31 Oct 2021: UPSC Exam Comprehensive News Analysis

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A. GS 1 Related

Category: GEOGRAPHY

1. Scientists find a mineral seen in the depths of the Earth in a meteorite

Context:

- The study led by IIT Kharagpur researchers on the **Katol L6 Chondrite meteorite**.
    - The meteorite had fallen near the town of Katol in Nagpur District of Maharashtra in 2012.

Details:

- The study reports for the first time, **presence of veins of the mineral bridgmanite in the meteorite sample.**
    - Bridgmanite is the **most volumetrically abundant mineral in the interior of the Earth**. It is present in the **lower mantle** (from 660 to 2700 km).
    - Bridgmanite **consists of magnesium, iron, calcium and aluminum oxide and has a perovskite structure.**
        - A perovskite is any material with a crystal structure similar to the mineral called perovskite, which consists of calcium titanium oxide (CaTiO3)
- Notably, while the crystal structure of natural bridgmanite has been reported in other meteorites such as the **Tenham and Suizhou meteorites**, their chemical composition does not fully match with the terrestrial bridgmanite present in the Earth's interior.

Significance:

Understanding of the evolution of earth:

- The understanding of the formation of bridgmanite can help **better comprehend the origin and evolution of planetary interiors including that of earth**. Hence the study could help understand the formation and evolution of the Earth by helping understand high-pressure phase transformation mechanisms in the deep Earth.

Understanding of moon formation:

- The new finding adds evidence to the **Moon-forming giant impact hypothesis**.

- As per the Moon-forming giant impact hypothesis, nearly 4.5 billion years ago, the **Earth collided with a planet the size of Mars named Thela**, and the force of this impact was so huge as to melt the Earth down from the surface to a depth of 750 km to 1,100 km leading to **the formation of a magma ocean on earth**. As per the hypothesis, the **ejecta from the collision led to the formation of the Moon.**

B. GS 2 Related

Category: INTERNATIONAL RELATIONS

1. PM calls for united fight against COVID at G20

Context:

- The Indian Prime Minister recently addressed the first session of the **G20 summit** **on "Global Economy and Global Health" in Rome.**

Major highlights of the address:

- Prime Minister Narendra Modi while highlighting India's contribution during the COVID-19 pandemic, emphasized on the need for a **collaborative approach to fight the COVID-19 pandemic.** The PM also spoke on the principle of **One Earth, One Health approach** and called for comprehensive global solutions towards predicting and tackling any future pandemics.
- The PM highlighted the need for **resilient global supply chains** as shown by the experience of the COVID-19 pandemic. The Indian PM invited G20 countries to invest in India for supply chain diversification and global recovery from the pandemic.
- On the economic aspect, PM appreciated the **G20's push for a global minimum corporate tax of 15%** aimed at preventing tax evasion and money laundering.

2. U.S. Trade Representative to visit India on November 22

Context:

- **U.S. Trade Representative (USTR) is scheduled to visit India** in November,2021 along with other Asian partner countries of Japan and South Korea.

Details:

- The visit will involve meeting with government officials and stakeholders to discuss the enduring U.S. commitment to the Indo-Pacific region and also to **strengthen trade and economic relationships** with key allies and partners
- The visit could also be connected with the two countries' intention to **restart the Trade Policy Forum** — a dialogue to enhance the bilateral trade relationship by addressing trade concerns, identifying specific areas for increased engagement and developing an ambitious, shared vision for the future of the trade relationship.
    - Major issues with respect to the economic relationship include India's access to the U.S.'s preferential trade program (**the Generalised System of Preferences or GSP**) which had been revoked during the previous U.S. administration, calls for **better agricultural market**

access for both countries, concerns being expressed by U.S. over the **direction of digital trade policy in India** including measures such as digital services tax.

- India is also pressing for a **waiver of intellectual property rights at the World Trade Organisation (WTO) for COVID-19 vaccines and therapeutics** to ensure global access.

C. GS 3 Related

Category: ENVIRONMENT AND ECOLOGY

1. A movement to root out invasive alien species

Context:

- The Pune-based forum called **Movement Against Biological Invasions (MABI)** is working to combat the menace of invasive alien species.

