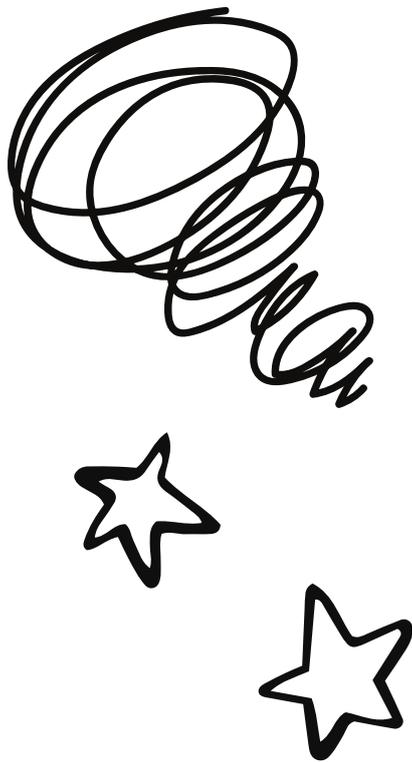


OFFICERS' PULSE

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ONE DAY OR
DAY ONE, YOU
DECIDE

AT A GLANCE
& IN DEPTH.

COVERAGE.

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News @ a glance

POLITY

1) Commission for Air Quality Management in NCR

About the Commission

- The **Commission for Air Quality Management in the National Capital Region and Adjoining Areas Act, 2021**, was recently passed by the Parliament. It replaces the Commission for Air Quality Management in the National Capital Region and Adjoining Areas Ordinance.

What is the Act all about?

- The monitoring and management of air quality in the Delhi-NCR region has been done in pieces by multiple bodies, including the Central Pollution Control Board (CPCB), the state pollution control boards, the state governments in the region, including Delhi, Haryana, Uttar Pradesh, and Rajasthan, and the Environment Pollution (Prevention and Control) Authority (EPCA) of the National Capital Region.
- They, in turn, are monitored by the **Union Ministry of Environment and Forests and Climate Change (MoEF)**, and the **Supreme Court** which monitors air pollution as per the judgment in '**M C Mehta vs Union of India**' case in 1988.
- The Act, however, seeks to create an overarching body - **Commission for Air Quality Management in National Capital Region and Adjoining Areas** - to consolidate all monitoring bodies, and to bring them on one platform so that air quality management can be carried out in a more comprehensive, efficient, and time-bound manner.
- The Centre also seeks to **relieve the Supreme Court from having to constantly monitor pollution levels through various cases.**

What will the new commission replace?

- Apart from consolidating all agencies that monitored, investigated and planned mitigation of air pollution in the region, the

commission has **replaced the Supreme Court-appointed Environment Pollution (Prevention and Control) Authority (EPCA)** which had been running for 22 years.

- Over the years, the EPCA's powers had been waning. While dissolving the body, the Centre felt that the EPCA had become redundant and had been ineffective in addressing issues related to air pollution. The EPCA also **did not have penal provisions that the commission will now have.**

What are the powers of the commission?

- The Commission is the **most powerful air pollution monitoring body set up by the Centre to date.** The rulings by the commission on air pollution will **override anything contained in any other law.**
- The powers of the commission will also **supersede that of any other body in matters of air pollution.** Therefore, in cases where conflict may arise between orders or directions issued by the other state governments, state pollution control boards or even the Central Pollution Control Board, the **orders of the commission will prevail.**
- The Commission will have the power to **take measures, issue directions and entertain complaints "for the purpose of protecting and improving the quality of air in the National Capital Region".**
- It will also coordinate action taken by states on air pollution and will lay down parameters for air quality and emission or discharge of environmental pollutants. It will also have **powers to restrict industries** in any area, **carry out random inspections** of any premises including factories and be able to **close down an industry or cut its power and water supply** in case of non-compliance.

- It will also be **monitoring the measures taken by the states to prevent stubble burning.**

What will be the composition of the commission?

- The Commission will be headed by a **full-time chairperson** with experience of not less than 15 years in the field of environmental protection and pollution control or having administrative experience of not less than 25 years.
- The **members of the commission** will also comprise of an official from the Environment Ministry, five ex-officio members who are either chief secretaries or secretaries from Delhi, Punjab, Haryana, Rajasthan and Uttar Pradesh, one full-time member who is or has been a joint secretary, three full-time independent technical members who are experts in air pollution, one technical member each from the Central Pollution Control Board and Indian Space Research Organisation, three members from non-governmental organisations who deal in air pollution and one representative of the National Institution for Transforming India.
- The commission will also have **three members**, being stakeholders from sectors such as agriculture, industry, transport or construction apart from representatives of several ministries, including Road Transport and Highways, Power, Housing and Urban Affairs, Petroleum and Natural Gas, Agriculture and Farmers' Welfare, Commerce and Industry. There will also be

representatives of any association from the commerce or industry sector.

- The Chairperson and members of the Commission will have a tenure of **three years or till the age of seventy years**, whichever is earlier, and shall be eligible for re-appointment.
- The commission will have at least **three sub-committees** —monitoring and identification, safeguarding and enforcement, and research and development.
- The Act further says that **no civil court** will have jurisdiction to entertain any suit, proceeding or dispute pertaining to or arising out of the actions taken or directions issued by the commission and that **orders of the commission can only be contested before the National Green Tribunal.**

Why in News?

- In view of the fact that dust emanating from Construction & Demolition (C&D) sites is a major consistent source of air pollution, the Commission for Air Quality Management in NCR and Adjoining Areas has directed the Government of National Capital Territory of Delhi (GNCTD) and State Governments of Haryana, Rajasthan and Uttar Pradesh (U.P.) for strict compliance of dust mitigation measures at C&D sites.
- Following the directions of the Commission, dedicated teams were deployed in the states to inspect Construction and Demolition sites.

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ENVIRONMENT

1) Africa's Glaciers to Disappear soon: Report

What's the news?

- A new report from the **World Meteorological Organization and other agencies** has noted that **Africa's 1.3 billion people** remain "extremely vulnerable" as the continent warms more, and at a faster rate, than the global average and yet Africa's 54 countries are responsible for less than **4% of global greenhouse gas emissions**.

News in detail

- The new report seizes on the **shrinking glaciers of Mount Kilimanjaro, Mount Kenya and the Rwenzori Mountains in Uganda** as symbols of the rapid and widespread changes to come.
- Their current retreat rates are higher than the global average and If this continues, it will lead to **total deglaciation by the 2040s**.
- Estimates of the economic effects of climate change vary across the African continent, but in sub-Saharan Africa, climate change could further **lower gross domestic product by up to 3% by 2050**.
- By **2030**, up to 118 million extremely poor people, or those living on less than \$1.90 a day, will be exposed to **drought, floods and extreme heat** in Africa if adequate response measures are not put in place.
- Already, the UN has warned that the Indian Ocean island nation of **Madagascar** is one where famine-like conditions have been driven by climate change while parts of South Sudan are seeing the worst flooding in almost 60 years.
- Overall, Africa will need investments of over **\$3 trillion in mitigation and adaptation** by 2030 to implement its national climate plans, requiring significant, accessible and predictable inflows of conditional finance.
- The cost of adapting to climate change in Africa will rise to **\$50 billion per year by 2050**, even assuming the international efforts to keep global warming below 2 degrees Celsius.

2) India more Vulnerable to Heat Extremes: Lancet Report

What's the news?

- The 'Lancet Countdown on Health and Climate Change', a flagship report of the medical journal *The Lancet*, highlights that **India has become 15% more vulnerable to extremes of heat than in 1990**.

News in detail

- The report notes that **295 billion hours of potential work were lost** across the globe in 2020 due to heat exposure.
- The three most populous countries in the medium-HDI (Human Development Index) group (**Pakistan, Bangladesh and India**) had the **greatest losses** among this group (2.5-3 times the world average and the equivalent to 216-261 hours lost per employed person in 2020).
- In 2020, the elderly (over 65) were affected by **3.1 billion** more days of heatwave exposure, compared to the 1986-2005 baseline average. **Chinese, Indian, American, Japanese and Indonesian senior citizens** were the most affected.
- Between 2018 and 2019, **India and Brazil** had the biggest absolute increase in **heat-related mortality**.
- The economic losses of climate-related extreme events were **three times higher** in medium-HDI countries than they are in very high HDI countries while **South-East Asia** was the only region with **increasing air pollution mortality** costs between 2015 and 2019, relative to GDP.
- The report tracks **44 indicators of health impacts** that are directly linked to climate change and shows key trends are getting worse and exacerbating already existing health and social inequities.
- The report shows that populations of 134 countries have experienced an **increase in exposure to wildfires** and Millions of farmers and construction workers could have lost income because on some days it's just too hot for them to work.

