NEXT IAS

SUMMARY OF DOWN TO EARTH

[16–30 NOVEMBER, 2024]

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CONTENT

[16–30 November, 2024]

ACUTE FOOD INSECURITY

Context

- According to the **UN report**, acute food insecurity is projected to worsen in 14 countries and two regional clusters, covering 22 countries and territories during the next six months.

About

- Acute food insecurity is a severe and life-threatening condition where individuals are unable to consume adequate food, putting their lives or livelihoods in immediate danger.
- It has been escalating globally, driven by a combination of conflict, climate change, economic instability, and displacement.

Scale of the Crisis

- According to the **United Nations World Food Programme (WFP)**, approximately 343 million people across 74 countries are facing acute hunger.
- It includes 1.9 million people experiencing catastrophic levels of hunger, primarily in regions like Gaza, Sudan, South Sudan, Haiti, and Mali.
- The situation is so dire that famine has been confirmed in some areas, such as the Zamzam camp in northern Sudan.

Key Drivers of Acute Food Insecurity

- **Conflict:** Nearly 70% of those facing acute hunger live in fragile or conflict-affected countries.
    - Violence disrupts food production, displaces populations, and hinders humanitarian access, exacerbating food insecurity.
- **Climate Change:** Climate shocks, such as droughts, floods, and extreme weather events, destroy crops and livelihoods, making it difficult for people to feed themselves.
    - The ongoing climate crisis is a significant driver of the rising levels of global hunger.
- **Economic Instability:** Slow economic recovery from the COVID-19 pandemic, coupled with the fallout from conflicts like the war in Ukraine, has strained global food systems.
    - High food prices and limited investment in social protection programs further aggravate the situation.
- **Displacement:** Forcibly displaced people, including refugees and internally displaced persons, face specific vulnerabilities related to food insecurity.
    - They often have limited access to employment, livelihoods, and food, relying heavily on humanitarian assistance.

Regional Hotspots

- The Food and Agriculture Organization (FAO) and WFP have identified 22 countries and territories as acute food insecurity hotspots, where the situation is expected to worsen in the coming months. These include:

- **Africa:** Nigeria, Sudan, Yemen, Ethiopia, South Sudan, Zimbabwe, Zambia, Malawi, Chad, Niger, Mozambique, Burkina Faso, Somalia, and Mali.
- **Asia:** Myanmar, Syrian Arab Republic, and Lebanon.
- **Latin America:** Haiti.
- **Middle East:** Palestine (Gaza Strip).

- In these regions, ongoing conflicts, economic shocks, and climate extremes are the primary drivers of acute food insecurity.

Addressing the Crisis

- **Conflict Resolution:** Political and diplomatic solutions are needed to address the root causes of conflicts and ensure safe and unrestricted humanitarian access.
- **Climate Action:** Immediate and sustained efforts to mitigate climate change and adapt to its impacts are crucial.
  - It includes investing in climate-resilient agriculture and supporting vulnerable communities.
- **Economic Support:** Strengthening social protection programs and providing economic assistance to low- and middle-income countries can help stabilize food systems and reduce hunger.
- **Humanitarian Aid:** Increasing funding and support for humanitarian organizations is vital to address the immediate needs of those facing acute food insecurity.

Conclusion

- Acute food insecurity is a pressing global issue that requires urgent and comprehensive action.
- By addressing the underlying causes of hunger and strengthening international cooperation, we can work towards a future where everyone has access to sufficient, nutritious food.

LOWEST SEX RATIO IN 8 YEARS IN HARYANA

Context

- Haryana, a state with a historically skewed sex ratio, has recorded its lowest sex ratio at birth in eight years.

About

- Haryana, a state with a historically skewed sex ratio, has recorded its lowest sex ratio at birth (SRB) in eight years.
- According to recent data, the SRB for the first ten months of 2024 stands at **905 girls per 1,000 boys,** a significant **drop from 916 in 2022.**
- It highlights the ongoing challenges in addressing gender bias and female foeticide in the region.

Decline in Sex Ratio

- The decline in Haryana's sex ratio is a stark reminder of the deep-rooted socio-cultural preferences for male children.
- Despite various government initiatives, including the **'Beti Bachao, Beti Padhao'**

campaign launched in 2015, the state has struggled to maintain a balanced sex ratio.

- The campaign initially showed promise, raising the sex ratio to 923 by 2019, but the numbers have since declined.

Districts with Lowest Ratios

- Several districts in Haryana have reported particularly low sex ratios. Gurugram, for instance, recorded an SRB of 859, while Rewari and Charkhi Dadri reported 868 and 873, respectively.
- These figures are well below the World Health Organization's recommended ideal sex ratio of 950.

Societal and Cultural Factors

- The preference for sons in Haryana is driven by various socio-economic and cultural factors.
- Families often view sons as financial assets and heirs, while daughters are seen as economic burdens due to dowry practices and concerns about family honor.
- This deep-seated bias leads to practices such as female foeticide and neglect of girl children.

Cross-State Impact

- The issue of gender preference is not confined to Haryana alone. Residents often seek illegal gender-based abortions in neighboring states like Delhi, Uttar Pradesh, Punjab, and Rajasthan, where regulations may be less stringent.
- This cross-state impact complicates efforts to curb female foeticide and enforce gender equality.

Enforcement Challenges

- Since 2005, Haryana has conducted around 1,200 raids to curb illegal gender determination practices, but success rates have been limited as practitioners become more cautious.
- The state continues to face challenges in effectively enforcing laws against prenatal sex determination and female foeticide.

Social Consequences

- The skewed sex ratio has significant social consequences. Many men in Haryana struggle to find marriage partners, leading to a rise in unmarried men in certain villages.
- Additionally, girls often face neglect and malnutrition, resulting in health issues and, in some cases, early death.

HIDDEN COSTS OF AGRIFOOD SYSTEMS IN INDIA

Context

- Recently, the **State of Food and Agriculture 2024** of **Food and Agriculture Organisation** (FAO) found that **India's hidden costs of agrifood systems** were $1.3 trillion annually, largely driven by unhealthy dietary patterns and dietary risks associated with non-communicable diseases.

About the State of Food and Agriculture (SOFA)

- It is **an annual flagship report** published by the FAO of the United Nations that provides in-depth analysis and insights into key issues affecting global food and agriculture systems.
- **SOFA 2024** delves into the ***true cost of food, emphasising the need for agrifood systems to be more inclusive, resilient, and sustainable.***
    - It **builds on the findings of the 2023 report,** exploring the use of true cost accounting to assess the economic, social, and environmental impacts of agrifood systems.
    - **SOFA 2023 introduced the concept of hidden costs and benefits in agrifood systems**, proposing true cost accounting as a method to reveal these hidden aspects.

Key Finding of the FAO

- India's agrifood systems, while crucial for feeding its vast population, come with significant hidden costs that are not reflected in market prices.
- These costs, estimated at around $1.3 trillion annually, are driven by unhealthy dietary patterns, environmental degradation, and social inequalities.
- Understanding and addressing these hidden costs is essential for creating a sustainable and equitable food system.

Health Costs

- A major portion of the hidden costs in India's agrifood systems stems from dietary risks associated with **non-communicable diseases (NCDs)** such as heart disease, stroke, and diabetes.
- The **State of Food and Agriculture 2024 report** highlights that unhealthy diets, characterized by high consumption of processed foods and low intake of whole foods and beneficial fatty acids, contribute significantly to these health costs.
- The report estimates that dietary risks alone account for over 73% of the total hidden costs, amounting to $846 billion annually.

Environmental Costs

- **Agriculture** is a major source of **greenhouse gas emissions**, **water use, and land degradation.**
    - The **use of fertilizers** and pesticides leads to nitrogen emissions, which contribute to air and water pollution.
- Additionally, the **conversion of forests and grasslands** into agricultural land results in biodiversity loss and soil erosion.

Social Costs

- Many agrifood workers in India face poverty and low productivity due to inadequate wages and poor working conditions.
- The FAO report emphasizes that addressing these social costs requires improving the livelihoods of agrifood workers and

ensuring fair distribution of resources. It includes providing better access to education, healthcare, and social protection programs.

Way Forward

- **Promoting Healthy Diets:** Encouraging the consumption of whole foods, fruits, and vegetables while reducing the intake of processed foods can significantly lower health-related costs.
    - Public awareness campaigns and nutrition education programs are essential in this regard.
- **Sustainable Agricultural Practices:** Implementing climate-resilient and environmentally friendly farming techniques can reduce the environmental impact of agriculture.
    - It includes practices such as precision irrigation, crop diversification, and organic farming.
- **Improving Social Equity:** Ensuring fair wages and better working conditions for agrifood workers is crucial for addressing social inequalities.
    - Policies aimed at enhancing social protection and providing access to essential services can improve the livelihoods of those involved in the agrifood sector.

Conclusion

- The $1.3 trillion hidden cost of India's agri-food systems, as revealed by the FAO report, highlights the urgent need for comprehensive reforms.
- By promoting healthier diets, sustainable agricultural practices, and social equity, India can significantly reduce these hidden costs and pave the way for a healthier, more sustainable future.

AGRICULTURAL POLICY MONITORING AND EVALUATION 2023: OECD

Context

- According to the latest assessment by OECD, Indian farmers were implicitly taxed US $20 billion in 2023, the highest among 54 countries, due to export bans, duties or other policies which lower the price of agricultural commodities.

Background

- In 2023, the Indian government introduced export restrictions on commodities like rice, de-oiled rice bran, sugar and onions to keep food prices low for consumers.
- While this kept domestic prices from rising for the consumers, it also meant that producers' (farmers) receipts were lower than they would have been had these policies not been in place.

Agricultural Policy Monitoring and Evaluation 2023

- It provides a comprehensive analysis of the current state of agricultural policies, highlighting the need for reforms to address climate change, enhance sustainability, and improve resilience.

Key Data

- **US $2 trillion:** The estimated global economic losses between 2014 and 2023 because of extreme weather events.
    - Climate change is a key driver of these events, which have increased by 83% between 1980-1999 and 2000-2019

Key Findings

- **Record Levels of Support:** The report reveals that total support to agriculture reached USD 851 billion per year during 2020-2022 across 54 countries, including OECD members and emerging economies.
    - This support, although substantial, often hinders rather than helps the sector's ability to adapt to future crises, including climate change.
- **Climate Change Adaptation:** The report emphasizes the urgent need for policies that support climate change adaptation.
    - It identifies nearly 600 adaptation measures adopted by governments but notes that more action is required to implement, monitor, and assess these measures effectively.
    - The rising impacts of climate change underscore the necessity of reforming policies that hinder adjustments to agricultural production systems.
- **Environmental Sustainability:** Most of the support provided to the agricultural sector is market-distorting and risks harming the environment.
    - The report calls for a reorientation of harmful support towards initiatives that promote emission reductions, resilience, and sustainable productivity growth.
- **Economic and Social Impacts:** The report highlights the triple challenge faced by agricultural policies: providing adequate, affordable, safe, and nutritious food; ensuring livelihoods along the food value chain; and enhancing the sector's environmental performance.
    - Addressing these challenges requires a balanced approach that considers economic, social, and environmental dimensions.

Recommendations

- **Reform Harmful Support:** The OECD recommends reducing or reorienting support that distorts markets and harms the environment.
    - Instead, policies should focus on enhancing the sector's capacity to adapt to climate change and other future shocks.
- **Enhance Resilience**: Strengthening the resilience of agricultural systems is crucial.
    - It includes investing in infrastructure, technology, and practices that can withstand extreme weather events and other disruptions.
- **Promote Sustainable Practices:** Governments should promote sustainable agricultural practices that reduce

environmental impacts and improve productivity.

- It includes encouraging the use of renewable energy, precision farming, and organic agriculture.

- **Support Vulnerable Populations**: Policies should ensure that support reaches the most vulnerable populations, including smallholder farmers and rural communities.
  - Social protection programs and targeted assistance can help these groups adapt to changing conditions and improve their livelihoods.

CYCLONE FORECASTING IN INDIA

Context

- The precision of cyclone forecasts in India is hampered by limited and outdated monitoring instruments

Importance of Cyclone Forecasting

- Cyclones can cause widespread devastation, including loss of life, damage to infrastructure, and disruption of livelihoods.
- Accurate and timely forecasting allows for early warnings, enabling authorities to implement evacuation plans, secure infrastructure, and mobilize resources to mitigate the impact.

Key Agencies Involved

- **India Meteorological Department (IMD):** The IMD is the primary agency responsible for cyclone forecasting in India.
  - It operates a network of observation systems, including satellites, radars, and automated weather stations, to monitor and predict cyclonic activities.
- **National Disaster Management Authority (NDMA):** The NDMA works in coordination with the IMD and other agencies to develop and implement disaster management plans.
  - It focuses on enhancing community preparedness and resilience through awareness programs and capacity-building initiatives.
- **National Cyclone Risk Mitigation Project (NCRMP):** Initiated by the Government of India, the NCRMP aims to reduce the vulnerability of coastal communities to cyclones.
  - It involves structural measures like the construction of cyclone shelters and non-structural measures such as improved early warning systems.

Technological Advancements: Tools to predict a cyclone

- **High Speed Wind Recorder:** It captures wind speeds close to the ground which is also crucial for forecasting.
  - India has around 35 along coasts, but ideally needs at least one in each coastal taluka.
- **Satellite:** It collects data on sea surface temperatures, wind speeds and cloud characteristics from space.
  - India has three satellites collecting data which is enough for the job.

- The INSAT series of satellites, operated by ISRO, are instrumental in monitoring cyclones.

