Prelim Bits 16-11-2021 | UPSC Daily Current Affairs

Norovirus

PyeongChang 2018, the ongoing XXIII Olympic Winter Games at Pyeongchang, South Korea has been hit by a disease outbreak - Norovirus infection.

- **Norovirus** is a bug similar to the diarrhoea-inducing rotavirus for which India has included a vaccine in its universal immunisation programme.

  While rotavirus primarily affects children, Norovirus infects people across age groups.

- Disease outbreaks typically occur aboard cruise ships, in nursing homes, dormitories, and other closed spaces.
- **Symptoms** usually show up 1 or 2 days after exposure to the virus. This includes a sudden onset of vomiting and/or diarrhoea, nausea and abdominal pain, and may have fever, headaches and body aches.
- In extreme cases, loss of fluids could lead to dehydration.
- This **self-limiting** disease normally lasts only 2 or 3 days, and most individuals who are not very young, very old, or malnourished can ride it out with sufficient rest and hydration.
- **Transmission -** Norovirus is highly contagious, and can be transmitted through contaminated food, water, and surfaces. The primary route is **oral-faecal**.
- One may get infected multiple times as the virus has different strains.
- Norovirus is resistant to many disinfectants and heat up to 60°C.
- Therefore, merely steaming food or chlorinating water does not kill the virus. The virus can also survive many common hand sanitisers.
- **Commonality -** Norovirus is the most common pathogen implicated in outbreaks of gastrointestinal disease (inflammation of the stomach and intestines), according to the World Health Organisation.
- The US Centers for Disease Control and Prevention estimates that 1 out of every 5 cases of acute gastroenteritis globally is caused by Norovirus.
- **Prevention -** The basic precaution is repeatedly washing hands with soap after using the lavatory or changing diapers; and before eating or preparing food.
- During outbreaks, surfaces must be disinfected with hypochlorite solution at 5,000 parts per million.
- **Treatment -** Diagnosis is done by real-time reverse transcription polymerase chain reaction.
- No vaccines are available for the disease. It is important to maintain hydration in the acute phase.
- In extreme cases, patients have to be administered rehydration fluids intravenously.

Reference

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2. https://www.thehindu.com/news/national/kerala/a-norovirus-outbreak-that-never-made-headlines/article37504634.ece
3. https://www.financialexpress.com/lifestyle/health/kerala-reports-13-norovirus-infections-everything-to-know-about-highly-contagious-virus/2369618/

NASA's DART Mission

NASA will launch the agency's first planetary defense test mission named the Double Asteroid Redirection Test (DART) on a SpaceX Falcon 9 rocket.

- DART is a planetary defense-driven test of technologies for preventing an impact of Earth by a hazardous asteroid.
- DART is a **suicide mission** that aims to test the newly developed technology that would allow a **spacecraft to crash into an asteroid** and change its course.
- DART's target asteroid **Dimorphos** (small moonlet) is NOT a threat to Earth. Dimorphos orbits a larger asteroid named Didymos.
    - Didymos is a perfect system for the test mission as it is an eclipsing binary.
    - This means it has a moonlet that regularly orbits the asteroid and we can see it when it passes in front of the main asteroid.
- The spacecraft will collide with the moonlet at a speed of about 24,000 kms per hour when it is 11 million kms away from Earth. The collision may take place between September 26 and October 1, 2022.
- **Related Links** - Asteroid Impact and Deflection Assessment

DART Spacecraft

- DART is a low-cost spacecraft that uses **hydrazine** propellant for maneuvering the spacecraft.
- It carries **10 kg of xenon** to be used to demonstrate the NASA Evolutionary Xenon Thruster-Commercial (NEXT-C) solar electric propulsion system as part of its in-space propulsion.
    - NEXT-C is a next-generation system based on the Dawn spacecraft propulsion system.
    - NEXT-C has very high fuel efficiency and flexible operations making it ideal for many classes of science missions.

Components	Uses
2 Roll Out Solar Arrays (ROSA)	It will provide the solar power needed for DART's electric propulsion system.
NASA Evolutionary Xenon Thruster-Commercial (NEXT-C)	It is a solar electric propulsion system
Didymos Reconnaissance and Asteroid Camera for Optical Navigation (DRACO)	It is a high-resolution imager that will send real-time images to Earth. These images will help study the impact site and surface of Dimorphos.
Light Italian CubeSat for Imaging of Asteroids (LICIACube)	It is expected to capture images of the impact and the impact crater formed as a result of the collision. It can also capture images of any dust cloud formed during the impact.

