





Monthly Compendium (MISCELLANEOUS TOPICS)

of Current Affairs by SUCC≣SS MANTRA (GTB Nagar)







MISCELLANEOUS TOPICS



MISCELLANEOUS

#NOBEL PRIZE IN PHYSICS 2022

The **Nobel Prize in Physics for 2022** was awarded to **John F. Clauser, Alain Aspect and Anton Zeilinger** for their work in **quantum mechanics** by the **Royal Swedish Academy of Sciences**.

In 2021, the **Nobel Prize in Physics** was awarded to **Syukuro Manabe and Klaus Hasselmann (jointly)** for their research on climate models and to **Giorgio Parisi** for his work on the interplay of disorder and fluctuations in physical systems.

The Nobel Prize for 2022 in Physiology or Medicine was awarded to Svante Pääbo for his research in the field of genomes of extinct hominins and human evolution.



What is Quantum Mechanics and Quantum Entanglement?

- Mechanics is the branch of physics that deals with the movement and interaction of various bodies. Mechanics has two parts classical and quantum.
- **Classical or Newtonian mechanics** is the mathematical study of the motion **of macroscopic objects** and the forces that affect them.
- **Quantum mechanics** is a subfield of physics that describes the **behavior of particles atoms, electrons, photons** and almost everything in the **molecular and sub molecular realm.**
- One important difference in the behaviour of quantum systems, when compared to classical rigid bodies, is the **concept of entanglement.**
- **Quantum entanglement** is a phenomenon by which a pair of subatomic particles are **allowed to exist in a shared state where they have complementary properties,** such that by measuring the properties of one particle, one can automatically know the properties of the other particle.
- This is true regardless of how far apart the two particles are transported.
- Quantum entanglement was **first elucidated by Erwin Schrödinger** in 1935, leading to his well-known **cat paradox**.

What is Bell Inequality?

- In the 1960s, **John Stewart Bell** developed the mathematical inequality Bell Inequality which states that if there are **hidden variables**, the correlation between the results of a large number of measurements will **never exceed a certain value**.
- Quantum mechanics predicts that a certain type of experiment will violate Bell's inequality, thus resulting in a stronger correlation than would otherwise be possible.

What is the Experiment?

- The laureates have been awarded for their experiments with **entangled photons** (quantum entanglement), establishing the **violation of Bell inequalities**, and pioneering **quantum information science**.
- John F. Clauser developed John Bell's ideas, leading to a practical experiment which supported quantum mechanics by clearly violating a Bell inequality **implying that quantum mechanics cannot be replaced by a theory that uses hidden variables.**
- Alain Aspect **developed the setup**, using it in a way that closed an important loophole.
- He was able to switch the measurement settings after an entangled pair had left its source, so the setting that existed when they were emitted could not affect the result (as some loopholes remained after John Clauser's experiment).
- Anton Zeilinger was chosen for his **innovative use of entanglement and Bell pairs** both in research and

- application such as quantum cryptography.
- His research group demonstrated a phenomenon called **quantum teleportation**, which makes it possible to **move a quantum state from one particle to the one at a distance**.

#NOBEL PRIZE IN CHEMISTRY 2022

Carolyn R Bertozzi, Morten Meldal and K Barry Sharpless have been awarded the Nobel Prize 2022 in Chemistry "for the development of Click Chemistry and Bioorthogonal Chemistry".

- Sharpless (won second time) came up with the term 'click chemistry' and worked extensively on it.
- **Meldal,** independently of Sharpless, came up with a special chemical structure called **'triazole'** which has many significant applications.
- Bertozzi took the next step of developing click reactions that could work inside living organisms 'bioorthogonal' reactions (a term she coined).
- The 2021 Nobel Prize in Chemistry was awarded to Benjamin List and David MacMillan for the development of asymmetric organocatalysis.

Note: K Barry Sharpless shared the 2001 Nobel Prize with William S. Knowles and Noyori Ryōji for "**Developing the First Chiral Catalysts**".

What is the Nobel Winners' Contribution in Click Chemistry?

Concept (Coined by Sharpless):

- Click Chemistry is a minimalistic form of chemistry in which molecular building blocks can quickly and efficiently snap together.
- It is a form of simple and reliable chemistry, where reactions occur quickly, and unwanted by-products are avoided.
- The concept of Click Chemistry was **coined by Barry Sharpless around the year 2000**, **he found that instead of forcing carbon atoms**, the building blocks of organic matter, to bond with each other in the process of building molecules, **it's easier to link smaller molecules with complete carbon frameworks**.
- The central idea is to **choose simple reactions between molecules that have a "stronger intrinsic drive"** to bond together, resulting in a faster and less wasteful process.

Azide - Alkyne Cycloaddition (Meldal and Sharpless):

- In the 2000s, Meldal and Sharpless (independent of each other) provided the crown of Click Chemistry- the copper catalysed azide-alkyne cycloaddition.
- Meldal found that adding copper ions to a reaction between an alkyne and an acyl halide created a triazole, a stable ring-shaped chemical structure that's a common building block in pharmaceuticals, dyes and agricultural chemicals. Adding copper ions helped control the reaction and create just one substance. Together, the alkyne and the azide combined to make a triazole. Azide is an N₃ (Nitride Ion) organic compound, whereas an alkyne is a hydrocarbon with at least one carbon-carbon triple bond. This simple and effective chemical reaction is now widely used in the development of drugs, mapping Deoxyribonucleic Acid (DNA), and creating materials that are fit for purpose, among many other things.

Bioorthogonal Reactions (Bertozzi):

- These reactions work inside living organisms without disrupting the normal chemistry of the cell. Its use in combination with nanotechnology can lead to further developments in diverse areas of biomedicine, such as molecular bioimaging, targeted delivery, in situ drug activation, study of cell-nanomaterial interactions, biosensing, etc.
- Using bioorthogonal reactions, researchers have improved the targeting of cancer pharmaceuticals.

#NOBEL PEACE PRIZE 2022

Recently, the 2022 Nobel Peace Prize was awarded to human rights advocate Ales Bialiatski from Belarus, the Russian human rights organisation Memorial, and the Ukrainian human rights organisation Center for Civil Liberties.

- The Prize recognizes their contribution for many years, **promoting the right to criticize power and protecting the fundamental rights of citizens.** With the awardees being from Belarus, Ukraine, and Russia, an implicit message has been sent about the **ongoing conflict between Russia and Ukraine**.
- In 2021, Nobel Peace Prize was awarded to journalists Maria Ressa of the Philippines and Dmitry Muratov of Russia for their efforts to safeguard freedom of expression, which is a precondition for democracy and lasting peace.
- Other 2022 Nobel Prizes for **Literature**, **Chemistry**, **Physics** and **Medicine** have already been announced.

Who are the Winners?

Belarus's Ales Bialiatski:

- Ales Bialiatski was one of the initiators of the democracy movement in Belarus in the mid-1980s."
- Bialiatski is also **credited with founding the organisation Viasna (Spring) in 1996 in response to the controversial constitutional amendments** that gave the president (Alexander Lukashenko) dictatorial powers.
- Over time, **Viasna evolved into a "broad-based human rights organisation** that documented and protested against the authorities' use of torture against political prisoners".
- In 2020, he was **one of the three recipients of the Right Livelihood Award** by the Swedish Right Livelihood Foundation, sometimes referred to as the "Alternative Nobel".
- He is the fourth person to get the Nobel Peace Prize in Jail.

Russian Human Rights Organisation, Memorial:

- The organisation was **established in 1987**, "by human rights activists in the former Soviet Union who wanted **to ensure that the victims of the communist regime's oppression would never be forgotten."**
- **Nobel Peace Prize laureate Andrei Sakharov**, who won the prize in 1954, **and human rights advocate Svetlana Gannushkina** were among the organisation's founders.
- It has been **described as the largest human rights organisation in Russia**, and in the present day, it helped in **gathering information on "the political oppression and human rights violations in Russia"**.

<u>Ukrainian Human Rights Organisation, Center for Civil Liberties:</u>

- The Center for Civil Liberties was **founded in Kyiv in 2007** "**for the purpose of advancing human rights** and **democracy in Ukraine**".
- The Centre describes itself as "one of the leading actors in Ukraine, influencing the formation of public opinion and public policy, supporting the development of civic activism, and actively participating in international networks and solidarity actions to promote human rights".
- After Russia's invasion of Ukraine in February 2022, the Center for Civil Liberties has engaged in efforts to identify and document Russian "war crimes" against the Ukrainian civilian population.

#NOBEL PRIZE IN MEDICINE 2022

Svante Pääbo was conferred the Nobel Prize in Medicine on October 3, 2022.

