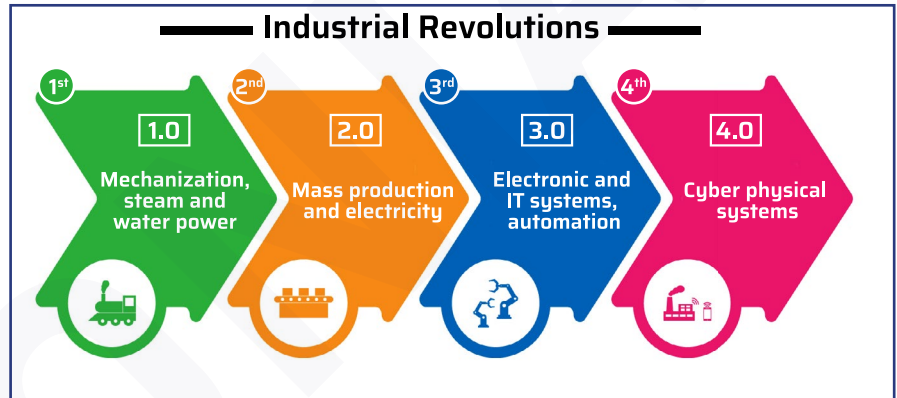


## World Economic Forum (WEF)'s Centre for Fourth Industrial Revolution (C4IR) inaugurated at Hyderabad

- This C4IR will be the **world's first thematic centre** which will focus on **healthcare and life sciences**.
  - ⊕ The inauguration was done during 21st edition of **Bio Asia 2024**
    - ◆ **BioAsia** is premier life sciences and healthcare forum in Asia.
- WEF's C4IR initiative is aimed at **harnessing potential of technological progress for equitable and human-centred transformation of industries, economies and societies**.
- **About 4IR**
  - ⊕ 4IR means the **digital transformation of the manufacturing industry by technologies** such as Artificial Intelligence, Additive Manufacturing, **Internet of Things (IoT)**, etc.
  - ⊕ It also refers to "**smart factories**"—which are fully connected **cyber-physical systems** that merges the physical and digital aspects.
- **Applications of 4IR in Healthcare are Life sciences**
  - ⊕ **Monitoring, recording, visualisation and sharing of symptoms** using wearable devices.
  - ⊕ **Evidence based care through health profiling and clinical registries**.
  - ⊕ Facilitates **Precision Medicine** and **targeted drug delivery**.
- **Challenges: Fragmented and siloed patient information**, lack of skilled personnel, privacy concerns, security issues due to cyber challenges, ethical issues, etc.
- Earlier, **C4IR (INDIA)** centre was also established in **Maharashtra**. It is coordinated by **NITI Aayog**.



## India conducted the first human clinical trial of gene therapy for hemophilia A (FVIII deficiency): Ministry of Science and Technology

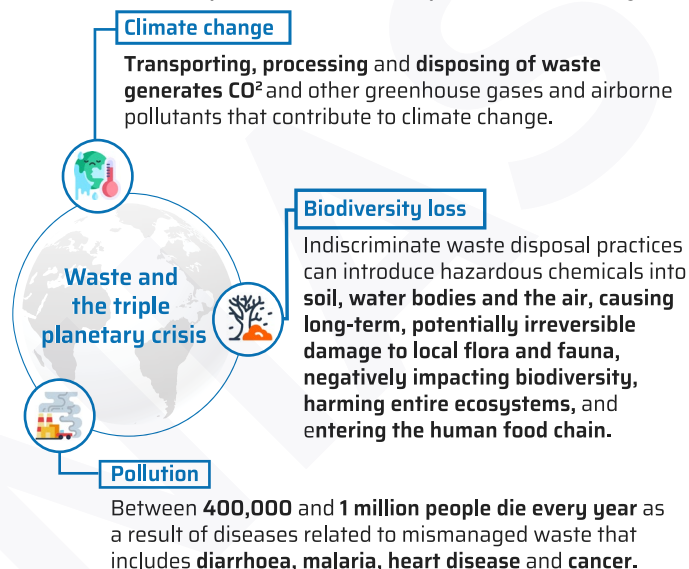
- Trial involved deploying a novel technology of using a **lentiviral vector** to express a **FVIII transgene** in the patient's **Hematopoietic stem cell (HSC)**.
  - ⊕ **HSCs** have the capacity to **self-renew** and the potential to differentiate into **all of the mature blood cell types**.
- Trial was conducted by **Christian Medical College, Vellore**, supported by **Department of Biotechnology**, along with **Emory University, USA** etc.
- **Gene Therapy** is a technique that **modifies a person's genes** to treat or cure disease.
  - ⊕ It is a direct way to treat genetic conditions as well as other conditions.
  - ⊕ **Mechanisms**
    - ◆ **Replacing a disease-causing gene** with a healthy copy of the gene
    - ◆ **Inactivating a disease-causing gene** that is not functioning properly
    - ◆ Introducing a **new or modified gene** into the body
  - ⊕ **Key Gene Therapy Products**
    - ◆ **Plasmid DNA:** Circular DNA molecules can be **genetically engineered** to carry **therapeutic genes** into human cells.
    - ◆ **Viral Vectors:** Gene therapy products derived from viruses can be used as vectors (vehicles) to carry therapeutic genes.
    - ◆ **Other:** Patient-derived cellular gene therapy products, Bacterial vectors, Human gene editing technology etc.
  - ⊕ **Key Applications: Treating genetic disorders** (sickle cell disease etc.), Cancer treatment (E.g. - CAR T-cell therapy) etc.

