Prelim Bits 03-11-2023 | UPSC Daily Current Affairs

Zika Virus

Karnataka has stepped up surveillance after a mosquito pool in Chickballapur was found to be positive for Zika virus.

- It is a *vector-borne flavivirus*.

***Zika virus** is a mosquito-borne virus 1st identified in Uganda in 1947 in a Rhesus macaque monkey followed by evidence of infection and disease in humans in other African countries in the 1950s.*

- **Transmission** – Primarily by the bite of Aedes mosquitoes, mainly ***Aedes aegypti and Aedes Albopictus***.
- It is also transmitted *from mother to foetus during pregnancy*, as well as through *sexual contact, blood transfusion* and possibly through organ transplantation.

Aedes aegypti mosquitoes also transmit dengue, chikungunya and urban yellow fever which mostly bite in the day.

- **Incubation period** – 3 to 14 days.
- **Symptoms** – *Most people do not develop* symptoms and who develops may have rash, fever, conjunctivitis, muscle and joint pain, malaise and headache that last for 2–7 days.
- **Complications –** It is associated with *Guillain-Barré syndrome, neuropathy and myelitis* in adults and children.
- Infected pregnant mothers can *cause microcephaly in infants* and other congenital malformations with preterm birth and miscarriage.

*In 2016, WHO declared Zika-related microcephaly a **Public Health Emergency of International Concern (PHEIC)** and later declared the end of the PHEIC in same year.*

- **Treatment** – There is *no specific treatment available* but symptoms can be treated with antipyretics and/or analgesics.
- **Prevention** – *Vector control* by using larvicides and protection against mosquito bite is a key measure to prevent it.

Reference

1. The Hindu| Zika Virus in Karnataka
2. WHO| Zika Virus

Adaptation Gap Report, 2023

According to UN Report, the money available to developing countries for adaptation measures to increasing climate change has been declining, and nowhere close to the scale of requirement.

- **Adaptation Gap Report** – It is an *annual* publication by United Nations Environment Programme's (UNEP) ***since 2014***.
- It is a science based independent assessment of the *global situation of adaptation to climate change*.
- It is co-produced by UNEP Copenhagen Climate Centre (UNEP-CCC) and the World Adaptation Science Programme (WASP).
- **Objectives** – To inform the climate negotiations among UN member states and explores options for enhancing national and global adaptation efforts.
- Their objective is closely aligned with UNFCCC global stocktake.

Findings of Adaptation Gap Report, 2023

- The adaptation finance needs of developing countries are 10-18 times as great as international public finance flows
- In 2021, funding to developing countries for adaptation projects was 15% lower than the previous years.
- The current adaptation finance gap is now estimated to be USD 194-366 billion per year.

> ***Adaptation finance gap*** *is the difference between estimated adaptation financing needs and existing finance flows.*

- 55 most climate-vulnerable economies have experienced losses and damages of more than USD 500 billion in the last 2 decades.
- Every billion invested in adaptation against coastal flooding leads to a USD 14 billion reduction in economic damages.
- USD 16 billion per year invested in agriculture would prevent approximately 78 million people from starving or chronic hunger because of climate impacts.
- While 5 out of 6 countries now have at least one national adaptation planning instrument but progress to reach full global coverage is slowing.
- It identifies 7 ways to increasing financing, including through domestic expenditure and international and private sector finance.

Reference

1. Indian Express| Adaptation Gap Report
2. UNEP| Adaptation Gap Report 2023

National Efficient Cooking Programme (NECP) and Energy Efficient Fans Programme (EEFP)

Recently, Energy Efficiency Services Limited (EESL), a joint venture of public sector undertakings (PSU) under Ministry of Power have launched NCEP and EEFP.

