

29 Aug 2021: UPSC Exam Comprehensive News Analysis

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Category: ENVIRONMENT AND ECOLOGY

1. Why are hydropower projects in the Himalayas risky?

Context:

- The Environment Ministry, in an affidavit placed in the Supreme Court, has disclosed that it has permitted seven **hydroelectric power projects in the state of Uttarakhand** to go ahead.

Background:

- In the aftermath of the devastating **Kedarnath floods of 2013**, the Supreme Court had halted the development of hydroelectric projects in Uttarakhand.
- It had called on the Environment Ministry to review the **role played by hydroelectricity projects in amplifying the natural disasters like cloud bursts and floods**.
- Several **expert committees** were set up to examine the role of 24 such proposed hydroelectric projects in the Alaknanda and Bhagirathi basin of the river Ganga and its tributaries. The first two committees had concluded that the **proposed projects could have a significant environmental impact and irreversibly impact the fragile ecology of the region**.
- Following this adverse observations by the expert committees, six private project developers impleaded themselves in the case in the SC. They sought their projects to be allowed to be continued given that they were already in various stages of construction following a clearance from the environment ministry.
- A new committee set up in 2015 recommended the projects to be allowed with design modifications to some.

Details:

- The Environment Ministry has given the go ahead to 7 hydropower projects that are reportedly in advanced stages of construction

For information on this issue refer to the following article:

[UPSC Comprehensive News Analysis of 28th Aug 2021](#)

Concerns:

Impact on the flow of Ganga river:

- The cleanliness of the Ganga River is premised on minimum levels of water flow in it in all seasons and the **proposed hydropower projects in the upstream of the Ganga basin could hinder water flow** in the Ganga River.

Environmental impact of hydropower projects:

- The **hydro power projects induce severe ecological damage** to the region.
 - The large scale **deforestation** exercises involved in construction leads to **land degradation and desertification** in the region.
 - Large scale projects with large storage basins lead to **submergence of large areas of land**.
 - The **use of rock blasting and heavy machinery** during the construction of power projects has damaged the fragile hills.
 - The lack of scientific disposal of **construction debris is leading to environmental pollution in the river basins**.

Exacerbate the vulnerability to natural disasters:

- **The fragile ecology of the region is prone to natural disasters like landslides and Glacial Lake Outbursts.** The presence of hydropower projects in such vulnerable regions only increase the threat to the life and infrastructure in the region.
 - The break in the **Raunthi glacier had triggered floods in the Rishiganga river in Uttarakhand** and washed away at least two hydroelectric power projects- Rishiganga hydroelectric power project and the Tapovan Vishnugadh project in February, 2021.
- Also the **seismically active Himalayan region is prone to earthquakes.** A massive earthquake which could **damage the dams can lead to flash floods** and lead to loss of life and property downstream of the dams.

Threat of climate change:

- **Global warming is expected to intensify the Glacier retreat and permafrost thaw.** Glacier retreat and permafrost thaw are projected to **decrease the stability of mountain slopes and increase the number and area of glacier lakes.** Glacier lakes pose the risk of outburst.
 - Environmental experts have attributed the glacial melt in Raunthi glacier which had triggered floods in the Rishiganga river to global warming.
- Also the recent sixth assessment report of the IPCC has warned of the possibility of **increased instances of cloudbursts.**
 - The increased chances of intense spells of rainfall would trigger landslides in the region threatening the hydropower projects. This places the residents of the region at increased risk of loss of lives and livelihood.

Counter-arguments:

- Hydropower is abundantly available in the Himalayan state of Uttarakhand and its usage becomes **critical to the development of the state.**
- Hydropower constitutes a renewable source of power and will be **critical to meet India's obligations under its Nationally Determined Contributions** under the Paris Climate Agreement.

Recommendations:

Need for a balance between development and environmental sustainability:

- While the hydro power projects in the region have brought prosperity, they have also increased the vulnerability of the fragile ecosystem of the region.
- **Infrastructural development in the region cannot come at a heavy environmental cost**, given that such growth and development will not be sustainable.
- A balance has to be struck between development and environmental sustainability.

Adoption of alternative strategies:

- **Small run-off hydro power projects** with a small environmental footprint should be promoted in the region.
- Other **alternatives like solar power** should also be explored.