Key facts

- Svante Pääbo received the Nobel Prize in Medicine for his pioneering works in the field of paleogenomics –
 a branch of science dealing with the reconstruction and analysis of genomic information obtained extinct
 species.
- The **most notable achievements of this Swedish geneticist** the sequencing of the entire genome of Neanderthal and the discovery of Denisova an extinct hominin species.
- He also discovered that genes from the extinct hominins were transferred to Homo Sapiens after they left Africa some 70,000 years ago.
- This discovery of Denisova has modern significance since, the EPAS1 gene found in these hominins was found to provide the capacity to survive in high altitude. This gene is common among Tibetans.
- As a postdoctoral student, Pääbo helped in the development of methods to conduct scientific research of deoxyribonucleic acid (DNA) from Neanderthals in collaboration with Allan Wilson, major pioneer in the field of human evolution.
- Pääbo continued the research on archaic DNA in 1990, when he was recruited as a professor in the University of Munich.
- He was able to sequence a **part of mitochondrial genome from a 40,000-year-old piece of bone using the methods he refined.**
- The use of mitochondrial genome increases the chances of success because it exists in thousands of copies.
- His research provided the access to a genome sequence from an extinct human relative for the first time.
- This genome was compared with the modern-day humans and chimpanzees and it was found that Neanderthal was genetically unique from these two species.
- Pääbo was also able to successfully sequence the nuclear genomes of Neanderthal and publish it in 2010 at the New Max Planck Institute in Leipzig, Germany.
- This led to discovery that the most recent common ancestor of Neanderthal and present-day humans roamed the Earth 800,000 years ago.

About Nobel Prizes

- The will of the **Swedish scientist Alfred Nobel** established the five **Nobel prizes** in 1895. The Nobel Prizes are a set of recognition given to fields of **Chemistry**, **Literature**, **Peace**, **Physics**, **and Physiology or Medicine by The Nobel Foundation**.
- The Nobel Foundation is a private institution established in 1900, has ultimate responsibility for fulfilling the intentions in Alfred Nobel's will.
- The prizes in Chemistry, Literature, Peace, Physics, and Physiology or Medicine were first awarded in 1901.
- In 1968, **Sveriges Riksbank** established the Sveriges Riksbank Prize in **Economic Sciences** in Memory of Alfred Nobel.

#NOBEL PRIZE IN ECONOMIC SCIENCES 2022

The Royal Swedish Academy of Sciences has decided to award the 2022 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to Ben S. Bernanke, Douglas W. Diamond and Philip H. Dybvig "for research on banks and financial crises."

The 2021 Nobel Prize in Economic Sciences was awarded in one half to Canadian-born David Card (labor economics) and the other half jointly to Israeli-American Joshua D Angrist and Dutch-American Guido W Imbens (analysis of causal relationships

Note: Unlike the other prizes, the **economics award wasn't established in Alfred Nobel's will of 1895** but by the **Swedish central bank** in his memory. The first winner was selected in **1969**.

What Contribution have these Laureates made in the Banking System?

Ben S. Bernanke:

- Ben Bernanke analysed the **Great Depression of the 1930s**, the worst **economic crisis** in modern history.
- Through statistical analysis, Bernanke demonstrated **how failing banks played a decisive role** in the global depression of the 1930s.
- He showed how bank runs were a decisive factor in the crisis becoming so deep and prolonged.
- It also helped in understanding the **importance of well-functioning bank regulation**.
- Bernanke was the head of the US central bank, the **Federal Reserve**, when the **2008 crisis hit**, and was able to "put knowledge from research into policy".

Douglas W. Diamond and Philip H. Dybvig:

- Both Diamond and Dybvig worked together to develop **theoretical models** explaining why banks exist, how their role in society makes them vulnerable to rumors about their impending collapse, and how society can lessen this vulnerability. These insights form the foundation of modern bank regulation.
- They presented a **solution to bank vulnerability**, in the form of **deposit insurance from the government**. When depositors know that the state has guaranteed their money, **they no longer need to rush to the bank** as soon as rumors start about a bank run.
- Diamond also showed **how banks perform a societally important function.**
- As intermediaries between **savers and borrowers**, banks are better suited to **assessing borrowers' creditworthiness** and ensuring that **loans are used for good investments**.

#UNESCO LISTS 50 ICONIC TEXTILE CRAFTS

Recently, **UNESCO released a list of 50 exclusive** and iconic heritage textile crafts of the country. One of the major challenges to the safeguarding of **Intangible Cultural Heritage** in South Asia is **lack of proper inventory and documentation**.

What are some of the Important Textiles Crafts Listed?

- Toda embroidery and Sungudi from Tamil Nadu
- Himroo weaves from Hyderabad
- Bandha tie and dye weaving from Sambalpur in Odisha
- Kunbi weaves from Goa
- Mashru weaves and Patola from Gujarat
- Himroo from Maharashtra
- Garad-Korial from West Bengal
- Ilkal and Lambadi or Banjara embroidery from Karnataka
- Sikalnayakanpet Kalamkari from Tamil Nadu
- Khes from Haryana
- Chamba rumals from Himachal Pradesh

- Thigma or wool tie and dye from Ladakh
- Awadh Jamdani from Varanasi

What is UNESCO?

• It was founded in 1945 to develop the "intellectual and moral solidarity of mankind" as a means of building lasting peace. It is located in Paris, France.

Major Initiatives of UNESCO:

- Man and Biosphere Programme
- World Heritage Programme
- Global Geopark Network
- Network of Creative Cities
- Atlas of World Languages in Danger

What is the Status of the Textile Sector of India?

- Textiles & garments industry is labour intensive sector that employs 45 millions people in India is second only to the agriculture sector in terms of employment.
- India's textiles sector is one of the oldest industries in the Indian economy, and is a storehouse and carrier of traditional skills, heritage and culture.
- It can be divided into two segments:
- The unorganised sector is small scale and uses traditional tools and methods. It consists of **handloom**, handicrafts and **sericulture** (Production of silk).
- The organised sector uses modern machinery and techniques and consists of the spinning, apparel and garments segment.

What are the Initiatives related to the Textile Sector?

- **Amended Technology Upgradation Fund Scheme (ATUFS):** In 2015, the government approved the scheme for **technology upgradation of the textiles industry.**
- **Scheme for Integrated Textile Parks (SITP):** To assist small and medium entrepreneurs in the textile industry to clusterize investments in textile parks by providing financial support for world class infrastructure in the parks.
- **Power-Tex India:** It comprises new research and development in power loom textiles, new markets, branding, subsidies and welfare schemes for the workers.
- **Silk Samagra Scheme:** It focuses on improving the quality and productivity of domestic silk thereby reducing the country's dependence on imported silk.
- **Jute ICARE:** This pilot project launched in 2015 is **aimed at addressing the difficulties faced by the jute cultivators by providing them certified seeds** at subsidized rates, and by popularizing several newly developed retting technologies under water limiting conditions.
- National Technical Textile Mission: It aims to position the country as a global leader in technical textiles and increase the use of technical textiles in the domestic market. It aims to take the domestic market size to USD 40 billion to USD 50 billion by 2024.

#INDIAN AIR FORCE DAY: 8TH OCTOBER

The **Indian Air Force (IAF)** is celebrating 90th Air Force Day on 8th October.

What are the Key Highlights of the celebrations?

- The primary event of the day is being observed at **Chandigarh Air Force Station** and consists of a **parade** and flyover.
- LCH "Prachanda, Light Combat Aircraft (LCA) Tejas, Sukhoi, Mig-29, Jaguar, Rafale, IL-76, C-130J, and Hawk have taken part in the fly-past.
- Among helicopters, Advanced Light Helicopter Dhruv, Chinook, Apache and Mi-17 will be part of the aerial display.



What is the Indian Air Force?

Background:

- The **Indian Air Force** was established in 1932 during **World War II** to support the Royal Air Force of the United Kingdom in its war against Japan.
- To stop the Japanese army's progress into India, the IAF was utilised to target Japanese bases in Burma.
- In 1945, **King George VI** bestowed the **prefix "Royal"** in recognition of the IAF's accomplishments. After India became a **republic in 1950**, this honorary title was abolished.
- After the independence of the nation, it evolved into the Indian Air Force in 1950.

About:

- President of India is the Supreme Commander of the Armed Forces,
- The **fourth-largest air force** in the world is the **Indian Air Force**.
- **Headquarters:** New Delhi
- Motto of India Air Force: Touch the sky with Glory.
- It was taken from the **eleventh chapter of the Bhagavad Gita**.
- The **Chief of Air Staff, an air chief marshal** is responsible for the operational command of the air force.

What are the most Significant Operations of the IAF?

- After independence, **IAF** took part in wars with **Pakistan** and the **People's Republic of China**.
- **Operation Meghdoot:** To regain control of the heights commanding the **Siachen glacier**, the Indian Army,

- Indian Air Force, and paramilitary troops launched "Operation Meghdoot" on April 13, 1984.
- IAF took part in relief operations during natural calamities such as Gujarat cyclone in 1998, the tsunami in 2004, etc.

Other significant operations of the IAF:

- **Operation Vijay (1961)**
- The Second Kashmir War (1965)
- The Bangladesh Liberation War (1971)
- Operation Poomalai (1987)
- **Operation Cactus (1988)**
- The Kargil War (1999)
- The Balakot airstrike
- The India-Pakistan standoff of 2019

#WORLD FOOD DAY OBSERVED ON 16TH OCTOBER

World Food Day is celebrated to commemorate the establishment of the UN Food and Agriculture Organisation (FAO) on 16th October 1945. FAO is a specialised agency of the United Nations that leads international efforts to defeat hunger.

What are the Kev Highlights of World Food Day 2022?

- It is observed **annually** to address the problem of global hunger.
- It emphasises Sustainable Development Goal 2 (SDG 2) i.e., Zero Hunger.
- Theme: Leave No One Behind.