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ECONOMY

1) Sovereign Gold Bonds Scheme

About the Scheme

- **Sovereign Gold Bonds (SGBs)** are bonds that are issued **by the RBI on behalf of the Government** on payment of rupees but **denominated in grams of gold**.
- The **value of these bonds is tied to the value of gold**. On redemption, the **investor gets interest income and the prevailing price of gold**.
- These bonds are thus different from usual Government securities (G-secs) as the redemption value at the time of maturity is not a fixed sum, but linked to the price of an underlying commodity called gold.
- **It seeks to encourage people to buy gold bonds instead of actual gold.**

Features

- The Bonds will be sold through Scheduled Commercial banks (except Small Finance Banks and Payment Banks), Stock Holding Corporation of India Limited (SHCIL), designated post offices, and recognised stock exchanges viz., National Stock Exchange of India Limited and Bombay Stock Exchange Limited.
- The Bonds are denominated in **units of one gram of gold and multiples thereof**.
- **Minimum investment in the Bond shall be one gram with a maximum limit of subscription of 4 kg for individuals, 4 kg for Hindu Undivided Family (HUF) and 20 kg for trusts** and similar entities notified by the government from time to time per fiscal year.
- The Bonds will be repayable on the **expiration of eight years** from the date of issue.
- **Premature redemption** of the Bond is allowed from the **fifth year** of the date of issue on the interest payment dates.
- The investment in the Bonds will be eligible for **Statutory Liquidity Ratio (SLR)** compliance by banks.
- These bonds can also be used as **collateral** for loans.
- The interest on Gold Bonds shall be **taxable as per the provision of Income Tax Act, 1961**. The **capital gains tax** arising on

redemption of SGB to an individual has been **exempted**.

Advantages and disadvantages

- **To the Investor**
- The advantages to the investor in investing in SGB instead of gold are the following:
 1. **Interest earnings** on an otherwise dead asset;
 2. Ease of storage and handling gold, while preserving its advantage of earnings in terms of appreciation of its prices in future;
 3. An **alternate instrument for investment**;
- The only possible disadvantage to the investor is that, while in the event of appreciation of the price of gold, the investor gains, however, in the event of a **fall in gold prices, the loss too will be borne by the investor**.

To the Economy

- The advantages to the Government and the economy are the following:
 1. **Reduction in the cost of Government's borrowings**- the current borrowing cost from the domestic market is around 7-8 per cent. Thus, an interest payment below this level is a yearly saving for the Government on account of its borrowing cost. This difference can be used by the Government to cover the appreciation of gold prices payable to the investors at the time of redemption.
 2. A decrease in the price of the gold will be a gain for the Government.
 3. It will **reduce the demand for physical gold** to some extent and thus helps in **reducing the annual demand for import of gold**.
 - The possible disadvantage to the Government will be in the event of a **substantial increase in gold prices**.
 - For this, the scheme proposes the creation of a **Gold Reserve Fund** which will absorb the price fluctuations and the fund will be continuously monitored for sustainability. Further, the issuance of the SGBs will be in tranches to enable the Government to maintain its issuance within its yearly borrowing limits.

Why in the news?

- The Government of India, in consultation with the Reserve Bank of India, has decided to issue four tranches of Sovereign Gold Bonds from October 2021 to March 2022.

2) What is the extent of India's coal crisis?

Background

- India could be on the verge of a power crisis as the stock of coal held by the country's thermal power plants has hit critically low levels. India's thermal power plants currently have an average of four days worth of coal stock against a recommended level of 15-30 days, with a number of states highlighting concerns about blackouts as a result of the coal shortage.

Coal Dependency

- **India relies on coal to meet over 70% of its power needs, and Coal India Limited** (an Indian government-owned coal mining and refining corporation) **supplies over 80% of the total coal.** The current coal crisis comes amid a broader energy crisis across the world with the prices of natural gas, coal and oil rising sharply in the international market.

What has caused it?

- The current crisis in the availability of coal has been the result of **dull domestic production and a sharp drop in imports** over the last few years. Stagnating supply did not cause trouble last year with the economy shut down to tackle the COVID-19 pandemic. But the rise in power demand this year has resulted in the shortage.
- Many factors have been blamed for the insufficient supply of coal this year. These include **short-term issues** like flooding in coal-mining areas, transport issues, labour disruptions in major coal-mining countries and the sudden rise in power demand as the economy revives from the pandemic.
- But it should be noted that **deeper structural problems** have plagued the power industry in general for long. **Populist politics** has ensured that the **price that many consumers pay for power is not commensurate with the production costs.** It has **increased the debt burden on public sector**

distribution companies as they have not been compensated for the losses they incur while selling power at subsidised rates.

- According to the credit rating agency ICRA, the consolidated debt of public sector distribution companies is expected to hit **₹ 6 trillion in FY22.**
- It should also be noted that the mining of raw materials such as coal is **nearly monopolised by public sector companies** like Coal India Limited (CIL) that are **not run primarily for profits.** In fact, CIL has kept the price of its coal low even as international prices have risen significantly this year. It has also been forced to share some of the pain of power generation and distribution companies.
- According to the government, indebted power generators and distributors owe over ₹21,000 crore to CIL. So, overall, there is **very little financial incentive that major producers across the supply chain, including miners, possess to ramp up production.**

What lies ahead?

- In recent years, many countries have been trying to cut down on their fossil fuel consumption in order to meet emission targets. But with the current energy crunch, which is prevalent not just in India, **fossil fuels are likely to make a strong comeback.** India and China, the top two consumers of coal in the world, are expected to further increase production of fossil fuels.
- The Indian government has been pushing CIL to ramp up production to meet the rising demand and cut down on the country's reliance on imported coal. However, it is expected to **ease restrictions on imported coal** in the near future to tide over the crisis.
- Structural problems that have plagued the Indian power industry, however, are unlikely to be resolved anytime soon. Allowing the price that consumers pay for power to be **determined by market forces** is likely to remain politically unpopular, so fundamental pricing reform is unlikely.
- But with coal selling at high prices in the international market and CIL unable to meet production targets, **many power generators may be unable to increase**

their output unless they are allowed to price their output freely.

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INTERNATIONAL RELATIONS

1) NAM Summit

About the NAM

- The Non-Aligned Movement was formed during the Cold War as an organization of States that did not seek to formally align themselves with either the United States or the Soviet Union, but sought to remain independent or neutral.
- NAM was officially founded in 1961, at the **Belgrade Summit**, drawing on the principles (also known as **Bandung Principles**) agreed at the Afro-Asian Conference held in Bandung, Indonesia in 1955.
- Such principles were adopted later as the main goals and objectives of the policy of non-alignment. The fulfillment of those principles became the essential criterion for Non-Aligned Movement membership.
- The ten principles of Bandung are followings:
 1. Respect of fundamental human rights and of the objectives and principles of the Charter of the United Nations.
 2. Respect for the sovereignty and territorial integrity of all nations.
 3. Recognition of the equality among all races and of the equality among all nations, both large and small.
 4. Non-intervention or non-interference into the internal affairs of another -country.
 5. Respect the right of every nation to defend itself, either individually or collectively, in conformity with the Charter of the United Nations.
 6. Non-use of collective defense pacts to benefit the specific interests of any of the great powers. Non-use of pressures by any country against other countries.
 7. Refraining from carrying out or threatening to carry out aggression, or from using force against the territorial integrity or political independence of any country.
 8. Peaceful solution of all international conflicts in conformity with the Charter of the United Nations.
 9. Promotion of mutual interests and of cooperation.
 10. Respect of justice and of international obligations.

- India is one of the **founding members** of the NAM.
- The following are considered to be the founding fathers and historic leaders of the Movement: Joseph Broz Tito (President of Yugoslavia), Gamal Abdel Nasser (President of Egypt), Jawaharlal Nehru (Prime Minister of India), Sukarno (President of Indonesia), and Kwame Nkrumah (President of Ghana).

Why in News?

- India participated in the High-Level Meeting to mark the 60th Anniversary of Non-Aligned Movement NAM in Belgrade, Serbia.

2) IMF warns against adoption of Cryptocurrencies

About Cryptocurrencies

- A **cryptocurrency** is a **digital asset designed to work as a medium of exchange** that uses strong cryptography to **secure financial transactions**, control the creation of additional units and verify the transfer of assets.
- It is a **digital representation of value** that can be digitally traded and functions as a medium of exchange but, unlike fiat currency like the rupee, **it is not legal tender** and does **not have the backing of a government**.
 1. *Fiat money is a currency that lacks intrinsic value and is established as a legal tender by government regulation.*
 2. *'Legal tender' is the money that is recognised by the law of the land, as valid for payment of debt. It must be accepted for discharge of debt.*
- Blockchain technology **enables the existence of cryptocurrencies** (among other things). This technology has been **exploited by the crypto currencies such as Bitcoin, Ripple, Litecoin** etc as blockchain data is secured using cryptography.

