Prelim Bits 12-09-2021 & 13-09-2021 | UPSC Daily Current Affairs

Battle of Saragarhi

September 12, 2021 marks the 124th anniversary of the Battle of Saragarhi that has inspired a host of armies, books and films, both at home and abroad.

- **Saragarhi** was the communication tower between Fort Lockhart and Fort Gulistan in the North West Frontier Province (NWFP).
- Two forts, now in Pakistan, were built by Maharaja Ranjit Singh but renamed by the British.
- **Battle of Saragarhi was a last-stand battle** fought between the British Raj and Afghan tribesmen (Afridi and Orakzai) in 1897.
- During the Battle, 21 soldiers of 36th Sikhs (now 4 Sikh), led by Havildar Ishar Singh, along with a non-combatant called Daad were pitted against over 8,000 tribals but they managed to hold the fort for 7 hours.
- Queen Victoria awarded to these 21 soldiers the Indian Order of Merit posthumously along with 2 'marabas' (50 acres) and Rs 500 each.

Solar Storm & Internet

A new study has found that solar storms could cause disruption of the internet, damage submarine cables and communication satellites.

A solar storm is an ejection of highly magnetised particles from the sun.

- Previous studies have shown that there is a 1.6 to 2% chance of an extreme space weather event happening within the next decade.
- **Impacts of solar storm** - Longer submarine cables may be susceptible to higher risks.
- At ground level, solar storm-induced geomagnetic variations can cause harm by inducing large currents in networks that can conduct electricity.
- Although fibre-optic internet cables are themselves not conductors, their electronic components can be rendered useless by very strong storms.
- The countries in the lower latitudes are at a much lower risk.
- Also, compared to the US, India is less vulnerable.
- **Protection** - The paper mentions a 'shutdown strategy' that can help minimise the connectivity loss during and after a solar storm impact.
- A temporary Internet shutdown can protect our equipment during a solar event and ensure the continuation of services.

Solar Storm

- Also known as Coronal Mass Ejection, solar storm is an ejection of highly magnetised particles from the sun into space.

- These particles can take about 13 hours to 5 days to reach Earth.
- Earth's atmosphere protects humans from these particles.
- But the particles can interact with our Earth's magnetic field, induce strong electric currents on the surface and affect man-made structures like earth's radio communication, GPS, Power grids and satellite.
- The 1st recorded solar storm occurred in 1859. It affected the telegraph network and many operators experienced electric shocks.

Solar Cycle

- It is the cycle that the Sun's magnetic field goes through every 11 years - **cycles of high and low activity**. It also has a longer 100-year cycle.
- During the last 3 decades, when the internet infrastructure was booming, it was a low activity period of the Sun.
- Either in this cycle or the next cycle, we are going towards the peaks of the 100-year cycle. So, more studies should be done in order to protect our current infrastructure from powerful solar storms.
- To know about the Solar Cycle 25, click here.

Lebanon Crisis

Recently, Lebanon's financial meltdown has swiftly worsened due to fuel shortages.

- Lebanon has spent 30 years slowly recovering from 1975-90 civil war.
- **Economic meltdown** - Over 2 years, 78% of the Lebanese population has fallen into poverty.
- Early in the crisis, Lebanon defaulted on its massive pile of public debt.
- Currency has fallen by more than 90%, demolishing purchasing power in a country dependent on imports. The banking system is paralysed.
- Food prices have jumped by 557% since Oct. 2019 as per the World Food Programme, and the economy has contracted by 30% since 2017.
- There is also a steady brain drain as many of the most qualified have left the country.
- **Security -** Fuel shortages have crippled normal life, affecting essential services including hospitals. Fuel tankers have been hijacked.
- This has led to security issues in southern Lebanon (sectarian standoff between Shi'ite Muslims and Christians) and in northern Lebanon (between rival Sunni Muslim clans).
- **Political deadlock** - Donors have repeatedly promised funds if Lebanon embarks on reforms to address the root causes of the collapse.
- But instead of doing the necessary, Lebanon's sectarian politicians remained at loggerheads over seats in a new government for over a year.
- Gulf monarchies, who have traditionally channelled funds into Lebanon, have been relucant to do so, alarmed by the rising influence of the Iran-backed group.
- There is a need for a proper government to help Lebanon from its crisis.

Netherlands' Nitrogen Crisis

The Netherlands has proposed a plan to slash livestock numbers by 30% by forcing farmers to sell their emission rights and even their land to the state.

> The Netherlands is the biggest meat exporter of the European Union. It has also one of the largest livestock industries in Europe.

- The Netherlands has been battling a “nitrogen crisis” caused by excess nitrogen emissions in the vulnerable natural areas.
- The concern with livestock is that livestock production leads to alarming nitrate pollution of groundwater.
- **Impacts** -The livestock produce manure which, when mixed with urine, releases ammonia (a nitrogen compound).
- This ammonia, via farm runoff, can get into water bodies, in which case the excessive nitrogen will damage sensitive natural habitats.
- Nitrogen can lead to algae that deplete oxygen at the surface of the water.
- Nitrogen in the soil, which is largely attributable to livestock production, leaches to groundwater mainly in the form of nitrate ($NO3-$)
- Run-off and leaching of nutrients from soils and groundwater leads to eutrophication as a result of which nitrogen concentrations exceeds the standard level.
- Moreover, deposition of nitrogen compounds can also affect terrestrial ecosystems through acidification and eutrophication.

According to a UN FAO report, the livestock sector contributes 18% of the global emission of greenhouse gases.

It generates 65% of human-related nitrous dioxide, whose global warming potential is 310 times that of $CO2$.

Dengue

Delhi has reported the highest number of dengue cases since 2018.

- Dengue is a mosquito-borne tropical disease caused by the dengue virus (Flavivirus) transmitted by several species of mosquitoes within the genus Aedes.
- **Symptoms** typically begin three to fourteen days after infection.
- These may include high fever, headache, muscle, and joint pain, and a characteristic skin rash that is similar to measles.
- There are four types of dengue strains, and type II and IV are considered to be more severe and normally require hospitalisation.
- In a small proportion of cases, the disease develops into,
    a. Dengue hemorrhagic fever - A severe dengue resulting in bleeding, low levels of blood platelets and blood plasma leakage, or
    b. Dengue shock syndrome - Dengue resulting in very low BP.
- **Diagnosis** of dengue infection is done with a blood test.
- **Treatment** - Paracetamol is recommended instead of nonsteroidal anti-inflammatory drugs (NSAIDs) for fever reduction and pain relief in dengue due to an increased risk of bleeding from NSAID use.
- Dengue is classified as a neglected tropical disease.
- **Control** - Insectivorous fishes like Gambusia and Guppies can check the spread of mosquito-borne diseases like malaria and dengue.
- The World Mosquito Program has used mosquitoes infected with Wolbachia bacteria to successfully control dengue.

Dengue and chikungunya are caused by the bite of Aedes agypti mosquito, which breeds in clear water.

Malaria is caused by The Anopheles mosquito, which, can breed in both fresh and muddy water.

Source: The Hindu, The Indian Express

SHANKAR
IAS PARLIAMENT
Information is Empowering