Review of policy:

- The government must review its policy on hydro power projects.
- The fact that the state of Uttarakhand has its own **unique environmental challenges** needs to be accounted for adequately in such a policy. The **conservation, sustenance of these ecologically fragile regions must be given the highest priority**.
- The fact that the government has stated that it is not in favour of greenfield hydropower projects in the region is a welcome move in this regard.

Category: INTERNAL SECURITY

1. 'Ransomware will dominate the cybercrime landscape'

Context:

- **Ransomware Evil, REvil or Sodinokibi**, a **ransomware-as-a-service (RaaS)** operation has emerged as one of the latest ransomware operators of concern

Background:

Ransomware:

- Ransomware is malware that **employs encryption to hold a victim's information at ransom**. A user or organization's critical data is encrypted so that they cannot access files, databases, or applications. A ransom is then demanded to provide access.
- Ransomware uses **asymmetric encryption**. This is cryptography that uses a pair of keys to encrypt and decrypt a file. **The public-private pair of keys** is uniquely generated by the attacker for the victim, with the private key to decrypt the files stored on the attacker's server.

Details:

- The operators of the REvil platform provides adaptable encryptors and decryptors, infrastructure and services for negotiation communications, and a leak site for publishing stolen data when victims don't pay the ransom demand.

- REvil and its affiliates have pulled in a payment of \$2.25 million during the first six months of 2021 including from some **high profile targets like JBS USA Holdings and Brazilian medical diagnostics firm, Grupo Fleury.**

Challenges:

Increasing Ransomware attacks:

- Based on previous trends, cyber experts warn that **ransomware is going to be the major cybercrime in the coming days.**
 - At least 16 different ransomware variants are now exploiting victims by encrypting and stealing/threatening to expose data.
 - Ransomware has been generating billions of dollars in payments to cybercriminals and **inflicting significant damage and expenses for businesses and governmental organizations.**

Increased digitization and the challenges therein:

- The **quantum of data created and replicated experienced very high growth in 2020** due to a dramatic increase in the number of people working, learning, and entertaining themselves from home. This data is vulnerable to ransomware attacks.

Vulnerability of critical sectors:

- **Healthcare has been the most targeted and vulnerable sector in 2020** and the sector continues to be under further attacks by RaaS models.

Increasing sophistication:

- Cyberthreats are evolving rapidly and becoming more sophisticated and complex with the technology being used for ransomware attacks keeping pace with **protection technology.**
- Attackers are leveraging real-world events to deceive individual victims, enterprises and governments all over the globe.

For more information on this issue refer to the following article:

[**UPSC Comprehensive News Analysis of 14th June 2021**](#)

Recommendations:

Use of deep technology to counter cyber threats:

- An **integrated platform using ML (machine learning) and AI (artificial intelligence)** can provide the necessary impetus to cybersecurity against ransomware attacks.
- Using AI, the frequently observed threat data and multiple threat feeds can be automated and left to **ML algorithms that can decipher attack patterns.**
- **Quantum computing** can be employed to hasten the computing speed of the process to help increase the capacity of such platforms.

Category: SCIENCE AND TECHNOLOGY

1. 'Plasmid DNA vaccine ZyCoV-D is safe and effective for adolescents'

Context:

- **ZyCoV-D vaccine- the world's first plasmid DNA vaccine for human use** has received Emergency Use Authorization in India.

For more information refer to the following article:

[PIB Summary and Analysis of 20th Aug 2021](#)

Working of the vaccine:

- A **piece of DNA encoding the antigen** (part of the disease-causing pathogen that induces an immunity response from our bodies) is **inserted into a bacterial plasmid** and injected into humans.
 - A **plasmid is a small, circular, double-stranded DNA molecule that is distinct from a cell's chromosomal DNA**. Plasmids naturally exist in bacterial cells, and they also occur in some eukaryotes
- When the vaccine is injected into the human body, the vaccine produces that particular part of the virus and stimulates the immune system to generate antibodies and T-cells immunity against the virus.