Why in News?

- The International Monetary Fund (IMF) has warned against the adoption of Cryptocurrency, saying it **can threaten financial stability of emerging markets**. According to the IMF, Crypto currency

poses new challenges to financial stability and consumer protection risks remain substantial given limited or inadequate disclosure and oversight.

- The total market value of all the crypto assets surpassed 2 trillion dollars as of September 2021, a 10-fold increase since early 2020.
- IMF's financial experts said, **anonymity of crypto assets also creates data gaps for regulators and can open unwanted doors for money laundering, as well as terrorist financing.** Although authorities may be able to trace illicit transactions, they **may not be able to identify the parties to such transactions.**
- Additionally, the crypto ecosystem falls under different regulatory frameworks in different countries, **making coordination more challenging.**

About IMF

- The International Monetary Fund was conceived in 1944 at the **United Nations**

Bretton Woods Conference in New Hampshire, United States.

- The IMF and the World Bank are called **Bretton Woods twins.**
- The IMF is a permanent observer at the UN.
- It is an organization of 190 countries. **India is a founder member** of the IMF.
- The mandate of the IMF as follows:
 1. To promote international monetary cooperation;
 2. To facilitate the expansion and balanced growth of international trade;
 3. To promote exchange stability;
 4. To assist member countries in correcting maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity;
 5. To assist in the elimination of foreign exchange restrictions which hamper the growth of world trade.

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SCIENCE AND TECHNOLOGY

1) Prostate Cancer

Why in News:

- Researchers at the Indian Institute of Technology (IIT), Kanpur, have discovered that a particular **gene (DLX1)** which plays an important **role in the development of jaws, skeleton, and interneurons in the brain** has an important **role to play** in the growth and **development of prostate cancer**.

What is prostate cancer?

- **Prostate cancer** is cancer that **occurs in the prostate**.
- The prostate is a small walnut-shaped gland in males that produces the seminal fluid that nourishes and transports sperm.

What did they find?

- The **DLX1 protein** is found at **elevated levels in prostate cancer patients**, the reason why the DLX1 protein has been used as a urine-based biomarker.
- Researchers have found that the DLX1 protein, which is expressed at higher levels in the prostate cancer cells, has a huge role in the growth and development of the tumour and the spread of the cancer to other organs in the body (metastasis).

India and cancer

- **Cancer** continues to be one of the top causes of adult illness and mortality worldwide, including in India, attributable to chronic and non-communicable diseases (NCD).
- Cancer is the **second biggest cause of death worldwide**, according to the World Health Organization (WHO), with roughly **18 million** cases reported in **2018**, **1.5 million** of which were **in India alone**.
- The report said that **one in 10 Indians will develop cancer** during their lifetime, and **one in 15 Indians will die of cancer**.

Initiatives

- **Under the National Health Mission, the National Programme for the Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS)** is being implemented. The main components include raising cancer prevention awareness, screening, early

detection, and referral to an appropriate treatment facility.

- The **National Tobacco Control Program** was established to raise awareness about the harmful consequences of tobacco use and to reduce tobacco demand and supply.
- To satisfy the financial demands of cancer treatment, the **Rashtriya Arogya Nidhi (RAN)** was established.
- **National Cancer Grid (NCG)** is an Indian network of major cancer centres, research institutes, patient groups, and charitable institutions with the mission of establishing uniform patient care standards for cancer prevention, diagnosis, and treatment, providing specialised training and education in oncology, and facilitating collaborative basic, translational, and clinical research in cancer.
- **Tertiary Care for Cancer' initiative** to establish individual institutions in each state.

2) Lucy

What is it?

- **Lucy** is a **NASA spacecraft** on a 12-year quest to explore eight asteroids.
- Lucy's \$981 million mission is the **first to aim for Jupiter's so-called Trojan entourage**: thousands of **asteroids** that share the **gas giant's expansive orbit** around the sun.
- Some of the Trojan asteroids precede Jupiter in its orbit, while others trail it.

Mission details

- The **mysterious space rocks** are among swarms of asteroids sharing Jupiter's orbit, **thought to be the pristine leftovers of a planetary formation**.
- The **spacecraft also carries a disc made of lab-grown diamonds** for one of its science instruments.
- **Lucy is named after the 3.2 million-year-old skeletal remains of a human ancestor found in Ethiopia** nearly a half-century ago.

Why in News?

- NASA has launched the Lucy mission recently.

3) Non-transgenic gene editing

What is it?

- **Genome editing technology** enables **genetic engineering** where **DNA is replaced, deleted or inserted** in the genome of a living organism
- **Transgenics** describes the process of **introducing foreign DNA** into a host organism's genome.
- **Non-transgenic gene editing does not involve** inserting any **foreign DNA**.
- Scientists at the Indian Agricultural Research Institute are in the **process of developing resilient and high-yield rice varieties using non-transgenic gene editing techniques**, which have already been approved by many countries, and they hope to have such rice varieties in the hands of the Indian farmers by 2024.
- However, the **proposal** for Indian regulators **to consider this technique as equivalent to conventional breeding methods** (since it does not involve inserting any foreign DNA) has been **pending with the Genetic Engineering Appraisal Committee** for almost two years.
- The Institute has now moved to **newer technologies such as Site Directed Nuclease (SDN) 1 and 2**. They aim to **bring precision and efficiency** into the breeding process **using gene editing tools such as CRISPR** (whose developers won the Nobel Prize for Chemistry in 2020).
- Unlike the **older GM(Genetic Modification) technology** which involves the **introduction of foreign DNA**, the **new proposal involves the use of gene editing tools to directly tweak the plant's own genes** instead.

Advantages Non-transgenic gene editing

- **When a protein comes from an outside organism**, then you **need to test for safety**. But in this case, this protein is right

there in the plant, and is being changed a little bit, just as nature does through mutation.

- **Much faster and far more precise than natural mutation or conventional breeding methods** which involve trial and error and multiple breeding cycles. It is **potentially a new Green Revolution**.
- A research coalition under the Indian Council of Agricultural Research (ICAR), which includes the IARI, is using these techniques to **develop rice varieties** which are **drought-tolerant, salinity-tolerant and high-yielding**.
- The **U.S., Canada, Australia and Japan** are among the countries which **have already approved the SDN 1 and 2 technologies** as not similar to GM, so such varieties of rice **can be exported without any problem**.
- The **European Food Safety Authority** has also submitted its **opinion that these technologies do not need the same level of safety assessment as conventional GM**.

Why in News:

- The Centre is yet to decide on the Non-transgenic gene editing proposal from scientists.

Usual Genome Editing Technologies

- **CRISPR- Cas9**
- **Homing endonucleases or meganucleases**
- **Zinc-finger nucleases (ZFNs)**
- **Transcription activator-like effector nucleases (TALENs)**
- *To read more about CRISPR-Cas 9, applications, associated laws-*

<https://officerspulse.com/crispr-cas-9/>

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DEFENCE

1) Yudh Abhyaas

Why in News?

- The 17th edition of the **India-U.S. bilateral exercise, Yudh Abhyas 2021**, was held recently at the Joint Base Elmendorf Richardson, Alaska, U.S.

About the exercise

- Exercise Yudh Abhyas is the **largest running joint military training and defence cooperation endeavour between the two countries**.
- The exercise aims at enhancing understanding, cooperation and interoperability. It focused on combined arms manoeuvres in cold climatic conditions and is primarily aimed at sharing tactical level drills and learning best practices from each other
- This is the **only India-U.S. service exercise continuing in bilateral format**.

Other Military Exercises with US

- **Exercise Malabar:** It was **started** in 1992 as a bilateral exercise between the Indian and the **US navies**. The India-U.S. Malabar naval exercise **became trilateral with the addition of Japan in 2015** and further **brought in all the Quad partners** together with the **inclusion of Australia in 2020**.
- **Exercise Tiger Triumph-** **Tri-service military** exercise between India and the US. It is the first tri-service military exercise between the two countries
- **Exercise Cope India:** It is a series of **bilateral Air Force exercises** between **India and the United States**. **Japan joined** the India-U.S. bilateral air exercise, Cope India, as an **Observer in 2018** and the plan is to make it trilateral in phases.
- **Exercise Vajra Prahar:** It is a **Special Forces joint military training exercise**. It has been conducted alternately in India and the US since 2010.

2) Hypersonic Missile

What is meant by hypersonic?

