UPSC Daily Current Affairs| Prelim Bits 04-02-2025

Asteroid 2024 YR4

Why in News?

National Aeronautics and Space Administration (NASA) officials said that 2024 YR4 has slightly more than 1% chance of crashing into Earth in 2032.

- It is a ***near-Earth asteroid*** recently discovered by a telescope in Chile.
- **Size** – Measuring 40 to 100 metres across, as big as a football field.
- Size measurement is based on estimates from its reflected light.
- Asteroids do not emit a light of their own, they only reflect sunlight. It brightness depends on how reflective the asteroid's surface.
- Currently, it is moving away from the planet at 13.26 kilometres (8.24 miles) per second.
- It passing within roughly 800,000 kilometres of Earth, about twice the distance of the moon.
- It will eventually fade from view over the next few months, and will not be visible again until it passes Earth's way again in 2028.
- **Destruction potential** – **Categorized by** - Torino Scale.
- The NASA JPL Center for Near-Earth Object Studies (CNEOS) has currently rated the 2024 YR4 a 3 on a scale from 0 to 10.
- **Rating –** Scale 3 - When the object is larger than 20 metres (65 feet) and has an impact probability of 1% or higher.

  Apophis asteroid, which was discovered in 2004, was initially rated 4 on the scale but was later downgraded as observations showed that it posed no threat for at least 100 years.

- It is expected to release 8 to 10 megatons of energy in case of a crash.
- The European Space Agency (ESA) has stated that the asteroid will safely pass through Earth with a 99% chance of no collision.

Torino Scale

- Torino scale is a rating system that helps astronomers and the public understand the risk of a near-Earth object (NEO) colliding with Earth.
- The scale is named after Turin, Italy, where it was first presented at an international conference in 1999.
- The scale is used to categorize the likelihood and consequences of a potential impact.
- The scale uses a number from 0 to 10, with higher numbers indicating a greater risk.



- The scale is based on the probability of a collision and the estimated kinetic energy of the impact.
- The scale is color-coded to help convey the level of risk.
- The scale is used to communicate the seriousness of collision predictions.
- The scale is used to help the public understand the potential impact of a NEO.
- The scale is used to help determine the level of public concern that is warranted.

References

1. The Indian Express | Asteroid 2024 YR4
2. Economic Times | Asteroid 2024 YR4

United States Agency of International Development (USAID)

Why in News?

The United States of America's Administration recently decided to put an end to United States Agency of International Development.

- USAID is the ***lead international humanitarian and development arm*** of the US government.
- The agency was established via an executive order by President Kennedy after the US Congress in 1961 passed the Foreign Assistance Act.
- The act mandated the creation of a single agency to administer foreign aid.
- The agency provides assistance to other countries primarily by funding non-governmental organisations (NGOs), foreign governments, international organisations, or other US agencies.
- **Aim** - To alleviate poverty, provide education and healthcare, among other things.
- **Funding -** The agency managed more than $43 billion in funds, and provided assistance to ***around 130 countries*** in FY2023.
- The top 10 recipients of USAID-managed funds in FY2023 (in descending order of funding).
    - Ukraine, Ethiopia, Jordan, Democratic Republic of Congo, Somalia, Yemen, Afghanistan, Nigeria, South Sudan, and Syria.
- **Employees -** USAID employed more than 10,000 people in FY2023, according to CRS, with approximately two-thirds of this workforce serving overseas.
- USAID maintains more than 60 missions around the world.
- **Significance for India -** The US has provided development and humanitarian

assistance to India since 1951, when President Harry Truman signed the India Emergency Food Assistance Act.
- Economic aid from the US has also helped establish 8 agricultural universities, the first Indian Institute of Technology, and 14 regional engineering colleges.
- It also strengthened India's national programs on immunization, family planning, maternal and child health, HIV/AIDS, tuberculosis, and polio.
- In 2004, the Indian government decided to reject any foreign aid that comes with conditions. This has, over time, led to a decline in the quantum of such assistance.

Reference

The Indian Express | USAID

New Green Cardamom Species

Why in News?

Recently, an international team of researchers have identified 2 new species that are close cousins to green cardamom.

- **Green cardamom** – It is the *most valuable spice plant in the world* and of huge economic importance.
- **Taxonomy**
  - **Scientific name** – Elettaria cardamomum.
  - **Genus** – Elettaria, now ***has 7 species***.
- It is based on the spice's *old Malayalam name, Elletari* which is used by Hendrik van Rheede in the 17th century.
- **Seed capsules** – It provides the commercial green cardamom.
- It is known as ***Queen of Spices***.
- **2 new species** – Elettaria facifera and Elettaria tulipifera.
- **Discovered in** – Western Ghats regions of Kerala.

Elettaria Facifera

- **Found in** – Kerala's ***Periyar Tiger Reserve*** in Idukki district.
- **Morphology** – It is distinguished by sessile leaves, erect flowering shoots that are separate from the leafy shoots, and pure white labellum with purple-red markings.
- **Mannan tribe** – They refer to it as the ***Vai noki elam***, (loosely, Open-mouth cardamom) due to the fruit's resemblance to an open mouth.

Elettaria Tulipifera

- **Found in** – ***Agasthyamalai hills*** in Thiruvananthapuram district.
- **Morphology** – It has strikingly beautiful tulip-shaped inflorescence and large, bright to dark red, whorled bracts.



- **Conservation** – The researchers have underlined the need for conservation efforts as both species face threats.

Reference

The Hindu| 2 New Green Cardamom Species

Henipavirus

Why in News?

First case of deadly henipavirus found in North America.