Significance of plasmid DNA vaccines:

- Plasmid DNA has huge potential as platform technologies that could be **used for a variety of applications** ranging from prophylaxis to therapy and from personalized medicine to global health solutions.
- The technology can be **used to quickly develop vaccines with fairly generic manufacturing processes**
- The specified DNA piece disintegrates after it has completed its action and thus is **unable to interfere with the genetic composition of humans**.
- Given that the vaccine does not use any part of the virus they are **considered relatively safer given their relatively low reactogenicity**.
- The plasmid vaccines have **good genetic stability and are also easy to administer**.

For more related information refer to the following article:

[DNA vaccine](#)

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: ECONOMY

1. Why is there a push for asset monetisation?

Context:

- Announcement of the **National Monetisation Pipeline (NMP)**.

Details:

- In a bid to monetise public assets, the government has released a list of projects and facilities to be offered to private investors over the next four years through **structured leasing and securitisation transactions** under the NMP.

For detailed information on the provisions of the NMP and its significance refer to the following article:

[UPSC Comprehensive News Analysis of 24th Aug 2021](#)

Challenges and concerns:

Opportunity costs:

- Experts have warned that the expected boost to economic activity due to higher government spending as envisaged under the NMP may need to be weighed against the opportunity costs.
- Notably the money that the government collects by leasing out assets comes from the pockets of the private sector. So **higher government spending will come at the cost of lower private spending.**

Failure to address structural problems in the sector:

- The NMP also does not address the various structural problems in the Indian economy such as **legal uncertainty around such programmes and the absence of a deep bond market that hold back private investment in infrastructure**

Doubts over private sector involvement:

- The success of the NMP will depend on the demand for brown-field government assets among private investors.
- **Higher valuations and stringent contract conditions may put off private sector interest in the NMP.**

Impact on the end consumers:

- There are concerns that the leasing of public assets like airports, railways, roads and other public utilities to private investors **could lead to higher prices for end consumers.**
- Also merely ceding control of public utilities to private companies without taking steps to foster greater competition among the bidders will only lead to **poor outcomes for consumers.**

Scope for political influence:

- The allocation of assets owned by governments to private investors is often subject to political influence, which **can give rise to corruption.**
 - In the past too, doubts have been raised about the allocation of airports and other assets to certain private business groups.

Conclusion:

- The NMP is no doubt a step in the right direction given that it **offers a good model for infrastructure development in India**. The government would be better able to tackle the ground-level challenges in building infrastructure like acquisition of land, obtaining of requisite clearances, while the private sector can operate and offer indirect finance to such projects through the NMP.
- However the **implementation will hold the key** in ensuring the success of NMP in boosting economic activity.
 - There should be an **open, competitive auction of assets**.
 - The **assets should be competitively priced** to be able to attract private investors.
 - The contract should be clearly defined with enough **provisions available for dispute resolution**
 - Though the prices of services offered by the private sector would be best determined by market forces, necessary **provisions to ensure that the consumers are not exorbitantly charged** should be involved in the NMP provisions.

Category: POLITY AND GOVERNANCE

1. What has the Supreme Court ruled on 'creamy layer'?

Context:

- The recent observation made by a Division Bench of the Supreme Court on the **criteria for identifying creamy layer of backward classes in India**.

Details:

- The Division has observed that **economic criterion cannot be the sole basis** for identifying the 'creamy layer' of a backward class, and that **other factors like social advancement, education, employment also matter in the identification of creamy layer**.

For more information on this development refer to the following article:

[UPSC Comprehensive News Analysis of 25th Aug 2021](#)

Creamy layer concept:

- The 'creamy layer' concept was introduced in the **Supreme Court's Indra Sawhney judgment of 1992**.
 - In the judgment, the Court although upheld the government's decision to give 27% reservation to Other Backward Classes (OBCs), it emphasized the need to **identify sections of backward classes who were already highly advanced socially as well as economically and educationally** to exclude them from receiving the benefits of reservation.

For detailed information on the Indra Swahney judgment of 1992 refer to the following article:

[Indra Sawhney Case](#)

- The Constitution allows for the provision of reservation though it may look like it goes against the provision of right to equality, based on the premise that **reservation would contribute towards the upliftment of the poor and underprivileged**.