Reference

1. https://indianexpress.com/article/explained/nasa-dart-mission-asteroid-explained-7617692/
2. https://www.nasa.gov/planetarydefense/dart

Renaming Railway Stations

The Centre has given its clearance to Madhya Pradesh government's proposal for changing the name of Habibganj railway station to Rani Kamlapati railway station.

- While Indian Railways may own the Railway station, it does not get involved in the business of changing the name of it.
- This is left to the **discretion of the state government** concerned.
- Change of station names is entirely a state subject even though Railways belong to the Union government.
- **Process** - The state governments send the request to the Ministry of Home Affairs, which then accords its approval, keeping the Ministry of Railways in the loop.
- Usually, it is ensured that no other station with the new name proposed exists anywhere in India.
- If a state government wants to change the name of a city, generally, there is little reason for the Centre to come in the way or keep an old name in circulation, including in the signage of its properties there.
- **After the name change** is notified by the state government, Indian Railways invents a new station "code" for railway operation purposes.
- The change is then fed into its ticketing system so that the new name and the code is reflected on its tickets, reservation and train information.
- Lastly, it physically changes the name written at the station, and also in its communication materials for all practical purposes.
- The languages, spellings to be displayed on the signboard is governed by the **Indian Railway Works Manual**, a document that codifies everything related to civil engineering construction works.
- Railways should obtain approval of the state government concerned on the spelling of the names (in Hindi, English and local languages) before putting them on its signboards.
- The station names shall be exhibited in the order of Regional Language, Hindi and English, **except for Tamil Nadu**.
- In Tamil Nadu, the use of Hindi will be restricted to important stations and pilgrim centres as determined by the Commercial Department.

Queen Kamlapati

- Rani Kamlapati was the 18th-century Gond queen and widow of Nizam Shah, whose Gond dynasty ruled the then Ginnorgarh, near Bhopal.
- Nizam Shah built the famous Kamlapati Palace in her name in Bhopal.
- Kampalati is known to have shown great bravery in facing aggressors during her reign after her husband was killed.
- Kamlapati was the "first Gond queen of Bhopal" and "last Hindu queen of Bhopal", who did great work in the area of water management and set up parks and temples.

The Gond community is the largest tribal group in India with more than 1.2 crore population. They are largely spread in Madhya Pradesh, Chhattsigarh and Jharkhand.

Reference

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2. https://www.thehindu.com/news/national/other-states/bjps-bid-to-woo-gonds-by-renaming-railway-station-after-their-queen/article3747895ece
3. https://indianexpress.com/article/cities/bhopal/renaming-bhopal-habibganj-railway-station-bjps-tribal-outreach-7622963/

ICMR Policy on Climate Change

Indian Council of Medical Research (ICMR) has suggested India to 'urgently wean away from coal as its main source of energy' and 'shift from traditional animal husbandry practices' to combat the challenges of climate change.

- The ICMR's policy brief accompanies the 2021 Global Lancet Countdown Report focusing on,
    1. Premature mortality due to ambient air pollution by sector;
    2. Emissions from agricultural production and consumption; and
    3. Detection, preparedness and response to health emergencies.
- The combustion of coal, mainly in power plants followed by industrial and household settings, has increased the premature mortality.
- Therefore, India needs to urgently wean away from coal as its main source of energy and needs to invest more on renewable, cleaner and sustainable sources such as solar, wind or hydro energy.
- Since 46% of all agricultural emissions in India are contributed by ruminants such as goats, sheep and cattle, India needs to move away from the traditional animal husbandry practices.
- India must invest in newer technologies that will improve,
    1. Animal breeding and rearing practices,
    2. Use of good livestock feeds and
    3. Implement proper manure management.
- All of these practices will contribute to the reduction of the GHG emissions.

Reference

https://www.thehindu.com/todays-paper/tp-national/icmr-moots-change-in-cattle-rearing-practices-shift-from-coal/article37514228.ece

India's Solar Energy Capacity

India told the UN COP26 climate summit about its solar energy capacity.

- India's solar energy capacity stands at about 45 gigawatts after it increased 17 times in the last 7 years.
- This asserts that although the country represents 17% of the global population, its historical cumulative emissions are only 4%, and its current annual greenhouse gas (GHG) emissions are only about 5%.
- India achieved 24% reduction in emission intensity of its Gross Domestic Product (GDP) over the period of 2005-2014.
- Also, India's 15% of total CO2 emission in 2016 was removed from the atmosphere by the Land Use, Land-Use Change & Forestry (LULUCF).
- Between 2015 and 2019, the forest and tree cover increased by 13,031 sq. km. and mangrove cover increased by 235 sq. km.

Reference

https://www.thehindu.com/sci-tech/energy-and-environment/india-at-cop26-says-its-solar-energy-capacity-increased-17-times-in-7-years-now-at-45-gw/article37366445.ece