- **National Efficient Cooking Programme (NECP)** – A subset of the Clean Cooking Scheme.
- It focuses on Non-Solar/Electricity-based *Induction Cook stoves*, *aligning with the Go-electric initiative* by the Ministry of Power.
- **Goal** – EESL will deploy *20 Lakh energy-efficient induction cook stoves nationwide* to accelerate the acceptance and adoption.
- **Objectives** – To *reduce the environmental impact* of cooking methods, ensuring cleaner air and improved health for citizens.
- To reduce dependence on imported sources for energy and saving costs for users.
- **Partnership** - EESL has partnered with Modern Energy Cooking Services (MECS) for the large-scale deployment.

Energy Efficient Fans Programme (EEFP)

> *Existing ceiling fans contribute approximately 40% of total residential electricity consumption and over 25% of India's overall electricity usage. Nearly 20% of total residential electricity consumption can be reduced by replacing existing fans with energy efficient ones.*

- **Goal** - EESL will distribute *1 crore efficient BLDC fans* which was initiated during the G20 Energy Transitions Working Group, 2023.
- **Objectives**

- To *reduce energy consumption and environmental impact*.
- To enhance consumer comfort while lowering electricity bills, creating a win-win situation for all.

> *In 2023, about 44% of our capacity is non-fossil-fuel sources and about 25% in energy terms. By 2030, around 65% of our capacity will be from non-fossil-fuel sources, and in energy terms, it will be around 40% - 45%.*

Reference

PIB| NECP and EEFP

Silk

Researchers in China, proposed a model to explain how different combinations of mutations give rise to the different colours of the cocoons.

- Silk is reeled from cocoons of the silk moth (Bombyx mori) and they based on feed they are classified.

***Silk (the queen of fibres**), was domesticated by humans more than 5,000 years ago in China, from the wild moth (Bombyx mandarina).*

***Wild' silks** like the muga, tasar, and eri silks were obtained from other moth species namely, Antheraea assama, Antheraea mylitta, and Samia cynthia ricini.*

- **Mulberry silks** – They have long, fine, and smooth threads.
- **Non-mulberry silks** – They have shorter, coarser, and harder threads.

Mulberry Silk		
	Ancestral Species	**Domesticated Species**
Spread	China, Korea, Japan, & Russia	All around the world including India
Size	Small	Larger
Fibre length	Small	Longer, up to 900 metres
Cocoon colour	Brown-yellow	Yellow-red, gold, flesh, pink, pale green, deep green or white.
Flying ability	Exists	Lost
Pigmentation	Observed	Lost

***India** is the **world's 2nd largest produce**r of raw silk after China and non-mulberry silks comprise about 30% of all silk produced in India.*

Silk Colour

- Mulberry leaves have colouring chemical compounds called *carotenoids and flavonoids* which are absorbed by silkworms when they feed it.
- The absorbed chemicals are transported to the *silk glands, where they are bound to the silk protein*.

Currently, domesticated cocoons possess water soluble colour that gradually fade away and so silk colours are derived from chemical compounds made by the mulberry leaves.

- The *differently coloured cocoons arise from mutations in genes* responsible for the

uptake, transport, and modification of carotenoids and flavonoids.

Reference

The Hindu| Colours of domesticated silkworm

Gravitational Constant (G)

The strength of the gravitational force depends on the gravitational constant.

- Any mass warps the fabric of space-time around itself and more the mass, the more the warping.
- **Gravity** – It is the force that an object feels when travelling along the warped path which tends to move the object towards the mass.
- **Gravitational constant** – It is denoted by a 'G', a fundamental physical constant.

Gravitation constant was 1st accurately determined by Henry Cavendish in 1797 and it is an essential component of both Isaac Newton's law of universal gravitation and Albert Einstein's theory of general relativity.

- **Newton's theory** – The gravitational force between 2 objects is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.
- *G is the proportionality constant* whose value is 6.673 × 10–11 N m2 kg–2.
- **Einstein's theory of general relativity** – It states that space and time are relative, and all motion must be relative to a frame of reference.
- It provides a more accurate description of gravitation, particularly in extreme conditions like massive celestial objects.
- *G describe the curvature (or the 'warping') of space-time* in the presence of mass and energy.
- **Importance of G** – The precise value of G is crucial to understand celestial mechanics and *to determine the mass of celestial bodies*.
- Yet its value has been determined only with an uncertainty of about 22 parts per million.

