

Artificial Light and Malaria

❖ Context

- New research has explored that artificial light might help in controlling malaria.

❖ Malaria Burden

- While the **total number of cases** has declined from about 81.1 cases per 1,000 population to 59 per 1,000 since 2000, there were still an estimated **240 million cases** and **600,000 deaths** in 2020 globally.
- **Africa** carries by far the world's largest disease burden: 94 per cent of cases and 96 per cent of deaths occur across the continent.
- Alarmingly, **children aged five or younger** account for 80 per cent of these deaths.
- There is still a steady rise of **antimalarial drug resistance**, especially in East Africa.
- The parasites are evolving **mutations** which allow them to escape routine diagnosis.
- The mosquitoes are also evolving increased **resistance to insecticides**.

❖ Anopheles Behaviour

- The Anopheles group of mosquitoes is responsible for all of Africa's malaria cases,
- It is a **nocturnal feeder**. After mating, the females will seek out a blood meal.

- In doing so, they transfer the **Plasmodium parasite** which causes malaria.

❖ Use of Artificial Light

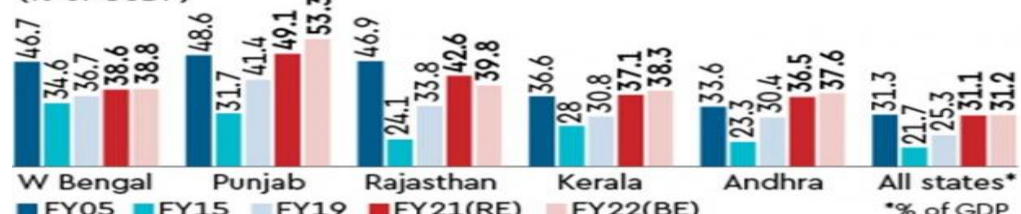
- Light is a **fundamental cue** in nature. It regulates much of the timing of biological events.
- The gene for the **melatonin hormone**, which regulates sleep-awake cycles, is shared between widely different and old taxonomic groups, such as plants and animals.
- However, these **natural dark cycles** are rapidly **changing** because people are increasingly using artificial light.
- **Nearly 80 % of the world's people now live under artificially lit skies.**
- Artificial light at night can change mosquitoes' behaviour and its biology.
- It can delay the onset of **biting** by hours in Anopheles, and so reduce biting rates and malaria transfer.
- The light essentially tricks the mosquitoes into not feeding.

State Finances : A Risk Analysis

❖ Context

- An **RBI article** has highlighted that the fiscal conditions among states in India are showing warning signs of building stress.

States' outstanding liabilities (% of GSDP)



❖ Key Highlights

- Based on the **debt-GSDP ratio in 2020-21**, *Punjab, Rajasthan, Kerala, West Bengal, Bihar, Andhra Pradesh, Jharkhand, Madhya Pradesh, Uttar Pradesh and Haryana* turn out to be the states with the **highest debt burden**.
- These 10 States account for around half of the total expenditure by all State governments in India.
- **Bihar, Kerala, Punjab, Rajasthan, and West Bengal** are highly distressed states among the 10 States.
- For them, the **debt stock is no longer sustainable**, as the debt growth has outpaced their GSDP growth in the last five years.
- The slowdown in own tax revenue, a high share of committed expenditure and rising subsidy burden have stretched state government finances exacerbated by Covid-19.

❖ New Sources Of Risk

- Relaunch of the old pension scheme by some states.
- Rising expenditure on non-merit freebies.
- Expanding contingent liabilities.
- Ballooning overdue of DISCOMs (power distribution companies).

❖ IP-RR Ratio

- The **interest payment to revenue receipts (IP-RR) ratio** is a measure of debt servicing burden on states' revenues.
- In 8 of these states, the ratio was more than 10 %.

❖ Suggested Corrective Measures

- In the medium term, these states need to put efforts towards **stabilising debt levels**.
- Further, **large scale reforms in the power distribution sector** would enable the DISCOMs to reduce losses and make them financially sustainable and operationally efficient.
- In the long-term, **increasing the share of capital outlays in the total expenditure** will help create long-term assets, generate revenue and boost operational efficiency.
- State governments need to **conduct fiscal risk analyses and stress test** their debt profiles regularly to be able to put in place provisioning and other specific risk mitigation strategies to manage fiscal risks efficiently.

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5G Auction

❖ Context

➤ Recently, the Union Cabinet cleared a proposal to auction 72,097.85 MHz of airwaves.

