



1. Manufactured Sand

Topic: Environment and Ecology

Parameters	Copper Slag	River Sand
Process	Manufactured in factory.	Naturally available on river banks.
Shape	Angular and has rougher texture. Angular aggregates demands more water. Water demand can be compensated with cement content.	Smoother texture with better shape. Demands less water.
Moisture Content	Not available in between particles	Moisture is trapped in between the particles which is good for concrete purposes.
Concrete Strength	Higher concrete strength compared to river sand used for concreting. Reason for higher strength can be the lesser clay content in it compared to natural sand.	Lesser concrete strength compared to copper slag
Silt Content	Zero silt	Minimum permissible silt content is 3%. Anything more than 3% is harmful to the concrete durability. We can expect 5 - 20% silt content in medium quality river sand.
Over Sized Materials	0%. Since it is artificially manufactured.	1 - 6% of minimum over sized materials can be expected. Like pebble stones.

In News: The Rajasthan government has decided to promote the use of manufactured sand (M-Sand) as an inexpensive and easy alternative to river sand.

More on the Topic

- The state government in its M-Sand policy had made it compulsory to use at least 25 per cent of it in government constructions.



About M- Sand:

- M-sand or crushed sand is produced by crushing rock quarry stones into sand-sized particles.
- The produced sand is then sieved and washed to remove fine particles and impurities and tested for various quality aspects before it is deemed fit as a construction aggregate.

Significance of M Sand:

- M-Sand does not have the presence of impurities such as clay, dust and silt coatings, increase water requirement as in the case of river sand which impair bond between cement paste and aggregate. Thus, increased quality and durability of concrete.
- It does not contain an organic and soluble compound that affects the setting time and properties of cement, thus the required strength of concrete can be maintained.
- M-sand will reduce over-exploitation of river beds, it can be dust-free, etc.
- M-Sand is available near and the transportation cost could be reduced.

Disadvantages of M-sand:

- Improper crushing of manufacturing sand may lead to angular and flaky particles that are not suitable for concrete production, both technically and economically.
- An adequate set up of crusher may not be available in some parts of the county like West Bengal, as it costs higher than river sand.
- For high-grade pumpable concrete in high-rise buildings, the requirement of cement is higher than the river sand, which may not be cost-effective.

How River Sand Mining Affects Ecology?

- Excessive sand mining can **alter the river bed, force the river to change course, erode banks and lead to flooding.**
- It also **destroys the habitat of aquatic animals and micro-organisms.** Example: Sand Mining in Chambal has impacted the population of Gharials.
- Increased riverbed and bank erosion increases suspended solids in the water at the excavation site and downstream. **Suspended solids may adversely affect water users and aquatic ecosystems.**
- Sand mining transforms the riverbeds into large and deep pits; as a result, the groundwater table drops leaving the **drinking water wells on the embankments of these rivers dry.**

Source: Indian Express



2. Child Malnutrition

Topic: Social Justice



In News: The United Nations (UN) inter-agency estimates on Child Malnutrition was released recently.

More on the Topic:

Highlights of the Report:

- In 2020, some 18.7 per cent of Indian children were affected by **wasting caused by poor nutrient intake and / or recurrent illnesses.**
- **India is the largest country in southern Asia, which is where half of all children with wasting in the world live.**
- In 2022, an estimated 45 million children under five (6.8 per cent) were affected by wasting globally, of which 13.6 million (2.1 per cent) were suffering from severe wasting.
- More than three quarters of all children with severe wasting live in Asia and another 22 per cent live in Africa.
- Children suffering from wasting have weakened immunity, and are susceptible to long-term developmental delays and face an increased risk of death, particularly when wasting is severe.
- India had a stunting rate of **31.7 per cent in 2022, down from 41.6 per cent in 2012, a decade ago.**

About Stunting and Wasting:

- Stunting is the **devastating result of poor nutrition in-utero and during early childhood.**
- Children suffering from stunting may never attain their full possible height and their brains may never develop to their full cognitive potential.
- Child wasting refers to **a child who is too thin for his or her height** and is the result of recent rapid weight loss or the failure to gain weight.