### About Hemophilia

- Hemophilia is usually an **inherited bleeding disorder** in which the **blood does not clot properly**.
- It is caused by a **mutation or change**, in one of the genes, that **provides instructions for making the clotting factor proteins needed** to form a blood clot.
- This can lead to **spontaneous bleeding** as well as bleeding following injuries or surgery.

## Global Waste Management Outlook (GWMO) 2024 released at sixth session of United Nations Environment Assembly (UNEA-6)

- It has been jointly published by the **UN Environment Programme and International Solid Waste Association (ISWA)**.
- **Key findings:**
  - ⊕ **Municipal solid waste generation** is predicted to grow from 2.3 billion tonnes in 2023 to **3.8 billion tonnes by 2050**.
  - ⊕ **Global direct cost of waste management** was an estimated **USD 252 billion in 2020**, which would almost double by 2050 without urgent action.
- **Barriers in waste management**
  - ⊕ **Complex problem** characterized by multi-layered interdependencies, compound social dynamics and web of stakeholders
  - ⊕ **Lack of recognition of urgency** with lagging data, underestimation of climate impacts and underexploitation of mitigation opportunities
  - ⊕ **Lack of inclusion** with non-recognition of gendered aspects of waste and undervaluation of informal sector
  - ⊕ **Inadequate and ineffective legislations** with lack of enabling environment, and weak enforcement
  - ⊕ **Persistent market, financial and technical barriers**
- **Recommendations**
  - ⊕ **Data and digitalisation** to strengthen the waste management value chain
  - ⊕ Replication and scaling up of **zero waste and circular economy** initiatives
  - ⊕ Apply **producer responsibility fees** to prioritise waste reduction and avoid greenwashing
  - ⊕ **Adopting behavioural science** to engage people in waste reduction
  - ⊕ Harnessing the **expertise of informal waste workers and women's influence** on waste management



## Reserve Bank of India (RBI) releases a comprehensive framework for a Regulatory Sandbox (RS)

- An **inter-regulatory working group** setup by RBI recommended the introduction of framework for a RS for FinTech sector.
- RS refers to **live testing of new products or services in a controlled/test regulatory environment** for which regulators may permit certain regulatory relaxations for testing.
  - ⊕ It allows **field testing of new financial innovations** to collect evidence on benefits and risks associated with them.
- **Benefits of RS:**
  - ⊕ **Facilitates empirical learning**, shaping informed regulatory changes.
  - ⊕ **Testing of product viability**, enabling modifications before broader launch, thus **reducing risks**.
  - ⊕ **Accelerates financial inclusion** through innovations in microfinance, small savings, and digital banking.
  - ⊕ **Evidence based decision-making** reduces regulator dependence on industry consultations.
- **Risks and Limitations:**
  - ⊕ Possible **loss of flexibility and time** of innovators in the sandbox process.
  - ⊕ Case-by-case authorizations and relaxations can involve **discretionary judgements**.
  - ⊕ **Legal waivers cannot be provided** by the RBI or its RS.
  - ⊕ Post-sandbox testing may **require regulatory approvals for wider application**.
- **Key design aspects of RS:**
  - ⊕ **RS cohorts:** Based on thematic cohorts focussing on financial inclusion, payments and lending, digital KYC, etc.
  - ⊕ **Regulatory relaxations:** RBI may grant some relaxations such as liquidity requirements, board composition, statutory restrictions etc.
  - ⊕ **Exclusion from RS:** Indicative negative list includes credit registry, crypto currency, initial coin offerings etc.

