

1st MAY, 2023

G7 Digital and Tech Ministers' Meeting

- **Context:**The G7 Digital and Tech Ministers meeting was held in Takasaki, Japan.

Key Highlights:

- G7 members have reaffirmed their commitment to the adoption of "risk-based" regulations for artificial intelligence (AI).
- It is significant because developed nations have repeatedly emphasized the need for regulations, given the growing popularity of AI platforms similar to ChatGPT.
- Italy, a G7 member, had recently decided to ban ChatGPT due to privacy concerns but the ban was lifted.
- The European Union (EU) are also planning to bring a revised version of the upcoming AI Act. The revised draft incorporates clauses aimed at safeguarding copyright with respect to generative AI.

Bharat Tap Initiative

- **Context:**The Central Government is in the process of bringing in a star rating system for water fixtures similar to the ratings of electrical appliances.

Key Highlights:

- The Indian government is planning to introduce a star rating system for water fixtures called Bharat Tap.
- The rating system would have 3, 4 and 5-star water fixtures based on their water efficiency and this rating system would come under the Bharat Tap Initiative.

About Bharat Tap Initiative:

- Bharat Tap initiative aims to provide low-flow, sanitary ware at scale, and thereby reduce water consumption at the source considerably.
- It is estimated that this initiative will save approximately 40% of water. This will in turn result in water saving and energy saving due to less water and energy will be required for pumping, transporting, and purification

"Future of Jobs" Report

- **Context:**The World Economic Forum (WEF) has released the "Future of Jobs" Report. The report maps the jobs and skills in the coming years and tracks the pace of change. India to witness less job churn in the next five years.

Key Highlights:

- The report suggests that around 69 million jobs will be created and 83 million positions will be eliminated by 2027. This will result in a net loss of 14 million jobs, equivalent to 2% of current employment.
- The fastest declining roles will be secretarial and clerical roles such as bank tellers and cashiers which can be automated while demand for AI machine learning specialists and cybersecurity experts is expected to grow significantly.
- Labour markets in India over the next five years are expected to witness a "Labour market churn" lower than the global average. Labour-market churn refers to the expected job movement, including new roles being created and existing roles being destroyed, as a proportion of current employment.
- This excludes situations where a new employee replaces someone in the same role.
- The fastest-growing jobs in the near future will be led by technology-driven sectors like artificial intelligence and machine learning followed by data analysts and scientists and data entry clerks.
- On the other hand, labour-intensive sectors like accountants and auditors, operations managers and factory workers are expected to witness the least job growth.

2nd MAY, 2023

National Manufacturing Innovation Survey (NMIS), 2021-22

- **Context:**The Department of Science and Technology has released the "National Manufacturing Innovation Survey (NMIS) 2021-22".

Key Highlights:

- It is a joint study conducted by the Department of Science and Technology (DST) and the United Nations Industrial Development Organization (UNIDO).
- Its aim is to measure and map innovation activities, capabilities, linkages, outputs, outcomes, and barriers to assist DST in developing robust analytical frameworks for measuring firm-level innovations and the sectoral systems of innovation.
- NMIS had two specific components: the firm-level survey and the sectoral systems of innovation (SSI) survey
- 25% of the 8,074 firms surveyed were considered innovative. Among them, only 15% of micro firms are innovative while it is 56% in large firms.
- India Manufacturing Innovation Index (IMII) 2022 provides a holistic score for the level of innovation across states, taking into consideration innovation output through performance, and innovation input through the presence of innovation enablers and the absence of innovation barriers.
- The state of Karnataka was ranked the highest on IMII 2022 followed by Dadra & Nagar Haveli and Daman & Diu, Telangana and Tamil Nadu. Low-scoring states are North-eastern states, Odisha and Andhra Pradesh.
- Recommendations given by NMIS 2021-22 is that 'Innovate to Make in India' as a manufacturing innovation strategy this should include broad-based awareness, promotional measures and investment incentives, along with sectorial sub-strategies with concrete innovation targets or roadmaps.
- Make sectoral systems of innovation (SSI) a policy objective for handholding and incentivising the system of innovation and collaborations to strengthen manufacturing innovation and ecosystem
- Support pre-competitive, collaborative industry-focused research and innovation.
- Enhance state government participation for fostering innovation in MSMEs.
- Implement innovation-linked incentives to help firms, especially MSMEs, to address the financial risks linked to innovation uncertainty.

- Increase private sector innovation investment through crowding-in.

ASEAN-India Maritime Exercise (AIME)

- **Context:** Two Indian Naval Ship (INS) Satpura and Delhi have reached Singapore to participate in the inaugural ASEAN-India Maritime Exercise (AIME).

Key Highlights:

- AIME is a maritime exercise between India and ASEAN (Association of Southeast Asian Nations).
- Its aim is to provide an opportunity for Indian Navy and ASEAN navies to work closely and conduct seamless operations in the maritime domain.
- The exercise will be held in two phases: 'Harbour Phase' of the exercise is scheduled to be held at Changi Naval Base and 'Sea Phase' in the South China Sea.
- The ships during their port call at Singapore will also participate in the International Maritime Defence Exhibition (IMDEX-23) and International Maritime Security Conference being hosted by Singapore.
- INS Delhi, India's first indigenously-built guided missile destroyer and INS Satpura, an indigenously-built guided missile stealth frigate, are a part of Indian Navy's Eastern Fleet based at Visakhapatnam.

3rd MAY, 2023**Vivad Se Vishwas Scheme**

- **Context:** The Ministry of Finance has launched the scheme "Vivad Se Vishwas-I – Relief to MSMEs.

Key Highlights:

- The scheme was announced in the Union Budget 2023-24.
- 95 % of the forfeited amount relating to performance security, bid security and liquidated damages forfeited/ deducted during the COVID-19 pandemic will be returned to MSMEs.

- In case any firm has been debarred only due to default in execution of such contracts, such debarment shall also be revoked.
- Government e-Marketplace (GeM) has developed a dedicated web-page for implementation of this scheme. Eligible claims shall be processed only through GeM.

About Vivad Se Vishwas scheme:

- The Vivad Se Vishwas scheme was announced under Union Budget 2020 to reduce ongoing legal disputes under direct taxation.
- Around 150,000 cases were resolved with the recovery of about 54 percent of the amount under litigation. The scheme started in March 2020, and closed on March 31, 2021.

Article 142: Supreme Court's extraordinary power

- **Context:** The Constitution Bench of the Supreme Court held that a court can directly grant divorce under Article 142 of the Constitution in cases where the marriage has irretrievably broken down. This can be done without referring the parties to a family court first, where they must wait for 6-18 months for a decree of divorce by mutual consent.

Key Highlights:

- The Supreme Court has said that it could also use powers under Article 142 of the constitution to grant divorce on the ground of "irretrievable breakdown of marriage" if the "separation is inevitable and the damage is irreparable".
- However, the court cautioned that grant of divorce by the Supreme Court on the ground of irretrievable breakdown of marriage was not a matter of right, but a discretion which is to be exercised with great care and caution.
- Several factors would be considered by the Supreme Court before invoking Article 142 in matrimonial cases.

- These include the duration of the marriage, period of litigation, the time they have stayed apart, the nature of the pending cases between the couples, the number of attempts at reconciliation and the court's satisfaction that the mutual agreement to divorce was not under coercion.

About Article 142:

- Article 142 provides for the enforcement of decrees and orders of Supreme Court. It consists of two clauses:
 - **Article 142(1)** states that Supreme Court in the exercise of its jurisdiction may pass such decree or make such order as is necessary for doing complete justice in any cause or matter pending before it and the orders shall be enforceable throughout the territory of India.
 - **Article 142(2)** states that Supreme Court shall have the power to make any order for the purpose of (a) Securing the attendance of any person, (b) Discovery or production of any documents or (c) Investigation or punishment of any contempt of itself.

World Press Freedom Index, 2023

- **Context:** According to the latest report from global media watchdog Reporters Without Borders (RSF), India has slipped to the 161st position out of 180 countries in the 2023 World Press Freedom Index.

Key Highlights:

- The World Press Freedom Index is an annual ranking released by RSF. The objective is to assess and evaluate the extent of media freedom that journalists and media outlets have in 180 countries and territories.
- The index is based on an evaluation of media pluralism, independence, transparency, legislative framework, and the safety of journalists in each country.
- The report was released by RSF, and it indicates a decline in India's ranking for press freedom.