What is the Status of Global Hunger according to Various Reports?

- The Hunger Hotspots Outlook (2022-23), a report by the FAO and World Food Programme (WFP) forebodes escalating hunger, as over 205 million people across 45 countries will need emergency food assistance to survive.
- The Global Report on Food Crises 2022 released in May by the Global Network against Food Crises underscored that about 180 million people across 40 countries will face inescapable food insecurity.
- **Global Hunger Report**, **2022**: Globally, the progress against hunger has largely stagnated in recent years, with a global score of 18.2 in 2022 as compared to 19.1 in 2014, there is only a slight improvement,
- Barring war-torn Afghanistan, India has performed worse than all the countries in the South Asian region in the the Global Hunger Index 2022.
- It has ranked 107 out of 121 countries.

What are the Related Indian Initiatives?

- Eat Right India and Fit India Movement along with Swachh Bharat Abhiyan, Jal Jeevan Mission and other efforts will improve the health of Indians and heal the environment.
- **Introduction of 17 new biofortified varieties of crops** to overcome the shortcomings of the common variety of crops which lacks important micronutrients. Example: MACS 4028 Wheat, Madhuban
- Increased ambit and effective implementation of the Food Security Act, 2013.
- Amendments to the APMC (agricultural produce market committee) Acts to make them more competitive.
- Steps to ensure that farmers get one and a half times the cost as **Minimum Support Price** (MSP), which along with the government procurement, is an important part of ensuring the country's food security.

- Development of a large network of **Farmer Producer Organisations** (FPOs).
- **Amendments in the Essential Commodities Act, 1955** to deal with the issue of grain wastage in India.
- The government is making efforts to **make India Trans Fat free by 2022**, a year ahead of the **World Health Organization**_(WHO) target, in synergy with the vision of **New India @75** (75 years of India's independence). **Trans Fat** is a **food toxin** present in **Partially Hydrogenated Vegetable Oils** (PHVOs) (e.g., vanaspati, shortening, margarine, etc.), baked and fried foods.
- FAO supported India's proposal to declare 2023 as the International Year of Millets.
- For improving food access, especially for vulnerable populations, the Government of India drives programmes such as the **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY).**

#GLOBAL INNOVATION INDEX 2022

Recently, India was ranked 40th position out of 132 in the **Global Innovation Index (GII) 2022 rankings** released by **World Intellectual Property Organisation (WIPO).** India was ranked 46th position in 2021, and 81st rank in 2015.

What are the Highlights of the Report?

Ranking of the Countries:

• **Most Innovative Economy:** Switzerland is the most innovative economy in the world in 2022 - for the 12th year in a row - followed by the United States, Sweden, the United Kingdom and the Netherlands. China is nearing the top 10 while **Türkiye and India enter the top 40 for the first time.**

Performance of India:

- **India is the innovation leader** in the lower middle-income group.
- It continues to lead the **world in ICT services exports** and holds top rankings in other indicators, including venture capital receipt value, finance for **startups** and scaleups, graduates in science and engineering, labor productivity growth and domestic industry diversification.
- What is the Global Innovation Index?
- The Global Innovation Index, which is **published annually**, has been a **leading reference for measuring** an **economy's innovation performance**.
- A large number of countries use the GII to **assess and improve their innovation ecosystems** and use the GII as a reference in economic plans and/or policies.
- The GII has also been **recognized by the UN Economic and Social Council** in its 2019 resolution on Science, Technology and Innovation for Development as an authoritative benchmark for measuring innovation in relation to the **Sustainable Development Goals (SDGs)**.

Indicators of the index:

- Parameters for computing the index include 'institutions', 'human capital and research', 'infrastructure',
 'market sophistication', 'business sophistication', 'knowledge and technology outputs' and 'create outputs'.
- **Theme for 2022:** "What is the future of innovation-driven growth?".
- Effects of Two Novel Innovation Waves: The GII 2022 also outlines the positive effects of two novel innovation waves, although it emphasizes that such effects would take some time to be realized:
- A digital age innovation wave built on supercomputing, artificial intelligence, and automation. Effect: making ample productivity impacts across all sectors and fields of scientific research.
- **A Deep Science innovation wave** built on breakthroughs in biotechnologies, nanotechnologies, new materials, and other sciences. **Effect:** revolutionizing innovations in health, food, environment, and mobility (four fields of key importance to society).
- What is WIPO?
- WIPO is the **global forum for intellectual property (IP) services**, policy, information and cooperation.
- It is a **self-funding agency of the United Nations**, with 193 member states.

- Its aim is to **lead the development of a balanced and effective international IP system** that enables innovation and creativity for the benefit of all.
- Its mandate, governing bodies and procedures are set out in the WIPO Convention, which established WIPO in 1967.

#LEADS REPORT 2022

Recently, the Ministry of Commerce and Industry has released the Logistics Ease Across Different States (LEADS) Report 2022.

The LEADS is an indigenous data-driven index to assess logistics infrastructure, services, and human resources across all 36 States and UTs. A LEAD continues to act as a guiding & bridging mechanism for the identification of interventions enhancing logistics efficiency at State/UTs.

It reflects positively on international indices, like **Logistics Performance Index**.

The first logistics report was released in 2018.

What are the Key Findings?

- Unlike the previous versions of LEADS which were based on ranking systems for all states, LEADS 2022
 has adopted a classification-based grading, states have been now classified under four categories viz
 coastal states, hinterland/landlocked states, north-eastern states, and Union Territories.
- For the assessment of how well a State or UT has performed in comparison to the Top State/UT within the specific cluster.

Three performance categories namely:

- **Achievers:** States/UTs **achieving 90% or more** percentage.
- Andhra Pradesh, Assam, Chandigarh, Delhi, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Odisha, Punjab, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and Gujarat are in the achievers Category.
- Maharashtra tops amongst the "Achievers" states.
- **Fast Movers:** States/UTs achieving percentage scores **between 80-90%**.
- Kerala, Madhya Pradesh, Rajasthan, Puducherry, Sikkim and Tripura.
- **Aspirers:** States/UTs achieving percentage scores **below 80%** have been made.
- The LEADS 2022 survey report would assist PM Gati-Shakti National Master Plan (PMGS-NMP) and National Logistics Policy (NLP) to mapping of logistics infrastructure, services, and regulatory environment enabling State Governments to identify and fill the gaps and achieve data-driven multimodal connectivity.
- **PMGS-NMP** has potential to save over Rs. 10 Lakh Crore annually by improving logistics efficiency and will bringing down the logistic cost to single digits in the coming years.
- **NMP** to help remotest areas undertake integrated infrastructure planning and close development gaps. **Through PM Gati-Shakti** 197 critical infrastructure gap projects identified.

What is Logistics Performance Index?

- The Logistics Performance Index (LPI), developed by the World Bank Group, is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.
- LPI is the weighted average of the country's scores on the six key dimensions:
- Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs.
- Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology).
- Ease of arranging competitively priced shipments.
- Competence and quality of logistics services (e.g., transport operators, customs brokers).
- Ability to track and trace consignments.
- Timeliness of shipments in reaching destinations within the scheduled or expected delivery time.
- India ranked 44th on the LPI in 2018. As of 2022 no new data has been published.

What are the Initiatives Related to Logistics?

- Multimodal Transportation of Goods Act, 1993.
- PM Gati Shakti Scheme
- Multi Modal Logistics Parks
- LEADS Report
- Dedicated Freight Corridor
- Sagarmala Projects
- Bharatmala Project

#GLOBAL HUNGER INDEX 2022

Barring the war-torn Afghanistan, India has performed worse than all the countries in the South Asian region in the **Global Hunger Index 2022**. It has ranked **107 out of 121 countries**. India ranked 101 out of 116 countries in the **Global Hunger Index (GHI) 2021**.

What is the Global Hunger Index?

 The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels.

GHI scores are based on the values of four component indicators:

- Undernourishment
- Child stunting
- Child wasting
- Child mortality
- The GHI score is calculated on a 100-point scale reflecting the severity of hunger zero is the best score (implies no hunger) and 100 is the worst.
- The GHI is prepared by European NGOs of Concern Worldwide and Welthungerhilfe.
- The GHI is an **annual report** and each set of GHI scores **uses data from a 5-year period**. The 2022 GHI scores are calculated using data from 2017 through 2021.

What is the Performance of Countries on GHI 2022?

- **Global Progress:** Globally, the progress against hunger has largely stagnated in recent years, with a **global score of 18.2 in 2022** as compared to 19.1 in 2014, there is only a slight improvement. However, the 2022 GHI score is still considered "**moderate**".
- The plausible causes for the stagnation in this progress are overlapping crises such as conflicts among countries, climate change, the economic fallout of the Covid-19 pandemic as well as the Russia-Ukraine war, which has increased global food, fuel, and fertiliser prices_and is expected to "worsen hunger in 2023 and beyond".
- As per the index, there are 44 countries that currently have "serious" or "alarming" hunger levels and "without a major shift, neither the world as a whole **nor approximately 46 countries are projected to achieve even low hunger as measured by the GHI by 2030.**

Top and Worst Performers:

- Belarus, Bosnia & Herzegovina, Chile, China and Croatia are the top five countries in GHI 2022.
- Chad, Democratic Republic of Congo, Madagascar, Central African Republic and Yemen are the countries ranked at the bottom of the index.