Reference

The Hindu| Gravitational Constant

Other Important News

International Convention on Sustainable Trade and Standards (ICSTS)

• Quality Council of India (QCI) in collaboration with the United Nations Forum on Sustainability Standards (UNFSS) hosted the ICSTS in New Delhi recently.
• Sustainability Standards are special rules that guarantee the products you buy do not hurt the environment and the people that make them.
• Standards are considered a market-based tool to transform production, global supply chains and consumption patterns into more sustainable ones.

Torkham border crossing

• After Pakistan's deadline expired for undocumented foreigners, about 1.7 million people were forced to leave Pakistan across the Torkham border.
• The Torkham border crossing is a major border connecting Nangarhar province of ***Afghanistan*** with ***Pakistan's*** Khyber Pakhtunkhwa province.

Dholes

• Dholes, also known as Asiatic wild dogs, are wild dogs native to Asia and genetically similar to African wild dogs.
• In India, they are found in 3 clusters (Western and Eastern Ghats, central Indian landscape and North East India).
• **Conservation Status**
  - CITES – Appendix II
  - IUCN - Endangered.
• A pair of elusive wild dogs, often referred to as Dholes, have made a rare appearance in ***Debrigarh Wildlife Sanctuary of Odisha*** recently.

Mouse embryos in Space

• Japanese scientists have said that Mouse embryos were grown in space (International Space Station) for first time.
• The embryos cultured under microgravity conditions developed normally into blastocysts, cells that develop into the foetus and placenta and demonstrates that gravity had no significant effect.
• This is the world's first experiment that cultured early-stage mammalian embryos under complete microgravity of ISS.

Colombo Security Conclave (CSC)

• It was formed as a trilateral maritime security grouping between India, Sri Lanka and Maldives operating in the Indian Ocean region.
• It focuses on Maritime security, Countering terrorism and Cybersecurity.
• In 2020, Mauritius was added as a member of the grouping, with Bangladesh and the Seychelles as observers.
• *Bangladesh and Seychelles* are observers and have been invited to join the group and are likely to join as full members.

Golden Globe Race

• 2 women navy officers trained to undertake the first women solo-circumnavigation as part of the Navy's 'Sagar Parikrama'.
• The Golden Globe Race (GGR) is a solo sailing race around the globe in a yacht.
• It started off on 2018, to celebrate the 50th anniversary of the Sunday Times Golden Globe Race when *Sir Robin Knox-Johnston* became the first person to make a non-stop solo circumnavigation trip.
• The GGR is modeled on the race that took place in 1968. This means that no kind of modern technology like GPS, electronic watches, electronic compass and the like can be used during the trip.

British Academy Book Prize

• India-born author Nandini Das won the 2023 British Academy Book Prize for Global Cultural Understanding, a leading international non-fiction prize.
• The prize was awarded her book '*Courting India: England, Mughal India and the Origins of Empire'.*
• The prize was established in 2013, formerly known as the Nayef Al-Rodhan Prize.
• The prize is open to authors of ***any nationality*** based anywhere in the world and ***working in any language*** provided the nominated work is available in English and published in the UK.

RBI on Rs. 2000 bank notes

• More than 97% of the Rs. 2,000 bank notes have returned on the deadline (October 31, 2023) of circulation withdrawn of Rs. 2,000 bank notes by RBI.
• However, the window for deposit and/or exchange the Rs. 2,000 banknotes continues to be available at the ***19 Issue Offices of RBI***.
• The RBI reiterated that Rs. 2000 bank notes continue to be legal tender.

EdelGive Hurun India Philanthropy List 2023

• Hurun India and EdelGive released the EdelGive Hurun India Philanthropy List 2023.
• Shiv Nadar, founder of HCL Technologies, has retained the top spot as the leading Indian philanthropist.
• The list includes philanthropists who donated more than ***Rs 5 crore*** in the financial year 2023.

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