- **Hypersonic speeds** are those which are **five times or more than the speed of sound**.
- **Mach number** is a ratio of the speed of a body (aircraft) to the speed of sound in the

undisturbed medium through which the body is traveling. It is said that the aircraft is flying at Mach 1 if its speed is equal to the speed of sound in air (which is **332 m/s**)

- **Most of the hypersonic vehicles** primarily **use the scramjet technology** (type of **Air Breathing propulsion System**). This extremely **complex technology**, which also **needs to be able to handle high temperatures**, makes the hypersonic systems extremely costly.
- They can travel much **faster than current nuclear-capable ballistic and cruise missiles at low altitudes**, can switch direction in flight and **do not follow a predictable arc like conventional missiles**, making them much **harder to track and intercept**.
- The **air pressure in front of the weapon forms a plasma cloud** as it moves, **absorbing radio waves** and making it **practically invisible to active radar systems**.

There are two types of hypersonic vehicles

- **Hypersonic cruise missiles:** These are **cruise missiles that use rocket or jet propellant** to fly and are **considered to be faster versions of existing cruise missiles**. This type of missile **reaches its target with the help of a high-speed jet engine** that allows it to travel at **extreme speeds, in excess of Mach-5**. It is **non-ballistic** – the **opposite of traditional Intercontinental Ballistic Missiles (ICBM)** which utilises gravitational forces to reach its target.
- **Hypersonic Glide Vehicle (HGV):** These **missiles take a normal rocket into the stratosphere** before being launched at their target. This type of hypersonic missile **utilises re-entry vehicles**. Initially, the **missile is launched into space** on an arching trajectory, where the **warheads are released** and **fall towards the atmosphere at hypersonic speeds**. Rather than leaving the payload at the mercy of gravitational forces – as is the case for traditional ICBMs – the **warheads are attached to a glide vehicle which re-enters the atmosphere**, and through its

aerodynamic shape it can **ride the shockwaves** generated **by its own lift** as it **breaches the speed of sound**, giving it **enough speed to overcome existing missile defence systems**. The glide vehicle surfs on the atmosphere between 40-100km in altitude and reaches its destination by leveraging aerodynamic forces.

1. Only the **U.S., Russia and China** were **developing hypersonic glide vehicles** that are launched on rockets and then orbit the earth at their own speed.
2. They are **difficult to track** because **unlike ballistic missiles, they do not follow the fixed parabolic trajectory**.

India and hypersonic technology

- Recently, the **hypersonic air-breathing scramjet technology (HSTDV)** was successfully demonstrated by the Defence Research and Development Organisation (DRDO).

HSTDV

- It is an **unmanned scramjet demonstration aircraft** that can travel at **hypersonic speed (Mach 6)**.
- It **uses hypersonic air-breathing scramjet technology**.
- **India became the fourth country** to have demonstrated this technology after the **USA, Russia and China**
- Due to its high speed, **most radars will be unable to detect it**. It will also be able to **penetrate most missile defence systems**.
- It can be used to **launch satellites at low cost & as a carrier vehicle** for long range cruise missiles
- An **advanced Hypersonic Wind Tunnel (HWT) test facility** of the DRDO was inaugurated in Hyderabad. It is a **pressure vacuum-driven, enclosed free jet facility that simulates Mach 5 to 12**.

Scramjet Engine

- **Air-breathing engines use oxygen** from the atmosphere in the **combustion of fuel**. They include the **turbojet, turboprop, ramjet, and pulse-jet**.
- **Ramjet**: A ramjet is a **form of air-breathing jet engine** that **uses the vehicle's forward motion to compress incoming air for combustion** without a rotating compressor. Ramjets **work most efficiently at supersonic speeds** but they are **not efficient at hypersonic speeds**.

- Vehicles that fly at supersonic speeds are flying faster than the speed of sound.
- **Scramjet**: A scramjet engine is an improvement over the ramjet engine as it efficiently operates at hypersonic speeds and allows supersonic combustion.

Why in News?

- China's military has carried out its first-ever test of a nuclear capable hypersonic missile.

3) Konkan Shakti 2021

What's in the news?

- The United Kingdom (UK) and India have launched "Konkan Shakti 2021".
- Konkan Shakti 2021 is the **first-ever tri-services joint exercise between India and the UK**.
- The exercise and visit of UK's Chief of Defence Staff is yet another marker of India's **growing defence collaboration** with global military powers by conducting such war games to better understand each other and **improve their interoperability**.

Other Military Exercises with the UK

- **Ajeya Warrior- Joint Military Exercise** to develop interoperability and sharing expertise with friendly foreign nations.
- **Exercise Indradhanush- Air Force** provides a platform for the air forces of both the countries to share and jointly validate strategies and tactics to counter terror threats to their installations

4) Heron

What is it?

- Developed by the **Israel Aerospace Industries (IAI)**, the **Heron**, also known as Machatz-1, is a **Medium Altitude Long Endurance (MALE) UAV**.
- **Unmanned Aerial Vehicle (UAV)**, popularly known as **Drone**, is an **airborne system or an aircraft operated remotely by a human operator or autonomously by an onboard computer**.

Why in News:

- The Indian army has deployed UAV Heron along the LAC due to increased Chinese presence.

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PIB ANALYSIS

1) Geospatial Energy Map of India

What's in the news?

- NITI Aayog has recently launched the Geospatial Energy Map of India. The map attempts to **identify and locate all primary and secondary sources of energy and their transportation networks** to provide a comprehensive view of energy production and distribution in a country.
- **NITI Aayog in collaboration with the Indian Space Research Organisation** has developed the comprehensive Geographic Information System Energy Map.
- The GIS map provides a holistic picture of all energy resources of the country which enables visualisation of energy installations such as conventional power plants, oil and gas wells, petroleum refineries, coal fields and coal blocks, district-wise data on renewable energy power plants and renewable energy resource potential.

2) AIM: Fostering Innovation

Atal Innovation Mission

- The Atal Innovation Mission (AIM) is a flagship initiative set up by the **NITI Aayog** to **promote innovation and entrepreneurship** across the length and breadth of the country.
- AIM's objective is to develop new programmes and policies for fostering innovation in different sectors of the economy, provide platform and collaboration opportunities for different stakeholders, create awareness and create an umbrella structure to oversee the innovation ecosystem of the country.

Initiatives under Atal Innovation Mission

Atal Tinkering Labs - at School Level

- AIM has launched the establishment of thousands of Atal Tinkering Labs enabling students from **grade 6 to grade 12** to have access to and tinker with innovative tools and technologies like 3D printers, robotics, miniaturised electronics do-it-yourself kits, thus stimulating a problem solving innovative mindset to solve problems in the community they are in.

Atal Incubators at Universities, Institutions, Industry Level

- To promote creation of a supporting ecosystem for start-ups and entrepreneurs, AIM has been establishing world-class incubators called Atal Incubation Centres (AICs) in universities, Institutions, corporates, etc. that would foster innovative start-ups and become scalable and sustainable enterprises.

Atal Community Innovation Centres - Serving Unserved and Under-Served Regions of India

- To promote the benefits of technology led innovation to the unserved/ underserved regions of India including Tier 2, Tier 3 cities, aspirational districts, tribal, hilly and coastal areas, AIM is setting up Atal Community Innovation Centres (ACICs) with a unique partnership driven model wherein AIM would **grant up to Rs. 2.5 crore** to an ACIC subject to a partner proving equal or greater matching funding.

Atal New India Challenges - Product and Service Innovations with National Impact

- To create product and service innovations having national socio-economic impact, AIM has launched over 24 Atal New India Challenges in partnership with five different ministries and departments of the central government.

Applied Research and Innovation for Small Enterprises (ARISE)

- To promote innovation in a phased manner in the MSME/Start-up sector AIM will be launching ARISE along with partner Ministries so that great research ideas are converted to viable innovative prototypes followed by product development and commercial deployment.

Mentorship and Partnerships - with Public, Private sector, NGOs, Academia, Institutions

- To enable all the initiatives to succeed, AIM has launched the "**Mentor India - The Mentors of Change**" programme, in collaboration with the public sector, corporates and institutions, to support all the initiatives of the mission.

Why in News?

- NITI Aayog's Atal Innovation Mission has launched - **"Innovations for You"** an attempt to showcase the success stories of Atal Innovation Mission's Startups in different domains.
- These startups have worked to create new, disruptive and innovative products,

services, and solutions that can pave a path for a sustainable future. The first edition of this book is focused on innovations in Health Care and soon other sectors shall follow.