- India and Neighboring Countries: Among the South Asian countries, India (107) is ranked below Sri Lanka (64), Nepal (81), Bangladesh (84), and Pakistan (99).
- India has a score of **29.1** which places it under 'serious' category.
- Afghanistan (109) is the only country in South Asia that performs worse than India on the index.
- **China, with a score of less than 5,** has topped the chart, topped the chart, together with 16 other countries.

India's Performance in the Four Indicators:

- Child Wasting: India's child wasting rate (low weight for height), at 19.3%, is worse than the levels recorded in 2014 (15.1%) and even 2000 (17.15%).
- It is the **highest for any country** in the world and drives up the region's average owing to India's large population.
- **Undernourishment:** Prevalence of undernourishment has also risen in the country from **14.6% in 2018-2020 to 16.3% in 2019-2021.**
- It implies that 224.3 million people in India (out of 828 million globally) are considered undernourished.
- The indicator measures the proportion of the population facing chronic deficiency of dietary energy intake.
- Child Stunting and Mortality: India has shown improvement in child stunting and child mortality.
- Child stunting (low height for age) has declined from 38.7% to 35.5% between 2014 and 2022.
- Child mortality (mortality rate under the age of five) has dropped from 4.6% to 3.3% in the same comparative period.

What Other Similar Indices/Reports are there?

- State of Food Security and Nutrition in the World: Presented by the Food and Agriculture Organization, the International Fund for Agricultural Development, the UNICEF, the World Food Programme_and the World Health Organization.
- **Global Nutrition Report, 2021:** It was conceived following the first Nutrition for Growth Initiative Summit (N4G) in 2013.
- National Family Health Survey (NFHS): It comprises detailed information on key domains of population, health and family welfare - fertility, family planning, infant and child mortality, maternal and child health, nutrition and anaemia, morbidity and healthcare, women's empowerment etc.

What are India's Initiatives to Eradicate Hunger/Malnutrition?

- Eat Right India Movement: An outreach activity organised by the Food Safety and Standards Authority of India (FSSAI) for citizens to nudge them towards eating right.
- **POSHAN Abhiyan:** Launched by the Ministry of Women and Child Development in 2018, it targets to reduce stunting, undernutrition, anaemia (among young children, women and adolescent girls).
- **Pradhan Mantri Matru Vandana Yojana:** A **centrally sponsored scheme** executed by the Ministry of Women and Child Development, is a **maternity benefit programme** being implemented in all districts of the country with effect from 1st January, 2017.
- **Food Fortification**: **Food Fortification or Food Enrichment** is the addition of key vitamins and minerals such as iron, iodine, zinc, Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.
- National Food Security Act, 2013: It legally entitled up to 75% of the rural population and 50% of the urban population to receive subsidised food grains under the Targeted Public Distribution System.
- **Mission Indradhanush:** It targets children under 2 years of age and pregnant women for immunisation against 12 **Vaccine-Preventable Diseases (VPD).**
- Integrated Child Development Services (ICDS) Scheme: It offers a package of six services (Supplementary Nutrition, Pre-school non-formal education, Nutrition & health education, Immunisation, Health check-up and Referral services) to children in the age group of 0-6 years, pregnant women and lactating mothers.

#GLOBAL MULTIDIMENSIONAL POVERTY INDEX (MPI) 2022

Recently, the **Global Multidimensional Poverty Index (MPI) 2022** was released by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative (OPHI)**.

What are the Key Highlights of the Index?

Global Data:

- 1.2 billion people are multidimensionally poor.
- Nearly half of them live in severe poverty.
- Half of poor people (593 million) are children under age 18
- The number of poor people is highest in Sub Saharan Africa (579 million), followed by South Asia (385 million). The two regions together are home to 83% of poor people.



What are the Kev Findings about India?

- Data: India has by far the largest number of poor people worldwide at 22.8 crore, followed by Nigeria at 9.6 crore.
- **Two-thirds of these people live in a household** in which at least one person is deprived of nutrition.

Performance of States:

- Bihar, the poorest state in 2015-16, **saw the fastest reduction in MPI value in absolute terms.**
- The **percentage of poor in Bihar fell from 77.4 % in 2005-06 to 52.4 % in 2015-16** and further to 34.7 % in 2019-21.
- However, in relative terms, the **poorest states have not quite caught up.**
- Of the 10 poorest states in 2015/2016, only one (West Bengal) have emerged out of the list in 2019-21.
- The rest (Bihar, Jharkhand, Meghalaya, Madhya Pradesh, Uttar Pradesh, Assam, Odisha, Chhattisgarh and Rajasthan) remain among the 10 poorest.
- Across states and union territories in India, the fastest reduction in relative terms was in Goa, followed by Jammu and Kashmir, Andhra Pradesh, Chhattisgarh and Rajasthan.

What is the Global Multidimensional Poverty Index?

- The index is a **key international resource** that measures acute multidimensional poverty across more than 100 developing countries.
- It was **first launched in 2010 by the OPHI** and the Human Development Report Office of the UNDP.
- The **MPI monitors deprivations in 10 indicators** spanning health, education and standard of living and includes both incidence as well as intensity of poverty.
- MPI Indicators and Dimensions:
- A person is **multidimensionally poor** if she/he is deprived in one third or more (means 33% or more) of the weighted indicators (out of the ten indicators). Those who are deprived in one half or more of the weighted indicators are considered living in **extreme multidimensional poverty.**

#INTERNATIONAL DAY OF RURAL WOMEN

Every year, International Day of Rural Women is celebrated on 15th October.

Why do we celebrate the International Day of Rural Women?

Background:

- The idea of honouring rural women with a special day was put forward by international NGOs at the Fourth World Conference on Women in Beijing in 1995.
- The first International Day of Rural Women was observed on 15th October 2008. This new international day was established by the General Assembly in its resolution 62/136 in 2007.



About:

- The day aims to create awareness about the fact that the engagement of rural women diversifies family livelihood, yet their efforts largely go unappreciated.
- **It recogni**zes "the critical role and contribution of rural women, including indigenous women, in enhancing agricultural and rural development, improving food security and eradicating rural poverty."
- Theme for 2022: "Rural Women, key for a world free from hunger and poverty."

What Initiatives Taken for the Upliftment for Rural Women Workers?

- e-Shram Portal: e-Shram Portal_was launched to register 38 crore unorganised workers such as construction labourers, migrant workforce, street vendors, and domestic workers, among others.
- The Mahila Kisan Sashaktikaran Pariyojana (MKSP): Launched in 2011, it is aimed at imparting skill development and capacity building programmes for rural women. This scheme was introduced as a sub component of DAY-NRLM (Deendayal Antyodaya Yojana National Rural Livelihoods Mission) and implemented through State Rural Livelihoods Mission (SRLM) across India.
- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Launched in 2015, it aims to train over 40 crore people in India in different skills by 2022. It aims at vocational training and certification of Indian youth for a better livelihood and respect in the society.

Other Initiatives

- Pradhan Mantri Matru Vandana Yojana (PMMVY)
- Pradhan Mantri Garib Kalyan Ann Yojana
- Sub-Mission on Agricultural Mechanization Scheme
- PM-KISAN Scheme

#GLOBAL METHANE PLEDGE: GMCCA FORUM

Global Methane, Climate and Clean Air (GMCCA) Forum 2022 **is** being held in Washington, DC, USA to discuss **opportunities to protect the climate** and improve air quality with a special focus on **methane** by adhering to the **Global Methane Pledge**.

What is the Agenda of the Forum?

- The Forum is joint event sponsored by **the** Global Methane Initiative (GMI) and the **UNEP-convened** Climate and Clean Air Coalition (CCAC).
- **GMI** is an **international public-private partnership** focused on reducing barriers to the **recovery and use of methane** as a clean energy source. It provides **technical support to deploy methane-to-energy**

projects around the world that enable Partner Countries to launch methane recovery and use projects.

- India is a partner country of GMI.
- High-level plenary sessions will be held on **global efforts to reduce methane and other short-lived climate pollutants.**
- The forum will outline policy, political and scientific arguments for global ambition on methane action. They also aim to define a path forward.

What is the Global Methane Pledge?

- The Global Methane Pledge was launched at COP (Conference of Parties) 26_in November 2021 to catalyse action to reduce methane emissions.
- It was led by the **United States and the European Union**.
- It has 111 country participants who together are **responsible for 45% of global human-caused methane emissions.**
- India, which is not a part of the Global Methane Pledge, is **among the top five methane emitters globally.** Most emissions can be traced back to agriculture.
- By joining the Pledge, countries commit to work together in order to collectively reduce methane emissions by at least 30% below 2020 levels by 2030.

What is Methane?

- Methane is a gas that is **found in small quantities in Earth's atmosphere**.
- Methane is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms (CH₄). Methane is **powerful greenhouse gas.** It is flammable, and is used as a fuel worldwide.
- Methane is produced by the breakdown or decay of organic material and can be introduced into the
 atmosphere by either natural processes such as the decay of plant material in wetlands, the seepage of
 gas from underground deposits or the digestion of food by cattle or human activities such as oil and
 gas production, rice farming or waste management.

