25 Oct 2020: UPSC Exam Comprehensive News Analysis

TABLE OF CONTENTS

A. GS 1 Related

Nothing here for today!!!

B. GS 2 Related

Category: INTERNATIONAL RELATIONS

1. U.S. allies welcome Israel-Sudan deal but Iran, Palestine cry foul

Context:

- **Sudan and Israel have agreed to normalise relations** and to end decades of hostility.

Details:

- The announcement makes **Sudan, technically at war with Israel since its 1948 foundation,** the **third Arab country to forge diplomatic relations with Israel in the last two months.**
- Israel has also signed similar normalisation accords with the UAE and Bahrain recently, brokered by the U.S.
- The U.S. and its allies, including Germany, Egypt, the United Arab Emirates, Bahrain, welcomed the deal as a **boost to stability in West Asia.**
- However, this deal has been criticized by the Palestinian leaders and Iran, which has been a staunch supporter of the Palestinian cause.

C. GS 3 Related

Category: ENVIRONMENT AND ECOLOGY

1. Outlook bleak for Himalayan brown bears

Context:

- A study carried out by scientists of the **Zoological Survey of India (ZSI)** in the western Himalayas with respect to the Himalayan brown bears.

Background:

- The **Himalayan brown bear** (*Ursus arctos isabellinus*), is a subspecies of the brown bear and is known from northern Afghanistan, northern Pakistan, northern India, west China and Nepal. It is mainly found across remote parts of the **western Himalayas.**
- The Himalayan brown bear is one of the largest carnivores in the highlands of the Himalayas.
- These bears **hibernate during the winter**.

Concerns:

Climate change's impact on the habitat:

- The study predicts a **massive decline of 73% of the Himalayan brown bear's habitat by the year 2050 due to climate change.**
    - The elevation gradient in which the brown bear is distributed is most vulnerable to global warming as this elevation belt is getting warmer faster than other elevation zones of Himalayas.

- This predicted loss in habitat will result in loss of habitats from 13 Protected Areas (PAs), with eight of these predicted to become completely uninhabitable by the year 2050.
- The study notes that apart from suitable habitats even the **biological corridors for the species would be impacted** which would negatively impact the genetic diversity of the species.
- Furthermore, the simulation study also predicts a **significant qualitative decline in remaining habitats** of the species within the protected areas of the landscape.

Way forward:

- There is the need for **adaptive spatial planning of the protected area network** in the western Himalayas for conserving the Himalayan brown bears.
- This would involve mapping of suitable habitats outside the existing PAs and suitable areas should progressively be brought into the PA network.

Conclusion:

Given the vulnerability of animals to climate change, there need to be **adaptive measures for even the vulnerable species.**

Category: SCIENCE AND TECHNOLOGY

1. Room temperature superconductivity, possible but under severe pressure

Context:

- Study of **superconductivity at room temperatures** (high-temperature superconductors).

Background:

Characteristics of a superconductor:

- The electrical resistance offered by the superconductor decreases to a very small value at temperatures below the **critical temperature, Tc.**
- A true superconductor, if placed in a magnetic field, try to push out the field from its interior. This is called **perfect diamagnetism**.
- Sufficiently high magnetic fields can destroy superconductivity in a material.

Details:

- A group of researchers at the University of Rochester, Intel Corporation and the University of Nevada in the U.S. have created a **material that is superconducting at 15 degrees Celsius**.
- However, this superconductivity was **observed only at ultrahigh pressure of about 267 Gigapascals, or 2.6 million atmospheres.**
- The materials being tested are basically **hydride superconductors**.

For more information refer to: CNA 18th Oct 2020.

Significance:

- The observance of superconductivity at room temperature marks a major breakthrough given that **traditionally superconductivity was observed at very low temperatures only.**
- Superconductivity at room temperature would lead to a large number of applications from **power supplies** (low-loss power cables) to **quantum computers** (fast digital circuits) to **powerful superconducting electromagnets** used in maglev trains, Magnetic Resonance Imaging (MRI) and Nuclear Magnetic Resonance (NMR) machines, magnetic confinement **fusion reactors (e.g. tokamaks)**, and the beam-steering and focusing magnets used in **particle accelerators.**

Way forward:

- Given the need for the ultra-high pressures, the next challenge in this domain will be to produce these superconducting materials that are stable (or metastable) at ambient pressure via '**compositional tuning**' so they will be even more economical to mass-produce.
    - Compositional tuning involves adding or removing certain elements and compounds to a material to induce desirable properties in the material.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: GOVERNANCE

1. The chronic battle with malnourishment

- The Global Hunger Index is a peer-reviewed annual report, jointly published by Concern Worldwide and Welthungerhilfe, designed to comprehensively measure and track hunger at the global, regional, and country levels.