Invasive alien species:

- **Alien species are species that occur outside their natural range and dispersal potential**. Such species generally have few or no natural predators to keep their population in check.
- The Convention on Biological Diversity (CBD) defines invasive alien species as "an alien species whose introduction and spread **threaten ecosystems, habitats, or species with socio-cultural, economic and environmental harm and harm to human health**".
- Invasive alien species occur in all groups of plants and animals as **competitors, predators, pathogens and parasites** and have invaded almost every type of native ecosystem. Environmentalists have noted that the **spread of invasive alien species has become alarming.**

Examples of invasive alien species in India:

Flora	Fauna
• Goat weed • Prickly poppy • Palmyra • Datura • Water hyacinth • Lantana camara • Prosopis juliflora • Parthenium • Cosmos sulphureus	• Giant African Snail • Myna • Gold fish • Pigeon • Crazy ant • Tilapia

Factors responsible:

- Alien species are spread by **human activity**, intended or unintended, to new areas.

- **Globalisation** is leading to the increased movement of people. Also **trade** and de-forestation have led to the introduction of IAS in the indigenous environment in massive quantities.

Threat posed by alien species:

Risk to biodiversity:

- Invasive species compete for space and light with native flora and are capable of **supplanting native plant species** like grasses and other herbaceous species. As a result, the **local food chain is afflicted** with the Invasive alien species. This leads to the elimination of food and cover for native wildlife and thus invasive alien species **threaten both endemic plant and animal species and can contribute to loss of biodiversity.**

Ecosystem imbalance:

- The invasive alien species can **change the functions of ecosystems** and increase losses in forestry and natural resource management costs. This can take the form of **degradation of marine and freshwater ecosystems and habitat loss.**

Impact on humans:

- Invasive alien species pose a **danger to human health** give that some of the species can induce allergies or diseases.
- Invasive alien species hamper the growth of native grasses which are fodder species for herbivores and livestock. Some invasive alien species are even poisonous which may **cause allergies and skin diseases among the animals.** Given that it is virtually impossible to segregate pure fodder from invasive alien species, the chances that livestock will be consuming adulterated fodder is high which can also have a bearing on human health as well.
- Another indirect effect of the rise in invasive alien species is a **heightening of the man-animal conflict.** Example: The widespread prevalence of invasive Lantana camara species has reduced the proportion of natural grasses for herbivorous animals forcing their movement to human habitats in search of paddy crops and other edible items. This has resulted in the movement of animals like the Indian gaur and the chinkara (Indian gazelle) from their natural habitats to human settlements.
- Invasive alien plant species also contributes to the **issue of weeds in agriculture** towards which the farmers are having to spread in terms chemicals and labour. Also the unchecked growth of invasive alien species has an **adverse impact on soil health and lead to faster deterioration of soil quality.**

Details:

- Movement Against Biological Invasions is working towards systematically charting and rooting out Invasive alien species. The measures being taken by it include the following.
    - It is undertaking '**obnoxious weed eradication' drives** in different parts of India. They are rooting out IAS and holding weed bonfires as part of these efforts.
    - Given the poor appreciation and awareness of the challenge posed by Invasive alien species, MABI are working towards **increasing awareness on the issue** through seminars, workshops, slideshows, video teasers, documentary, information brochures etc.

Additional information:

- In another illustration of the threat posed by alien species, the large sized spider, Joro **spider (Trichonephila clavata) native to East Asia has proliferated in Georgia state of the U.S.**
    - Joro spider is common in Japan, China, Korea and Taiwan.

2. The race to tackle global warming

Context:

- The **COP26 UN Climate Change Conference** is scheduled to commence from today in Glasgow, Scotland.