#WHAT IS PURPLE REVOLUTION?

Recently, the Union State Minister for Science and Technology stated that the **Purple Revolution offers attractive StartUp avenues.** The Ministry of Science and Technology initiated the **Purple Revolution or Lavender Revolution in 2016 through the Aroma Mission of the Council of Scientific and Industrial Research (CSIR).**

What is Purple Revolution?

- It aims to promote the indigenous aromatic crop-based agroeconomy by shifting from foreign aromatics to homegrown kinds.
- First-time producers were offered **free lavender seedlings** as part of the goal, and those who had previously produced lavender were paid Rs. 5-6 per plant.
- The CSIR-Aroma Indian Institute of Integrative Medicine (IIIM)'s Initiative have begun lavender cultivation in the Ramban district of Jammu and Kashmir.
- Lavender farming is done in nearly all of Jammu and Kashmir's 20 districts.
- Particularly, the districts of Kathua, Udhampur, Doda, Kishtwar, Rajouri, Srinagar, Bandipora, Budgam, Ganderbal, Anantnag, Kulgam, Baramulla etc. have made huge progress in this direction.

What is Aroma Misson?

• The CSIR Aroma Mission aims to bring about **transformational change in the aroma sector** by implementing targeted interventions in agricultural, processing, and product development in order to boost the aroma industry's growth and rural employment. It will encourage the development of aromatic crops

- for the **production of essential oils,** which are in high demand in the aroma sector.
- It is anticipated that Indian farmers and the aroma business will be able to become worldwide leaders in the production and export of various essential oils in the menthol mint pattern.
- Aroma Mission is drawing entrepreneurs and farmers from all across the country. CSIR assisted in the **cultivation of 6000 hectares of land in 46 Aspirational districts** across the country during Phase I.
- In addition, almost 44,000 employees were trained. The CSIR has started Phase II of the Aroma Mission, which will include over 45,000 skilled human resources and help over 75,000 farming families.

#NAMDAPHA NATIONAL PARK

The Changlang district administration has declared cultivation of large cardamom in the Namdapha National Park (NP) illegal.

What are the Key Points about Namdapha National Park?

- Namdapha is in fact the name of a river originating in the park and it meets Noa-Dehing river.
- The Noa-Dehing river, is a tributary of the Brahmaputra and flows in a North-South direction in the middle of the National Park.

Location:

- It is located in the State of **Arunachal Pradesh** and it covers 1,985 sq km.
- It lies in close proximity to Indo-Myanmar-China trijunction.
- The park is located between the **Dapha bum range of the Mishmi Hills and the Patkai range**.
- It the fourth largest national park in India.
- The first three are **Hemis National Park** in Ladakh, **Desert National Park** in Rajasthan, and **Gangotri National Park** in Uttarakhand.

Legal Status:

• It was established as a national park in 1983, and it was declared as a Tiger Reserve in the same year of 1983 in the same year. It is also on the **Tentative Lists of UNESCO World Heritage Sites** in India.

Biodiversity:

- This protected area has more than 1000 floral species and more than 1400 faunal species.
- It is also a part of **biodiversity hotspot**.
- It is only park in the World to have the four Feline species of big cat namely the Tiger (Panthera Tigris), Leopard (Panthera Pardus), Snow Leopard (Panthera Uncia) and Clouded Leopard (Neofelis Nebulosa).
- It is also famous for **Critically Endangered species** like the Namdapha flying squirrel, species that was last spotted in 1981.
- Hoolock Gibbons, the only 'ape' species found in India is found in this National Park.
- Vegetation: The vegetation is characteristic of tropical evergreen forests (Tropical Rain Forests)

What are the Other Protected Areas in Arunachal Pradesh?

- Pakke Wildlife Sanctuary.
- Mouling National Park
- Kamlang Wildlife Sanctuary.
- Itanagar Wildlife Sanctuary.
- Eagle Nest Wildlife Sanctuary.

#SASTRA RAMANUJAN PRIZE 2022

The SASTRA Ramanujan Prize for 2022 will be awarded to Yunqing Tang, Assistant Professor with the University of California, Berkeley, U.S.A. Ms. Yunqing's works display a **remarkable combination of sophisticated techniques, in which the arithmetic and geometry of modular curves** and of Shimura varieties play a central role, and her results and methods are bound to have **major impact on future research** in this area.

What are the Key Points of the Awards?

- The award was instituted by the Shanmugha Arts, Science, Technology & Research Academy (SASTRA) in 2005.
- A cash prize of USD 10,000 is presented annually to individuals aged 32 and below, who made outstanding contributions in the field of mathematics, influenced by Srinivasa Ramanujan in a broad sense.

Who was Srinivasa Ramanujan?

- Ramanujan was born on **22**nd **December 1887 in the village Erode** (400 km from Chennai, then known as Madras).
- The famous **British mathematician Godfrey Harold Hardy recognised his talent** in 1913. He went to Cambridge, on Godfrey Harold Hardy's invitation.
- Ramanujam made **substantial contributions to the analytical theory of numbers** and worked on elliptic functions.
- He also worked on the partition of the whole number, hypergeometric series and Euler's constant.
- His papers were published in English and European journals, and in 1918 he was elected to the Royal Society of London.
- He died on April 26th, 1920, at the age of 32, just after returning to India after a long illness.
- In India, 22nd December is celebrated as **National Mathematics Day** in the memory of Srinivasa Ramanujan.

Contributions:

- **Formulas and Equations:** Ramanujan compiled around 3,900 results consisting of equations and identities. One of his most treasured findings was **his infinite series for Pi.**
- **Game Theory:** He discovered a long list of new ideas to solve many challenging mathematical problems, which gave a significant impetus to the development of game theory.
- **Ramanujan's Book:** One of Ramanujan's notebooks was discovered by George Andrews in 1976 in the library at Trinity College. Later the contents of this notebook were published as a book.

#WORLD HABITAT DAY: 3RD OCTOBER

The United Nations has designated the first Monday of October of every year as World Habitat Day (3rd October 2022) to reflect on the state of our habitats, and on the basic right of all to adequate shelter.

The Ministry of Housing and Urban Affairs (MoHUA) celebrated World Habitat Day 2022 at Vigyan Bhawan.

What is World Habitat Day?

- The Day is intended to **remind the world that we all have the power and the responsibility** to shape the future of our cities and towns.
- World Habitat Day 2022 seeks to draw attention to the **growing**





- inequalities and vulnerabilities that have been exacerbated by the Triple 'C' Crises: COVID-19, Climate and Conflict.
- Theme of WHD 2022: "Mind the Gap. Leave No One Behind and No Place Behind." The theme serves a strong reminder that "we cannot leave behind any citizen and any place as we build towards a more resilient future."

History:

- In 1985 the United Nations designated the first Monday of October every year as World Habitat Day.
- World Habitat Day was **first celebrated in 1986** with the theme **"Shelter is My Right"**.
- Nairobi (Kenya) was the host city for the observance that year.

Habitat Scroll of Honour Award:

- The Habitat Scroll of Honour Award was launched by the **United Nations Human Settlements Programme (U.N.-Habitat)** in 1989.
- It is currently the **most prestigious human settlements award in the world.**
- Its aim is to acknowledge initiatives which have made outstanding contributions in various fields such as shelter provision, highlighting the plight of the homeless, leadership in post conflict reconstruction etc.

What are India's Initiatives for Urban & Rural Management?

- Smart Cities
- AMRUT Mission
- Pradhan Mantri Garib Kalyan Yojana
- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005
- Deen Dayal Antyodaya Yojana National Rural Livelihoods Mission (DAY-NRLM)
- Pradhan Mantri Gram Sadak Yojana (PMGSY)

#INTERNATIONAL GIRL CHILD DAY

Every year, International Girl Child Day is observed on 11th October 2022.

Why do we celebrate International Girl Child Day?

History:

- First time in history, the **Beijing Declaration and Platform for Action** in 1995, proposed an action plan to advance the rights of girls.
- In 2011, the **United Nations General Assembly adopted Resolution 66/170** to declare 11th October as the International Day of the Girl Child.
- **Theme for 2022:** "Our time is now—our rights, our future"

What is the State of Girl Child in India?

According to the recently released **report "Accidental Deaths & Suicides in India Report 2021"** by National Crime Records Bureau (NCRB): Crime against children surpassed the pre-pandemic levels after declining in 2020 due to Covid-related restriction.

- In 2021, **1.49 lakh such cases were recorded,** higher than 1.48 lakh in 2019.
- The data published by the NCRB is specifically grim for the eastern states of India:
- **Sikkim has the highest rate of sexual offences** against children followed by Kerala, Meghalaya, Haryana and Mizoram.

- **West Bengal and Odisha are among the top five states** (along with Maharashtra, MP and UP) which account for **47.1% of the total crimes committed against children** across the country.
- There were 9,523 cases of crimes against children recorded alone in West Bengal in 2021.

Related Initiatives:

- **Beti Bachao Beti Padhao:** Launched in 2015 with the aim to **address sex selective abortion** and the **declining child sex ratio** which was at 918 girls for every 1,000 boys in 2011.
- **Sukanya Samriddhi Yojana:** Launched in 2015, in order to **promote the welfare of girl children.** It encourages parents to invest and build funds for the future studies and marriage expenses of the girl's children.
- **CBSE Udaan Scheme:** UDAAN is a project launched by the CBSE to **address the low enrolment of girl students in prestigious engineering institutions** and the **teaching gap** between school education and engineering entrance examinations.
- National Scheme of Incentive to Girls for Secondary Education (NSIGSE): It is a Centrally Sponsored
 Scheme launched in 2008, which aims to promote enrollment of girl children in the age group of 1418 at secondary stage, especially those who passed Class VIII and to encourage the secondary education of
 such girls.
- **Scheme for Adolescent Girls:** Government is also implementing **Scheme for Adolescent Girls**, which aims to facilitate, educate and empower Adolescent Girls (AGs) so as to enable them to become self-reliant and aware citizens.

#WORLD MENTAL HEALTH DAY 2022

On the occasion of **World Mental Health Day (10th October)**, the Lancet released a report titled **"Ending Stigma and Discrimination in Mental Health"** and called for **radical action to end stigma and discrimination associated with mental health.**

What are the Findings of the Report?

- **Prevalence of Mental Health Condition:** Nearly one billion people globally are living with a mental health condition.
- One out of seven in the age bracket of 10-19-year-olds suffers from a mental condition. These people experience a double threat - the impact of the condition itself and the damaging social consequences of stigma and discrimination.
- There was an estimated 25 % rise in the **prevalence of depression** and anxiety in the first year of the pandemic.



Indian Scenario:

- Though there is a gradual reduction of stigma in India, it continues to be a **real and present problem**.
- Women with a diagnosis of severe mental disorder and their family members do face more stigma which has ramifications for marriage and employment preventing social inclusion.
- The Indian media, especially the visual media like television serials continue to portray mental illness negatively.

Why is World Mental Health Day Celebrated?

- World Mental Health Day is marked on 10th October every year to spread awareness and education about mental health issues across the world.
- The first time World Mental Health Day was observed was on 10th October, 1992.
- The day was started as an **annual activity of the World Federation for Mental Health** by the then Deputy Secretary-General Richard Hunter.

• **Theme for Year 2022:** Making mental health for all a global priority.

What Initiatives are taken by India to Promote Mental Health?

- National Mental Health Program: To address the huge burden of mental disorders and shortage of qualified professionals in the field of mental health, the government has been implementing the National Mental Health Program (NMHP) since 1982.
- Mental HealthCare Act 2017: The Mental Health Care Act (MHCA) 2017 came into force in 2018 to meet the requirements of the United Nations Convention on the Rights of Persons with Disabilities which India ratified in 2007.
- **Kiran Helpline:** It offers **mental health rehabilitation services** with the objective of early screening, first-aid, psychological support, distress management, promoting positive behaviours, etc.
- Manodarpan
- The Ministry of Human Resources Development launched it under **Atmanirbhar Bharat Abhiyan.** It is aimed to provide psychosocial support to students, family members and teachers for their mental health and well-being during the times of Covid-19.
- Mental Health and Normalcy Augmentation System (MANAS): In 2021, the government of India launched MANAS (Mental Health and Normalcy Augmentation System) mobile App to promote mental wellbeing across age different groups.

#NORD STREAM PIPELINES

Recently, leaks were found in the pipelines comprising the **Nord Stream pipelines (Nord Stream 1 and Nord Stream 2)** located near Denmark and Sweden.

The leaks happened just before the ceremonial launch of the **Baltic Pipe carrying gas from Norway to Poland, which** is an effort by Poland to **decrease its dependence on Russia for energy.**

What are the Nord Stream Pipelines?

- Nord Stream consists of two pipelines, which have two lines each.
- Nord Stream 1 is a 1,224 km underwater gas pipeline running from Vyborg in northwest Russia to Lubmin in northeastern Germany via the Baltic Sea. It was completed in 2011.
- **Nord Stream 2** which runs from Ust-Luga in Leningrad to Lubmin was completed in September 2021 and has the capacity to handle 55 billion cubic meters of gas per year once it becomes operational.
- The twin pipelines together can transport a combined total of 110 billion cubic metres (bcm) of gas a year to Europe for at least 50 years.



- The Nord Stream crosses the **Exclusive Economic Zones (EEZs)** of several countries including Russia, Finland, Sweden, Denmark and Germany, and the territorial waters of Russia, Denmark, and Germany.
- In Germany, the pipeline connects to the OPAL (Baltic Sea Pipeline) and NEL (North European Pipeline) which further connects to the European grid.

What is its Significance of Nord Stream for Europe and Russia?

Europe:

- Europe requires more than **100 billion cubic metres (bcm) of natural gas** each year and around 40% of its gas comes from Russia.
- Over the last few years, Europe has become more dependent on gas imports because of a decrease in domestic gas production. Reducing dependence on Russian gas is difficult as there are no easy replacements.
- Many European businesses have large investments in Nord Stream 2 and there is pressure on governments from these businesses. Finally, a reduction in gas from Russia would increase already high gas prices and that would not be popular domestically.

Russia:

- As for Russia, which has the largest natural gas reserves in the world, around **40% of its budget comes from sales** of gas and oil.
- Nord Stream 2 is important because **it eliminates the risks related with sending gas through transit countries,** cuts operating costs by doing away with transit fees and gives direct access to its most important European customer, Germany.
- It increases **Europe's dependence on Russia** while giving it a reliable customer.

#GLOBAL ARTIFICIAL INTELLIGENCE SUMMIT & AWARDS

The Union Minister of Commerce and Industry addressed the 3rd edition of **Global Artificial Intelligence Summit & Awards (GAISA),** and articulated that **Artificial Intelligence** can help India be a developed nation by 2047.

What is GAISA?

- The third AI Summit has been organized by AICRA (All India Council for Robotics & Automation) and is focusing on the areas of defence, healthcare, agriculture, smart cities, mobility and education in partnership with the government.
- AICRA sets up standards in the robotics & automation and education industry, helping organizations and professionals to solve difficult technical problems, while enhancing their leadership and personal career capabilities.
- GAISA-Global Artificial Intelligence Summit focuses on the **prominence of AI in human lives & business industries.**
- The aim is to develop a roadmap on how to use the AI ecosystem and startups for the benefit of society.
- It has set up **multidisciplinary groups** to break down the silos in which different stakeholders have been working and to **find technological solutions for the key sectors of our society.**

What is Artificial Intelligence?

- It describes the action of machines accomplishing tasks that have historically required human intelligence.
- It includes technologies like machine learning, pattern recognition, big data, neural networks, selfalgorithms etc.
- The origin of the concept can be traced back to **Greek mythology**, although it is only during modern

- **history** when stored program electronic computers were developed.
- **Example:** Millions of algorithms and codes are there around humans to understand their commands and perform human-like tasks. Facebook's list of suggested friends for its users, a pop-up page, telling about an upcoming sale of the favourite brand of shoes and clothes that comes on screen while browsing the internet are the work of artificial intelligence.

How Can AI Help India in the Development Process?

- The **Make in India** program when juxtaposed with AI technology will **enable India to become the factory of the world providing** both equipment and technology to the world.
- In India, there is a huge talent pool available that will **definitely help in exploring newer ways to take AI** in every sector of economic activity.
- The government is using AI to redefine the way it works such as **Unified Logistics Interface Platform** (**ULIP**), which is leveraging **AI to improve the entire logistics ecosystem of the country.**
- Initiatives like **PM Gatishakti** National Master Plan, which aims at developing our infrastructure smarter, Open Network for Digital Commerce (ONDC), which aims at democratising E-commerce, GeM which has made a significant impact for government procurement all these are **leveraging AI** to bring **efficiency and better delivery of services.**
- With the meaningful contribution by Industry, startups, incubators and academia, India is **going to emerge as the hub of the artificial intelligence revolution** across the world. AI can play a crucial role in empowering the lives of farmers, fishermen and the MSME (Micro, Small and Medium Enterprises) sector.

#ERADICATION OF POLIO

Recently, global leaders confirmed USD 2.6 billion in funding toward the **Global Polio Eradication Initiative's (GPEI)** 2022-2026 Strategy to end polio at the **World Health Summit in Berlin.**

What is the World Health Summit?

- The World Health Summit is an **international health conference**.
- WHS 2022 **aimed to strengthen exchange, stimulate innovative solutions** to health challenges, position global health as a key political issue and promote a global health conversation in the spirit of the **UN Sustainable Development Goals.**

What is Polio?

- Polio is a crippling and potentially deadly viral infectious disease that affects the nervous system.
- There are three individual and immunologically distinct wild poliovirus strains:
 - Wild Poliovirus type 1 (WPV1)
 - Wild Poliovirus type 2 (WPV2)
 - Wild Poliovirus type 3 (WPV3)
- Symptomatically, all three strains are identical, in that they cause irreversible paralysis or even death. However, there are genetic and virological differences, which make these three strains separate viruses which must each be eradicated individually.

India & Polio:

- India received polio-free certification by the **World Health Organisation (WHO)** in 2014, after three years of zero cases.
- This achievement has been spurred by the successful **Pulse Polio Campaign** in which all children were administered polio drops.
- The last case due to **wild poliovirus** in the country was detected on 13th January 2011.

What Initiatives have been taken to Eradicate Polio?