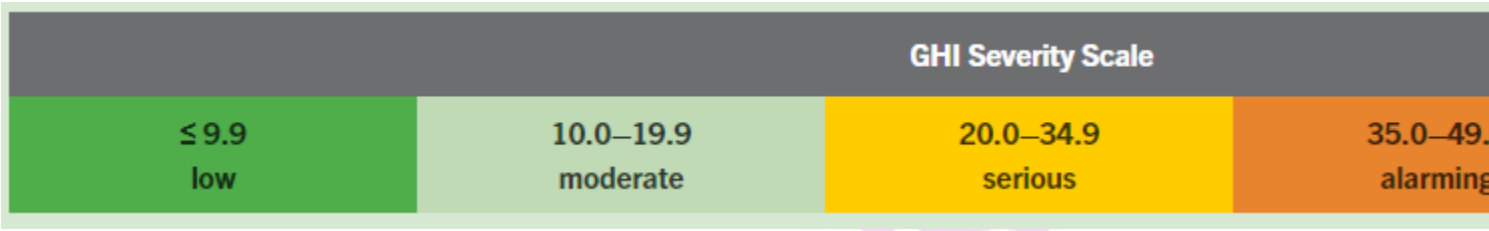
Parameters

It is calculated on the basis of four indicators —

- **Undernourishment**: It is the share of the population with insufficient caloric intake, and uses Food and Agriculture Organization data
- **Child Wasting**: the share of children under the age of five who are wasted (that is, who have low weight for their height, reflecting acute undernutrition)
- **Child Stunting**: children under the age of five who have low height for their age, reflecting chronic undernutrition
- **Child Mortality**: the mortality rate of children under the age of five.

How is the data collected?

- These parameters use information from the World Health Organization (WHO), the World Bank and the United Nations, although all these international organisations draw from national data, which, in India's case, includes the National Family Health Surveys (NFHS).
- There is always a time lag in such data, so the 2020 scores are based on data from 2015-19.
- Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst. Each country's GHI score is classified by severity, from low to extremely alarming.



Global Health Index Scale

A look at Stats

- The GHI showed that nearly 690 million people in the world are undernourished; 144 million children suffer from stunting, a sign of chronic undernutrition; 47 million children suffer from wasting, also a sign of acute undernutrition.

India's ranking

- India has been ranked 94 on the 2020 Global Hunger Index (GHI), lower than neighbours like Bangladesh and Pakistan.
- In 2020, India falls in the 'serious' category on the Index, with a total score of 27.2. This is a definite improvement from the situation two decades ago, when it scored 38.9 and fell into the 'alarming' category.

Comparison

- India's scores are abysmal when compared to its peers in the **BRICS countries**.
    - China and Brazil both scored under five, and are considered to have very low levels of hunger.
    - South Africa is ranked 60 with a score of 13.5, indicating moderate levels of hunger.
- In the serious category, India stands with some of the poorest African nations, as well as its own South Asian neighbors, all of whom have better scores except Afghanistan.
- India is tied at the 94th rank out of 107 countries, sharing the rank with Sudan.

How does India fare on the different parameters in comparison to other countries?

- In terms of overall **undernourishment**, 14% of India's population does not get enough calories, an improvement from almost 20% in 2005-07.
- The **child mortality rate** is 3.7%, a significant drop from 9.2% in 2000. Many countries fare worse than India on these two parameters.

- India's poor score comes almost entirely from the **child stunting and wasting**
    - Almost 35% of Indian children are **stunted**, and although this is much better than the 54.2% rate of 2000, it is still among the world's worst.
    - Also, 17.3% of Indian children under five are **wasted**, which is the highest prevalence of child wasting in the world.
        - There is no change from two decades ago, when it was 17.1%. In fact, the situation improved to 15% in the 2010-14 data period, but worsened again by 2015-19.

However, experts say this decline may also be partially due to vagaries in data collection.

What is the main cause for such high levels of child stunting and wasting in India?

There is an interesting difference observed between child wasting in South Asia and the poorer nations of Africa, according to researchers.

- **African babies** are usually healthy at birth, but as they grow up into their toddler years, undernourishment starts to kick in.
- **South Asian babies,** on the other hand, show very high levels of wasting very early in their lives, within the first six months. "
    - This reflects the poor state of maternal health

Mothers are too young, too short, too thin and too undernourished themselves, before they get pregnant, during pregnancy, and then after giving birth, during breast-feeding. It is more than a health issue, there are social factors like early marriage.

- Almost 42% of adolescent girls aged 15 to 19 have a low Body Mass Index (BMI), while 54% have anaemia.
- Almost 27% of girls are married before they reach the legal age of 18 years, and 8% of adolescents have begun childbearing in their teens.
- Nearly 50% of the women have no access to any sort of contraception
- These poor indicators of maternal health have dire consequences for the child's health as well.
- Poor sanitation, leading to diarrhoea, is another major cause of child wasting and stunting.
    - At the time of the last NFHS, almost 40% of households were still practising open defecation.
    - Only 36% of households disposed of children's stools in a safe manner. One in ten children under the age of five suffers from diarrhoea.

How do different Indian States compare?

The Comprehensive National Nutrition Survey shows wide variability across States.

- Almost one in three children in Jharkhand show acute **undernutrition**, with a 29% rate of **wasting**.
- Although this is the worst State by far, other large States such as Tamil Nadu, West Bengal, Madhya Pradesh, Chhattisgarh and Karnataka also have one in five children who are wasted.

- Interestingly, other States that usually fare poorly on development indices, such as Bihar, Rajasthan and Odisha, actually do better than the national average, with 13-14% rates of wasting.
- Uttarakhand and Punjab, along with several north-eastern States, have levels of child wasting below 10%.

In terms of **stunting**, Bihar performs the worst, with 42% of children too short for their age.

- Other populous States like Madhya Pradesh and Uttar Pradesh also have stunting rates just below 40%, and so does Gujarat.
- At the other end of the scale, Jammu and Kashmir has only 15% stunted children, while Tamil Nadu and Kerala are around the 20% mark.

What needs to be done?

- Food insecurity, poor sanitation, inadequate housing, limited access to healthcare — all result in maternal distress that leads to the kind of slow, chronic wasting seen in Indian children.
- Although India has overall food security with record levels of foodgrain production in recent years, access to healthy food is still difficult for poor households.
- There is no single solution. Every kind of household deprivation that makes life difficult for women needs to be dealt with. The focus needs to be on healthy mother

F. Tidbits

1. Animals spared of sacrifice in pandemic-hit Odisha

- **Chatar festival is celebrated in Odisha's Kalahandi district**. Lakhs of devotees from Odisha, Chhattisgarh, Jharkhand and West Bengal participate in the festival.
- The festival is **usually marked by the sacrifice of thousands of animals and birds**.
- This year, the Orissa High Court had ordered a ban on animal sacrifice during 'Chatar Yatra' festival.

2. Evidence of dairy production in the Indus Valley Civilisation

- A new study of Indus Valley Civilisation has shown that **dairy products were being produced by the Harappans as far back as 2500 BCE**.
    - The studies were carried out on 59 shards of pottery from **Kotada Bhadli, a small archaeological site in present-day Gujarat.**
- The study has also thrown light on the types of animals that were being used for dairy production. These included Cows, water buffalo, goat and sheep.
- The large herd in the IVC indicates that milk was produced in surplus so that it could be exchanged and there could have been some kind of trade between settlements. This could have given rise to an **industrial level of dairy exploitation.**
- This finding throws fresh light on the **rural economy of the civilisation**.

3. 'COVID-19 spurring digital adoption'

Context:

- The ongoing COVID-19 pandemic has compelled companies to embrace technologies and systems that have accelerated the pace of **digital transformation worldwide**. The pandemic had spurred firms to re-imagine their businesses, with work from home based on Information and Communication Technology becoming the norm in businesses where it is viable. This has **virtualised travel, interaction, collaboration and communication**.

Possible benefits:

Sustainable models:

- Apart from providing an avenue to work during these restricted movement phases, these systems and technologies also hold the promise of **a greener and more sustainable models of work** as they help eliminate avoidable travel.

Addressing social disparities:

- Also, these technologies hold significance as they can be used to address social disparities.
- A highly distributed workforce broadens the reach of an opportunity to work for people living in far off areas. The application of these technologies in the domain of **telemedicine and long-distance learning** would provide **enhanced opportunities to broaden access to care and education.**

More efficient and effective systems:

- The increasing adaptation of massive computing power, 5G, and AI will lead to more **connected and intelligent systems**. This would also generate a large amount of data which would also provide ancillary benefits.

G. Prelims Facts

1. Precious sample

Context:

- After touching down on asteroid Bennu, **NASA's OSIRIS-REX** has collected about 60 grams of material from the asteroid's surface.

Details:

- **OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer) is a NASA asteroid study and sample-return mission.**
- The mission's primary goal is to obtain a sample from **Bennu, a carbonaceous near-Earth asteroid,** and return the sample to Earth for a detailed analysis.