- Upon the failure of the states to clearly define creamy layer for backward classes, the SC itself laid down the criteria for determining the 'creamy layer' among backward classes. Persons from backward classes who occupied posts in higher services such as IAS, IPS and All India Services, people with sufficient income who were in a position to provide employment to others and persons with higher agricultural holdings or income from property were to be considered as creamy layer. They having reached a higher level of social advancement and economic status were not entitled to be treated as backward.

Conclusion:

- A clear understanding of the Indra Sawhney judgment shows that social advancement, including education and employment, and not just wealth, was key to identify the 'creamy layer'.
- **The income limit for limiting the creamy layer must be such as to mean and signify social advancement.**

Category: POLITY

1. How was the backward classes policy restored?

The article discusses the provisions introduced under the **recently notified 105th Constitution Amendment** and the need for this amendment. For detailed information on this topic refer to the following article.

[UPSC Comprehensive News Analysis of 11th Aug 2021](#)

F. Prelims Facts

1. Rajnath commissions ICGS Vignaha

- The **seventh Offshore Patrol Vessel (OPV), ICGS Vignaha, built indigenously** by Larsen & Toubro for the Coast Guard (ICG) was commissioned recently in Chennai
- ICGS Vignaha will be based out of Visakhapatnam and will operate on India's Eastern Seaboard under the operational and administrative control of the Commander, Coast Guard Region (East).

2. Scientists find 'northernmost' landmass

- **Oodaaq** or Oodap Qeqertaa is a **bank of gravel and silt northeast of Greenland** that has been considered by some to be the **most northerly point of land on Earth**, though a number of other places have also been given that title since its discovery.
- Scientists have recently discovered what is believed to be the world's northernmost landmass — a yet-to-be-named island north of Greenland that could soon be swallowed up by seawaters. The new island is 780 m north of Oodaaq.

3. BCG vaccine: 100 years and counting

- **BCG (Bacillus Calmette-Guerin)** is a vaccine against **tuberculosis (TB)** in humans.
 - TB continues to be a major public health problem in the world. According to the **WHO's Global TB Report, 10 million people developed TB in 2019 with 1.4 million deaths. India accounts for 27% of these cases.**

- Currently, BCG is the only licensed vaccine available for the prevention of TB. It is the world's most widely used vaccine with about 120 million doses every year and has an excellent safety record.
- India is committed to eliminate TB as a public health problem by 2025 much ahead of the SDG goal of eliminating TB by 2030.

G. Tidbits

1. ISKP has been trying to recruit Indian citizens for past few years

- Operatives of the Islamic State in Khorasan Province (ISKP) have been making attempts to radicalize and recruit Indians for the past few years through social media platforms and messaging applications like Hoop and Telegram
- Notably of concern for India is the fact that ISKP comprises mainly former cadres of the Pakistan-based anti-India terror organization Lashkar-e-Taiba (LeT).
- The United Nations Security Council in one of its latest reports had stated that the ISKP poses a threat to Afghanistan and the wider region.

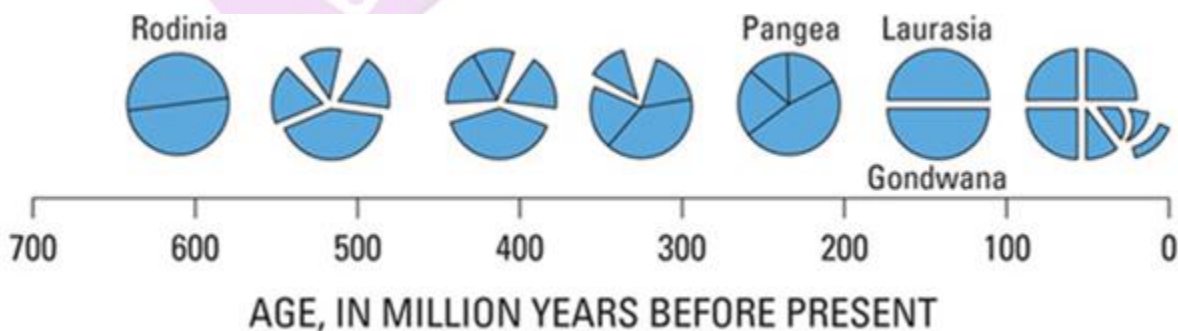
H. UPSC Prelims Practice Questions

Q1. Which one of the following supercontinent existed during the late Neoproterozoic era?