❖ Key Highlights

- A total 72,097.85 MHz of spectrum will be put on auction from July 26.
- **Validity period** - 20 years.
- The auction will be held for **spectrum in the frequencies** of 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1,800 MHz, 2,100 MHz, 2,300 MHz, 3,300 MHz and 26 GHz bands.
- **Auction Process:**
 - Bidders will have to **submit an earnest money deposit** ahead of the auction, on the basis of which each bidder will be **allocated eligibility points**.
 - During the auction, the company will be able to place its bids using these eligibility points.
- **Spectrum Cost:**
 - The entirety of the spectrum is valued at over **Rs 5 lakh crore**.
- **Private Captive Networks:**
 - Captive networks are **isolated networks** in which a **spectrum is assigned to enterprises to be utilized within a limited geographic area**.
 - It is also referred to as a **spectrum for localized or local use**.
 - These networks will **not be accessible to the general public**.
 - The government has cleared the path for tech companies to acquire spectrum directly from it to test and build industry 4.0 applications

❖ About 5G

- 5G or fifth generation is the **latest upgrade in the long-term evolution (LTE) mobile broadband networks**
- It enables a **new kind of network** that is designed to **connect virtually everyone and everything together including machines, objects, and devices**.
- **Internet speeds**- 1 Gbps to 20 Gbps.
- ❖ **Various Bands of 5G**
 - **Low Band:**
 - It will cover **any spectrum that is lower than 1 GHz**.
 - It has shown great promise in terms of coverage and speed of Internet and data exchange.
 - The **maximum speed is limited to 100 Mbps**.
 - **Mid-band spectrum:**
 - It falls **between the 1GHz & 6GHz range**.
 - It offers **higher speeds compared to the low band**, but has limitations in terms of coverage area and penetration of signals.
 - **High-band spectrum:**
 - It falls **very high on the spectrum chart in the 24 GHz band and higher**.
 - The high-band spectrum offers the **highest speed of all the three bands**, but has extremely limited coverage and signal penetration strength.
 - Internet speeds in the high-band spectrum of 5G have been tested to be as high as **20 Gbps**.

Digital News Report 2022

❖ Context

➤ Recently published **The 2022 Reuters Institute Digital News Report** finds that **trust in news is falling** in nearly half the countries surveyed.



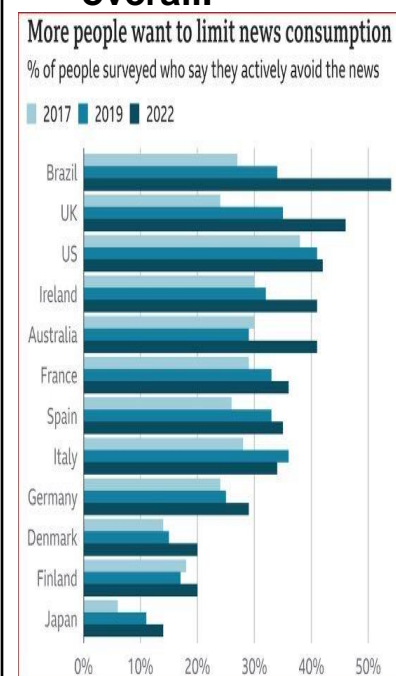
❖ Key Findings

- It flags **six major trends** which could have **wider socio-political implications:**
 1. People are **trusting news content less** and less.
 2. Consumption of traditional news media declined.
 3. The proportion of news consumers who say that they “avoid news” has risen sharply across countries, with the report describing the phenomenon as “**selective avoidance**”.
 4. Despite small increases in the proportion of people willing to pay for online news (mostly in richer countries), the **growth in digital subscriptions for news content seems to be leveling off**.
 5. The **smartphone has become the dominant way** in which most people first access news in the morning.
 6. The report notes that while **Facebook remained the most-used social network for news**, it is **TikTok that has become the fastest-growing network**, with 15% using the platform for news.

❖ About the Trends in India

- India is a **strongly mobile-focussed market**.

- India registered a small increase in the level of trust, with **41% trusting news overall**.



- 84% of the Indian respondents sourced news online, **63% from social media, 59% from television, and 49% from print**.
- **YouTube (53%) and WhatsApp (51%)** were the top social media platforms for sourcing news.

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News in Between the Lines

Prithvi II



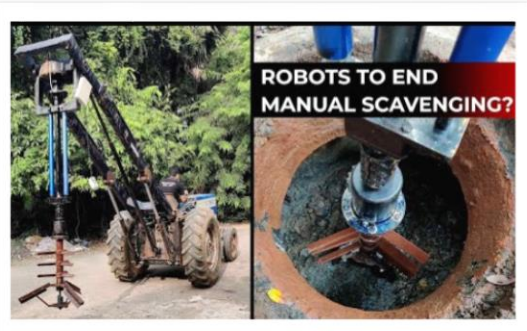
❖ **Context**

➤ India test fired a **nuclear-capable missile** named Prithvi II.

❖ **Key Highlights**

- Prithvi-II is an indigenously developed **surface-to-surface, short-range ballistic missile (SRBM)**. It has a range of around **350 km**.
- It is capable of carrying **500-1,000 kilogram** of warheads and is powered by **liquid propulsion twin engines**.
- The entire launch was carried out by the **Strategic Force Command (SFC)** of the Army and monitored by the scientists of the DRDO as part of a training exercise. Already inducted into the armoury of Indian defence forces in 2003, the nine-metre-tall, single-stage liquid-fuelled "**Prithvi**" is the **first missile to have been developed by the DRDO under the Integrated Guided Missile Development Programme (IGMDP)**.

HomoSEP



❖ **Context**

➤ **IIT Madras** develops HomoSEP robots to end **manual scavenging** that is set for field deployment in **Tamil Nadu**.