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News in Depth

AIR NEWS

1) International Solar Alliance

About ISA

- International Solar Alliance (ISA) was launched in 2015 by Prime Minister Narendra Modi and former President of France Francois Hollande at the 21st session of the United Nations Climate Change Conference of the Parties (COP-21) in Paris, France.
- The **Paris Declaration** that established the ISA states that the countries share the collective ambition to undertake innovative and concerted efforts to reduce the cost of finance and technology for deployment of solar generation assets.
- ISA was conceived as a coalition of **solar-resource-rich countries** (which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn) to address their special energy needs.
- More than 60 countries have signed and ratified the ISA Framework Agreement.
- As guided by the Framework Agreement of the ISA, the interests and objectives of the ISA are as follows:
 1. To collectively address key common challenges to scale up solar energy applications in line with their needs;
 2. To mobilize investments of more than **USD 1000 billion by 2030**;
 3. To take coordinated action through programmes and activities launched on a voluntary basis, aimed at better harmonization, aggregation of demand, risk and resources, for promoting solar finance, solar technologies, innovation, R&D, capacity building etc.;
 4. Reduce the cost of finance to increase investments in solar energy in member countries by promoting innovative financial mechanisms and mobilizing finance from Institutions;

5. Facilitate collaborative research and development (R&D) activities in solar energy technologies among member countries.

- **Countries that do not fall between the Tropics can also join the ISA and enjoy all benefits as other members, with the exception of voting rights.**

- The Permanent Secretariat of ISA will be located in India at **Gurugram**, the first time that an inter-governmental treaty-based alliance will have its headquarters in India. The Interim Secretariat of the ISA is located at the National Institute of Solar Energy (NISE), Gurugram.

Why in News?

- The Fourth Assembly of the International Solar Alliance was held recently.
- Currently, **121 countries** have agreed to be members of ISA. Most of these are countries with a large participation from Africa, South-east Asia, and Europe. **Pakistan and China** are not members of the ISA.

2) Free Trade Agreement

Levels of Economic Integration

- Economic integration takes the form of the Preferential Trade Area, Free Trade Area, Customs Union, Common Market and Economic Union.
- A **preferential trade area (PTA)** is a trading bloc that gives preferential access to certain products from the participating countries. This is done by reducing tariffs but not by abolishing them completely. A PTA can be established through a trade pact. It is the first stage of economic integration.
- A **free trade area** is the region encompassing a trade bloc whose member countries have signed a free-trade agreement (FTA). Such agreements involve cooperation between at least two countries

to reduce/abolish trade barriers. e.g. South Asian Free Trade Area (SAFTA).

- A **customs union** is defined as a type of trade block which is composed of a free trade area with no tariffs among members and (zero tariffs among members) with a **common external tariff**. e.g. BENELUX (Belgium, Netherlands and Luxembourg).
- A **common market** has the same features as a customs union, but, in addition, factors of production (labour, capital and technology) are mobile among members. Restrictions on immigration and cross-border investment are abolished. e.g. European Common Market (ECM).

- An **economic union** is the last step in an economic integration process. In addition to free movement of goods, services and production factors, it also requires integration of economic policies, both monetary and fiscal. Under an economic union members harmonized monetary policies, taxation and government spending. (e.g. European Economic Union).

Why in News?

- India and Israel have agreed to resume negotiations on a Free Trade Agreement soon.

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THE HINDU EDITORIALS

1) Alarming hunger or statistical artefact?

GS-2 Health, GS-3 Issues Relating to Poverty & HungerPoverty

NEWS

- The low rank on the Global Hunger Index should push India to look again at its policies and interventions.

CONTEXT

- This year's Global Hunger Index (GHI) had ranked **India 101 out of 116 countries**.
- This put India far below some of its neighbouring countries.
- Barring 2020's rank of 94 out of 107 countries, **India's rank has been between 100 and 103 since 2017**.

GLOBAL HUNGER INDEX

- The Global Hunger Index is a **tool that measures and tracks hunger globally as well as by region and by country**.
- The index is prepared annually by **European NGOs of Concern Worldwide and Welthungerhilfe**.
- The GHI has four components:
 1. Insufficient calorie intake
 2. Wasting (low weight for height)
 3. Stunting (low height for age)
 4. Mortality
- The first component, **insufficient calorie intake — is applicable for all age groups**, whereas the remaining three — **wasting (low weight for height), stunting (low height for age) and mortality — are confined to children under five years**.

SOURCE OF DATA USED

- The **data on deficiency in calorie intake**, accorded 33% weight, is sourced from the **Food and Agriculture Organization's Suite of Food Security Indicators (2021)**.
- The **data on child wasting and stunting (2016-2020)**, each accounting for 16.6% of weight, are from the **World Health Organization, UNICEF and World Bank, complemented with the latest data from the Demographic and Health Surveys**.
- **Under-five mortality data** are for 2019 from the **UN Inter-Agency Group for Child Mortality Estimation**.

ISSUES REGARDING GHI

- The **government has questioned the methodology of calculating the index** and claimed that the **ranking does not represent the ground reality**.
- This calls for careful scrutiny of the methodology, especially of the GHI's components.
- The GHI is largely children-oriented with a higher emphasis on undernutrition than on hunger and its hidden forms, including micronutrient deficiencies. Hence, it misses critical parameters in its consideration:

The first component — calorie insufficiency — is problematic for many reasons.

- The lower calorie intake, which does not necessarily mean deficiency, may also stem from **reduced physical activity, better social infrastructure (road, transport and healthcare) and access to energy-saving appliances at home, among others**.
- Recent analysis establishes that the **'physical disease environment'** at the State level also significantly influences the calorie intake.
- From this point of view, a large proportion of the **population in Kerala and Tamil Nadu** may get counted as calorie deficient despite them being better in nutritional outcome indicators.
- Conversely, there are States that have a higher average level of calorie intake, such as **Bihar and Uttar Pradesh**, but **their needs may even be higher than the earmarked level of required calories for India as a whole** because these States have high prevalence of communicable diseases and low level of mechanisation in the economy.
- Thus, it is likely that the existing methodology might underestimate the prevalence of calorie deficiency in these States.
- For a vast and diverse country like India, **using a uniform calorie norm to arrive at deficiency prevalence means failing to recognise the huge regional imbalances** in factors that may lead to differentiated calorie requirements at the State level.

- All this raises questions on the appropriateness of the calorie component of the index.
- Even India's own official estimates of prevalence of calorie deficiency are not free from this anomaly.

The low ranking does not mean that India fares uniformly poor in every aspect:

- Despite studies suggesting that child undernutrition and mortality are usually closely related, **India has registered relatively better performance in the child mortality parameter.**
- This anomaly raises the question that should we then dismiss the GHI as it shows India in a bad light or should we gracefully accept it.

ANALYSING INDIA'S RECORD

Wasting and Stunting

- The GHI highlights India's dismal record in a domain of child undernutrition, specially wasting.
- **Wasting** is an acute, short-term measure, while **Stunting** is a chronic, long-term measure of undernutrition.
- **Child wasting** can manifest as a result of an **immediate lack of nutritional intake and sudden exposure to an infectious atmosphere.**
- However, a **higher order of priority was accorded to stunting, both in research and policy**, for the right reasons as it is a stable indicator and does not oscillate with minor changes in circumstances, while wasting does.
- As a result, **Child stunting in India declined** from 54.2% in 1998-2002 to 34.7% in 2016-2020, **whereas child wasting remained around 17% throughout** the two decades of the 21st century.
- **India's wasting prevalence (17.3%) is one among the highest in the world.**
- Additionally, studies say that **COVID-19 is likely to exacerbate child undernutrition in general and child wasting in particular.**

Child Mortality- An exception

- Studies suggest that **child undernutrition and mortality are usually closely related**, as child undernutrition plays an important facilitating role in child mortality.
- However, India appears to be an exception in this regard.

- **India's child mortality rate has been lower compared to Sub-Saharan African countries despite it having higher levels of stunting.**
- This implies that though India was not able to ensure better nutritional security for all children under five years, it was able to **save many lives due to the availability of and access to better health facilities.**

WAY FORWARD

- There is an urgent need to address the issue of wasting with proper research and policy making as done in the field of stunting.
 - **Effectively countered episodes of wasting is key to making sustained and quick progress in child nutrition.**
 - India can tackle wasting by **effectively monitoring regions that are more vulnerable to socioeconomic and environmental crises**, it can possibly improve wasting and stunting simultaneously.
1. There seems to be **no short-cut way of improving stunting without addressing wasting.**
 2. Unfortunately, **India lost this opportunity as Integrated Child Development Scheme services** were either non-functional or severely disrupted — partly because the staff and services were utilised to attend to the COVID-19 emergency.

