

Mystery 'space debris' found in Gujarat

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In news—Fragments of suspected debris from space fell in three locations in Gujarat's Anand district Bhalej, Khambholaj, and Rampura recently.

Key updates-

- The first large, black metal ball, weighing around five kg, fell in Bhalej, and thereafter in Khambholaj and Rampura – all located within 15 kilometers from each other.
- The meteorite- like objects were **suspected to be satellite debris**.
- According to reports, **a similar incident had happened in Maharashtra in April 2022** after a purported **"meteorite" was seen in the sky**.
- The noise sounded like an aeroplane and was followed by a big explosion. Later it was found that the burnt objects were fragments of a satellite launched in New Zealand.
- Similar incidents were reported in January 2016 in Yen Bai in Vietnam, Spain, Australia, Africa, and Turkey.

What are space debris?

- Space debris or orbital debris, also called space junk and space waste, are the objects in orbit around Earth created by man that no longer serve any useful purpose.
- Space debris encompasses both natural meteoroid and artificial (human-made) orbital debris.
- Meteoroids are in orbit about the sun, while most artificial debris is in orbit about the Earth (hence the term "orbital" debris).
- Orbital debris includes nonfunctional spacecraft,

abandoned launch vehicle stages, mission-related debris, and fragmentation debris.

- According to NASA, there are approximately 23,000 pieces of debris larger than a softball orbiting the Earth.
- They travel at speeds up to 17,500 mph, fast enough for a relatively small piece of orbital debris to damage a satellite or a spacecraft.

Laws governing space junk-

- The **United Nations Committee on the Peaceful Uses of Outer Space** has paid particular attention to the issue of preventing and minimizing the creation of space debris.
- Every year, States and organizations exchange information on their space debris research at the Committee's Scientific and Technical Subcommittee.
- One important result of those discussions has been a set of **Space Debris Mitigation Guidelines**, which were endorsed by the General Assembly in 2007.
- The **United Nations Office for Outer Space Affairs (UNOOSA)** works to promote international cooperation in the peaceful use and exploration of space, and in the utilisation of space science and technology for sustainable economic and social development.
- Several multilateral treaties have been adopted by the United Nations General Assembly to enable the orderly conduct of activities in outer space.
- The cornerstone of these governance instruments is the Outer Space Treaty of 1967.
- Four other treaties were adopted to reinforce the framework set by the Outer Space Treaty. They are-
 - **The Rescue Agreement of 1968** requires States to assist an astronaut in case of accident, distress, emergency or unintended landing.
 - **The Liability Convention of 1972** establishes the standards of liability for damage caused by space

objects.

- **The Registration Convention of 1975** requires States to register all objects launched into outer space with the United Nations.
- **The Moon Agreement of 1979** elaborates on the provisions of the Outer Space Treaty as they apply to the Moon and other celestial bodies.

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