❖ **Key Highlights**

- The septic tank is a poisonous environment, filled with semi-solid and semi-fluid human faecal material making up two-thirds of the tank.
- Hundreds of deaths are reported every year across India, due to manual scavenging in septic tanks despite bans and prohibitory orders.
- The HomoSEP Robot can homogenise the hard sludge in septic tanks through custom-developed rotary blade mechanism and pump the tank slurry using an integrated suction mechanism.

Loss and Damage Finance Facility (LDFF)



❖ **Context**

➤ The push for the facility has been made by the developing countries at **Glasgow Dialogue** which has commenced in Bonn, Germany.

❖ **Key Highlights**

- Despite not being on the formal agenda of the Bonn conference, discussions and consultations on L&D were peppered under civil society pressure.
- The **Group of 77 and China (G77+China)** negotiating bloc had united in their demand for a **LDFF at the CoP 26 to UNFCCC at Glasgow** last year.
- The bloc represents more than 80 % of the world's population.
- The demand was then pushed back by developed countries such as the United States and Switzerland. The facility was watered down to a compromise: To have a "**dialogue**" on future possible institutional arrangements to address **L&D**.

❖ **What is L&D**

- **Loss & Damage (L&D)** refers to **impacts that communities are facing due to the climate crisis today** through displacement or destruction of their livelihoods - **impacts that even climate adaptation cannot address**.
- Financing for this can be seen as climate reparations, paid by historical emitters of carbon dioxide emissions, in accordance with the '**polluter pays**' principle.
- **Article 8 of the Paris Agreement** acknowledges L&D, stating: Parties recognise the importance of averting, minimising and addressing L&D associated with the adverse effects of climate change.
- According to experts, L&D finance must be grant-based so that countries are not further indebted by a crisis they contributed little to.

❖ **Stance of Developed Countries**

- While developed countries like Australia, New Zealand and Canada appeared to soften their stance, **US and the European Union remained resolute in blocking the agenda item**.
- Developed countries like Switzerland are insisting that **they make large contributions** to the International Red Cross as well as other forms of **development and humanitarian aid**.

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Bharat Gaurav Train



- They are also not comfortable with language around compensation and reparations. So, when Article 8 recognised loss and damage within the Paris Agreement, it was a compromise made that liability and compensation was not included.

❖ Context

- Recently, the **Indian Railways' southern zone** flagged off the **country's first privately-run train** under the **Bharat Gaurav Scheme**.

❖ Key Highlights

- **Route of the Train:** Coimbatore North to Sainagar Shirdi.
- **Operator:** **South Star Rail** is the registered service provider that operates.
- **Facilities:** It has **One first AC coach, Three 2 Tier AC coaches and Eight 3-tier coaches** along with five sleeper class coaches.
 - There will also be a **doctor** on board to attend any emergency along with **private security** engaged along with the Railway Police Force.

❖ Bharat Gaurav Policy

- **About:** According to this policy, any operator or service provider, or virtually anyone, can **lease trains from Indian Railways** to run on a **theme-based circuit as a special tourism package**.
 - The operator has the **freedom to decide the route, the halts, the services provided**, and, most importantly, **the tariff**.
 - In such packaged tours, typically the passengers stop over at a place, stay at hotels, undertake sightseeing, etc. All organized by tour operators.
- **Tenure of the Arrangement:**
 - Minimum of two years and maximum of the codal life of the coach.

Black Death



❖ Context

- Recently, In a study published in the journal Nature, **researchers have claimed that the disease originated in modern day northern Kyrgyzstan around 1338-1339.**

❖ About Black Death

- The term Black Death refers to the **bubonic plague** that **spread across Western Asia, Northern Africa, Middle East and Europe in 1346-53.**
- It is commonly believed that the term **Black Death gets its name from the black marks** that appeared on some of the plague victims' bodies.
- **Transmission:** It was **caused by bacterium Yersinia pestis** and was spread by fleas that were carried by rodent hosts.
 - The microorganism *Y. pestis* **spread to human populations**, who at some point transmitted it to others **either through the vector of a human flea or directly through the respiratory system.**
- **Symptoms:** The onset of symptoms was followed by **intense fever and vomiting of blood.** After the initial infection, most victims died within 2-7 days.

Aapki Zameen Aapki Nigrani (AZAN)



❖ Context

- In Jammu and Kashmir, the Union Territory Administration is running a unique programme '**Aapki Zameen Aapki Nigrani**' (**AZAN**).

❖ Key Highlights

- It was **launched to enhance transparency in the land records maintenance system.** The initiative is aimed at **facilitating easy online access to the system to view or monitor the status of revenue records.**
- Citizens **no longer need to visit the offices** for obtaining information about their land.
- According to official data, 7.70 crore pages of Revenue records and 55,216 Musavi (maps) have been scanned as part of the AZAN implementation in the Union Territory. Besides, 3,895 Ground Control Points have also been established, and a **Web-based Enterprise Geo-Information System (GIS) developed under the programme.**
- The UT Administration has set the **15th of August as the deadline** for completion of the process.

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