2) Slippery slopes

GS-1 Important Geophysical Phenomena, Climate Change; GS-3 Disaster Management, Environmental Pollution & Degradation

CONTEXT

- Even as the Southwest monsoon retreats along parts of northern Karnataka, Telangana, Odisha, Bengal and the northeastern States in October, it is leaving a trail of destruction in several districts.
- While the heaviest recent downpour has been reported from west Madhya Pradesh, Odisha, east Rajasthan and Uttarakhand.
- Kerala and Gangetic West Bengal had very heavy rain in Kerala and Gangetic West Bengal, which had led to significant loss of life.

INDIAN MONSOON AND KERALA

- The **Indian monsoon is an invaluable resource** that sustains hundreds of millions

of people, but **variations in its patterns and intensity pose a rising challenge.**

- Kerala, which hosts a vast stretch of the Western Ghats, is struggling with these changes with almost no respite between severe spells.
1. The **recurrent bursts show anomalies in precipitation** over the State, spectacularly demonstrated by the 2018 flooding and by mudslides that killed many a year later.
 2. Further this **year's torrential rain in the State, which has killed at least 35 people so far**, is causing alarm as large reservoirs in the mountains have started filling up fast, while the Northeast monsoon is yet to come.
 3. As per **IMD's forecast, more heavy rainfall in Kerala** lies ahead this season.

CONCERNS

- There exists ample evidence, which indicates that exploitative **human activities have a major role in increasing the vulnerability to extreme weather events.**
1. Land may be an extremely scarce resource, but expanding extractive economic activity to montane forests is certain to cause incalculable losses. For e.g.
 2. The **increased quarrying activity in central Kerala districts** is believed to be contributing to increased instances of mudslides in the region.
- There is a **similar threat from extreme weather, breaking glaciers and cloudbursts to Uttarakhand and Himachal Pradesh.**
 - Several States face climate change impacts and extreme weather, and the response must be to strengthen natural defences.

WAY FORWARD

- The precarity of living conditions in much of the country make **the annual monsoon a persistent threat for millions.**
 - Thus, there is an urgent need for a **comprehensive adaptation plan** to reduce the risk to life and property.
 - **Emphasis should be given on:**
1. **Nurturing the health of rivers** and keeping them free of encroachments,
 2. Protecting **the integrity of mountain slopes** by ending mining, deforestation and incompatible construction hold the key.

3. Similar suggestions were made by **the Madhav Gadgil committee report** on the Western Ghats.

- Further there is the need to **adopt a development policy that treats nature as an asset, and not an impediment.**
- Accurately **mapped hazard zones** should inform all decisions in the vulnerable regions.
- There is an urgent need for governments to understand that it is **unconscionable to allow the pursuit of short-term profits at the cost of helpless communities.**

3) Improving livestock breeding

GS-1 Agricultural Resources; GS-3 Growth & Development, Economics of Animal-Rearing

CONTEXT

- **Livestock breeding in India has been largely unorganised** because of which there have been **gaps in forward and backward integration** across the value chain.
- Such a scenario impacts the **quality of livestock** that is produced and in turn **negatively impacts the return on investment for livestock farmers.**

CONCERNS

- Approximately **200 million Indians** are involved in livestock farming, including around 100 million dairy farmers.
- Roughly **80% of bovines in the country are low on productivity** and are reared by **small and marginal farmers.**

GOVERNMENT INITIATIVES

- To enhance the productivity of cattle, the **Rashtriya Gokul Mission was initiated in 2014.**
- The mission focussed on **the genetic upgradation of the bovine population** through widespread initiatives on **artificial insemination, sex-sorted semen, and in vitro fertilization.**
- Also, the government launched the **National Livestock Mission (NLM) in 2014.**
- The mission sought to **ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders.**

REVISED VERSIONS TO BOOST ENTREPRENEURSHIP DEVELOPMENT

- The revised version of the Rashtriya Gokul Mission and National Livestock Mission (NLM) **proposes to bring focus on entrepreneurship development and breed improvement** in cattle, buffalo, poultry, sheep, goat, and piggery **by providing incentives** to individual entrepreneurs, farmer producer organisations, farmer cooperatives, joint liability groups, self-help groups, Section 8 companies for entrepreneurship development and State governments for breed improvement infrastructure.

Revised Version of Rashtriya Gokul Mission

- The **breed multiplication farm component of the Rashtriya Gokul Mission** is going to provide for **capital subsidy up to ₹200 lakh for setting up breeding farms** with at least 200 milch cows/ buffalo using latest breeding technology.
1. With this the entrepreneur will be responsible for the arrangement of and would be **able to sell at least 116 elite female calves every year** out of this farm from the third year.
 2. The entrepreneur will also start **generating income out of the sale of 15 kg of milk per animal per day** for around 180 animals from the first year.
 3. Moreover, the strategy of incentivising breed multiplication farms will result in the **employment of 1 lakh farmers**.
 - The **grassroots initiatives** in this sphere will be further amplified by web applications **like e-Gopala**, that provide real-time information to livestock farmers on the availability of disease-free germplasm in relevant centres, veterinary care, etc.

Revised Version of National Livestock Mission (NLM)

- The **poultry entrepreneurship programme** of the NLM will provide for **capital subsidy up to ₹25 lakh for setting up of a parent farm** with a capacity to rear 1,000 chicks.
1. Under this model, the rural entrepreneur running the hatchery will be supplying chicks to the farmers.
 2. An entrepreneur will be able to break even within 18 months after launching the business. This is expected to provide employment to at least 14 lakh people.

- In the context of sheep and goat entrepreneurship, there is a provision of capital subsidy of 50% up to 50 lakh.

1. An entrepreneur under this model shall **set up a breeder farm, develop the whole chain and will eventually sell the animals to the farmers or in the open market**.
 2. Each entrepreneur can **avail assistance for a breeder farm** with animals of high genetic merit from the Central/State government university farms.
 3. Similarly, 50% capital subsidy of up to ₹30 lakh will be provided for piggery.
- Thus, the revised scheme of NLM coupled with the **Rashtriya Gokul Mission** and the **Animal Husbandry Infrastructure Development Fund** has the potential to dramatically enhance the productivity and traceability standards of our livestock.

4) The outlines of a national security policy

GS-3 IT & Computers, Cyber Security, Cyber Warfare

CONTEXT

- In the two decades of the 21st century, **the concepts of National security have undergone fundamental changes**.
- These fundamental changes reveal that **a large country, in terms of size of geography, population and GDP, will not deter any country**.
- Cyber warfare has vastly reduced the deterrent value of these sizes since cyber weapons will be available even to small island countries, and the capacity to cause devastation to a large nation by cyber warfare is within the reach of even small and poorer nations.

BACKGROUND

- Innovations in weapons moved **from stones in the prehistoric era, to bows and arrows, and later to cannons and guns in the 19th century**.
- These were followed by **aeroplanes, nuclear bombs, and intercontinental missiles in the 20th century**.
- In the **21st century, the world is moving to cyber weapons-based warfare** which will also immobilise current tangible advanced weapon systems in a war.

- Therefore, **in the 21st century, after cybertechnology enters as an important variable in nations' defence policies, the geographical land size or GDP size of a country will cease to matter.**
- Sri Lanka, or North Korea, empowered by cybertechnology, will be equal to the United States, Russia, India or China, in their capability to cause unacceptable damage.
- Weapons in the 21st century will merely mean a cyber button on the desk of the nation's military and the leader of the government.

INNOVATIONS CONTINUE THE CHANGE

- These fundamental changes are entirely due to the earlier 20th century innovations in **cybertechnology and software developments.**
1. **Drones, robots, satellites and advanced computers** as weapons are already in use and more innovations are around the corner.
 2. Some examples of further innovations are **artificial intelligence and nanotechnology.**
- With this continuous innovation the warfare will be **no more just mobilisation of weapons or be dependent on the size of the armed forces of men. Rather it will be cyber warfare.**

CHALLENGES

- National security in the 21st century covers not merely the overt and covert operations but, more crucially, **electronic operations from a remote centre beyond the front lines of ground forces or air power** to track enemy assets by these newly weaponised cyber instruments of technology.
- **Tracking those cyber warfare centres of the adversary** will need a new national security policy.
- Recently, China had shut down Mumbai's electric supply in populated areas of the city for a few hours, using cybertechnology. This incident left the country clueless for hours as to what went wrong till reports emerged about a possible cyberattack.
- This incident clearly indicates that each nation will have to **prepare more for bilateral conflicts in the 21st century that are based on cyber warfare** rather than in multilateral acts of conventional

war or rely on military blocs for mobilisation.

WHAT NEEDS TO BE DONE?

