Prelim Bits 29-09-2021 | UPSC Daily Current Affairs

Landsat 9

Earth Monitoring Satellite Landsat 9 - a joint mission of NASA and the US Geological Survey (USGS) - was launched recently.

> Landsat satellites have collected images of our planet and helped understand how land usage has changed over the decades. The first Landsat was launched in 1972.

- **Landsat 9** joins Landsat 8 that was launched in 2013 and the satellites together will collect images of Earth's surface.
- It takes 8 days to capture the whole Earth. It will make contact with a ground station every few hours and offload its data.

Instruments aboard Landsat 9	Purpose
Operational Land Imager 2 (OLI-2)	OLI-2 captures sunlight reflected off Earth's surface in the visible, near-infrared, and short wave infrared portions of the spectrum.
Thermal Infrared Sensor 2 (TIRS-2)	With 4-element refractive telescope and photosensitive detectors, TIRS-2 captures thermal infrared radiation and help study the Earth's surface temperature.

- As the satellite orbits, these instruments will take pictures across 185 kms and each pixel will represent an area of about 30 meter X 30 meter.
- These instruments will measure different wavelengths of light reflected off the Earth's surface.
- It can see more colour shades with greater depths.
- **Uses** - Previously, Landsat images have been used to study the health of forests, coral reefs, monitor water quality and melting glaciers.
- Landsat 9 will provide data that can help make science-based decisions on key issues of climate change such as impacts of wildfire, coral reef degradation, the retreat of glaciers, and deforestation.
- It can help identify water bodies affected by potentially harmful algal blooms.

Vanishing Lakes of Bengaluru

In order to protect Bengaluru lakes, the Karnataka High Court ordered the state government to issue necessary instructions to remove encroachments from the water bodies in accordance with the Land Revenue Act.

- Terrain of Bengaluru with hills and valleys provide a natural drainage system with small streams originating from ridges to form major streams that flow into major and minor lakes. But these lakes are disappearing.
- **Reasons for decline** - Encroachment of the lakes by real estate developers, and also by the

government agencies to set up bus stands, research centres, etc is a major reason that the lakes are disappearing.

In 2015, the Koliwad Committee stated that real estate developers and government bodies were major encroachers of lakes in Bengaluru.

- During 2015-16 period, 98% lakes were encroached for illegal buildings, slums, etc and that sewage is flowing into 90% of the lakes in the city.
- **Consequences** - Lakes are contaminated due to the sustained inflow of untreated industrial effluents and domestic sewage.
- The groundwater in the vicinity of lakes is contaminated which is evident from the higher nitrate levels and heavy metal in the groundwater.
- Indiscriminate dumping of municipal solid waste has also led to the contamination of groundwater.

Burden of Climate Change on Children

A study found that children born today will be hit much harder by extreme climate events than today's adults.

- A child born in 2021 is likely to experience on average twice as many wildfires, 2 to 3 times more droughts, 3 times more river floods and crop failures and 7 times more heat waves compared to today's adult.
- **Data** - The study is based on data from the Inter-sectoral Impact Model Intercomparison Project (ISIMIP).
- This is a community-driven climate-impacts modelling initiative that assess the differential impacts of climate change.
- ISIMIP data were used alongside country-scale, life-expectancy data, population data and temperature trajectories from the IPCC.
- **Solution** - The study said that the climate burden from our childrens' shoulders could be reduced on average by 24% globally by
    1. Limiting warming to 5 degrees Celsius,
    2. Phasing out fossil fuel use, and
    3. Increase climate protection from current emission reduction pledges.

Ayushman Bharat Digital Mission

Prime Minister launched the Ayushman Bharat Digital Mission (ABDM).

