Accuracy**- Indian Council of Medical Research has validated the sensitivity of LAMP technology to be 98.7% and specificity of 100%.

RT-LAMP is the perfect technology for use in the COVID-19 pandemic due to its accuracy, relatively simple equipment, low cost. This means tests can be carried out in non-standard institutions, such as

airports or rural hospitals or medical centers, which will help in decongesting the Health centres and also help in ramping up testing which is a prerequisite for containing the pandemic.

## Category: ECONOMY

### 1. Q2 manufacturing rebound puzzles economists

#### What's in news?

- India's manufacturing sector has rebounded from a contraction of 39.3% in GVA in the April-June quarter to 0.6% growth in the July-September.
- It's seen as an anomaly especially when the GDP estimates for the same quarter contracted by 7.5%.
- The positive manufacturing growth has puzzled many economists and the divergence in the Index of Industrial Production and the GVA has also led to confusion
- Many economists have cautioned reading too much in the numbers saying that the incremental growth in GVA is owed to aggressive cost-cutting measures, soft raw materials cost and a trimmed wage bill.
- SBI research has revealed that small firms have undertaken 10%-12% cuts in employee costs. This could have an effect on household consumption expenditure.
- Low Base-effect is also seen to be the reason for such a recovery seen in the manufacturing sector.
- The National Statistics Office stressed that its GDP estimates were affected by lockdown and relying on miscellaneous data such as GST collections, interaction with professional bodies were also not complete in its depiction.

## D. GS 4 Related

*Nothing here for today!!!*

## E. Editorials

## Category: DISASTER MANAGEMENT

### 1. The complexities of cyclone forecasting

#### Context:

Tracking of Cyclone Nivar

#### Details:

- What is a tropical cyclone?
  - A tropical cyclone is an intense low-pressure system that is classified on the basis of its wind speed.
- Cyclone Nivar

- Cyclone Nivar joined the list of major cyclones making landfall on India's coast this year, Cyclones Amphan and [Cyclone Nisarga](#) being the others.
- Cyclone Nivar has its genesis in the Bay of Bengal region and clock speeds of 125-145 km/h and causing damages on the Coramandel coast of Tamil Nadu.

### Cyclone Forecasting/

1. The IMD has considerably increased its efforts in recent years in the areas of Tropical Cyclone forecasting and verification.
2. Many facilities have been developed to enable a detailed assessment of the global model's performance in the forecasting of TCs as well as operational TC forecast performance.
3. Three major factors that have enhanced IMD's capabilities in cyclone forecasting are
  - Doppler weather radars
  - International collaborations with Japanese meteorological agency, US National Hurricane Centre etc.
  - Increased deployment of ocean-buoys that help track variations in sea surface characteristics.

### Doppler weather radar

- The Doppler Weather Radar (DWR) provides advance information, enhancing the lead-time so essential for saving lives and property, in the event of natural disaster associated with severe weather.
- Though the conventional radars are able to track and predict cyclones, the DWR provides detailed information on storm's internal wind flow and structure.
- The severity of the weather systems can thus be quantitatively estimated more accurately than ever before and more precise advance warnings can be generated for saving human lives and property.
- There is a network of 27 doppler weather radars (DWR) in India with 12 of them being on the coast.

### How are cyclones classified?

- Cyclones are classified on the basis of the wind speed by IMD.
  1. **Cyclonic storm:** speeds of between 39–54 mph (62–88 km/h)
  2. **Severe Cyclonic Storm:** Severe Cyclonic Storms have storm force wind speeds of between 55–72 mph (89–117 km/h)
  3. **Very Severe Cyclonic Storm:** Very Severe Cyclonic Storms have hurricane-force winds of 73–102 mph (118–166 km/h).
  4. **Extremely Severe Cyclonic Storm:** Extremely Severe Cyclonic Storms have hurricane-force winds of 166–221 km/h (104–137 mph).
  5. **Super Cyclonic Storm:** The highest classification used in the North Indian Ocean is a Super Cyclonic Storm, which has hurricane-force winds of above 138 mph (222 km/h).

### Tracking Nivar's progress

- April-June and October-December are India's cyclone seasons. The arriving monsoon, as well as its retreat, stir up the surrounding seas and generate cyclones.



- IMD initial forecasts predicted a 'severe cyclonic storm' but days later it upgraded it to 'severe cyclonic storm'.
- Cyclone Nivar was predictable in its trajectory, the presence of more radars on the east coast when compared to the west coast.
- The cyclones originating in the Bay of Bengal are thrice as more in number than cyclones originating in the Arabian sea, but the cyclones of Arabian have higher 'recurving' abilities.
- Predictability in its track, progress and timing enabled the Tamil Nadu, Andhra Pradesh and Puducherry administration to take precautionary measures.

## Category: SCIENCE AND TECHNOLOGY

### 1. Scaling new heights

#### Context :

Collaboration between Space X and NASA has served as an eye-opener for public-private collaboration in the Space sector. Launches of Crew Dragon Spacecraft and the Starlink internet relay satellites has showcased the benefits of public-private partnership in the space sector.