- Rodinia
- Vaalbara
- Panthalassa
- Pangaea

Answer: a

Explanation:



Schematic diagram of continental spreading from the Neoproterozoic era to the present time (Cenozoic era)

- The coalesced Rodinia supercontinent (Neoproterozoic era) was followed by the breakup of the Rodinia supercontinent (middle Paleozoic era), and the subsequent breakup of the Pangea supercontinent into Gondwana in the southern hemisphere and Laurasia in the Northern hemisphere during the late Paleozoic era.

Q2. Consider the following statements:

1. BCG vaccine is currently the only licensed vaccine for TB
2. Farther a country is from the equator, the higher is the efficacy of BCG Vaccine

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both
- d. None

Answer: c

Explanation:

- BCG (Bacillus Calmette-Guerin) is a vaccine against tuberculosis (TB) in humans.
 - TB continues to be a major public health problem in the world. According to the WHO's Global TB Report, 10 million people developed TB in 2019 with 1.4 million deaths. India accounts for 27% of these cases.
- Currently, BCG is the only licensed vaccine available for the prevention of TB. It is the world's most widely used vaccine with about 120 million doses every year and has an excellent safety record.
- One intriguing fact about BCG is that it works well in some geographic locations and not so well in others. Recent studies into the efficacy of the BCG vaccine have noted that farther a country is from the equator, the higher is the efficacy of BCG Vaccine. BCG has a high efficacy in the UK, Norway, Sweden and Denmark; and little or no efficacy in countries on or near the equator like India, Kenya and Malawi, where the burden of TB is higher. These regions also have a higher prevalence of environmental mycobacteria. It is believed that these may interfere with the protective effect against TB.

Q3. Oodaaq Island recently seen in news is part of

- a. Japan
- b. Indonesia
- c. Greenland
- d. Antarctica

Answer: c

Explanation:

- Oodaaq or Oodap Qeqertaa is a bank of gravel and silt northeast of Greenland that has been considered by some to be the most northerly point of land on Earth, though a number of other places have also been given that title since its discovery.

- Scientists have recently discovered what is believed to be the world's northernmost landmass — a yet-to-be-named island north of Greenland that could soon be swallowed up by seawaters. The new island is 780 m north of Oodaaq.

Q4. With reference to Armed Forces Special Powers Act (AFSPA), which of the following statements is/are correct?

1. Under AFSPA the choice of declaring any area as 'disturbed' vests only with the Central Government.
2. The Act is not uniform in nature as it contains different sections as applicable to the situation in each state.
3. Second Administrative Reforms Commission recommended that AFSPA should be repealed

Options:

- a. 1 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1, 2 and 3

Answer: b

Explanation:

- AFSPA, which was enacted in 1958 amid the nascent Naga insurgency, gives powers to the army and state and central police forces to shoot to kill, search houses and destroy any property that is "likely" to be used by insurgents in areas declared as "disturbed" by the home ministry.
- Security forces can "arrest without warrant" a person, who has committed or even "about to commit a cognizable offence" even on "reasonable suspicion". It also protects them from legal processes for actions taken under the act.
- The choice of declaring any area as 'disturbed' under AFSPA vests both with state and central government.
- In recent years, prominent Indian bodies have recognized the brutality of the AFSPA and echoed demands for repeal or amendment. The Justice Jeevan Reddy Committee set up by the Government of India to review the working of the AFSPA, has advocated its repeal. The Fifth Report of the Second Administrative Reforms Commission seconded this recommendation.

Q5. Which of the following adds/add carbon dioxide to the carbon cycle on the planet Earth?

1. Volcanic action
2. Respiration
3. Photosynthesis
4. Decay of organic matter

Select the correct answer using the code given below.

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

Answer: c

Explanation:

- Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to create oxygen and energy in the form of sugar. Thus photosynthesis removes carbon di oxide from the atmosphere from the atmosphere.
- Volcanic action, respiration and decaying of organic matter adds carbon to the carbon cycle.

I. UPSC Mains Practice Questions

ESSAY TOPICS FOR THE DAY (125 marks, 1000-1200 words)

- The cyber world: its charms and challenges
- Economic interests and ecological imperatives in the Himalayan Ecosystem