- Nordic countries like Norway, Ireland, and Denmark ranked top three respectively while Vietnam, China, and North Korea were the bottom three countries on the index.

4th MAY, 2023

Report on Currency & Finance, 2022-23

- **Context:** Reserve Bank of India's (RBI) Department of Economic and Policy Research (DEPR) has released a report titled "Report on Currency & Finance, 2022-23".

Key Highlights:

- The theme of the report is 'Towards a Greener Cleaner India'.
- India aims to achieve the net zero target by 2070. But this would require an accelerated reduction in the energy intensity of GDP by around 5% annually and a significant improvement in its energy mix in favour of renewables to around 80% by 2070-71.
- The cumulative total expenditure for adapting to this climate change in India is estimated to be Rs 85.6 lakh crore (at 2011-12 prices) by the year 2030.
- The financial sector faces the dual challenge of recalibrating its operations and business strategies to support the green transition process while also strengthening resilience to rising vulnerability to adverse climate events so as to safeguard financial stability.
- On the first challenge, estimates suggest that the green financing requirement in India could be at least 2.5% of GDP annually to address the infrastructure gap caused by climate events.
- On the second challenge, the results of a climate stress-test reveal that public sector banks may be more vulnerable than private sector banks in India.

Ajay Banga: 14th President of the World Bank

- **Context:** Recently, the Executive Directors of the World Bank selected Ajay Banga as President of the World Bank for a five-year term beginning June 2, 2023.

Key Highlights:

- Ajay Banga is the first-ever Indian-American and Sikh-American to head either of the two top international financial institutions: the International Monetary Fund and the World Bank.
- Ajay Banga most recently served as Vice Chairman at General Atlantic.
- Previously, he was President and CEO of Mastercard, a global organization.
- He was the Honorary Chairman of the International Chamber of Commerce, serving as Chairman from 2020-2022.
- Banga received Padma Shri award in 2016, India's third highest civilian award.

EU's Artificial Intelligence Act

- **Context:** Recently, members of the European Parliament have reached a preliminary deal on a new draft of the European Union's ambitious Artificial Intelligence Act.

Key Highlights:

- The EU's AI Act aims to bring transparency, trust and accountability to AI and create a framework to mitigate risks to the safety, health, fundamental rights and democratic values of the EU.
- The act defines AI as software that is developed with one or more of the techniques that can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with.

- The Act's central approach is the classification of AI tech based on the level of risk they pose to the "health and safety or fundamental rights" of a person. There are four risk categories in the Act — unacceptable, high, limited and minimal.
- The Act prohibits using AI technologies in the unacceptable risk category. These include the use of real-time facial and biometric identification systems in public spaces; systems of social scoring of citizens by governments; subliminal techniques to distort a person's behaviour and technologies which can exploit vulnerabilities of the young or elderly.
- The Act lays substantial focus on AI in the high-risk category prescribing a number of pre-and post-market requirements for developers and users of such systems. Some systems falling under this category include biometric identification and categorisation of natural persons, AI used in healthcare, education, employment, law enforcement, and justice delivery systems among others.
- The Act also envisages establishing an EU-wide database of high-risk AI systems and setting parameters so that future technologies or those under development can be included if they meet the high-risk criteria.
- The ICAO has adopted several key aspirational goals. Among them are: a) 2% annual fuel efficiency improvement through 2050, b) carbon neutral growth and c) net zero by 2050.
- The ICAO has clubbed these goals under CORSIA and LTAG.
- CORSIA is the first global market-based measure for any sector and represents a cooperative approach.
- It seeks to neutralize international aviation CO2 emissions from 2021 to 2019–2020 levels via offsetting programmes.
- Financial implications due to offsetting have to be borne by individual airlines, depending upon their international operations.
- CORSIA is applicable only to flights originating from one country to another.
- CORSIA will be implemented in three phases, including a pilot and a voluntary phase. The mandatory phase for all ICAO member states would be in force from 2027 to 2035.
- The 41st ICAO Assembly adopted a long-term global aspirational goal (LTAG) for international aviation of net-zero carbon emissions by 2050 in support of the UNFCCC Paris Agreement's temperature goal.
- The LTAG does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States. Instead, it recognizes each State's special circumstances and respective capabilities.