## New Disciplines on Good Regulatory Practice for Services Trade Enter into Force for some World Trade Organization (WTO) members

- The new disciplines on services domestic regulation, announced at WTO's 13<sup>th</sup> Ministerial Conference in Abu Dhabi, have been negotiated under the **General Agreement on Trade in Services (GATS)**.
  - ⊕ **GATS**, entered into force in **1995** as a **result of Uruguay Round Negotiations**, is a legally binding **WTO treaty covering international trade in services**.
- Disciplines aim to ensure that qualification requirements and procedures, technical standards and licensing requirements do **not constitute unnecessary barriers to trade in services**.
  - ⊕ Disciplines are **binding only on those WTO members who inscribe them** into their GATS schedules.
  - ⊕ India, although a member of GATS, is **yet to commit to new disciplines**.
  - ⊕ Developing economies that adopt the disciplines can **delay the application of specific provisions** in sectors where they face **implementation difficulties for up to 7 years**.
- **Significance of the disciplines**
  - ⊕ Will **reduce trade costs in services** with overall savings of USD 127 billion.
  - ⊕ **Reduction in costs of business** startup procedures.
  - ⊕ **Broader financial inclusion** and boost to **participation in global value chains**.
- **Benefits to India:** Disciplines will be applied on a "**most-favoured nation**" principle, and will benefit all WTO members including India.
  - ⊕ Potential benefits to India include **market access, boost in services exports, competitiveness in global services market, conducive environment for MSMEs** etc.

## United Nation (UN) allocates \$100 million from Central Emergency Response Fund (CERF)

- Allocated fund will support **underfunded aid operations** in seven countries in Africa, the Middle East and the Latin America.
- **Central Emergency Response Fund (CERF)** was established by the **UN General Assembly** in 2005 as the **UN global emergency response fund**.
  - ⊕ Enables **humanitarian actors** to deliver life-saving assistance to the most vulnerable people, when and where needed the most.
  - ⊕ **Emergency Relief Coordinator** manages CERF on behalf of the **UN Secretary-General**.
  - ⊕ Releases resources for **underfunded emergencies twice a year**.
  - ⊕ It also serves as a **strategic instrument** for addressing **critical funding gaps** in underfunded **humanitarian emergencies**.
- **Critical funding gaps** for **humanitarian emergency projects** is widening, for instance UN-coordinated appeals have met only 60% of their funding requirements over the past decade (2010-20) (OXFAM, 2023).
- **Reasons behind funding gap:**
  - ⊕ **Increased global conflicts:** E.g. Syrian Conflict
  - ⊕ **Rise in climate induced natural disasters:** Drought in Horn of Africa
  - ⊕ **Poly-crisis phenomenon:** At a sub-national, national and systemic level risks are compounding exacerbating the frequency and severity of crisis.
  - ⊕ **Other:** Donor fatigue, geopolitical dynamics, etc.
- **Measures Required:**
  - ⊕ **Improving funding** through **localised and flexible** funding mechanisms.
  - ⊕ **Deepening and broadening the funding base** by developing new funding tools.
  - ⊕ **Coordination between climate and humanitarian finance**.

## Also in News



### Mudumalai Tiger Reserve (MTR)

- First ever **herpetofaunal** (reptiles and amphibians) survey has been conducted in the Core Area of the MTR.
- **About MTR**
  - ⊕ Located in **Tamil Nadu**.
  - ⊕ It has a **common boundary with Wayanad Wildlife Sanctuary (Kerala)** on West, **Bandipur Tiger Reserve (Karnataka)** on North.
  - ⊕ It is **part of Nilgiri Biosphere Reserve**, first Biosphere Reserve established in 1986 in India.
  - ⊕ **Forest Type:** Ranging from **tropical evergreen forest, moist deciduous forest, moist teak forest**, dry teak forest, grasslands and swamps.
  - ⊕ **Fauna:** Tiger, Elephant, Indian Gaur, Panther, Barking Deer, Mouse Deer, etc.



### Maternity Benefit Act 1961

- Calcutta High Court held that **differentiating between contractual and permanent employees** for purpose of **extending maternity leave is impermissible** as it violates **Article 14** and **Maternity Benefit Act 1961**.
- **Maternity Benefit Act 1961:**
  - ⊕ It provides **paid maternity leave** to women workers.
  - ⊕ **Amendment in 2017** brought following changes:
    - ◆ **Extended paid maternity leave** from 12 weeks to **26 weeks**. However, if one has **two or more surviving children**, this duration will be 12 weeks.
    - ◆ Every establishment with **50 or more employees** shall have the **creche facility** and **allow four visits a day** to creche.