Global:

- Global Polio Eradication Initiative: It was launched in 1988 by the Global Polio Eradication Initiative (GPEI), by national governments and WHO. Presently, 80% of the world's population is now living in certified polio-free regions.
- **World Polio Day:** It is observed every year on 24th October in order to call on countries to stay vigilant in their fight against the disease.

Indian:

- **Pulse Polio Programme:** It was **started with an objective of achieving 100% coverage** under Oral Polio Vaccine.
- **Intensified Mission Indradhanush 2.0:** It was a nationwide immunisation drive to mark the 25 years of **Pulse polio programme (2019-20).**

#WHAT IS SWADESH DARSHAN SCHEME?

Recently, as part of **the first phase of the 'Swadesh Darshan 2'** (beginning from January 2023), the government has identified 15 States across the country to be promoted as part of **India's new domestic tourism policy**. This policy moves away from **theme-based tourist circuits and focuses on reviving up destination tourism**. Some of the prominent places identified are Jhansi and Prayagraj in Uttar Pradesh, Gwalior, Chitrakoot and Khajuraho in Madhya Pradesh and Ajanta and Ellora in Maharashtra.



What is the Swadesh Darshan Scheme?

- It was **launched in 2014-15 for integrated development** of theme-based tourist circuits Buddhist Circuit, Coastal Circuit, Desert Circuit, Eco Circuit, Heritage Circuit, Northeast Circuit, Himalayan Circuit, Sufi Circuit, Krishna Circuit, Ramayana Circuit, Rural Circuit, Spiritual Circuit, Tirthankar Circuit, Wildlife Circuit and Tribal Circuit.
- It is 100% centrally funded and efforts are made to achieve convergence with other schemes of Central and State Governments and also to leverage the voluntary funding available for Corporate Social Responsibility (CSR) initiatives of Central Public Sector Undertakings and Corporate Sector.

Objectives:

- To **position tourism as a major engine of economic growth** and job creation.
- **Develop circuits having tourist potential** in a planned and prioritized manner.
- Promote cultural and heritage value of the country to generate livelihoods in the identified regions.

- **Enhancing the tourist attractiveness in a sustainable manner** by developing world class infrastructure in the circuit/destinations.
- **Follow community-based development** and pro-poor tourism approach.
- **Creating awareness among the local communities** about the importance of tourism for them in terms of increased sources of income, improved living standards and overall development of the area.
- **To make full use of the potential and advantages** in terms of available infrastructure, national culture and characteristic strong points of each and every region throughout the country by development of themebased circuits.
- Development of tourist facilitation services to enhance visitor experience/satisfaction.

What is Swadesh Darshan Scheme 2.0?

- With the mantra of 'vocal for local', the revamped scheme namely Swadesh Darshan 2.0 seeks to attain "Aatmanirbhar Bharat" by realizing India's full potential as a tourism destination.
- Swadesh Darshan 2.0 is **not** an **incremental change but a generational shift to evolve the Swadesh Darshan Scheme** as a holistic mission to develop sustainable and responsible tourism destinations.
- It will help develop sustainable and responsible destinations with a tourist and destination centric approach.
- It will encourage the development of benchmarks and standards for generic and theme-specific development of tourism destinations and the States will follow the benchmarks and standards while planning and developing the projects.

#BOOKER PRIZE 2022

• Recently, Sri Lankan writer Shehan Karunatilaka won the **Booker Prize** 2022 for his novel **"The Seven Moons of Maali Almeida"**, about a dead war photographer on a mission in the afterlife.

What is Booker Prize?

- The Booker Prize is the world's leading literary award for a single work of fiction.
- Founded in the UK in **1969**, it was initially awarded to Commonwealth writers and now spans the globe, and it is open to anyone regardless of origin.
- Each year, the Booker Prize is awarded to what is, in the opinion of our judges, the **best sustained work of fiction written in English** and published in the UK and Ireland.
- The winning book is a work that not only speaks to our current times, but also one that will endure and join the pantheon of great literature.

#TIMES HIGHER EDUCATION (THE) RANKINGS 2023

Recently, the Times Higher Education (THE) rankings 2023 were released. Earlier, **QS World University Ranking 2023** was released.

What is Times Higher Education?

- THE, formerly known as The Times Higher Education Supplement (THES), is a magazine reporting specifically on news and issues related to higher education.
- The Times Higher Education World University Rankings include 1,799 universities across 104 countries and regions, making them the largest and most diverse university rankings to date. This is based on 13

performance indicators that measure an institution's performance across four areas: teaching, research, knowledge transfer and international outlook and is trusted worldwide by students, teachers, governments and industry experts.



What are the Key Highlights of the Ranking?

Parameters:

- The parameters based on which the institutes are ranked are **teaching (30%), research (30%)**, **citations (30%)**, **international outlook (7.5%)**, and **industry outcome (2.5%)**. **In teaching and research**, 15% weightage each is based on a reputational survey.
- **Global Top Performer:** The University of Oxford has emerged as the best institute among 1,799 universities from 104 countries.

Indian Institutions:

- **Rankings:** India is the sixth most represented country in the 2023 rankings with 75 ranked universities.
- The **Indian Institute of Science (IISc)** is at **the top position among Indian institutes,** for its performance score for teaching and research.
- Globally, the IISc is placed in the 251-300 band.
- IISc was the top-ranking Indian Institute in the **2022 rankings** as well.
- The second position among Indian institutions has been taken by Himachal Pradesh based Shoolini
 University of Biotechnology and Management Sciences (351-400 overall), which made its debut in the
 rankings.
- IIT Ropar which was the second highest ranking Indian institute in 2022 rankings, slipped to 6th position.
- The third position is backed by Tamil Nadu's **Algappa University**, a public institution.
- Response from IITs: It has been boycotted by most Indian Institutes of Technology (IITs) for the third consecutive year over transparency concerns.
- The last time major IITs participated in the rankings was in 2019 when IIT Bombay and IIT Delhi were placed in the 401-500 overall band behind IIT Ropar and IIT Indore.

What are the Related Indian Initiatives?

- Institutions of Eminence (IoE) Scheme: Institutions of Eminence (IoE) Scheme is a government scheme to provide the regulatory architecture for setting up or upgrading 20 Institutions (10 from the public sector and 10 from the private sector) as world-class teaching and research institutions called 'Institutions of Eminence'.
- National Education Policy, 2020: National Education Policy, 2020 aims to introduce several changes in the Indian education system from school to college- and make India a global knowledge superpower.
- Impacting Research Innovation and Technology (IMPRINT): Impacting Research Innovation and Technology (IMPRINT) is a first-of-its-kind Pan-IIT and IISc joint initiative to develop a new education policy and a roadmap for research to solve major engineering and technology challenges that India must address and champion to enable, empower and encourage the nation for inclusive growth and selfreliance.
- Uchhatar Avishkar Yojana (UAY): Uchhatar Avishkar Yojana (UAY) was announced with a view to promote innovation of a higher order that directly impacts the needs of the industry and thereby improves the competitive edge of Indian manufacturing.

#WHAT IS CYCLONE SITRANG?

Bangladesh has been devastated by Cyclone Sitrang, which slammed into densely-populated, low-lying areas.

Named by Thailand, Sitrang is the **first tropical cyclone** of the postmonsoon season of 2022.

In 2018, Titli was the last October cyclone in the Bay of Bengal.

What are the Tropical Cyclones?

- A tropical cyclone is an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain.
- A characteristic feature of tropical cyclones is the eye, a central region of clear skies, warm temperatures, and low atmospheric pressure.
- Storms of this type are called hurricanes in the North Atlantic and eastern Pacific and typhoons in SouthEast Asia and China. They are called tropical cyclones in the southwest Pacific and Indian Ocean region and Willywillies in north-western Australia.
- Storms rotate counterclockwise in the northern hemisphere and clockwise in the southern hemisphere.
- The conditions favourable for the formation and intensification of tropical storms are:
- Large sea surface with temperature higher than 27°C.
- Presence of the **Coriolis force**.
- Small variations in the vertical wind speed.
- A pre-existing weak low- pressure area or low-level-cyclonic circulation.
- Upper divergence above the sea level system.

#LANCET COUNTDOWN ON HEALTH & CLIMATE CHANGE

Recently a report was released titled **Lancet countdown on health and climate change: health at the mercy of fossil fuels,** showing that from 2000-2004 to 2017-2021, **heat-related deaths increased by 55% in India**. This report comes ahead of this year's **United Nations climate change conference (COP27)**, to be held in Sharm El Sheikh, Egypt.

The report represents the work of 99 experts from 51 institutions, including the World Health Organization (WHO) and the World Meteorological Organization (WMO).

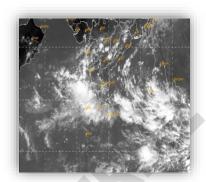
What is Lancet Countdown on Health and Climate Change Report?

The Lancet Countdown on Health and Climate Change, published annually, is **an** international, multidisciplinary collaboration, dedicated to monitoring the evolving health profile of climate change, **and** providing an independent assessment of the delivery of commitments made by governments worldwide under the **Paris Agreement**.

The countries considered in the modelling study represent **50% of the world's population and 70% of the world's emissions** – Brazil, China, Germany, India, Indonesia, Nigeria, South Africa, the UK and the US. The Lancet Countdown report was established following the 2015 Lancet Commission on Health and Climate Change.