#### Details :

- **India's scenario**
  - There has been slow but sure ceding of government control over the space industry.
  - Instances of rocket component outsourcing, hiring of vendors etc.
  - The Indian government has opened up its space sector for private players officially, via a newly created arm that will coordinate with private companies and startups to undertake commercial operations.
  - The arm is called Indian National Space Promotion and Authorisation Centre (IN-SPACe) and will be the coordinating body behind all private operations that can make use of the existing Indian space infrastructure.
  - New Space India Limited (NSIL), which was formed in 2019, will handle all space operations and coordinate depending on activities. This may see India take on a model similar to the USA, where a government-backed public entity would oversee all space operations.
- **Implications of commercialization of space**
  - In the case of US, commercialization has meant that NASA has been able to focus on programmes of space exploration, while SpaceX has provided with reusable rockets, large capsules to carry heavy payloads.
  - Models with public-private cooperation will enable Governments to pursue exploration programmes and shift away from utilitarian missions and allow the private sector to pursue such missions.
  - Starlink satellites aim to provide internet services that link any point on earth to any other point.
- **Curiosity-driven science in the privatization era**

- Co-existence of commercial mission and scientific experiments will be the way to go in the future.
- The cargo version of the Dragon-2 spacecraft is a reusable spacecraft capable of returning cargo to the Earth from International Space Station.
- Dragon-2 spacecraft carries both payloads for scientific experiments and also commercially owned and operated 'airlock', 'airlock' is a doorway built by a Texas-based company, it is an upgrade over what was used previously , will enable larger payloads to move in and out of the spacecraft.
- It carries curiosity driven experiments as well, like for example biomining of asteroids and how gravity will impact cardiovascular tissues.
- Utility and curiosity-based explorations must go hand in hand, a successful balance between the two could redefine space exploration in the years to come.
- **What is the future of space tourism?**
  - Space tourism could become more common and frequent as space travel becomes more economical.
  - Private companies such as Virgin Galactic, Blue Origin and SpaceX, that will offer space flights, albeit for a very high fee.
  - Prospects of experiencing microgravity and also the possibility of spending days in the International Space Station will make space tourism more attractive and drive the demand upwards.
  - Colonization of moon is perhaps not a very distant dream now, the pace at which commercialization of space sector is being expanded, it is going to be a reality sooner than later.

Also read, [Indian Space Research Organisation](#) [ISRO Notes for UPSC].

## F. Tidbits

*Nothing here for today!!!*

## G. Prelims Facts

*Nothing here for today!!!*

## H. UPSC Prelims Practice Questions

1. Which among the following is not a member of the Shanghai Cooperation Organisation (SCO)?

1. Uzbekistan
2. Turkmenistan
3. Tajikistan
4. Kyrgyzstan

**Answer: b**



**Explanation:**

The SCO currently comprises eight Member States (China, India, Kazakhstan, **Kyrgyzstan**, Russia, Pakistan, **Tajikistan** and **Uzbekistan**).

**2. Consider the following statements with respect to Central Bureau of Investigation.**

1. CBI is a statutory body
2. CBI Director shall be appointed by the Central Government on the recommendations of a selection committee headed by the Home minister

**Which of the following statements are correct?**

- a. 1 only.
- b. 2 only.
- c. Both 1 and 2.
- d. Neither 1 nor 2.

**Answer: d****Explanation:**

- **CBI** is not a statutory **body** as it is not established by an Act of the Parliament, it is an executive body.
- As per the Delhi Special Police Establishment (DSPE) Acts 1946, as amended by Lokpal and Lokayuktas Act, 2013, the CBI Director shall be appointed by the Central Government on the recommendations of a selection committee comprising –
  - The Prime Minister (Chairperson),
  - The Chief Justice of India or any Judge of Supreme Court nominated by him and
  - The Leader of Opposition. The DSPE Act was further amended in 2014 to include the Leader of the single largest Opposition party in the selection committee when there is no recognised Leader of Opposition

**3. Which of the following places are correctly matched:**

1. Neom : Qatar
2. Natanz : Iran
3. Mosul : Iraq
4. Absard : Saudi Arabia.

**Options:**

- a. 1 and 2.
- b. 2 and 3.
- c. 3 and 4.
- d. 1 and 4.

**Answer: b**

**Explanation:**

- Neom- A futuristic city, a brainchild of Saudi Arabian prince Mohammed Bin Salman.
- Natanz- A city in Iran, houses Iran's nuclear facility.
- Mosul- considered the last major stronghold of Islamic State in Iraq.
- Absard- Iranian city

4. Arrange the following hills of Eastern Ghats from north to south.

- 1. Shevroy hills.
- 2. Nagari hills.
- 3. Nallamalla hills.
- 4. Palani hills.

**Options:**

- a. 2-3-1-4
- b. 3-2-1-4
- c. 3-2-4-1
- d. 2-4-1-3

**Answer: b**

**Explanation:**



## I. UPSC Mains Practice Questions

1. Explain the role and significance of West Asia to India's economic and security goals.
2. Explain the phenomenon of 'recurving of cyclones' with recent examples and also highlight the factors aiding such events.