5th MAY, 2023

Carbon Offsetting and Reduction Scheme for International Aviation and Long-Term Aspirational Goals

- **Context:** The Ministry of Civil Aviation (MoCA) has announced that India will start participating in the International Civil Aviation Organisation's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and the Long-Term Aspirational Goals (LTAG) from 2027.

Key Highlights:

- The ICAO has been tasked to reduce carbon emissions from international civil aviation as one of its focus areas

Washington Declaration

- **Context:** Recently, the South Korean President arrived in the U.S. to commemorate the 70th anniversary of the U.S.-South Korea bilateral relations.

Key Highlights:

- A highlight of the visit was the signing of the "Washington Declaration" as a nuclear deterrence strategy.
- Its purpose is that it outlines cooperation towards nuclear deterrence strategy.

- US nuclear ballistic submarine would be deployed in the Korean peninsula.
- Nuclear consultative group would be formed to formulate principles of joint response tactics
- South Korea would receive intel from the U.S. regarding nuclear advancements, and the U.S. will strengthen South Korea's nuclear deterrence capabilities through joint military training programs and an annual intergovernmental simulation.
- Reaffirmed the non-proliferation Treaty implying that South Korea would not venture into the creation of its own independent nuclear capabilities and would instead focus on deterrence measures through an alliance-based approach.
- The U.S. President will be the only 'sole authority' to use the nuclear arsenal of the U.S. in the event of a nuclear confrontation
- Heat Index to be launched by India Meteorological Department (IMD).
- Its aim is to quantify the impact of heat on its population and generate impact-based heat wave alerts for specific locations.
- The index will take into account parameters such as temperature, humidity, wind and duration of exposure.
- The analysis will help generate heat hazard scores which will be utilized as thresholds to issue impact-based heat wave alerts for specific locations.

6th MAY, 2023

India's Heat Index

- **Context:** India will launch its own composite Heat Index next year to quantify the impact of heat on its population and generate impact-based heat wave alerts for specific locations.

Key Highlights:

- According to India Meteorological Department (IMD) data, there was a 24% increase in the number of heat waves during 2010-2019 compared to 2000-2009. However, there is a decreasing trend after 2015. Between 2000 and 2019, the mortality rate for tropical cyclones decreased by 94% whereas it increased by 62.2% for heat waves.
- The 5th Assessment Report of the Intergovernmental Panel on Climate Change said the major climate risk for South Asian countries will be the rising mortality rate due to heat waves.
- A moderate increase in average temperatures or a slight increase in the duration of heat waves will lead to a significant increase in the mortality rate in India unless remedial and response measures are taken.
- However, heat waves are yet to be notified as a natural disaster at the national level in the country.

Navratna company: Rail Vikas Nigam Limited (RVNL) gets the status

- **Context:** Recently, Rail Vikas Nigam Limited (RVNL), a Central Public Sector Enterprises of Ministry of Railways, has been granted Navratna Status.

Key Highlights:

- RVNL was incorporated as a PSU in 2003.
- Its functions are undertaking project development and execution of works covering full project life cycle, Creating Project specific SPVs for individual works, and on completion of a Railway project by RVNL, the concerned zonal railway will undertake its operation and maintenance.
- When a company achieves Navratna status, it gets enhanced financial and operational freedom.
- It empowers it to invest up to Rs 1,000 crore or 15% of their net worth on a single project without seeking government approval.
- They will also have the freedom to enter joint ventures, form alliances and float subsidiaries abroad.

Krishi MApper: An integrated app for Geospatial Data in Agriculture

- **Context:** At the National Conference on Agriculture for Kharif Campaign 2023-24, the Union Agriculture Minister of India launched Krishi MApper.

Key Highlights:

- Krishi MApper is an integrated app for Geospatial Data in Agriculture.
- The app covers monitoring of all land-interventions-based schemes/programs such as Digital Crop Survey, Natural Farming, Seed Production and Distribution, NFSM Horticulture, Agroforestry & other related schemes.
- The app will help minimize the duplication of efforts and provide ready-to-analysis data products to innovators in India.
- It will facilitate Ease of access to credit, near Real-time stress watches for the sector at various levels of granularity with the ability to drill down to individual land parcels under stress and Near Real-time assessment and processing of claims.