### Juice Jacking

- The **Reserve Bank of India (RBI)** warned users against charging mobile phones using public ports amidst the rising incidents of juice jacking.
- **About juice jacking**
  - ⊕ It is a form of **cyberattack** where hackers load malware with public USB charging stations to maliciously access electronic devices.
  - ⊕ It can lock a **device**, **export personal data** and **passwords** to the cyber criminals.
  - ⊕ These kinds of attacks are mainly reported from public spaces such as airports, hotels, and shopping centres.



### Draft Disclosure Framework on Climate-related Financial Risks, 2024

- The RBI issued draft guidelines on the **Disclosure framework on Climate-related Financial Risks, 2024**.
- **About Framework:**
  - ⊕ **Objective:** Regulated Entities (REs) should **disclose information** about their **climate-related financial risks and opportunities** for the users of **financial statements**.
  - ⊕ **It will be Applicable on**
    - ◆ All Scheduled Commercial Banks (excluding Local Area Banks, Payments Banks and Regional Rural Banks)
    - ◆ All Tier-IV Primary (Urban) Co-operative Banks (UCBs)
    - ◆ All All-India Financial Institutions (viz. EXIM Bank, NABARD, NaBFID, NHB, and SIDBI)
    - ◆ All Top and Upper Layer Non-Banking Financial Companies (NBFCs)



### Viroids

- Researchers have found an entire new class of **viroid like life forms** in the human gut. They called them '**Obelisks**'.
- ⊕ They are named after the **highly-symmetrical, rod-like structures** formed by its twisted lengths of RNA.
- ⊕ **Their ability to code for proteins** makes them different from viroids.
- **Viroids are plant pathogens** coating of circular, **single-stranded RNA without the protein coat** that is typical for viruses.
  - ⊕ Viroid RNA **does not code for any protein**.
  - ⊕ They **replicate by entering host cells**, forcing them to produce copies of the viroid RNA.



### International Intellectual Property (IP) Index

- **US Chamber of Commerce** released 12<sup>th</sup> edition of its International IP Index.
  - ⊕ **Top countries** on the index are **USA, UK and France**.
  - ⊕ **India's position** remained unchanged at **42 out of 55 economies**.
- IP Index is different from the **Global Innovation Index (GII)**.
  - ⊕ **GII** is co-published by **World Intellectual Property Organization (WIPO), Cornell University, and INSEAD**.
  - ⊕ In 2023, it ranked India at **40<sup>th</sup> position** out of 132 economies.



### Harit Nauka Initiative

- The Prime Minister launched **India's first indigenous green hydrogen fuel cell inland waterway vessel** under the **Harit Nauka initiative**.
  - ⊕ It is manufactured by **Cochin Shipyard**.
- **Harit Nauka – Green Transition Guidelines for Inland Vessels** has been launched by the **Ministry of Ports, Shipping and Waterways**.
  - ⊕ It aims at laying out Central Government's focus on bringing about the **shift of inland vessels to greener technologies**.
  - ⊕ **Focus areas** of guidelines include promotion of alternative clean fuels, creation of green ecosystem, promoting R&D and strengthening institutional capacity.



### Measles

- **World Health Organization (WHO)** has released update on Measles.
- **About Measles**
  - ⊕ Measles is a **highly contagious disease caused by a virus**.
  - ⊕ It can affect anyone but is **most common in children**.
  - ⊕ **It infects the respiratory tract** and then spreads throughout the body.
  - ⊕ Humans are the only natural hosts of measles virus.
  - ⊕ It is covered under the Universal Immunization Program of India
  - ⊕ **Symptoms** include a high fever, cough, runny nose, and a rash all over the body.
  - ⊕ It can be prevented by the **MR (measles rubella) vaccine**.

## Places in News



### Japan (Capital: Tokyo)

- Japan starts 4<sup>th</sup> discharge of nuclear-contaminated water despite backlash.
- **Political Boundaries**
  - ⊕ Island country lying **off east coast of Asia**.
  - ⊕ It stretches from **Sea of Okhotsk** (north) to **East China Sea** (south).
  - ⊕ **Four main islands from north to south** are **Hokkaido, Honshu, Shikoku and Kyushu**.
    - ◆ Honshu is largest among them.
  - ⊕ **Maritime borders:** PR China, North Korea, South Korea, Philippines, Russia, Northern Mariana Islands (US), and Republic of China (Taiwan).
- **Geographical features**
  - ⊕ Located at **Circum-Pacific "ring of fire"**
  - ⊕ **Highest mountain:** Mount Fuji
  - ⊕ **Longest river:** Shinano River



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI