DAILY CURRENT AFFAIRS 19-06-2026

Mapping Perspective

1. **Thailand**

Prelims Perspective

2. **Network Survey Vehicle (NSV)**
3. **Shigellosis**

Mains Perspective

4. **GRAPES-3 Telescope**
5. **Joint Crediting Mechanism**

Thailand

Syllabus: Prelims Bits – Mapping.

Context:

- Recently, India and Thailand agreed to deepen collaboration in manufacturing, research, innovation and capability development during the 10th Defence Dialogue held in Bangkok.

About Thailand

- **Location:** Located in the centre of mainland Southeast Asia.
- **Bordering Countries:** Shares boundaries with Myanmar (North-West), Laos (North-East), Cambodia (East), and Malaysia (South).
- **Maritime Boundaries:** Bordered by the Andaman Sea (South-West) and the Gulf of Thailand (South).
- **Capital City:** Bangkok.

Geographical Features of Thailand

Terrain

- Fold Mountains dominate the country's landscape in the northern and western regions.

Climate

- Influenced by both the Southwest Monsoon and Northeast Monsoon.

Highest Peak

- **Doi Inthanon** (Approx. 2,565 m) – highest mountain peak in Thailand.

Plateau

- **Khorat Plateau:** Located in the north-eastern region; a vast tableland bounded by the Mekong River on the north and east.

Major Rivers

- **Chao Phraya River** – principal river system of Thailand.
- **Mekong River** – forms a natural border between Thailand and Laos.

Natural Resources

- Major resources include **Rubber, Rice, Tin, Natural Gas, Timber, Tungsten, and Tantalum**.

Network Survey Vehicle (NSV)

Syllabus: GS-3; Infrastructure – Roads & Highways

Context

The Ministry of Road Transport and Highways (MoRTH) has announced nationwide deployment of advanced Network Survey Vehicles (NSVs).

About Network Survey Vehicle

- A specialised infrastructure management vehicle equipped with advanced sensors and data acquisition systems.
- Used to systematically collect road inventory and pavement-condition data on National Highways.

Key Features

- Equipped with:
    - Laser profilers
    - GPS
    - High-resolution cameras
    - Video image processing tools
    - Inertial Measurement Units (IMU)
    - Distance Measuring Indicator (DMI)
- Uses advanced 3D laser-based systems.
- Can survey up to **300 km per day**.

Working Mechanism

- Captures 13 categories of road defects, including:
    - Cracks
    - Ravelling
    - Patch areas
    - Potholes
    - Edge breaks
    - Roughness
    - Rutting
    - Lane-marking deficiencies

Additional Data Collected

- Carriageway type
- Road type
- Pavement width
- Shoulder width
- Topography
- Median details
- Right of way
- Utilities
- Land-use characteristics

Data Management

- Surveys conducted before project commencement and every six months thereafter for 2/4/6/8-lane highways.
- Data uploaded to NHAI's AI-based **Data Lake** platform.

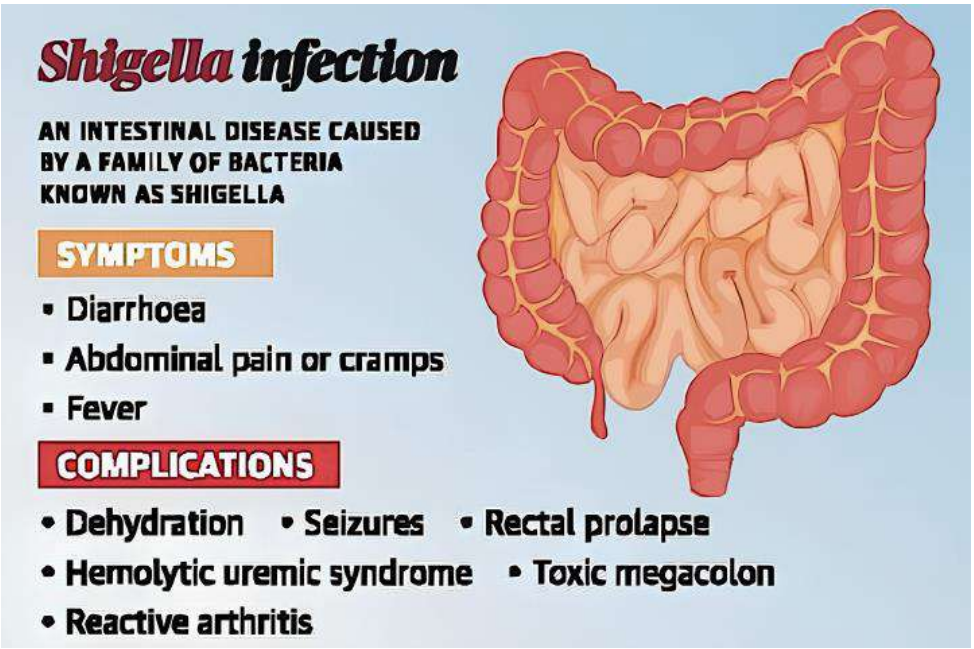
- Raw survey data is encrypted and transmitted to the centralised NSV centre within 48 hours.
- Expert teams monitor and validate findings across five zones.
- Actionable insights are generated within 10 days, compared to the earlier timeline of 4–6 months.

Shigellosi

Syllabus: GS-3; Science & Technology – Health & Diseases

Context

An increase in cases of shigellosis (bacillary dysentery) has recently been reported in Kerala.



About Shigellosis

- A highly contagious bacterial diarrhoeal disease caused by **Shigella** bacteria.
- One of the leading bacterial causes of diarrhoea globally.
- Humans are the only natural reservoir of the pathogen.

Vulnerable Groups

- Children below five years
- Older adults
- Immunocompromised individuals
- Malnourished persons

Transmission

- Direct contact with infected individuals
- Faecal-oral route
- Sexual contact
- Contaminated food and water
- Contact with infected faecal matter

Symptoms

- Diarrhoea (often bloody or containing mucus)
- Stomach cramps
- Vomiting
- Fever
- Persistent urge to pass stool despite an empty bowel

Treatment

- Supportive care
- Antibiotics in severe cases

GRAPES-3 Telescope

Syllabus: GS-3: Science and Technology

Context:

- Recently, researchers from Mumbai, Kochi, and Japan used the **GRAPES-3 telescope** to track how the Earth's upper atmosphere temperature and the Sun's magnetic field affect **muons** — subatomic particles originating from space.

About GRAPES-3 Telescope

- **GRAPES-3 (Gamma Ray Astronomy PeV EnergieS phase-3)** is designed to study the **origin, acceleration, and propagation of cosmic rays** through measurement of **extensive air showers**.
- These air showers are induced by **primary cosmic rays or gamma rays** entering the Earth's atmosphere with energies ranging from **tera electronvolt (TeV) to peta electronvolt (PeV)**.
- It also studies **solar phenomena** and **thunderstorm-related phenomena** using **cosmic ray muons**.
- GRAPES-3 employs:
    - An array of **plastic scintillator detectors**
    - A **large-area muon detector** based on **proportional counters**
- **Location:** Ooty, Tamil Nadu, India.
- **Operated by:** Tata Institute of Fundamental Research (TIFR).

Significance

- Helps understand the **sources and behaviour of high-energy cosmic rays**.
- Provides insights into **solar magnetic activity**, **atmospheric processes**, and **space weather phenomena**.
- Facilitates the study of **muons**, which can penetrate deep into the atmosphere and reach the Earth's surface.

Joint Crediting Mechanism

Syllabus: GS-3: Environment - Climate Finance.

Context:

- India and Japan have adopted the **Rules of Implementation** for the **Joint Crediting Mechanism (JCM)** under **Article 6.2 of the Paris Agreement**.

About Joint Crediting Mechanism (JCM)

- First proposed by the Government of Japan and officially launched in **2013**.
- A Japanese initiative aimed at facilitating the diffusion of **leading decarbonizing technologies and infrastructure** through investment by Japanese entities and contributing to the sustainable development of partner countries.
- It is a **bilateral mechanism** implemented in accordance with **Article 6 of the Paris Agreement**.
- Operates under the framework of the United Nations Framework Convention on Climate Change (UNFCCC).
- Complements existing mechanisms such as the **Clean Development Mechanism (CDM)** and **Joint Implementation (JI)**.
- India is one of the **31 partner countries** of the JCM.

Aim

- Facilitate transfer and deployment of advanced low-carbon and decarbonizing technologies.
- Promote sustainable development in partner countries.
- Support global climate change mitigation efforts through collaborative projects.

Link with Nationally Determined Contributions (NDCs)

- Contributes to the achievement of both countries' **Nationally Determined Contributions (NDCs)**.
- Evaluates Japan's contributions in a quantitative manner and enables acquisition of a part of the resulting carbon credits.
- Enhances international cooperation in meeting climate commitments under the Paris Agreement.

Link with Article 6 of the Paris Agreement

- Article 6 provides a framework for **voluntary international cooperation** in achieving NDC targets.
- JCM functions as a bilateral carbon-crediting mechanism under **Article 6.2**, enabling transfer of emission reduction outcomes between participating countries.