Background:

- Numerous scientific reports have been warning of **continuing human pressure on the climate system.**
    - The **August 2021 IPCC report** notes how **human influence has warmed the atmosphere, ocean and land which is in turn leading to widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere**.
        - The report notes the observed increase in global surface temperature showing unprecedented warming during the 1850-2020 period compared with reconstructed temperature data over a period of 2,000 years.
        - The impact of the climate on the **frequency and intensity of extreme climate events** has been documented by the Intergovernmental Panel on Climate Change (IPCC) in its special report of 2018 on 1.5 degrees C warming.
- Despite these warnings, global GHG emissions continue unabated. The **climate action envisaged seems inadequate to arrest the rising global temperatures**. The 12th **Emissions Gap Report released by the UN Environment Programme notes huge gap** between the updated emissions reduction pledges made by countries for 2030 and what is needed to keep the rise in global temperature to 1.5 degrees C or even 2 degrees C. This could lead to a **rise in temperature by 2.7 degrees C by the end of the century**.
- There is an increasingly narrowing window for the world to taper down emissions before the temperature rises beyond 2 degrees C.

Details:

- Some of the important aspects which are to be discussed at the Glasgow summit include the following.
    - The climate negotiations will seek to **raise the ambition of countries under the Paris Agreement of 2015** to cut carbon dioxide emissions.
    - The nearly 120 participating countries will **seek consensus on rules to cut emissions. Article 6 of the Paris pact** provides for the establishment of rules, modalities and procedures, which will enable countries, public and private entities to reduce emissions, and which will be accounted towards national pledges.

- While the U.S., the EU and other developed countries would be pushing for the adoption of net zero emissions target, the developing nations including small island states will try and push for **mechanisms to adapt to climate impacts** such as intense storms, fires, droughts, floods and food deficits and argue **compensation for nations for loss and damage**. They will also press upon the developed nations to **transfer green technologies without hard intellectual property barriers** and provide the agreed **$100 billion funding** for developing countries annually from 2020 to help reduce emissions. They will call for **equity in terms of climate action** based on the principle of common but differentiated responsibilities that guides the Paris Agreement.
- The developed nations and the small and climate vulnerable nations will press on high carbon countries to **phase out coal in energy production**. This is likely to be countered by developing countries like India and China for whom coal remains a valuable asset for their economic growth. They would rather emphasize on carbon capture technology.

India's climate performance:

- India had pledged to **cut the emissions intensity of its growth by 33-35% of GDP from 2005 levels by 2030.** India has declared that it has so far achieved 24% reduction on this metric.
- India has also announced that it **would scale-up its renewable power target to 450 GW by the end of 2030**, in addition to the target of **40% of energy capacity based on renewable energy sources** as pledged under the Paris climate agreement.
- India is also **expanding forest cover** to create a 2.5 to 3 billion tonne carbon sink.
- India has recently unveiled a **national hydrogen policy to produce hydrogen through green methods**, aiming for its deployment in industrial sectors as well as transport, and also for export. This would help India decarbonise its energy sector.

Category: ECONOMY

1. Indian farming practices: Learning from elsewhere in the world

Context:

- The article analyzes some of the agricultural practices prescribed by a paper that appeared recently in Proceedings of the National Academy of Sciences USA titled: "**Integrated farming with intercropping increases food production while reducing environmental footprint**"

Details:

- The paper recommends measures such as relay planting, strip cropping, soil mulching and no till practices.

Relay planting:

- In relay cropping the second crop is planted even before the first crop is harvested. Thus, both crops share some part of the season. Thus **relay planting means the planting of different crops in the same plot, one right after another, in the same season**.

- **In some forms of relay cropping, in the beginning itself two or more crops of different durations are cultivated in the same field.** When a crop of shorter duration is harvested the second crop gets better space to grow.
- Examples of such relay cropping would be planting rice (or wheat), cauliflower, onion, and summer gourd (or potato onion, lady's fingers and maize), in the same season.

Strip cropping:

- Strip cropping is a method of farming which involves cultivating a **field partitioned into long, narrow strips which are alternated in a crop rotation system.**
- Example: Strip cropping in the U.S. involves growing wheat along with corn and soyabean, in the same farm in an alternative manner.
- It involves within-field rotation or "strip rotation", allowing strips for planting other plants (such as grass, fruits) besides the major crop.

Soil mulching:

- The process of **covering the open surface of the ground by a layer of some external material, even when the land is in use** is called mulching & the material used for covering is called as 'Mulch.'
- Soil mulching can be done using naturally available agricultural waste such as crop straw and leaves.

No till agriculture:

- No-till farming is an agricultural technique for growing crops or pasture **without disturbing the soil through tillage.**

Significance:

Relay planting:

- Relay planting means **less risk** since the farmer need not depend only on one crop.
- It also leads to **better distribution of labour** since the human intervention will be required at different instances of the crop cycle for the different plants.
- Also insects spread less over the varied crops. This will allow for easier pest management.
- Given that legumes increase soil fertility, use of legumes as relay plants can help **enhance agricultural yield.**

Soil mulching:

- Soil mulching can help **reduce soil erosion while helping retain soil moisture and beneficial organisms**, such as earthworms which can help increase crop productivity.

No till or minimal tilling:

- No-till farming **decreases the amount of soil erosion tillage** causes in certain soils, especially in sandy and dry soils on sloping terrain.

- No-till farming, in which the soil is left undisturbed by tillage and the residue is left on the soil surface, is the most effective **soil conservation system.**
- It can also help in **water conservation.**

Challenges:

- Some of the major challenges in relay cropping includes **challenges in adoption of mechanisation** and also the **agricultural management practices also become more complex.**
- Practices like strip cropping are more **viable on larger farms and may not be suitable for the small fields.**
- Practices like no till agriculture **require special equipments** for sowing which could translate into higher upfront cost for the farmers. Also the practice is **prone to fungal diseases.**

Application in India:

- **India has a significant population of small farmers**, many owning less than 2 hectares of land. About 70% of its rural households still depend primarily on agriculture for their livelihood, with 82% of farmers being small and marginal. Also **agricultural productivity continues to be on the lower side of the global averages** and India's agricultural sector is plagued by issues of indebtedness. The paper notes that the application of the above agricultural methods could help **increase the annual crop yield, while at the same time decrease the environmental footprint**, compared with traditional monoculture cropping. These methods hold immense significance for small farm holders who can grow more food and have a reduced environmental footprint.
- Also practices like strip cropping involving planting of trees to create shelters can help **stabilisize the desert in Western India.**

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: POLITY

1. What is the controversy over Mullaperiyar?

This issue has been covered previously in the following two articles:

UPSC Exam Comprehensive News Analysis of 26th Oct 2021

UPSC Exam Comprehensive News Analysis of 27th Oct 2021

F. Prelims Facts

1. 'Local growers yet to savour rising global coffee prices'

Coffee cultivation in India:

- In India, **coffee is traditionally grown in the Western Ghats spread over Karnataka, Kerala and Tamil Nadu**. Coffee cultivation is also expanding rapidly in the **nontraditional areas of AP and Odisha as well as in the North East states.**
- Coffee is predominantly an export oriented commodity and **65% to 70% of coffee produced in the country is exported** while the rest is consumed within the country.
- The two main varieties of coffee viz**., Arabica and Robusta** are grown in India.
    - **Arabica is mild coffee, but the beans being more aromatic, it has higher market value compared to Robusta beans**. On the other hand Robusta has more strength and is, therefore, used in making various blends.
    - **Arabica is grown at higher altitudes than Robusta.** The **cool and equable temperature**, ranging between 15 degree Celsius to 25 degree Celsius, is suitable for Arabica while for Robusta, hot and humid climate with temperature ranging from 20 degree Celsius to 30 degree Celsius is suitable. **Arabica requires more care & nurture and is more suitable for large holdings whereas Robusta is suitable irrespective of size of the farm.**
    - The harvest of Arabica takes place between November to January, while for Robusta it is December to February.
    - **Arabica is susceptible to pests & diseases** such as White Stem Borer, leaf rust etc., and **requires more shade** than Robusta.

Context:

- With only a few weeks remaining for the coffee harvest to begin, the disparity in the prices of Robusta coffee in the international market has become a major cause for concern for coffee growers in South India.

2. In Bengal's tribal villages, art fights COVID-19

Chhau dance:

- **Chhau dance is a semi classical Indian dance with martial and folk traditions**, with origins in the Kalinga(Odisha) region from Mayurbhanj, and panned out to its variants in the states of West Bengal and Jharkhand.
- It is found in three styles named after the location where they are performed, i.e. the **Purulia Chau of West Bengal, the Seraikella Chau of Jharkhand and the Mayurbhanj Chau of Odisha.**
- It is a form of **mask dance** that uses vigorous movements.
- Chhau dance enacts episodes from epics including the Mahabharata and Ramayana, local folklore and abstract themes. Chhau dance is intimately connected to regional festivals, notably the spring festival Chaitra Parva.
- **In 2011, UNESCO inscribed Chhau in the representative list of intangible cultural heritage of humanity.**

Paik dance:

- **Paik is a martial folk dance**. The dancers are armed with wooden spears and shields and show off their skills and agility in infantry like formations.

Patachitra:

- Pattachitra is a general term for traditional, **cloth-based scroll painting, based in the eastern Indian states of Odisha and West Bengal.**
- The paintings show a mix of classical and folk elements, with a bias towards the latter.

Context:

- A campaign is being organised by the community radio of Jadavpur University with support from UNICEF and being executed by the Kolkata-based Chalchitra Academy, a collective of artists to use the folk arts to spread awareness about COVID-19 and to promote vaccination.

3. Sardar Vallabhai Patel

- Sardar Vallabhbhai Patel was a senior leader of the Indian National Congress and a prominent figure in the **Indian Freedom Struggle.**
- He took part in **Non-Cooperation Movement (1920),** Satyagraha movement in Nagpur in 1923 against British law banning the hoisting of the Indian Flag, **Bardoli Satyagraha of 1928**, **Salt Satyagraha of 1930.**
    - Bardoli Satyagraha earned Vallabhbhai Patel the title of 'Sardar' and made him popular throughout the country.
- Sardar Vallabhai Patel was elected **president of Congress for its 1931 Karachi session.**
    - The congress adopted a resolution on **Fundamental Rights and Economic Policy** which represented the Party's Social, Economic and Political programme. It was later known as **Karachi Resolution.**
- In post independent India, he became **India's first Home Minister**. Sardar Patel's contribution in **integrating princely states** into a newly independent India and his emphasis on institutional mechanisms like having an organized command-based army and a bureaucracy have proved to be a blessing for India.

Context:

- **October 31st marks the birth anniversary of Sardar Vallabhai Patel**. His birth anniversary is now observed as National Unity Day or Rashtriya Ekta Diwas.
    - Vallabhbhai Patel was born in Gujarat, on October 31, 1875.

G. Tidbits

1. 'India's $5 tn goal set back by 3-5 years'

- As per an EY India estimate, **India's goal of becoming a $5 trillion economy by 2024-25 is likely to be set back by about 3-4 years** in an 'optimistic or business-as-usual' scenario.
- The EY report calls for **raising public spending and ramp up public sector investment** to help crowd in private investments and raise economic growth rates in India.

2. How is Facebook embedding the real world in computing?

Context:

- **Facebook Inc would rebrand itself as Meta.**
- Facebook CEO Mark Zuckerberg said the new name reflected its focus on building the metaverse.

Metaverse:

- The metaverse, a term first coined in a novel three decades ago and now attracting buzz in Silicon Valley, refers broadly to the **idea of a shared virtual environment which can be accessed by people using different devices and using the Internet, Virtual Reality, and Augmented Reality together.**
    - While **augmented reality (AR) adds digital elements to a live view** often by using the camera on a smartphone, **virtual reality (VR) implies a complete immersion experience that shuts out the physical world.**
- Thus Metaverse can be broadly defines as an iteration of the Internet part of shared virtual reality, often as a form of social media.
- Metaverse in a broader sense may not only refer to virtual worlds operated by social media companies but the entire spectrum of augmented reality. It is aimed to take virtual reality and augmented reality to new levels.

H. UPSC Prelims Practice Questions

Q1. What was Damin-i-Koh?

a. A large area of land in the Rajmahal hills
b. An educational Institution
c. Village headman
d. Protection money paid by travellers

Answer: a

Explanation:

- Damin-i-koh (or sometimes referred to simply as Damin) was the name given to the forested hilly areas of Rajmahal hills broadly in the area of present Sahebganj, Pakur and Godda districts in the Indian state of Jharkhand.