Steps taken by government for the modernization of agriculture:

- The government has launched the SATHI (Seed Traceability, Authentication and Holistic Inventory) Portal and Mobile App. It is a Centralized Online System for seed traceability, authentication and inventory designed to deal with the challenges of seed production, quality seed identification and seed certification.
- The government also announced plans to convert more than 3.25 lakh fertilizer shops across the country as Pradhan Mantri Kisan Samruddhi Kendras. These will be centres where farmers can buy not only fertilizers and seeds but also implement soil testing and avail useful information about farming techniques.

Digital Twin

- **Context:** India may soon join the ranks of cities and countries such as Singapore, Yingtan in China, Dubai, Saudi Arabia and US states that have built Digital Twins to enhance their efficiency, coordination and governance.

Key Highlights:

- A Digital Twin is a three-dimensional (3D) virtual representation of an object or system that delivers real-time insights into the performance, operation or profitability of a physical object even a city.
- It is therefore essentially a virtual replica of a real city that can be used to improve its efficiency in several ways.
- For instance, one can simulate the installation of mobile networks on specific rooftops and identify the obstructions within the specified parameters, thus saving time and costs.
- It offers a model of urban planning and construction for future sustainable development that effectively combines innovations in digital technology with urban operational mechanisms and provides a feasible path for urban upgrading.
- It also promotes safer, more efficient urban activities and helps to create more low-carbon, sustainable environments.

7th MAY, 2023**Space Science and Technology Awareness Training (START) Programme**

- **Context:** The Indian Space Research Organisation (ISRO) has announced a new introductory-level online training programme called Space Science and Technology Awareness Training (START).

Key Highlights:

- The program is aimed at postgraduate and final-year undergraduate students of Physical Sciences and Technology.
- The programme will cover various domains of Space Science, including Astronomy and Astrophysics, Heliophysics and Sun-Earth interaction, Instrumentation, and Aeronomy.

- The programme will be delivered by scientists from Indian academia and ISRO centres.
- Academic institutions can submit applications for the programme through the Jigyasa portal.
- The programme is part of the ISRO's efforts to enable Indian students to become professionals in Space Science and Technology, as the organization's Space Science exploration programme continues to expand into new domains.
- It is also expected to help build a human capacity that will lead Space Science and research in the future.
- The performance of a thermoelectric material is evaluated based on a dimensionless index related to electrical resistivity, Seebeck coefficient, and thermal conductivity called zT .
- The higher the zT , the higher is the efficiency. Increasing zT is extremely challenging due to the contradicting interdependences between the material constants that constitute zT , like the electrical and thermal conductivity, Seebeck coefficient, etc. To overcome this challenging goal, researchers have found that metavalent bonding can be used to tailor the thermoelectric performance in quantum materials and efficiently convert waste heat to electricity.

Metavalent Bonding

- **Context:** Researchers have found that Metavalent bonding can be used to tailor the thermoelectric performance in quantum materials and efficiently convert waste heat to electricity. This could show a new direction for the country's newly launched Quantum Mission.

Key Highlights:

- Researchers find Generating electricity from waste heat holds an exciting prospect for green energy production.
- Finding high-performance thermoelectric materials for this purpose requires materials with a magical recipe of properties that can conduct electricity like a metal, heat like a glass, and exhibit the Seebeck coefficient like a semiconductor.

About Metavalent Bonding:

- Metavalent bonding is a new type of chemical bonding in solids. They are multicentric soft bonds with less than $2e^-$ shared between the bonding atoms, defying the classical octet rule in chemistry.
- They have properties of both the bonding present in metals (for good electrical conductivity) as well as those found in glasses (for low thermal conductivity).

About National Quantum Mission:

- National Quantum Mission received cabinet approval from 2023-24 to 2030-31.
- The mission aims to scale up scientific and industrial R&D, for accelerating Quantum Technology-led economic growth and leverage India into a leading nation in the area.