- The flagship digital initiative involves,
    1. Creation of a unique health ID for every citizen, and
    2. Creation of a digital healthcare professionals and facilities registry.
- **Health ID** - If a person wants to be part of the ABDM, she must create a health ID, which is a randomly generated 14-digit number.
    - One can get a health ID by self-registration on the portal or ABMD Health Records app.
    - One can also get a health ID at a participating health facility - Govt. or pvt. hospitals, community health centres, and government wellness centres across India.
- Health ID will be broadly used for 3 purposes - unique identification, authentication, and threading of the beneficiary's health records, only with their informed consent, across multiple

systems and stakeholders.
- **Personal Health Records (PHR) address** for consent management, and for future sharing of health records will have to be set up by a person
- It is a simple self-declared username, which the beneficiary is required to sign into a Health Information Exchange and Consent Manager (HIE-CM).
- [An HIE-CM is an application that enables sharing and linking of personal health records for a user.]
- Each health ID will require linkage to a consent manager to enable sharing of health records data.
- **Data storage** - ABDM does not store any of the health records.
- The records are stored with healthcare information providers as per their "retention policies", and are shared over the ABDM network "with encryption mechanisms" only after the beneficiary express consent.
- One can permanently delete or temporarily deactivate her health ID.
    1. On deletion, the unique health ID will be permanently deleted, along with all demographic details.
    2. On deactivation, the beneficiary will lose access to all ABDM applications only for the period of deactivation.
- **Facilities** - Beneficiaries can access their digital health records right from admission through treatment and discharge.
- They can access and link their personal health records with their health ID to create a longitudinal health history.

NDHM Sandbox

- It is a digital architecture launched by the National Health Authority (NHA).
- It allows helps private players to be part of the National Digital Health Ecosystem as health information providers or health information users.
- NHA gives the private player a key to access the Sandbox environment and the Health ID Application Programming Interface (API).

National Action Plan for dog Mediated Rabies Elimination by 2030

National Action Plan for dog Mediated Rabies Elimination by 2030 (NAPRE) was launched recently.

- It wants to eliminate Dog mediated Rabies (Hadakwa disease) from India by 2030 through One Health Approach including community education, awareness programmes and vaccination campaigns.
- 33% of global rabies deaths are recorded in India.

Rabies

- Rabies is a zoonotic, viral disease spread to people from the saliva of infected animals.
- It is a Neglected Tropical Diseases (NTD) that mostly affects poor and vulnerable populations. 80% of cases occur in rural areas.

    - Rabies is a 100% f*atal but 100% vaccine preventable.*

- **Spread** - Dogs are the main source of human rabies deaths, contributing up to 99% of all

rabies transmissions to humans. It is also transmitted through bats, coyotes, foxes, raccoons and skunks.

- In rare cases, rabies can be spread when infected saliva gets into an open wound or the mucous membranes, such as the mouth or eyes.
- **Symptoms** - Incubation period for rabies is 2 to 3 months. But this may vary from 1 week to 1 year, depending upon factors like the location of virus entry and viral load.
- Initial symptoms - Fever with pain and unusual or unexplained tingling, pricking, or burning sensation (paraesthesia) at the wound site.
- As the virus spreads to the central nervous system, progressive and fatal inflammation of the brain and spinal cord develops.
- **Prevention -** Interrupting transmission is feasible through vaccination of dogs and humans, and prevention of dog bites.
- **Diagnosis** - Current diagnostic tools are not suitable for detecting rabies infection before the onset of clinical disease. It is diagnosed after rabies-specific signs of hydrophobia or aerophobia are seen.
- **Treatment** of a bite victim after rabies exposure is the Post-exposure prophylaxis (PEP), which prevents virus entry into the central nervous system. PEP consists of:
    1. Extensive washing and local treatment of the bite wound or scratch as soon as possible after a suspected exposure;
    2. A course of potent and effective rabies vaccine; and
    3. Administration of rabies immunoglobulin (RIG), if indicated.
- WHO leads the 'United Against Rabies' to drive progress towards "Zero human deaths from dog-mediated rabies by 2030".

Source: PIB, The Indian Express, WHO

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