Q2. With respect to Bridgmanite, which of the following statements is/are correct?

1. It is the most volumetrically abundant mineral of the Earth's interior.
2. It is present in the lower mantle

Options:

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

Answer: c

Explanation:

- Bridgmanite is the most volumetrically abundant mineral in the interior of the Earth. It is present in the lower mantle (from 660 to 2700 km).
- Bridgmanite consists of magnesium, iron, calcium and aluminum oxide and has a perovskite structure.
    - A perovskite is any material with a crystal structure similar to the mineral called perovskite, which consists of calcium titanium oxide (CaTiO3)

Q3. Which of the following reports are published by International Monetary Fund (IMF)?

1. Global Financial Stability Report (GFSR)
2. Travel & Tourism Competitiveness Report
3. World Economic Outlook

Options:

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

Answer: c

Explanation:

- Important publications of International Monetary Fund (IMF):
    - World Economic Outlook
    - Global Financial Stability Report
    - Fiscal Monitor
    - Global Policy Agenda
- Travel & Tourism Competitiveness Report is brought out by the World Economic Forum

Q4. Which of the following statements is/are incorrect?

1. Arabica is mild coffee and has higher market value compared to Robusta beans.

2. Robusta is susceptible to pests & diseases such as White Stem Borer and requires more shade than Arabica

Options:

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

Answer: b

Explanation:

- The two main varieties of coffee viz., Arabica and Robusta are grown in India.
    - Arabica is mild coffee, but the beans being more aromatic, it has higher market value compared to Robusta beans. On the other hand Robusta has more strength and is, therefore, used in making various blends.
    - Arabica is grown at higher altitudes than Robusta. The cool and equable temperature, ranging between 15 degree Celsius to 25 degree Celsius, is suitable for Arabica while for Robusta, hot and humid climate with temperature ranging from 20 degree Celsius to 30 degree Celsius is suitable. Arabica requires more care & nurture and is more suitable for large holdings whereas Robusta is suitable irrespective of size of the farm.
    - The harvest of Arabica takes place between November to January, while for Robusta it is December to February.
    - Arabica is susceptible to pests & diseases such as White Stem Borer, leaf rust etc., and requires more shade than Robusta.

Q5. With reference to 'Pradhan Mantri Fasal Bima Yojana', consider the following statements (UPSC 2016):

1. Under this scheme, farmers will have to pay a uniform premium of two percent for any crop they cultivate in any season of the year.
2. This scheme covers post-harvest losses arising out of cyclones and unseasonal rains.

Which of the statements given above is/are correct?

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

Answer: b

Explanation:

- The Pradhan Mantri fasal bima yojana (PMFBY) is an insurance service for farmers for their yields. It has replaced earlier two schemes National Agricultural Insurance Scheme (NAIS) and Modified National Agricultural Insurance Scheme (MNAIS).
- It aims to reduce the premium burden on farmers and ensure early settlement of crop assurance claim for the full insured sum.
- PMFBY aims to provide a comprehensive insurance cover against failure of the crop thus helping in stabilising the income of the farmers.
- The scheme is implemented by empanelled general insurance companies.
- The scheme is compulsory for loanee farmers availing Crop Loan /KCC account for notified crops and voluntary for other others. The scheme is being administered by Ministry of Agriculture.
- Under this scheme, there are different premium rates for the Kharif and Rabi crops. There will be a uniform premium of only 2% to be paid by farmers for all Kharif crops and 1.5% for all Rabi crops. In case of annual commercial and horticultural crops, the premium to be paid by farmers will be only 5%.
- The scheme also covers post-harvest losses: Coverage is available only up to a maximum period of two weeks from harvesting, for those crops which are required to be dried in cut and spread / small bundled condition in the field after harvesting against specific perils of Hailstorm, Cyclone, Cyclonic rains and Unseasonal rains

I. UPSC Mains Practice Questions

ESSAY TOPICS

(125 Marks, 1000 to 1200 words)

1. Technological Progress and unprecedented risks
2. What happens to a man is less significant than what happens within him

Read the previous CNA here.