NEXT IAS

SUMMARY OF
DOWN TO EARTH

[1 – 15 February, 2024]

CEMENT INDUSTRY AND CARBON EMISSION

Context:

- Recently, the Centre for Science and Environment (CSE) reported on the 'Decarbonizing India Cement Sector'.

About the Cement Sector:

- Cement is the most widely-used substance on Earth after water. When mixed with water, it forms concrete that becomes the backbone of infrastructure needs like buildings, roads, dams and bridges.
- The raw material for cement is limestone; and to manufacture the product, carbon must be removed from limestone.
  - It adds to cement's emission intensity.
- The process, known as **calcination**, requires very high temperatures in the kiln**— up to 1,450°C** —which requires fuel to burn.
- More than 50% of the industry's greenhouse gas footprint comes from process emissions — the reduction of limestone and the release of CO2 — and the remaining mainly from combustion in the furnace.
- The Ministry of Finance in India has mentioned the construction of 2 crore more houses under the PM Awas Yojana (Gramin) in the next 5 years.
  - This could imply a significant demand for cement in the near future.

Global Cement Production:

- China produces the most cement globally by a large margin, at an estimated 2.1 billion metric tons in 2022.
  - China's cement production share equates to over half of the world's cement.
- **Global Cement Market Size:** It was valued at USD 363.67 billion in 2022 and is projected to grow from USD 405.99 billion in 2023 to USD 544.55 billion by 2030, exhibiting a CAGR of 4.3% during the forecast period.

Production in India:

- **The Indian cement industry** is the **second largest in the world** with an installed cement capacity of 600 million tonnes and production of 391 million tonnes of cement in 2022-23.
- The cement production data is used by the office of Economic Advisor, DPIIT to calculate the **Index of Eight Core Industries**, in which the weightage of **Cement production is 5.37%**.
  - Cement is one of the eight core industries in India.

Issues associated with the cement industry:

- It is critical for economic growth, but has a high carbon intensity—accounting for 7% of the carbon dioxide (CO_2) emitted globally.
  - Emissions are intrinsic to the manufacturing of cement.
- It is responsible for about 8% of planet-warming carbon dioxide emissions — far more than global carbon emissions from aviation.
- In **India**, according to the Union Environment Ministry, it contributed **5.63% of the total emissions in 2016** and **5.72% in 2019**.

Solutions:

- **Key strategies** to cut carbon emissions in cement production include improving energy efficiency, switching to lower-carbon fuels, promoting material efficiency (to reduce the clinker-to-cement ratio and total demand), and advancing innovative near zero emission production routes.
- Adopting **material efficiency strategies** to optimise the use of cement can help reduce demand along the entire construction value chain, helping to cut CO2 emissions from cement production.

- The **Carbon Capture and Storage (CCS)** is also likely to play a critical role in decarbonising cement; alternatives might involve making clinkers from non-carbonate sources to avoid these emissions altogether.

Steps taken by India:

- India's cement industry has substituted to some extent the use of limestone with fly ash—a waste product from the burning of coal in thermal power plants.
- India has improved its energy efficiency because it could reduce the cost of fuel.
- The Bureau of Indian Standards (BIS) has notified standards for another category called **Composite Cement (CC)**, in which fly ash and slag can substitute limestone use by as much as 60%.

WILD ORCHIDS

Context:

- Recently, it was found that the epiphytic orchids are in stress because of deforestation in their natural habitat.

About Wild Orchids:

- Wild Orchids, belonging to the family **'Orchidaceae'**, are one of the largest **families of flowering plants or angiosperms.**
- With over 25,000 species, they can be found in almost every corner of the planet, from the humid rainforests of South America to the arid deserts of Australia.
- They often have vibrant colours and unique shapes **to attract pollinators**. Some orchids even mimic the appearance and scent of female insects to lure males for **pollination**.

Classification

- They are classified into three categories:
  - **Epiphytic:** plants that grow on another plant and rock boulders;
  - **Terrestrial:** plants that grow on land and climbers, and;
  - **Mycoheterotrophic:** plants that derive nutrients from mycorrhizal fungi that are attached to the roots of a vascular or flowing plant.

In India:

- They are highly evolved, with 600-800 genera and 25,000-35,000 species all over the globe.
- In India alone, there are more than thousand species of orchids, with 388 species endemic to the country.
  - These 757 orchid species are epiphytic, 447 are terrestrial, and 43 are mycoheterotrophic in India.
  - Habitat and Distribution:
- They are predominantly found in tropical regions, but they can also grow in temperate climates, on every continent except Antarctica.
- In India, these are predominantly found in the **Himalayas**, followed by the **North East, Western Ghats, Deccan Plateau, and Andaman & Nicobar Islands**.
  - The Western Ghats are home to about one-third (128) of the endemic species, that includes the varieties like Acampe Rigida and Bulbophyllum Careyanum (*Endangered, Red List IUCN*).
  - Hilly areas and grasslands provide habitat for certain terrestrial orchids.