- **National security at its root in the 21st century needs to be focussed on developing skills in four dimensions:**

Objectives:

- The objective of the National Security Policy in the 21st century is **to define what assets are required to be defended, the identity of opponents** who seek to overawe the people of a target nation by unfamiliar moves to cause disorientation of people.
- The novel coronavirus has completely destabilised peoples globally and their governments in all nations of the world over, and also derailed the global economy.
- **This is a preview of the kinds of threats that await us in the coming decades which a national security policy will have to address by choosing a nation's priorities.**

Priorities:

- In such scenarios of uncertainties about the future in the 21st century, national security priorities will require **new departments for supporting several frontiers of innovation and technologies** such as **hydrogen fuel cells, desalination of seawater, thorium for nuclear technology, anti-computer viruses, and new immunity-creating medicines.**
- This focus on a new priority will require **compulsory science and mathematics education**, especially in applications for analytical subjects.
- **Every citizen will have to be alerted** to new remote controlled military technology and be ready for it.

Strategy:

- India should develop and practise offensive cyber capabilities when needed as part of the strategy to secure its interests in cyberspace.
- China continues to pose cyber security threats to India. It is time we devise a new strategy.
- The strategy required for this new national security policy will be **to anticipate our enemies in many dimensions.**
- Also there is a need for **developing a strategy of deterrence of the enemy** by demonstrative but limited pre-emptive strikes.

- For India, it will be the China cyber capability factor which is the new threat for which it has to devise a new strategy.

Resource mobilisation:

- The macroeconomics of resource mobilisation depends on whether a nation has 'demand' as an economic deficit or not.
- Macroeconomics has many ways to generate resources without taxation. Printing of notes of currency is one way when there is a demand shortage.
- i.e. if demand for a commodity or service is in deficit or insufficient to clear the market of the available supply of the same, then **liberal printing of currency and placing it in the hands of consumers is recommended for the economy to recover the demand supply parity.** This then is one way of facilitating resource

mobilisation in a demand supply balanced market.

- Another way to increase demand is by **lowering the interest rate on bank loans or raising the rates in fixed deposits** which will enable banks to obtain liquidity and lend liberally for enhancing investment for production.

CONCLUSION

- Weapons in the 21st century will merely mean a cyber button on the desk of the nation's military and the leader of the government, making geographical land size or GDP size irrelevant.
- Therefore, India should enhance its cyberspace capabilities and devise a new cyberstrategy, as it is a serious national security risk.

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INDIAN EXPRESS EXPLAINED

1) COP26: Timeline till Glasgow

What's in the news?

- The 26th session of the Conference of the Parties (COP 26) to the UN Framework Convention on Climate Change (UNFCCC), is scheduled to be held in Glasgow, Scotland, between 31 October and 12 November 2021, under the co-presidency of the United Kingdom and Italy.

The COP meetings

- The COP is the supreme decision-making body of UNFCCC. All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.
- Over the years, these meetings have had remarkable success in bringing climate change to the top of the global agenda, and ensuring that every country has an action plan to tackle climate change.
- This process has also delivered two international agreements — **Kyoto Protocol** in 1997 and **Paris Agreement** in 2015 — aimed at cutting down global emissions.
- The outcomes of these meetings, however, **have not matched the scale of the response required**. The original objectives, in terms of the amount of emission reductions and the principles that would govern the international climate architecture, have been diluted severely.
- Most industrialised countries have failed to deliver on their initial promises, not just on emission reductions but also on their commitments to help with finance and technology. As a result, the climate crisis has worsened in the last 20 years, manifesting itself in more frequent and intense extreme weather events.
- Despite the shortcomings, however, these meetings remain the best bet to put the world on a path away from climate disasters.

Timeline

1992: Earth Summit, Rio de Janeiro

- The meeting that set up the architecture for negotiations on an international climate change agreement. It **finalised the UNFCCC**, the mother agreement that lays down the objectives and principles on which climate action by countries are to be based.
- It **acknowledged that developing countries had fewer obligations and capabilities to bring down emissions**. **Developed countries agreed to a non-binding commitment** to take measures aimed at returning to their 1990 emissions levels by 2000.

1997: COP3, Kyoto

- Delivered the **Kyoto Protocol**, precursor to the Paris Agreement.
- The Protocol assigned **specific emission reduction targets for a set of developed countries**, to be achieved by 2012.
- Others were supposed to take **voluntary actions** to reduce emissions. The Kyoto Protocol **expired last year** as the Paris Agreement took its place.

2007: COP13, Bali

- It reaffirmed the principles of **common but differentiated responsibilities (CBDR)** in the efforts to find a replacement to the Kyoto Protocol, which developed nations were getting increasingly uncomfortable with, especially after the emergence of China as the world's leading emitter.
- Developed countries want **emission reduction targets for everyone, or for nobody**, their argument being that without stringent action from China and India, the success of any climate action would not be possible.

2009: COP15, Copenhagen

- Attempts to finalise a new agreement ended in failure. Over 110 heads of nations assembled, but differences were too deep to be bridged. Countries agreed to try again a few years later.
- **Developed countries committed to mobilising \$100 billion every year in climate finance** for developing countries from 2020.

2015: COP21, Paris

- The successor agreement was finally delivered. The **Paris Agreement does not assign emission reduction targets to any country.**
- Instead, it asks all to do the best they can. But the targets they set for themselves must be reported and verified.
- The objective is to **limit the global rise in temperatures to within 2°C from pre-industrial times.**

2021: COP26, Glasgow

- The rulebook for implementation of the Paris Agreement is still to be finalised. The main remaining hurdle is an agreement over creation of future carbon markets, and the transition of pending carbon credits with some developing countries to that new market.

2) Kushinagar, Buddhist pilgrimage town and site of big infra push

Why in News?

- Recently, Prime Minister Narendra Modi inaugurated the Kushinagar international airport in Uttar Pradesh.
- The airport is expected to **provide seamless connectivity to tourists from Sri Lanka, Japan, Taiwan, South Korea, China, Thailand, Vietnam, Singapore, etc.**
- Kushinagar is the **centre of the Buddhist circuit**, which consists of pilgrimage sites at Lumbini, Sarnath and Gaya.

Kushinagar and The Buddha

- Among the most important of Buddhist pilgrimages, Kushinagar was where The Buddha attained **Mahaparinirvana** (ultimate salvation) in c. 483 BC.
- Today's Kushinagar is identified with **Kushinara, capital of the ancient Malla republic**, which was one of the 16 mahajanapadas of the 6th-4th centuries BC.
- The area went on to be part of the kingdoms of the Mauryas, Shungas, Kushanas, Guptas, Harshavardhana, and the Palas. Kushinara is believed to have been inhabited until at least the 12th century.
- The first excavations in Kushinagar were **carried out by Alexander Cunningham and ACL Carlleye**, who unearthed the

main stupa and the 6-metre-long statue of the Reclining Buddha in 1876.

- Kushinagar is among the very few places in India where The Buddha is depicted in **reclining form.**

Buddhist tourism Circuit

- In 2016, the **Ministry of Tourism** announced the Buddhist Circuit as the **country's first transnational tourism circuit**, covering sites in Nepal and Sri Lanka alongside those in India.
- It is surprising that while Buddhism originated in India and seven of the eight main Buddhist pilgrimage sites are in India, **our country gets not even 1 percent of Buddhist pilgrims in the world.**
- The ministry's map of the Buddhist Circuit includes Bodh Gaya, Vaishali, and Rajgir in Bihar, Kushinagar, Sarnath, and Shravasti in UP, and Lumbini in Nepal.
- There is an awareness in the government that the absence of tourist infrastructure is a major reason why India loses out to Southeast Asian nations such as Indonesia and Thailand.
- The hope is that world-class facilities will be able to attract Buddhist tourists to India, and boost revenues and employment generation.
- A Buddhist Circuit tourist train covers all destinations in 14 days, and helicopter services and more airports are in the pipeline.
- The push is intended to **assert and consolidate India's position as the original centre of Buddhism, against the claims from China.**

Cultural diplomacy

- **Rekindling India's ties with Buddhist countries** and building **strong relationships** with them is one of the major objectives of the Buddhist circuit. The associated **strategic partnerships and tourism potential** that derive from this enhanced partnership are second-order benefits.
- **Buddhism is not limited to Asia**; it has sparked spiritual awakenings in other parts of the world and impacted a variety of philosophical systems.
- India currently possesses a plethora of resources in the form of pilgrimage sites, the Dalai Lama's presence, and

international goodwill, as well as the appropriate intentions.

- **The effect of Lord Buddha's and Buddhism's teachings** can be linked to the ideals of **peace, accommodation, inclusion, and compassion** that are part of contemporary societies.
- Sri Lanka and India have agreed to strengthen ties through their shared Buddhist heritage. With **China's growing influence in Sri Lanka, India is keen on its image as a friend and collaborator, using religious and cultural diplomacy.**

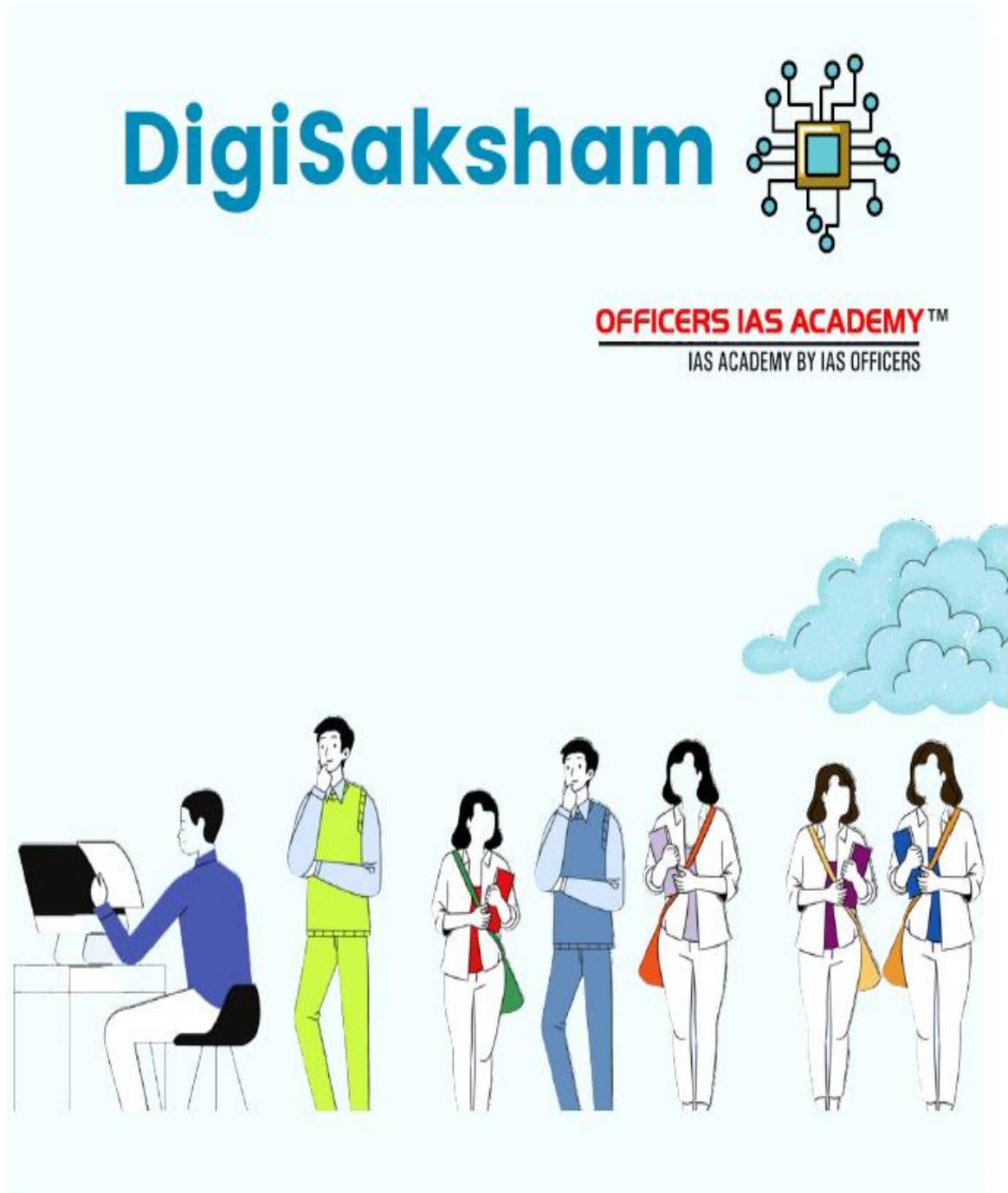
Other Initiatives Taken to Promote Buddhist Sites:

- **PRASHAD Scheme:** The Ministry of Tourism launched the PRASAD scheme that aims at **integrated development of pilgrimage destinations** in a prioritised, planned, and sustainable manner in order to provide a complete religious tourism experience.
- The Ministry of Tourism in India has already worked towards giving shape to the developmental and promotional activities related to the Buddhist sites in the country.
- **Buddhist circuit and Spiritual circuit** are among the **thematic circuits** under which Buddhist sites are promoted in the **Swadesh Darshan Scheme.**
- **Installing signage in foreign languages** at Buddhist destinations in India such as Sravasti, Sarnath, Kushinagar etc.

- **Iconic Tourist Sites:** Buddhist sites at Bodhgaya, Ajanta, and Ellora have been **identified** as Iconic Tourist Sites.
 - **Important places in India related to Buddhism**
 - The **Buddha** was **born** in **Lumbini, Nepal.**
 - Attained **enlightenment** in **Bodh Gaya (Bihar).**
 - **First sermon** in **Sarnath (Varanasi, Uttar Pradesh).**
 - Place where the Buddha **tamed a wild elephant-Rajgir (Bihar)**
 - He **taught** in the area around **Rajgir**, where he was **built** a forest monastery by **king Bimbisara of Magadha**
 - **Monkey** offering **honey** to Buddha - **Vaishali (Bihar)**
 - The Lord sat on a **thousand-petaled lotus** and manifested himself in many forms- **Sravasti (U.P.)**
 - **Last sermon** in **Vaishali.**
 - The Buddha **died** in **Kushinagar (Uttar Pradesh).**
 - He **descended from heaven** in **Sankasya (Uttar Pradesh).**
 - *To read more about Buddhism, its principles and its relevance in today's world:*
<https://officerspulse.com/ashadha-purnima-dhamma-chakra-day-programme/>
- For doubts and queries email us at doubts@officerspulse.com**

INFOGRAPHIC OF THE WEEK

1) DigiSaksham



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What's in the news?



The **Ministry of Labour and Employment** has launched DigiSaksham – a **digital skills programme to enhance the employability of youth by imparting digital skills** that are required in an increasingly technology driven era.



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Launched as a joint initiative with **Microsoft India**, it is an extension of the Government's ongoing programs to support the youth from rural and semi-urban areas.



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About the Initiative

Through DigiSaksham initiative, **free of cost training in digital skills** including basic skills as well as advance computing, will be provided to **more than 3 lakh youths in the first year.**



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National Career Service



National Career Service
Ministry of Labour & Employment

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and Job Vacancies by

States & Union Territories

States & Union Territories	States	Other
Andaman and Nicobar Islands (10 Vacancies)	Andhra Pradesh (817 Vacancies)	Arunachal Pradesh (10 Vacancies)
Chandigarh (170 Vacancies)	Chhattisgarh (287 Vacancies)	Dadra and Nagar Haveli (3 Vacancies)
Goa (102 Vacancies)	Gujarat (442 Vacancies)	Haryana (484 Vacancies)
Jharkhand (2019 Vacancies)	Karnataka (2349 Vacancies)	Kerala (34 Vacancies)
Maharashtra (1580 Vacancies)	Manipur (81 Vacancies)	Madhya Pradesh (191 Vacancies)
Odisha	Puducherry	Punjab
		Rajasthan
		Sikkim
		Tamil Nadu (1187 Vacancies)
		Uttar Pradesh (8 Vacancies)
		West Bengal (841 Vacancies)
		Delhi (841 Vacancies)
		Jammu and Kashmir (788 Vacancies)
		Mizoram (4 Vacancies)
		Nagaland (24 Vacancies)
		Sikkim

Log in

User Name:

Password:

Forgot Password? NCS Users Login Here

Sign In

Registration New - Users

Register

IMPORTANT NOTICE

Caution Against Fraud

Toll Free Helpline: 1800-425-1514
Timing: Tue, Sat 10:00 AM to 06:00 PM

National Career Service Portal Login, Registration



The Jobseekers can access the training through
National Career Service (NCS) Portal
 (www.ncs.gov.in)



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The initiative gives **priority to the job-seekers of semi urban areas belonging to disadvantaged communities**, including those who have lost their jobs due to Covid-19 pandemic.



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Related Information

About NCS

The **Ministry of Labour and Employment** is implementing the **National Career Service (NCS) Project** to provide a variety of employment related services like job matching, career counselling, vocational guidance, information on skill development courses, apprenticeship, internships etc



National Career Service



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The services under NCS are **available online** which was dedicated to the Nation by Prime Minister Narendra Modi in 2015. **All the services available in the portal are free of cost for all stakeholders** including jobseekers, employers, training providers and placement organizations.




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