- A child who is moderately or severely wasted has an increased risk of death, but treatment is possible.

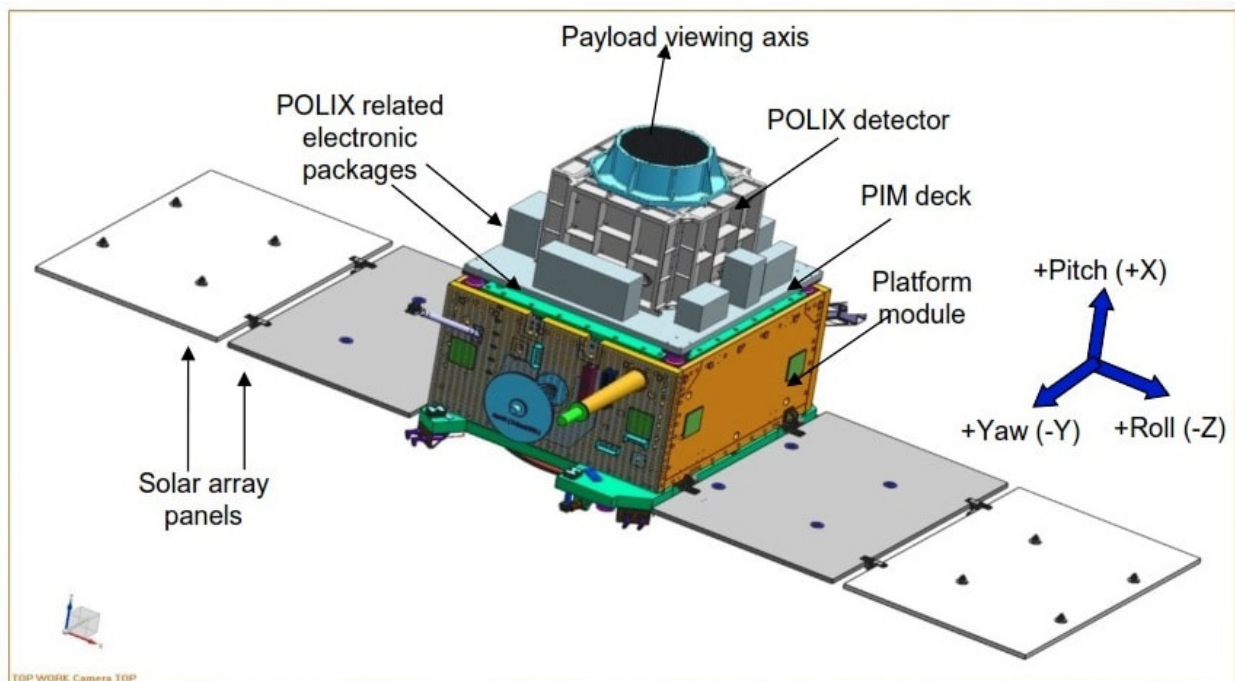
Indian Initiatives to Mitigate Malnutrition:

- For alleviation of malnutrition, Government has announced **Mission Poshan 2.0** to strengthen nutritional content, delivery, outreach and outcomes with focus on developing practices that nurture health, wellness and immunity to disease and malnutrition.
- Government implements **Anganwadi Services, Pradhan Mantri Matru Vandana Yojana and Scheme for Adolescent Girls** under the Umbrella **Integrated Child Development Services Scheme (ICDS)** as targeted interventions to address the problem of malnutrition in the country.

Source: PIB

3. XPoSat - India's First Polarimetry Mission

Topic: Science and Technology



In News: The Indian Space Research Organisation is collaborating with the Raman Research Institute (RRI), Bengaluru to build the X-Ray Polarimeter Satellite (XPoSat) that is scheduled to be launched later this year.



More on the Topic:

- XPOsat will study **various dynamics of bright astronomical X-ray sources in extreme conditions.**
- It has been billed as India's first, and only the world's second polarimetry mission that is meant to study various dynamics of bright astronomical X-ray sources in extreme conditions.
- The other such major mission is **NASA's Imaging X-ray Polarimetry Explorer (IXPE)** that was launched in 2021.
- The XSPECT (X-ray Spectroscopy and Timing) payload on XPOsat will give spectroscopic information (on how light is absorbed and emitted by objects).
- It would observe several types of sources, such as X-ray pulsars, blackhole binaries, low-magnetic field neutron star, etc.

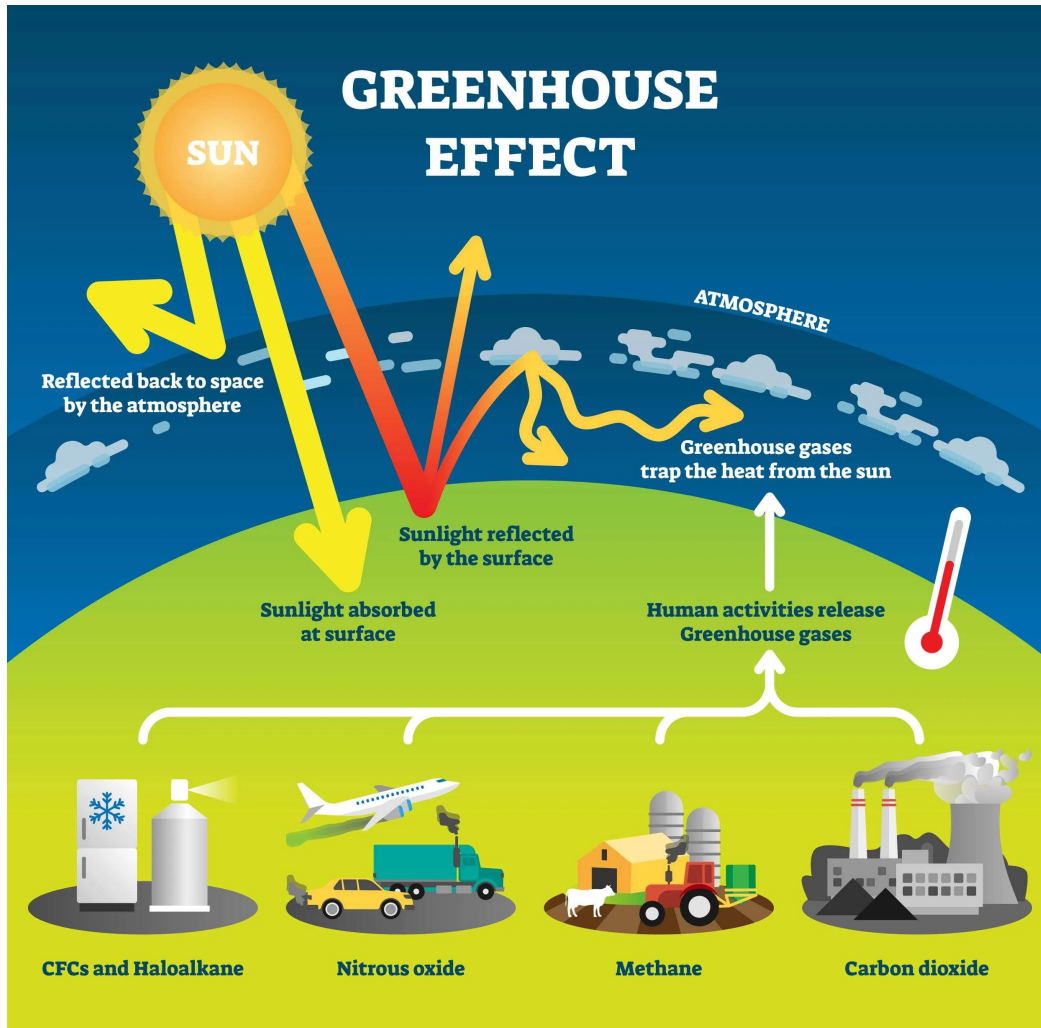
How are X-Rays witnessed in space?

- X-rays have **much higher energy and much shorter wavelengths**, between 0.03 and 3 nanometers, so small that some x-rays are no bigger than a single atom of many elements.
- They've much higher energy and much shorter wavelengths than ultraviolet light.
- The physical temperature of an object determines the wavelength of the radiation it emits. **The hotter the object, the shorter the wavelength of peak emission.**
- X-rays come from objects that are millions of degrees Celsius — such as pulsars, galactic supernova remnants, and black holes.

Source: Hindu

4. Global Tracker for Greenhouse Gas Emissions

Topic: Environment and Ecology



In News: The World Meteorological Congress has approved a new greenhouse gas (GHG) monitoring initiative known as Global Green House Gas Watch.

More on the Topic:

- The initiative supports urgent action to reduce heat-trapping gases, which are fuelling temperature increases.
- The new global GHG watch will fill **critical information gaps and provide an integrated and operational framework.**
- The framework will bring all space-based and surface-based observing systems, as well as modelling and data assimilation capabilities, under one roof.

The GHG watch will consist of four main components:



- **A comprehensive, sustained, global set of surface-based and satellite-based observations of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) concentrations**, total column amounts, partial column amounts, vertical profiles and fluxes and supporting meteorological, oceanic, and terrestrial variables, internationally exchanged as rapidly as possible, pending capabilities and agreements with the system operators;
- Prior estimates of the **GHG emissions based on activity data and process-based models**;
- A set of **global high-resolution Earth System models** representing GHG cycles;
- Associated with the models, **data assimilation systems** that optimally combine the observations with model calculations to generate products of higher accuracy.

Significance of GGGW:

- It will bring all **space-based and surface-based observing systems, as well as modelling and data assimilation capabilities, under one roof.**
- At present, there is no comprehensive, timely international exchange of surface and space-based GHGs observations or modelling products.
- It will build on WMO's Global Atmosphere Watch established in 1989 and its Integrated Global Greenhouse Gas Information System.

Source: PIB

5. Forum Shopping

Topic: Polity and Governance



In News: Chief Justice of India has condemned Forum Shopping.

More on the Topic:

- When litigants or lawyers attempt to deliberately move their case to a particular judge or Court where they think the judgment could be more favourable, they are said to be “forum shopping.”
- The Supreme Court in its 1988 ruling in ‘Chetak Construction Ltd. vs. Om Prakash’ said, “A litigant cannot be permitted choice of the forum,” and that every attempt at forum shopping “must be crushed with a heavy hand.”

Source: Business Standard

6. Pradhan Mantri Jan Vikas Karyakram

Topic: Government Schemes

In News: Ministry of Ayush and Minority Affairs have joined hands to promote and help the development of the Unani System of Medicine in India.

More on the Topic:

- This has been approved under PMJVK.
- Pradhan Mantri Jan Vikas Karyakram (PMJVK), a **Centrally Sponsored Scheme (CSS) under Ministry of Minority Affairs**, is an area development programme under which **community infrastructure and basic amenities are being created in the identified areas.**
- The scheme is being implemented under the aegis of the State Governments/ Union Territory (UT) Administrations on a fund sharing pattern and the projects are implemented and managed by the concerned State/ UT Government.

Source: Business Standard

7. SAMARTH Campaign

Topic: Government Schemes



In News: SAMARTH campaign has been launched to promote digital transactions at Gram Panchayat Level.

More on the Topic:

- The campaign is an initiative launched by the **Ministry of Rural Development.**
- It seeks to **empower rural communities** by enabling them to participate in the digital economy and access the benefits of digital transactions.
- It is part of the larger **AmritMahotsav** celebrations and is being implemented under the AzadiKaAmritMahotsav, which commemorates **75 years of India's independence.**

Source: Business Standard