- It is the third planetary science mission selected in the **New Frontiers program**, after Juno and New Horizons. If successful, OSIRIS-REx will be the first U.S. spacecraft to return samples from an asteroid.

Significance of the mission:

- This NASA mission is expected to enable scientists to learn more about the formation and evolution of the Solar System, its initial stages of planet formation, and the source of organic compounds that led to the formation of life on Earth.

Factors for choosing Bennu:

- Bennu was chosen as the target of study because Bennu, a B-type asteroid, a sub-type of the carbonaceous C-type asteroids have **undergone very little geological change from their time of formation.** Also, Bennu may have the **availability of pristine carbonaceous material**, a key element in organic molecules necessary for life as well as a representative of matter from before the formation of Earth.

Other similar missions:

- Other similar missions include the **Japanese probe Hayabusa** which returned samples from Itokawa in 2010, and **Hayabusa2 which will return samples from Ryugu** in December 2020.

2. 'Aircraft carrier trials to begin soon'

- **INS Vikrant, also known as Indigenous Aircraft Carrier 1 (IAC-1)**, is an aircraft carrier under construction for the Indian Navy. It is the first aircraft carrier to be built in India.
- The nearly 40,000-tonne carrier is being built at the **Cochin Shipyard Limited (CSL) in Kochi.**

H. UPSC Prelims Practice Questions

1. Which of the following statement/s is/are correct with respect to OSIRIS-REx?

1. It is a NASA asteroid study and sample-return mission targeted at near-earth asteroid, Bennu.
2. This would be the first-ever asteroid-study and sample-return mission.

Options:

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

Answer: a

Explanation:

- OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer) is a NASA asteroid-study and sample-return mission.
- The mission's primary goal is to obtain a sample from Bennu, a carbonaceous near-Earth asteroid, and return the sample to Earth for a detailed analysis.
- Other similar missions include the Japanese probe Hayabusa which returned samples from Itokawa in 2010, and Hayabusa2 which will return samples from Ryugu in December 2020.

2. The Chatar festival is associated with which of the following states?

a. Chhattisgarh
b. Odisha
c. Jharkhand
d. West Bengal

Answer: b

Explanation:

- Chatar festival is celebrated in Odisha's Kalahandi district. Lakhs of devotees from Odisha, Chhattisgarh, Jharkhand and West Bengal participate in the festival.
- The festival is usually marked by the sacrifice of thousands of animals and birds.
- This year, the Orissa High Court had ordered ban on animal sacrifice during 'Chatar Yatra' festival.

3. Which of the following can be potential areas of applications of high temperature superconductors?

1. low-loss power cables
2. Quantum computers
3. Maglev trains
4. Particle accelerators
5. Nuclear fusion reactors

Options:

a. 1 and 3 only
b. 1,2 and 3 only
c. 3,4 and 5 only
d. 1,2,3,4 and 5

Answer: d

Explanation:

- The observance of superconductivity at room temperature marks a major breakthrough given that traditionally superconductivity was observed at very low temperatures only.
- Superconductivity at room temperature would lead to a large number of applications from power supplies (low-loss power cables) to quantum computers (fast digital circuits) to powerful superconducting electromagnets used in maglev trains, magnetic resonance imaging (MRI) and nuclear magnetic resonance (NMR) machines, magnetic confinement fusion reactors (e.g. tokamaks), and the beam-steering and focusing magnets used in particle accelerators

4. Which of the following would be the first indigenously built Aircraft Carrier in India?

a. INS Vishal
b. INS Viraat
c. INS Vikrant
d. INS Vikramaditya

Answer: c

Explanation:

- INS Viraat was a Centaur-class aircraft carrier of the Indian Navy. INS Viraat was the flagship of the Indian Navy before INS Vikramaditya was commissioned in 2013. It was recently decommissioned.
- INS Vikramaditya is a modified Kiev-class aircraft carrier and the flagship of the Indian Navy, which entered into service in 2013.
- INS Vishal, also known as Indigenous Aircraft Carrier 2 (IAC-2), is a planned aircraft carrier to be built by Cochin Shipyard Limited for the Indian Navy. It is intended to be the second aircraft carrier to be built in India after INS Vikrant (IAC-1).

I. UPSC Mains Practice Questions

1. What is meant by superconductors? What are the characteristics of a superconductor? Enumerate the technological applications of high-temperature superconductors. (10 marks, 150 words)(GS Paper 3/Science and Technology).
2. The ongoing COVID-19 pandemic has compelled companies to embrace technologies and systems that have accelerated the pace of digital transformation worldwide. Comment. Also, evaluate the possible benefits of such a transformation. (10 marks, 150 words)(GS Paper 3/Science and Technology).