



TATHASTU ICS

DAILY CURRENT AFFAIRS



SEPTEMBER 26, 2023

S.NO.	TOPIC
1.	NASA'S FIRST ASTEROID SAMPLES LAND ON EARTH
2.	AADHAAR CONCERNS
3.	NIPAH VIRUS: A ZOOLOGICAL DISEASE

NASA'S FIRST ASTEROID SAMPLES LAND ON EARTH

SOURCE: [TH](#), [NASA](#)

WHY IN NEWS?

- After years of anticipation and hard work by **NASA's OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification and Security – Regolith Explorer)** team, a capsule of rocks and dust collected from asteroid Benu finally is on Earth.
- In a **flyby of Earth**, the spacecraft released the sample capsule from 100,000 km out.

ABOUT OSIRIS-REx:

- OSIRIS-REx stands for Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer.
- It's **NASA's first mission aimed at collecting a sample from an asteroid. Launched in September 2016** and reached the near-Earth asteroid Benu in December 2018.
- In October 2020, OSIRIS-REx briefly touched down on Benu to gather a sample using a vacuum.
- The spacecraft traveled a staggering 6.2 billion km (4 billion miles) before returning the sample to Earth.
- The mission seeks to provide insights into the early history of our solar system and the potential threat of asteroid impacts on Earth.
- Its objectives include understanding the solar system's origins, studying asteroid composition, and collecting Benu's surface material.
- **OSIRIS-REx is NASA's third sample return mission from deep space, following Genesis and Stardust.**

ABOUT BENNU:

- It is a **near-Earth asteroid**.
- Positioned about 81 million km away from Earth, Benu is **approximately half a kilometre wide and resembles a spinning top in shape**.
- It's believed to be a fragment from a much larger asteroid.
- **Proximity to Earth:** Benu falls into the category of **Near-Earth Objects (NEOs), which are asteroids orbiting within 1.3 astronomical units (AU) of the Sun (1 AU is the distance between Earth and the Sun, roughly 93 million miles)**. For sample return missions like OSIRIS-REx, the most accessible asteroids are typically found between 0.8 AU and 1.6 AU. Benu's orbit brings it very close to Earth every 6 years, within 0.002 AU, making it highly accessible.
- **Size:** Smaller asteroids tend to rotate more rapidly than larger ones. Benu, with its diameter of less than 200 meters, rotates quickly

NASA'S SPACE EXPLORATIONS:

Mission	Destination	Goals
---------	-------------	-------

Apollo 11	Moon	To land humans on the Moon and return them safely to Earth.
Voyager 1 and 2	Outer solar system	To explore the outer planets and beyond.
Galileo	Jupiter	To study Jupiter and its moons, including Europa and Ganymede.
Cassini-Huygens	Saturn	To study Saturn and its moons, including Titan and Enceladus.
Hubble Space Telescope	Earth orbit	To observe the universe in optical and ultraviolet light.
James Webb Space Telescope	Earth-Sun L2 point	To observe the universe in infrared light, with a focus on the early universe and exoplanets.
New Horizons	Pluto and the Kuiper Belt	To fly by Pluto and Charon, and to explore the Kuiper Belt.
Perseverance	Mars	To search for signs of ancient life on Mars and to collect samples for return to Earth.

AADHAAR CONCERNS

SOURCE: [TH](#)

WHY IN NEWS?

Moody's has raised concerns about the security and privacy vulnerabilities of centralized identification systems like Aadhaar. This is relevant to India as the government has mandated Aadhaar-based payments for labourers under the MGNREGA scheme.

Moody's Investors Service rates debt securities in several bond market segments. These include government, municipal and corporate bonds; managed investments such as money market funds and fixed-income funds; financial institutions including banks and non-bank finance companies; and asset classes in structured finance.

ABOUT AADHAR:

WHAT IS AADHAAR?