Conservation Challenges:

- Orchids are extremely susceptible to habitat disturbance due to their mycorrhizal specificity, pollinator specialisation, limited germination rates, and sparse distribution in specific habitats.

- Illegal logging and development have led to habitat loss, causing the wild orchids to die off at an alarming rate.

PHASING OUT FLUORINATED GASES

Context:

- The European Parliament recently passed a regulation to phase out fluorinated gases to near zero by 2030.

About Fluorinated Gases

- These gases are refrigerants introduced in the 1990s to replace ozone-depleting compounds, but **they are 140 to 23,500 times more harmful than carbon dioxide for the climate**.
- They are used in a variety of applications, including commercial and industrial refrigeration, air-conditioning systems, heat pump equipment, and as blowing agents for foams, fire extinguishants, aerosol propellants, and solvents.
- While fluorinated gases are ozone-friendly and enable energy efficiency, they have **a high global warming potential (GWP)**, and **some are nearly inert** to removal by chemical processes.

Types:

- **Hydrofluorocarbons (HFCs):** These contain hydrogen, fluorine, and carbon.
  - HFC-134a (1,1,1,2-Tetrafluoroethane) has grown to become the most abundant HFC in Earth's atmosphere.
- **Perfluorocarbons (PFCs):** These are compounds consisting of fluorine and carbon.
  - They are widely used in the electronics, cosmetics, and pharmaceutical industries, as well as in refrigeration when combined with other gases.
- **Sulphur Hexafluoride (SF6):** This is used primarily as an arc suppression and insulation gas.
  - It can be found in high-voltage switchgear and is used in the production of magnesium.
- **Nitrogen Trifluoride (NF3):** This is used primarily as an etchant for microelectronics fabrication.

Mitigation Strategies:

- **Regulation and Phase-Down:** The Kigali Amendment to the Montreal Protocol and several national and international legislations, such as the **2014 EU F-gas Regulation**, aim to control the utilisation and emissions of these gases.
  - In the EU, the phase-down of hydrofluorocarbons (HFCs) is underway, with successive reductions in quotas up to 2050.
- **Waste Management:** Efficient strategies for managing the produced and already existing F-gases are vital to mitigate their effect on the environment.
  - Most of the F-gases recovered from end-of-life equipment or when retrofitting systems are either released into the atmosphere or destroyed1. Increasing separation and recycling efforts must be made.
- **Use of Alternatives:** F-gases can be replaced by existing natural coolants such as ammonia gas, hydrocarbons, or even CO_2. Climate-friendly cooling technologies that utilise natural coolants are promoted worldwide.
  - **Energy Efficiency:** Reducing emissions of F-gases also involves reducing the energy consumption of refrigeration and air conditioning units, which indirectly produce CO2 emissions.
- **Circular Economy Principles:** New strategies are being developed to valorize the existing refrigerants under circular economy principles.
  - This involves building institutional and technical capacities in partner countries, identifying potential routes to financing, and supporting international and bilateral cooperation on climate and ozone protection policy.

HORTICULTURE CROP PRODUCTION IN INDIA

Context:

- According to the **third advance estimates released by the Union Ministry of Agriculture and Farmers Welfare**, the total horticulture crop production in the country for 2022-23 may be 355.25 million tonnes.
  - It suggests the estimates are a 2.32% increase over the final production for 2021-22

Horticulture Crops in India:

- It ensures the nutritional security of the nation, provides alternate rural employment opportunities, diversification in farm activities, and enhanced income to farmers.
- It comprises fruits, vegetables, flowers, and herbs
  - It is contributing about 33% to the agriculture Gross Value Added (GVA).
- India is currently producing about 320.48 million tonnes of horticulture produce, surpassing the food grain production.
  - Area under horticultural crops too, saw **a marginal rise to 28.34 million hectares in 2022-23** from 28.04 million hectares in 2021-22.
- The productivity of horticulture crops is much higher compared to the productivity of foodgrains.
- India has emerged as a world leader in the production of a variety of fruits like mango, banana, guava, papaya, sapota, pomegranate, Lime & Aonla and is the second-largest producer of fruits and vegetables.

Related Initiative:

- **Mission for Integrated Development of Horticulture (MIDH):** It is a Centrally Sponsored Scheme implemented in the States/UTs since 2014-15 for the holistic development of horticulture.
  - It supports the production of quality planting material, area expansion of fruits, vegetables, spices, and plantation crops, protected cultivation, and creation of post-harvest management infrastructures.
- **Rashtriya Krishi Vikas Yojana (RKVY):** The project proposals of State Governments for horticulture development are supported under this scheme.
- **National Food Security Mission (NFSM):** This mission is implemented for increasing the production of rice, wheat, coarse cereals, nutri cereals, and pulses.
  - Under NFSM, assistance is given to farmers for interventions like cluster demonstrations on improved package of practices, demonstrations on cropping system, seed production, and distribution of high yielding varieties (HYVs)/hybrids, improved farm machineries/resource conservation machineries/ tools, efficient water application tools, plant protection measures, nutrient management/ soil ameliorants, processing and post-harvest equipment, cropping system based trainings, etc.
- **State-Specific Initiatives:** Several states have their own horticulture development agencies, like the Tamil Nadu Horticulture Development Agency (TNHDA), which implement various schemes such as the National Horticulture Mission, Micro Irrigation, Precision Farming, and National Bamboo Mission.

ROCK GLACIERS

Context:

- The Earth and Space Science found that the Jhelum basin in the Kashmir Himalayas has over 100 active rock glaciers with moving or melting permafrost.

About Rock Glaciers:

- These are typically formed in mountainous regions with a combination of permafrost, rock debris, and ice.
  - Melting permafrost makes these areas unstable.

- Rock glaciers are permafrost structures found in the Kashmir Himalayas, with significant ice volumes within.
- More than 100 of these had ridges and bulges on their body, which indicates that the permafrost in them has started moving or melting.
- These are called 'active glacial rocks' and may contribute to natural disasters as the region warms.
- These permafrost structures particularly increase the risk of **glacial lake outburst floods (GLOFs)** and landslides in the Jhelum basin region.

Threat:

- The ongoing warming of the world makes these areas unstable, posing risks to nearby settlements and critical infrastructure.
- The Hindu Kush Himalayan (HKH) mountain ranges could lose up to two-thirds of its ice by 2100.
  - This threatens agriculture, climate as well as monsoon patterns.
- It not only affects the local ecosystem but also has far-reaching impacts on global water levels and public health

Solution:

- The shifting away from fossil fuel use in energy, transport, and other sectors, while changing diets and agricultural practices to move to net-zero emissions of greenhouse gases.
- The melting of rock glaciers due to global warming is a significant issue that needs immediate attention and action.

FLY ASH MANAGEMENT AND UTILISATION

Context:

- The Union Ministry of Environment, Forest and Climate Change has recently amended the Fly Ash Utilisation Notification.

About Fly ash:

- It is a by-product of coal combustion in thermal power plants, and has been recognized as an environmental concern worldwide.
  - It contains toxic chemicals such as *arsenic, barium, cadmium, nickel, and lead,* among others.
- In India, various initiatives have been undertaken to manage and utilise fly ash in an eco-friendly manner.

Health Risks:

- **Cancer**: Exposure to these toxic chemicals can increase the risk of developing various types of cancer.
- **Respiratory Issues:** Inhalation of fly ash can lead to lung diseases.
- **Heart Ailments:** The pollutants in fly ash can contribute to heart diseases.
- **Neurological Damage:** Certain chemicals in fly ash can cause neurological damage.
- **Premature Mortality:** Exposure to fly ash can contribute to premature mortality.
  - Fly Ash Management and Utilisation Mission:
- The National Green Tribunal (NGT) directed the constitution of the 'Fly Ash Management and Utilisation Mission' to coordinate and monitor issues relating to the handling and disposal of fly ash.
  - It is jointly headed by the secretaries of the Union Ministry of Environment, Forest & Climate Change (MoEF&CC), Union Ministry of Coal and Power.
- It aims to **Promote Eco-Friendly Practices** to encourage the use of ash for environmentally sustainable purposes, particularly in the production of ash-based products by micro and small enterprises.

- It monitors the disposal of the annual stock of unutilised fly ash and also looks into how 1,670 million tonnes of **legacy (accumulated) fly ash** could be utilised in the least hazardous manner.
- It holds monthly meetings to assess the fly ash management situation in coal power plants and to prepare action plans to build road maps for ash utilisation by individual plants.

Conclusion:

- Despite several policy and regulatory interventions, coal ash management in India remains a challenge.
- Power utilities usually store the coal ash in landfills or unlined ponds close to water bodies and rivers.
- Breaches in the landfills and ash ponds frequently lead to environmental contamination, damaging local ecosystems and harming the health of local communities.

URBAN PLANNING IN HIMALAYAN REGION

Context:

- Recently, the Supreme Court of India gave approval to the Shimla Development Plan (2041).

About:

- The Indian Himalayan Region (IHR), spread across 13 Indian States/Union Territories, constitutes 16 per cent of India's geographical areas and is home to 86 million people of diverse ethnic communities and cultures.
- The region is characterised by its unique topography, diverse climate, rich biodiversity, and cultural heritage.
    - However, it also faces several challenges due to its fragile ecosystem and the impacts of climate change.

Challenges in Urban Planning:

- Urban planning in the Himalayan region is a complex task due to the region's unique geographical and climatic conditions.
- The region is prone to natural disasters such as landslides, earthquakes, and glacial lake outburst floods (GLOFs).
- The region's topography and the ongoing tectonic activities further complicate urban planning.
- Moreover, the impacts of climate change, such as heavier precipitation during monsoons and melting glaciers, pose additional challenges.
    - These factors necessitate a careful and sustainable approach to urban planning in the Himalayan region.

Principles of Urban Planning in the Himalayan Region:

- **Localised Knowledge and Sustainable Practices:** One of the key principles of urban planning in the Himalayan region is the use of localised knowledge and sustainable practices.
    - For instance, the city of Gangtok, Sikkim, is settled on a series of ridges that have been present for several million years.
    - The natural draining ecosystems in these areas have evolved over a long time and are sustainable and critical.
- **Building Lighter Structures:** In the Himalayan region, attention must be paid to the local area; while Leh is rocky, hard and dry, Arunachal Pradesh is soft, moist, full of biodiversity and green.
    - Therefore, it is important to build lighter structures that are suitable for the local geographical conditions.
- **Ensuring Proper Drainage:** Many of the drains or rivulets in these areas have been 'trained' or 'engineered', but the efficacy sometimes does not match the sudden gush of rainwater, which leads to flooding and erosion.

Conclusion:

- Urban planning in the Himalayan region requires a careful and sustainable approach that takes into account the region's unique geographical and climatic conditions.
- It is important to leverage localised knowledge and sustainable practices, build lighter structures, and ensure proper drainage.
- Moreover, it is crucial to address the challenges posed by climate change and protect the region's rich biodiversity.

DROUGHT IN INDIA

Context:

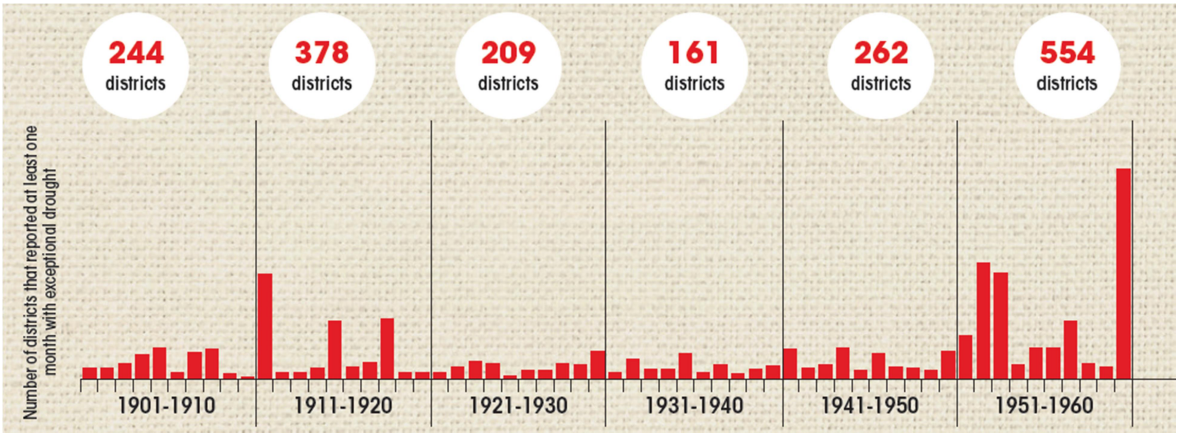
- Recently. It is observed that there was an exceptional drought in 658 districts across the country between 2012 and 2021.