- Henipavirus is a ***zoonotic,*** negative-sense RNA Virus.
- **Family –** Paramyxoviridae.
- **Natural Hosts –** Pteropid fruit bats (flying foxes)

Camp Hill virus, a type of henipavirus has been found in the northern short-tailed shrews, a small mammal commonly found in Canada and the US.

- **Symptoms -** Dizziness, headache, fever, and myalgias.
- Respiratory symptoms also may be present. Relapsing or late-onset encephalitis can occur months or years after acute illness.
- **Transmission -** These inhibit the cell's response to viral infection, and allow viral replication.
- These thus act as virulence factors, blocking the interferon-stimulated antiviral defense mechanisms from kicking in inside the infected cells.
- The virus causes destruction of small blood vessels in many major organs, such as the brain, liver and kidney, causing organ failure. This is associated with microinfarction, infection, and organ failure.
- **Fatality -** Fatality often occurs when the disease progresses to severe encephalitis and symptoms like confusion, abnormal reflexes, seizures, and coma occur.
- **Prevention** - By ensuring HeV vaccination of all horses in risk situations, as well as minimal human contact with fruit bats, isolation of sick animals.
- **Treatment** - Symptomatic, and ***no vaccine or antiviral drug*** has been developed so far to treat the disease.

Reference

Times of India | Henipavirus

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Polity & Governance

Samudrayaan Project

• **Launched in** – *2021*.
• **Umbrella scheme** – Deep Ocean Mission.
• **Nodal Ministry** – Ministry of Earth Sciences (MoES).
• It is the *1st manned ocean mission* of India.
• **Aim** – To develop a self-propelled manned submersible to *carry 3 human beings to a water depth of 6000 meters* in the ocean.
• It is a suite of scientific sensors and tools for deep ocean exploration.
• **MATSYA 6000** – Manned submersible vehicle used for this mission.

Mission Mausam

• **Launched in** – *2024*.
• **Nodal Ministry** – Ministry of Earth Sciences (MoES).
• **Aim** – To make India *Weather Ready and Climate Smart*.
• **Objective –** To *mitigate the impact of climate change and extreme weather* events and strengthen the resilience of the communities.
• **Timeline** – *2 years* (2024-26).

Chintan Shivir 2.0

• **Launched in** – *2025*.
• **Launched by** – Ministry of Coal.
• **Concept** – A platform to foster innovation, sustainability, and collaboration in defining the future roadmap for the coal sector.

National Mission on Cultural Mapping (NMCM)

• **Nodal Ministry** – Ministry of Culture.
• **Aim –** To protect and share India's cultural heritage.
• **Run by –** Indira Gandhi National Centre for the Arts.
• **Mera Gaon Meri Dharohar (MGMD) portal** - Launched in June 2023, aims to document the cultural assets of 6. 5 lakh villages. _

Adopt a Heritage Scheme

• **Launched by –** Ministry of Tourism in 2017.
• **Revamped in** – 2023 as “Adopt A Heritage 2.0” by Ministry of Culture.
• **Aim –** To collaborate with private and public sectors to enhance visitor experience at Protected Monuments.
• **4 broad categories of amenities** – Hygiene, Accessibility, Safety and Knowledge.
• The program is open for all protected monuments.

Economy

Bureau of Indian Standards (BIS)

• **BIS** – National Standards Body of India.
• **Established by** – Department of Consumer affairs, Ministry of Consumer Affairs.
• BIS organized a high-level discussion to enhance collaboration in standardization with countries from Africa and Latin America.
• The organization has conducted capacity-building programs, benefiting 30 African and 10 Latin American countries through the ITEC initiative.

Memorandum of Understanding (MoU) Signed for Financial Literacy Program

• **MOU** – Signed by Investor Education and Protection Fund Authority with Strategic Educational Professionals Pvt. Ltd, part of the Association of Chartered Certified Accountants.
• **Aim** - To create a digital program focused on experiential learning.
• The main goal is to enhance financial literacy among school children.
• The program will be introduced in selected schools, including rural areas, through a pilot project.
• Training for school teachers will facilitate the delivery of this program.

Agriculture

National Policy on Biofuels

• **National Policy on Biofuels-2018** - Updated in 2022, outlines the various materials that can be used to produce biofuels.
• **Aim** - Identified feed stocks for biofuels include heavy molasses, sugarcane juice, biomass (like rice straw and bagasse), sugar beets, sweet sorghum, corn, and agro waste.
• Also included are damaged food grains, industrial waste, algae, non-edible oilseeds, used cooking oil, animal tallow, and municipal solid waste.

Makhana Board

Union Budget 2025, announced that a 'Makhana Board' will be set up in Bihar.
• **Makhana –** It is the *dried edible seed* of the prickly water lily or gorgon plant (Euryale ferox).
• It is referred to as the '*Black Diamond*.'
• **Mithila Makhana** – It was conferred a *Geographical Indication (GI) tag* in 2022.
• **Makhana Board** – To provide training to farmers,
  - Making them export-oriented,
  - Create an ecosystem that brings investments in the food processing sector,
  - Help create required export infrastructure.
• **Bihar** – It accounts for approximately *90% of India's makhana production.*

Environment

International Big Cat Alliance (IBCA)

• **Launched in** – *2023*.
• **Nodal Ministry** – Ministry of Environment, Forest and Climate Change.
• **Headquarters** – Delhi.
• **Aim** – To strengthen global cooperation and efforts for *conservation of 7 big cat species* and their habitats.
  - **7 big cat species** – Tiger, lion, leopard, snow leopard, cheetah, jaguar and puma.
• **5 Member countries** – Nicaragua, Eswatini, *India*, Somalia and Liberia.
  - As of now, 27 countries have consented to join IBCA.



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