- Aadhaar is a **12-digit unique identification number issued to Indian residents by the Unique Identification Authority of India (UIDAI) after verification.**
- **Any Indian resident**, regardless of age or gender, can voluntarily enroll for an Aadhaar number.
- To enroll, a person must provide basic demographic and biometric information, including fingerprints, iris scans, and facial photographs.

INDIA'S AADHAAR PROGRAMME

- Aadhaar is a strategic policy tool for social and financial inclusion, public sector reforms, and fiscal management.
- It is also a **key pillar of the 'Digital India' initiative**, which aims to provide every Indian resident with a unique identity.
- The Aadhaar identity platform has **inherent features of uniqueness, authentication, financial address, and e-KYC.**
- This enables the Government of India to directly reach residents of the country in the delivery of various subsidies, benefits, and services using only the resident's Aadhaar number.

CONCERNS RAISED:

Unreliable Biometric Tech:

- Aadhaar often results in service denials, meaning that people are unable to access the services they need because the biometric authentication fails.
- The reliability of biometric technologies is questionable, **especially for manual laborers in hot, humid climates, because their fingerprints and iris scans can be affected by their work.**

Privacy and Security Concerns:

- While Aadhaar is the world's largest digital ID program, it has also been criticized for its **privacy and security vulnerabilities.**
- There is a risk that the sensitive personal information collected by Aadhaar could be breached, or that it could be used by the government for surveillance.

Decentralized Systems:

- Moody's supports **decentralized ID (DID) systems as a potential solution** to some of the challenges posed by centralized systems like Aadhaar.
- DID systems give users more control over their private data and can reduce online fraud.

Negative Social Repercussions:

- Moody's warns that digital IDs, both centralized and decentralized, can have negative social repercussions.
- For example, they can strengthen group identities and political divides, especially if they are offered by technology and social media companies with significant monopolistic influence.

VARIOUS APPLICATIONS(SIGNIFICANCE) OF AADHAAR:

- **Public distribution system (PDS):** Aadhaar is used to authenticate beneficiaries and ensure that they receive their ration entitlements.
- **Aadhaar-enabled payment system (AEPS):** Aadhaar-based biometric authentication is used to enable transactions such as cash withdrawal, balance inquiry, and remittances.
- **Direct benefit transfer (DBT):** Government benefits such as LPG subsidies, pensions, and scholarships are transferred directly to the bank accounts linked to Aadhaar.
- **Jan Dhan Yojana:** Aadhaar is used to authenticate beneficiaries and open bank accounts under this financial inclusion scheme.
- **Pension:** Aadhaar is used to authenticate pensioners and ensure they receive their pension entitlements.
- **Passport:** Aadhaar is used as proof of identity and address for those applying for a passport.
- **JAM trinity:** It refers to the three government schemes of Jan Dhan Yojana, Aadhaar, and Mobile number, which have been launched by the Indian government to ensure financial inclusion and provide a platform for direct benefit transfer.
- **Linking with voter ID:** The Election Commission of India (ECI) has called for linking Voter ID cards with their Aadhaar under the Election Laws (Amendment) Act, 2021.

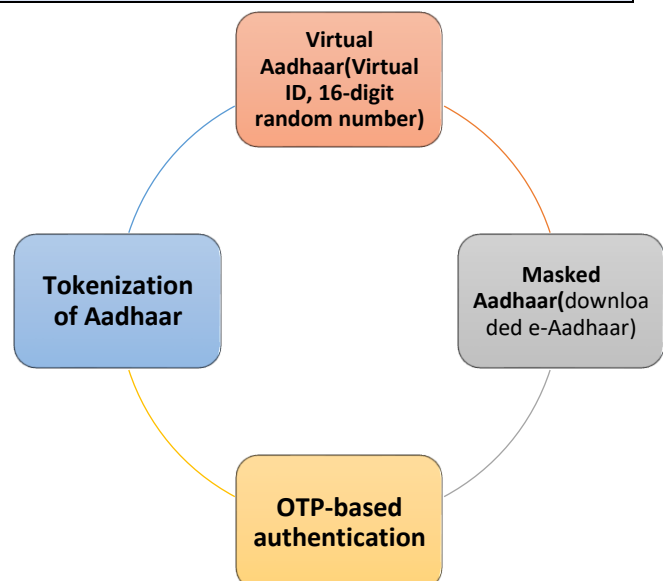


Figure 1 HOW UIDAI ENSURES PRIVACY AND SAFETY

WAY FORWARD:

1. **Data Security:** Enhance data security protocols to prevent breaches and unauthorized access.
2. **Biometric Authentication:** Improve biometric technology to reduce identity fraud.
3. **Regular Audits:** Conduct regular security audits and vulnerability assessments.
4. **Legal Framework:** Establish a robust legal framework for data protection and privacy.

5. **User Awareness:** Educate citizens about Aadhaar usage, privacy settings, and security best practices.
6. **Multi-factor Authentication:** Implement multi-factor authentication for critical transactions.

PRELIMS QUESTIONS:

Q1. Consider the following statements: (2018)

Aadhaar card can be used as a proof of citizenship or domicile.

Once issued, Aadhaar number cannot be deactivated or omitted by the Issuing Authority.

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

Ans: (d)

EXPLANATION: The Aadhaar platform allows service providers to verify the identity of residents electronically in a secure and quick manner, making service delivery more cost-effective and efficient. The Indian government and the Unique Identification Authority of India (UIDAI) have stated that Aadhaar is not proof of citizenship.

However, the UIDAI has also published a set of contingencies under which an Aadhaar card can be rejected. An Aadhaar card with mixed or anomalous biometric information or multiple names in a single name (like Urf or Alias) can be deactivated. An Aadhaar card can also be deactivated if it is not used for three consecutive years.

Q2. Q) Consider the following statements: (2020)

(1) Aadhaar metadata cannot be stored for more than three months.

(2) State cannot enter into any contract with private corporations for sharing Aadhaar data.

(3) Aadhaar is mandatory for obtaining insurance products.

(4) Aadhaar is mandatory for getting benefits funded out of the Consolidated Fund of India.

Which of the statements given above is/are correct?

- (a) 1 and 4 only
- (b) 2 and 4 only
- (c) 3 only
- (d) 1, 2 and 3 only

ANS. (B)

EXPLANATION:

Statement 1 is incorrect: Supreme Court had ruled that Aadhaar metadata cannot be stored for more than six months.

Statement 2 is correct: The Supreme Court struck down part of section 57 which allowed providing private corporations to verify Aadhaar data as unconstitutional.

Statement 3 is incorrect: The same 2018 judgement also held making that Aadhaar mandatory for other services apart from welfare schemes as unconstitutional. Subsequently, IRDAI issued an advisory in January 2019 that clarified that Aadhaar is not mandatory for obtaining insurance.

Statement 4 is correct: The Supreme court in the Aadhaar verdict had defined the welfare schemes as those funded from the consolidated fund of India. And it upheld the validity of Section 7 of the Aadhaar Act which states that Central or State Governments can make possession of an Aadhaar number or Aadhaar authentication mandatory for receipt of subsidies, benefits or services funded out of the Consolidated Fund of India.

NIPAH VIRUS: A ZOOBOTIC DISEASE

SOURCE: [CDC](#)

ABOUT NIPAH VIRUS:

Nipah virus, a zoonotic disease transmitted to humans through infected animals or contaminated food, was first identified during an outbreak in Malaysia and Singapore. The primary victims were pigs and individuals closely involved with them. The virus derived its name from the Malaysian village of Sungai Nipah, where the outbreak occurred.

Zoonotic diseases are infections that are spread between people and animals. These infections are caused by germs, such as viruses, bacteria, parasites, and fungi. Some can be severe and life threatening, such as rabies, and others may be milder and get better on their own. Zoonotic diseases are very common.

TRANSMISSION:

- The disease is transmitted via **fruit bats, also known as 'flying foxes,'** belonging to the Pteropus genus, which serve as the **natural reservoir hosts for the Nipah and Hendra viruses.**
- The virus can be **found in bat urine and, potentially, in bat feces, saliva, and birthing fluids.**

SYMPTOMS:

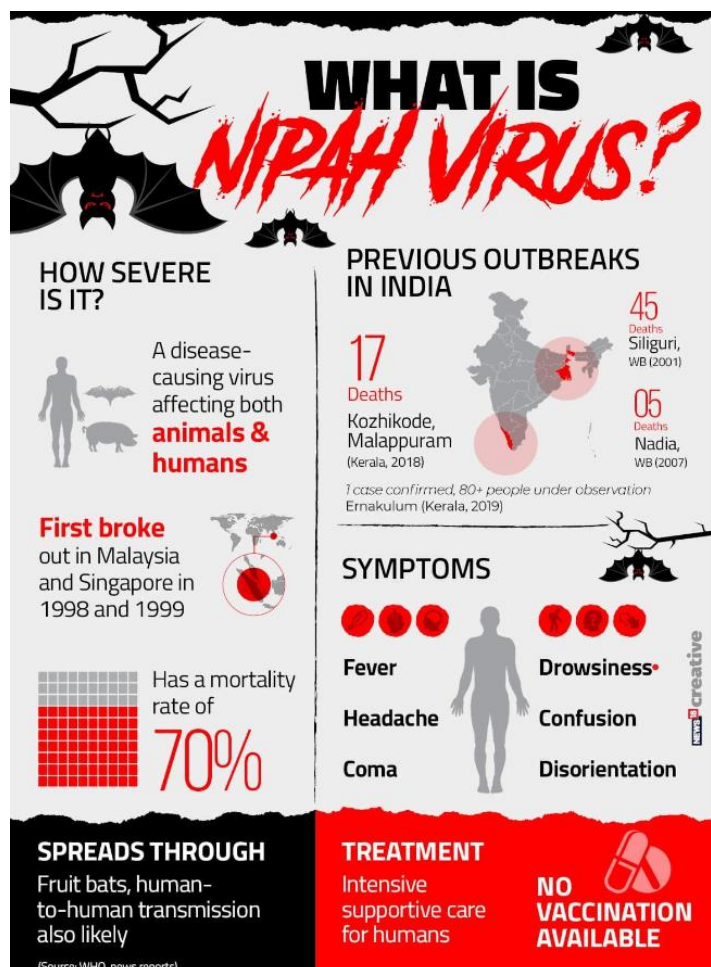
- In humans, infection manifests as an encephalitic syndrome characterized by symptoms such as fever, headache, drowsiness, disorientation, mental confusion, coma, and, in severe cases, potential fatality.

PREVENTION:

- Currently, there are no vaccines available for both humans and animals to protect against the Nipah virus.
- The primary approach for humans infected with the Nipah virus involves providing intensive supportive care.

SLOW SPREAD:

- In contrast to the rapid transmission of SARS-CoV-2, the Nipah virus has a slower rate of spread. Nevertheless, its elevated mortality rate remains a significant concern.



HIGH MORTALITY:

- During Nipah outbreaks, the virus has exhibited a mortality rate as substantial as 68-75%.
- For instance, in the 2001 Siliguri outbreak, 45 out of the 66 infected individuals succumbed to the virus.
- Similarly, during the 2018 Kerala outbreak, 17 out of 18 confirmed patients lost their lives.

LOCALIZED OUTBREAKS:

- Notably, Nipah outbreaks have consistently been confined to specific areas and were brought under control relatively swiftly.
- The virus's limited infectiousness and its low potential for human-to-human transmission contribute to this containment.

REPRODUCTIVE NUMBER (R0):

- Research indicates an R0 value of approximately 0.48 for Nipah outbreaks, indicating a slow transmission rate within the population.
- An R0 value below one suggests that an infected person does not transmit the virus to more than one other individual, leading to a relatively rapid resolution of the outbreak.

CHALLENGES IN DEALING WITH THE NIPAH VIRUS:

Diagnosis:

- Non-specific Symptoms: Initial symptoms overlap with common illnesses, leading to delayed diagnosis.
- Limited Diagnostic Resources: Limited access to specialized tests complicates rapid case confirmation.

Treatment:

- No Specific Antiviral Treatment: No approved antiviral medication; care focuses on symptom management.
- Limited Treatment Centres: Inadequate facilities and expertise can complicate severe case management.

Prevention:

- Zoonotic Transmission: Complex challenge of preventing transmission from bats and animals to humans.
- Human-to-Human Transmission: Outbreaks can involve human-to-human transmission, especially in resource-limited healthcare settings, requiring effective infection control measures.

Vaccine Development:

- Complex Virus: Multiple virus strains make vaccine development challenging.
- Lack of Commercial Incentives: Limited investment from pharmaceutical companies due to Nipah's impact primarily in low-resource regions.

WAY FORWARD:

Prevention:

- **Enhanced Surveillance:** Improve surveillance for early Nipah virus detection in animals, especially fruit bats, and humans.
- **Early Case Identification:** Detect cases early, isolate patients, and trace contacts to prevent further spread.
- **Control Measures:** Implement quarantine and isolation to contain outbreaks.

Vaccine Development:

- **Research and Development:** Continue rigorous testing in preclinical and clinical trials for a safe Nipah virus vaccine.
- **Affordability and Accessibility:** Ensure vaccine affordability and accessibility for at-risk populations, particularly in low-resource regions.

Public Awareness and Education:

- **Community Engagement:** Conduct awareness campaigns and engage communities in at-risk areas to educate them about the virus and preventive measures.
- **Promoting Safe Practices:** Encourage safe practices when handling animals, consuming fruits, and during healthcare interactions to reduce Nipah virus transmission.

One Health Approach:

- **Interdisciplinary Collaboration:** Promote collaboration across human, animal, and environmental health sectors to prevent zoonotic diseases like Nipah.

Research:

- **Understanding the Virus:** Research on Nipah virus biology, genetics, and transmission is crucial for effective prevention and control strategies.
- **Treatment Development:** Explore potential treatments, including antiviral drugs and monoclonal antibodies, with a focus on safety and efficacy.

ZOOONOTIC DISEASE:				
Disease	Pathogen	Reservoir Hosts	Transmission to Humans	Examples of Outbreaks
COVID-19	SARS-CoV-2 virus	Bats (likely)	Direct contact with infected humans, respiratory droplets	Global pandemic (ongoing)
Ebola Virus Disease	Ebola virus	Bats, primates	Direct contact with infected animals and their fluids, human-to-human transmission	Outbreaks in West Africa (2014-2016)
HIV/AIDS	Human Immunodeficiency Virus (HIV)	Primates (zoonotic origin)	Sexual contact, blood-to-blood contact, mother-to-child transmission	Global pandemic (ongoing)
Influenza (Flu)	Influenza viruses (various)	Birds, pigs, and others	Respiratory droplets, direct contact with infected animals	Seasonal flu outbreaks

Rabies	Rabies virus	Various mammals (bats, dogs, etc.)	Animal bites or scratches, saliva contact	Global, recurring (ongoing)
Zika Virus	Zika virus	Primarily Aedes mosquitoes	Mosquito bites, sexual transmission	Outbreaks in South and Central America (2015-2016)
Nipah Virus	Nipah virus	Fruit bats (bats)	Contact with bat excretions, human-to-human transmission	Outbreaks in Southeast Asia (multiple)
Lyme Disease	Borrelia bacteria	Ticks (especially deer ticks)	Tick bites, transmission via infected ticks	Common in North America, Europe
Hantavirus Pulmonary Syndrome	Hantaviruses	Rodents (various)	Inhalation of aerosolized virus in rodent excreta	Various outbreaks globally