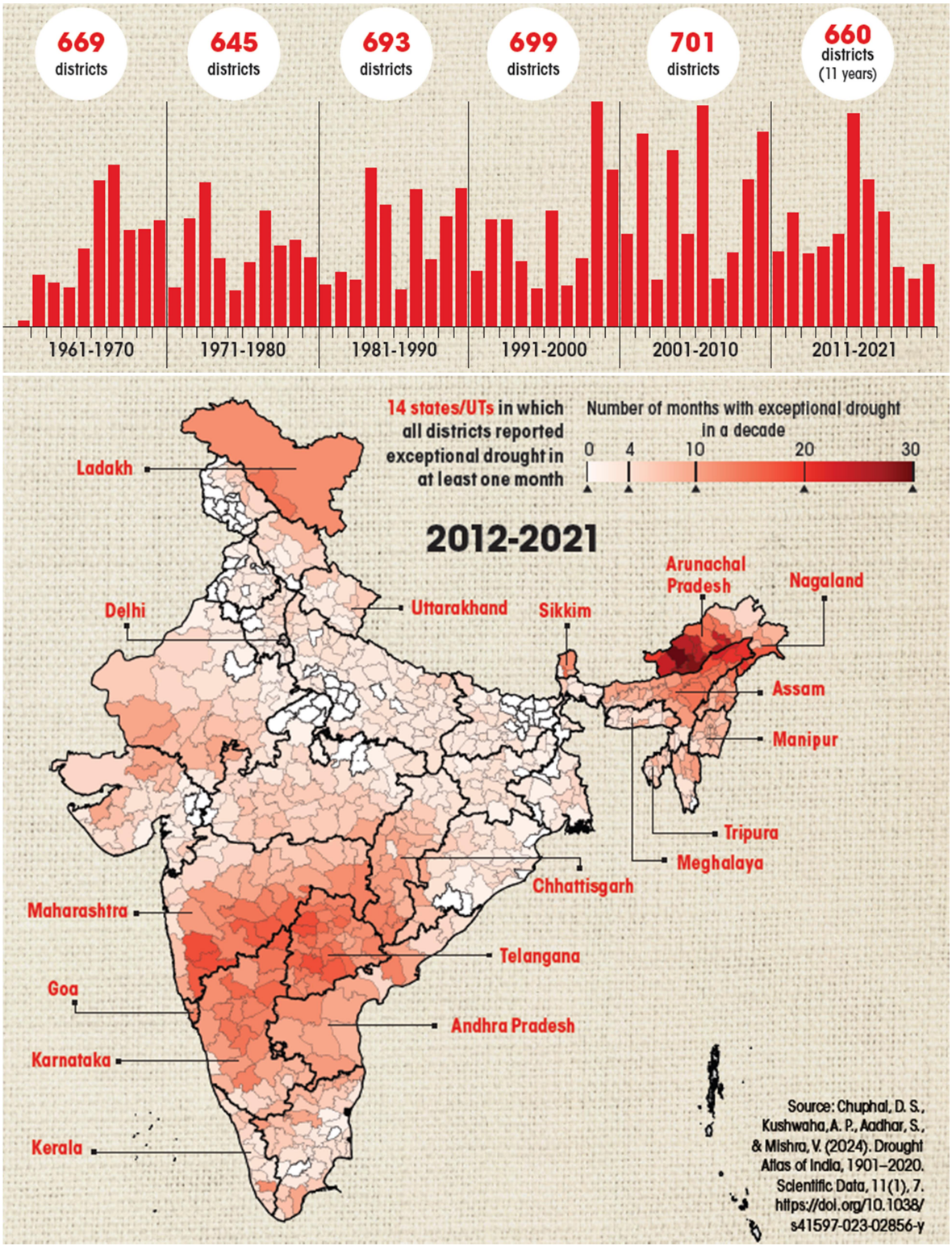
About:

- According to the **India Meteorological Department (IMD),** August 2023 is the driest in 123 years with 36% deficit rainfall, and it has forecasted 'normal' rainfall for September, 2023 may be a drought year.
  - A **drought year** occurs when monsoon rainfall exceeds 10% deficit of the long term average.
- There were **14 drought years,** of which 10 were El Niño years in the past 123 years.
- Occurrence of drought in consecutive monsoon seasons are common in northwest India, particularly west Rajasthan, Saurashtra & Kutch and Jammu & Kashmir and Rayalaseema in the Peninsular India.

Measuring Drought in India:

- While the India Meteorological Department monitors drought using the Standardised Precipitation Index, this analysis utilises the Standardised Precipitation Evapotranspiration Index (SPEI) to evaluate drought intensity.
- SPEI, which looks at all processes by which water moves from the land surface to the atmosphere, is particularly well-suited for studying the impact of global warming on the severity of drought conditions.





Drought:

- It is a **prolonged dry period** in the natural climate cycle that can occur anywhere in the world. It is a **slow-onset disaster** characterised by the lack of precipitation, resulting in a water shortage.
- It is often associated with climatic factors like **high temperatures, high winds and**

low relative humidity that can aggravate the severity of the drought event.
  - It can have a serious impact on health, agriculture, economies, energy and the environment.
- During 1965 and 1966, major parts of India were under prolonged and severe drought conditions due to deficient monsoon rainfall.

Types of droughts:

Meteorological Drought:
- It is defined as a situation when the seasonal rainfall received over the area is less than 75% of its long term average value, and further classified as **'moderate drought'** if the rainfall deficit is between 26-50% and **'severe drought'** when the deficit exceeds 50% of the normal.

Hydrological Drought:
- It can be defined as a period during which the **stream flows are inadequate** to supply established use of water under a given **water management system**.

Agricultural Drought:
- It occurs when available soil moisture is inadequate for healthy crop growth and causes extreme stress and wilting.

Socio-economic drought:
- **Abnormal water shortage affects all aspects of the established economy** of a region. This in turn adversely affects the social fabric of the society creating unemployment, migration, discontent and various other problems in the society.
  - Thus, meteorological, hydrological and agricultural drought often leads to what is termed as Socio-economic drought.

Impacts:

- As per data released by the Union Ministry of Agriculture and Farmers Welfare, there is a dip in sowing of kharif crops.
  - 11.9 million hectares (ha) of pulses in 2023, as against 13 million ha in 2022.
  - Area under oilseeds is lower by 0.18 million ha. Jute and cotton have also declined.
  - However, rice, sugarcane and cereals sown in 2022 have increased.

K-SHAPED RECOVERY

Context:

- A study titled **'Debunking K-shaped Recovery'** addresses the prevalent notion that India's post-pandemic economic revival has followed a **K-shaped trajectory**.

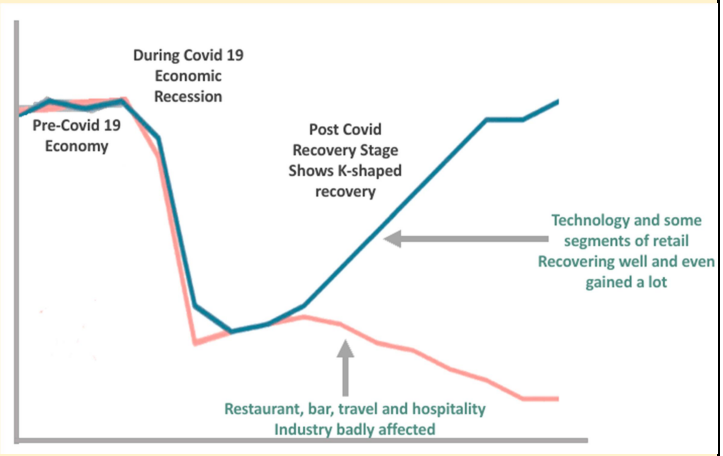
Key Findings of the study:

- **Income inequality decreasing:** The gap between different income levels, measured by the Gini coefficient of taxable income, decreased notably from 0.472 to 0.402 from FY14 to FY22 respectively.
  - **The Gini coefficient**, also known as the Gini index or Gini ratio, is a measure of economic inequality in a population.
- **Business growth:** It highlighted the visible change in the income pattern of MSMEs (micro, small and medium enterprises) as the formalisation drive brings more entities into the net.
- **Rise in individual's weighted mean income:** The study shows the individual's weighted mean income has risen from ₹3.1 lakhs to ₹11.6 lakhs during FY14-FY21.
- **Rising female labour force**: SBI quoted PLFS (Periodic Labour Force Survey) data which shows female labour force participation has risen from 23.3 in 2017-18 to 37 in 2022-23, marking an increase of 13.7.

- **Post-pandemic consumption trends:** the bottom of the pyramid consumption share has increased.

About K-Shaped Recovery:

- It is a post-recession scenario in which one section of the economy begins to recover while another segment continues to struggle.
- The concept of a K-shaped recovery first emerged in 2020 during the COVID-19 pandemic.
  - The COVID-19 pandemic recovery has been fractured and uneven. Millions of people remain unemployed, while the wealthiest have grown their fortunes.
- The portion of the population that recovers quickly is represented by the upper part of the K, while the lower part represents those groups that recover more slowly. In some cases, it could be that different industries recover at different speeds.



PRELIMS

REASONS BEHIND BIRDS MOVEMENT IN NORTHEAST INDIA

Context:

- According to a new study by researchers from the Indian Institute of Science, Bird species in northeastern India have started shifting to higher elevations due to increasing temperatures owing to deforestation.

About: What is happening to birds in the Northeast?

- The study highlights the need to safeguard primary forests to mitigate the effects of climate change on avian populations and avoid mass extinction.
- Above-average temperatures in deforested areas and low humidity as against primary (undisturbed) forests hastens the transition.
- The researchers studied birds in a montane broadleaved forest located in **Eaglenest Wildlife Sanctuary in Arunachal Pradesh**.

Reasons:

- The scientists explained that this shift could be due to the lack of resource availability in logged forests.
- The density of larger bird species seemed to be showing increasing presence in the primary forests, while birds with smaller sizes colonised logged forests better because of their ability to tolerate higher temperatures.
  - Tropical montane forests can start at about 150-200 m and reach up to 3,500 m in elevation.

RETAIL INFLATION

Context:

- According to the **All India Consumer Price Index** (released by the Union Ministry of Statistics and Program Implementation), India ended 2023 with **retail inflation of 5.7%, the highest in four months**.

Key Highlights:

- Pulses (20.73%), vegetables (27.6%), fruits (11.14%) and sugar (7.14%) saw significant inflation, while cereals and spices maintained high rates of 9.9% and 19.7%, respectively.
- Though food inflation persisted at a higher rate in urban areas (10.42%) than in rural areas (8.97%), there was a reversal in overall inflation.
- **Rural areas saw overall inflation at 5.93% and urban areas at 5.46%.**

Statewise Data:

- Seven states recorded overall inflation of over 6%, surpassing the Reserve Bank of India's threshold.
- Odisha led with 8.7%, followed by Gujarat (7.1%), Rajasthan (6.95 %), Haryana (6.7%), Karnataka and Telangana (6.65%) and Maharashtra at 6.1%.

The All India Consumer Price Index (CPI):

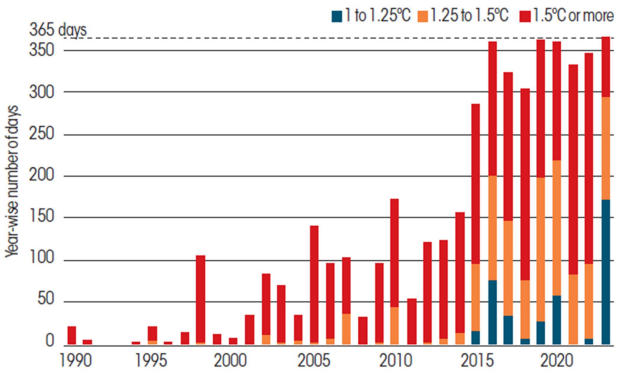
- It is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care.
- It is widely used as a macroeconomic indicator of inflation, as a tool by governments and central banks for inflation targeting and for monitoring price stability.
- The **Central Statistics Office (CSO)**, Ministry of Statistics and Programme Implementation has revised the **Base Year of the CPI from 2010 to 2012** with effect from the release of indices for the month of January, 2015.
- The all-India index is a weighted average of 70 centres' indices. The weight assigned to each centre is the proportion of the estimated consumer expenditure of the centre to the aggregate consumer expenditure of all the centres.

GLOBAL CLIMATE HIGHLIGHTS 2023

Context:

- Recently, Copernicus Climate Change Service released the *'Global Climate Highlights 2023'*.

Key Finding of the report:



- On all 365 days of 2023, the world recorded temperatures at least 1°C higher than those in the pre-industrial period (1850-1900).
- **2023 was 0.60°C warmer than the 1991-2020 average**, and is estimated to be 1.48°C warmer than the 1850-1900 average designated as the pre-industrial level.
- 2023 has replaced 2016 as the warmest calendar year on record.
  - According to the ERA5 dataset, the global average temperature for 2023 was 14.98°C, 0.17°C higher than recorded for 2016.
- The year-to-year increase in global-average temperature was exceptionally large from 2022 to 2023.
  - It follows a transition from three years of La Niña in 2020–2022 to El Niño conditions in 2023.

CABO VERDE

Context:

- Recently, the World Health Organization (WHO) has certified **Cabo Verde *(also known as Cape Verde)*** a malaria-free country.

About:

- Cabo Verde is the third country to acquire this status in WHO's African region, **joining Mauritius and Algeria,** who were certified in 1973 and 2019, respectively.
- **Africa has the highest malaria burden** and accounted for roughly 95% of global malaria cases and 96% of related deaths in 2021.

HEAT IN THE OCEAN

Context:

- A study published in Advances in Atmospheric Sciences found that the ocean heat content reached 286 Zetajoules (ZJ) in 2023 relative to the 1981-2010 average.
  - It makes 2023 one of the five hottest years for the world's oceans since 1955.

About the Ocean Heat Content:

- It is the amount of heat stored in the upper 2,000 metres of the global oceans, and it is a critical metric for understanding and monitoring the Earth's energy balance and its implications for climate.
  - NASA data shows annual changes in **Ocean Heat Content** from 1957 to 2020, relative to 1957, for depths 0-2000 metres.
- The oceans have absorbed 90% of the warming that has occurred in recent decades due to increasing greenhouse gases.
  - The top few metres of the ocean store as much heat as Earth's entire atmosphere.
- The year 2022 was the warmest ever measured for the global ocean.
- The effects of ocean warming include sea level rise due to thermal expansion, coral bleaching, accelerated melting of Earth's major ice sheets, intensified hurricanes, and changes in ocean health and biochemistry.
- It's important to note that accurate OHC data adds valuable information about the heat below the ocean's surface that fuels hurricanes and affects their intensity.

OPERATION AMRITH

Context:

- The Kerala Drug Control Department launched **Operation AMRITH (Antimicrobial Resistance Intervention For Total Health)** to prevent overuse of antibiotics.

About the Operation AMRITH:

- It aims to ensure pharmacies must keep accurate records of antibiotic sales and make consumers aware that antibiotics would not be sold without a prescription.
- It aligns with **Kerala's Anti-Microbial Resistance Strategic Action Plan (KARSAP)**, reflecting a multi-sectoral approach to combat **antimicrobial resistance (AMR)**.
- The State Health department plans to completely stop over-the-counter sale of antibiotics without prescriptions by the end of 2024.
- It includes conducting surprise raids in retail medical shops for detecting over-the-counter (OTC) sale of antibiotics.

Do you know?

- Kerala has implemented various initiatives, including the Antibiotic Literate Kerala Campaign, block-level AMR Committees, and the Kerala Antimicrobial Resistance Surveillance Network (KARS-NET) for surveillance.

THE COASTAL AQUACULTURE AUTHORITY RULES (2024)

Context:

- The Union Ministry of Fisheries, Animal Husbandry and Dairying has announced the Coastal Aquaculture Authority Rules, 2024 by replacing the Rules of 2025.
- **About the Coastal Aquaculture Authority Rules, 2024:**
- The rules introduce comprehensive guidelines and procedures for the regulation of coastal aquaculture units and activities.
- As per Rule 13 (3), if there is a delay in making an application for renewal of coastal aquaculture farms after the publication of these rules, it shall be accompanied by an additional fee which is two times the applicable fee.
- A declaration mentioning sufficient cause for condoning the delay for renewal of farms is also required.

The Coastal Aquaculture Authority (CAA):

- It is a statutory body that was established under the **Coastal Aquaculture Authority Act, 2005**.

Objectives:

- To regulate coastal aquaculture activities in coastal areas in order to ensure sustainable development without causing damage to the coastal environment.
- To make regulations for the construction and operation of aquaculture farms in coastal areas, inspection of farms to ascertain their environmental impact, registration of aquaculture farms, fixing standards for inputs and effluents, removal or demolition of coastal aquaculture farms, which cause pollution etc.

WORLD EMPLOYMENT AND SOCIAL OUTLOOK REPORT: TRENDS 2024

Context:

- Recently the United Nations' International Labour Organization (ILO) released the *'World Employment and Social Outlook: Trends 2024*'.

Key Highlights of the Report:

- 2 million more workers around the world will seek employment in 2024, as the global unemployment rate is expected to rise from 5.1 % in 2023 to 5.2 % this year.
- It forecasts a slight increase in global unemployment in 2024, signalling emerging labour market challenges.
- It highlights disparities between high and low-income countries, noting higher unemployment and poverty rates in lower-income nations.
    - Labour markets have shown surprising resilience despite deteriorating economic conditions, but recovery from the pandemic remains uneven.

Key Concerns Highlighted:

- A significant portion of the global workforce remains in informal employment.
    - Global unemployment is expected to rise this year, with growing inequality and stagnant productivity also a cause for concern.
    - Just over five per cent of the world's workforce is without a job.
    - An extra two million people are expected to be looking for a job over the next 12 months.
    - The majority of the world's richest nations had seen living standards erode, because of inflation.
- It includes worsening income inequality and the impact of inflation on real incomes, especially in G20 countries.
    - New vulnerabilities and multiple crises are eroding prospects for greater social justice.

THE STATE OF FOOD AND AGRICULTURE (SOFA)

Context:

- The Food and Agriculture Organization (FAO) recently released its annual flagship report 'State of Food and Agriculture (SOFA)'.
    - It aims to bring to a wider audience balanced science-based assessments of important issues in the field of food and agriculture.

Key Highlights of the Report:

- The 2023 edition of the report, titled 'Revealing the true cost of food to transform agrifood systems', introduces the concept of hidden environmental, health, and social costs and benefits of agrifood systems.
    - It proposes an approach – true cost accounting (TCA) – to assess them.
- The report **introduces the concept of the 'hidden cost' of food systems,** which includes environmental costs from greenhouse gas emissions, water use, land-use change; health hidden costs from losses in productivity due to unhealthy dietary patterns; and social hidden costs due to poverty and labour productivity.
- The report emphasises the urgent need to factor hidden costs into decision-making for the transformation of agrifood systems.
- It highlights the importance of innovations in research and data, alongside investments in data collection and capacity building, especially in low and middle income countries.

SUBJECTIVE QUESTIONS

1. Analyse the potential strategies and technologies that could be implemented in the cement industry to reduce its carbon footprint.
2. What are the major factors contributing to retail inflation in India and its impact on the economy? Evaluate the measures taken by the government to control inflation.
3. Discuss the current state of horticulture crop production in India. What are the main challenges faced in this sector, and how do they impact crop yield and quality?
4. Discuss the formation and characteristics of rock glaciers and their distribution globally. What are the environmental conditions necessary for their existence?
5. Discuss the current practices in fly ash management in India. What are the environmental challenges associated with fly ash disposal?

■■■■