It tracks **43 indicators across five key domains**:

• Climate Change impacts, Exposures and Vulnerability; adaptation, Planning, and resilience for health; mitigation actions and health co-benefits; economics and finance and public and political engagement.



What are Initiatives taken by India for Controlling Air Pollution?

- System of Air Quality and Weather Forecasting and Research (SAFAR) Portal
- Air Quality Index
- Graded Response Action Plan (for Delhi)
- BS-VI Vehicles
- Push for Electric Vehicles (EVs)
- New Commission for Air Quality Management
- Turbo Happy Seeder (THS) Machine for reducing stubble burning.
- National Air Quality Monitoring Programme (NAMP)
- National Solar Mission
- National Wind-Solar Hybrid Policy 2018

#IMPACT ON HEATWAVES ON CHILDREN: UNICEF

Recently, **UNICEF** (**United Nations Children's Fund**) released a report titled "**Coldest Year of the Rest of Their Lives - Protecting children from the escalating impacts of heatwaves**", showing that nearly all the children across the world will be exposed to more frequent and severe heat waves by 2050.

UNICEF is a special program of the **United Nations (UN)** devoted to aiding national efforts to improve the health, nutrition, education, and general welfare of children.

What are the Findings of the UNICEF Report?

Current Scenario:

• Around 559 million children are exposed to high heatwave frequency and around 624 million children are exposed to one of three other high heat measures - High heatwave duration, High heatwave severity and Extreme high temperatures. One in four children lives in areas where the average heatwave event lasts 4.7 days or longer as of 2020. This percentage will rise to over three in four children under a low-emission scenario by 2050. Children in southern, western and south-eastern Asia, eastern and southern Europe and northern Africa experience heatwaves of longer duration.

Note:

In July 2022, the UN-backed agencies issued **guidelines to provide the first-ever global policy framework to protect children displaced** due to climate change.

It contains a set of **nine principles** that address the unique vulnerabilities of children who have been uprooted. The principles are based on the **Convention on the Rights of the Child** and are informed by existing operational guidelines and frameworks.

What are the Other Related Indices?

- Children's Climate Risk Index: UNICEF: It ranks countries based on children's exposure to climate and environmental shocks, such as Cyclones and Heatwaves, as well as their vulnerability to those shocks, based on their access to essential services.
- Notre Dame Global Adaptation Initiative (ND-GAIN) Index: It has shown the impact of climate change on children across the world. It explains that the children will be impacted by food shortages, diseases and other health threats, water scarcity, or be at risk from rising water levels or a combination of these factors.

#EMISSIONS GAP REPORT BY UNEP

Ahead of COP27, the **United Nations Environment Programme (UNEP)** released a report titled '**Emissions Gap Report 2022**: The Closing Window — Climate Crisis Calls for Rapid Transformation of Societies'.

This is the **13**th **edition** of the **UNEP Emissions Gap Report**. It assesses the gap between anticipated emissions in 2030 and levels consistent with the 1.5°C and 2°C targets of the **Paris Agreement**. Every year, the report features ways to bridge the gap.

What are the Findings?

The top 7 emitters (China, the EU27, India, Indonesia, Brazil, the Russian Federation and the United States of America) plus international transport accounted for 55% of global GHG emissions in 2020. For these countries GHG emissions rebounded in 2021, **exceeding pre-pandemic 2019 levels**.

Collectively, G20 members are responsible for 75% of global GHG (Greenhouse Gas Emission) emissions. The global average per capita GHG emissions was 6.3 tonnes of CO₂ equivalent (tCO₂e) in 2020. India remains far below the world average at 2.4 tCO₂e.

- World is falling **short of the goals set forth in the Paris Climate Agreement** adopted in 2015, with no **credible pathway to 1.5°C in place**.
- The Paris Agreement defined a global warming limit of 2°C above pre-industrial levels (preferably 1.5°C), which if exceeded, can result in **extreme weather events** such as extreme **heat waves**, **droughts**, **water stress**, etc.
- National pledges since COP26 (Glasgow, UK) make a negligible difference to predict 2030 emissions.

What are the Initiatives to Reduce Emissions in India?

- Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI) emission norms.
- UJALA scheme.
- International Solar Alliance.
- National Action Plan on Climate Change (NAPCC).
- Ethanol Blending in India by 2025.
- India Updated its NDC.

What is the United Nations Environment Programme?

- It is a **leading global environmental authority** established on 5th **lune 1972**.
- It sets the **global environmental agenda**, promotes sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection.
- **Headquarters:** Nairobi, Kenya.
- **Major Reports:** Emission Gap Report, **Adaptation Gap Report, Global Environment Outlook,** Frontiers, Invest into Healthy Planet.
- Major Campaigns: Beat Pollution, UN75, World Environment Day, Wild for Life.

#NATIONAL UNITY DAY 2022

On **National Unity Day_2022**, the Union Home Minister of India remembered **Sardar Vallabhbhai Patel** on his 147th birth anniversary saying that **the latter realised the dream of a strong and united India with his farsightedness.**

Why is National Unity Day Celebrated?

- National Unity Day is celebrated every year on 31st October to commemorate the birth anniversary of **Sardar Vallabhbhai Patel**. It is also known as **Rashtriya Ekta Diwas**.
- The reason behind the celebration of this day is to **make people aware of the ideas of staying together** and uplifting society.



- It was celebrated for the **first time in 2014.**
- Several events are organised on this day like 'Run For Unity' a nationwide marathon to increase awareness about the contribution of Sardar Patel to national integrity, National Unity pledge, etc.
- In 2018, the Government of India unveiled the 'Statue of Unity' in Gujarat to mark the 143rd birth anniversary of Sardar Patel.

What is the Statue of Unity?

- The **Statue of Unity is the tallest statue in the world.** At 182 meters, it is 23 meters taller than **China's Spring Temple Buddha statue** and almost double the height of the **Statue of Liberty** (93 meters tall) in the US.
- In January 2020, it was added to the 'Eight Wonders' of the Shanghai Cooperation Organization (SCO).

Who was Sardar Vallabhbhai Patel?

- He was born on 31st October 1875 in Nadiad, Gujarat.
- Sardar Patel was the first Home Minister and Deputy Prime Minister of India.
- He is recognized as the **real unifier of India** for his colossal contribution to integrate and make India a united (Ek Bharat) and an independent nation.
- He requested the people of India to live together by uniting in order to create **Shresth Bharat** (Foremost India).
- This ideology is still reflected in the Atmanirbhar Bharat initiative which seeks to make India Self-Reliant.
- He is also remembered as the 'Patron saint of India's civil servants' as he established the modern all-India services system.

Role in Framing Constitution:

- He headed various Committees of the Constituent Assembly of India, namely:
- Advisory Committee on Fundamental Rights.
- Committee on Minorities and Tribal and Excluded Areas.
- Provincial Constitution Committee.

Major Contributions:

- He worked extensively against alcohol consumption, untouchability, caste discrimination and for **women emancipation** in Gujarat and outside.
- He integrated the farmer's cause in **Kheda Satyagraha (1918)** and **Bardoli Satyagraha (1928)** with the national freedom movement.
- Women of Bardoli bestowed the title 'Sardar' on Vallabhbhai Patel, which means 'a Chief or a Leader'.
 During the 1930 Salt Satyagraha (prayer and fasting movement), Sardar Patel served three months imprisonment.
- In March 1931 Patel presided over the Karachi session (46th session) of the Indian National Congress which was called upon to ratify the Gandhi-Irwin Pact.

Integration of the Princely States:

- Sardar Patel played a key role in the integration of about 565 princely states into the Indian Union.
- Few princely states like **Travancore**, **Hyderabad**, **Junagadh**, **Bhopal**, **and Kashmir** were averse to joining the state of India.
- Sardar Patel worked tirelessly to build a consensus with the princely states but did not hesitate in employing methods of **Sama, Dama, Dand and Bhed** wherever necessary.
- He had used force to annex princely states of Junagadh ruled by Nawab and Hyderabad ruled by Nizam, both of whom had wished not to merge their respective states with the Union of India.
- Sardar Vallabhbhai Patel stitched the princely states along with British Indian territory and **prevented the balkanization of India.** He is known as the "**Iron Man of India**" for playing an important role in unification and integration of Indian princely states into the Indian federation and for convincing princely states to align with the Indian Union.

THE HINDU DAILY ARTICLES' ANALYSIS BY SUCCESS MANTRA SMART COACHING

In this competitive world, the demand for "authentic Current Affairs updates" from a reliable source has been increasing for the past few years, with the growth of awareness and aspirants' educational goals.

Keeping this in mind, Success Mantra Smart Coaching, via its YouTube Channel 'Success Mantra Digital', aims to make 'The Hindu Daily Articles Analysis' accessible to everyone and everywhere across the platform. It offers the latest important news with a minute update, especially for aspirants who are preparing for their dream entrance exams like CLAT, AILET, CUET, DU-LLB, MH-CET, IPU-CET, NCHM and many more.

https://www.youtube.com/watch?v=IHzTJwt8JFo&list=PLDrM_6OHOo1lcuxmRN-icOWj7UIhevkfl