- **Buoys:** It collects data on sea surface and subsurface temperatures, sea currents, winds, humidity, air pressure, air temperature, rainfall and solar radiation.
  - The Indian buoy network needs to be expanded and upgraded urgently.
- **Doppler Weather Radar:** It collects data on winds speeds slightly above the surface of land or sea and moisture levels to determine cyclone structure, path and intensity.
  - India has 15 doppler weather radars along the coast but many need to be upgraded and new ones are required, especially in the Andaman and Nicobar and Lakshadweep Islands.
- **Numerical Weather Prediction Models:** Advanced computational models are used to simulate and predict cyclone behavior.
  - These models integrate data from various sources to provide accurate forecasts and track predictions.

Community Preparedness and Response

- Effective cyclone forecasting is complemented by robust community preparedness and response mechanisms.
- The NDMA and state disaster management authorities conduct regular drills, awareness campaigns, and training programs to ensure that communities are well-prepared to respond to cyclone warnings.

Challenges and Future Directions

- Despite significant advancements, challenges remain in cyclone forecasting, including the need for more localized predictions and improved accuracy.
- Future efforts will focus on integrating artificial intelligence and machine learning to enhance predictive capabilities and developing more resilient infrastructure to withstand cyclonic impacts.

Conclusion

- Cyclone forecasting in India has made remarkable progress, thanks to the concerted efforts of government agencies and advancements in technology.
- Continued investment in forecasting infrastructure and community preparedness will be essential to mitigate the impact of cyclones and safeguard vulnerable populations.

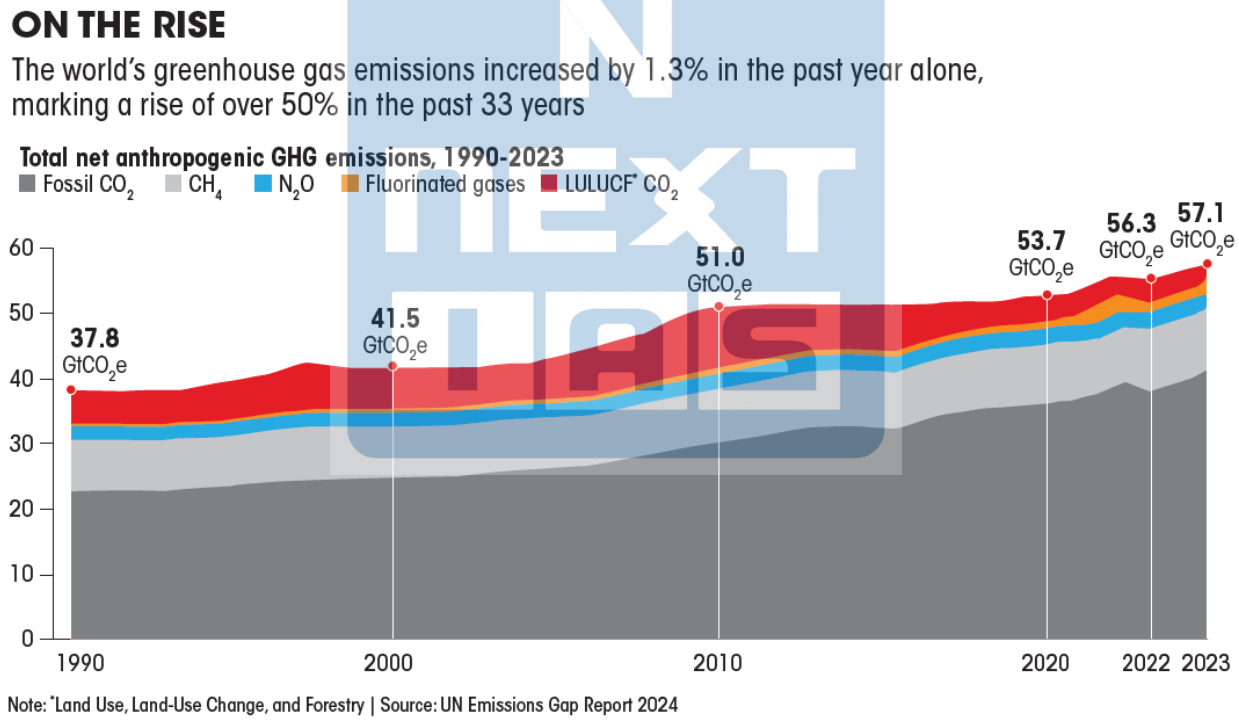
UN EMISSIONS GAP REPORT 2024

Context

- Recently, a UN report warned that Nations must collectively commit to cut 42% of annual emissions by 2030 and 57% by 2035 in the next round of Nationally Determined Contributions (NDCs), else, the Paris Agreement's 1.5°C goal will be gone within a few years.

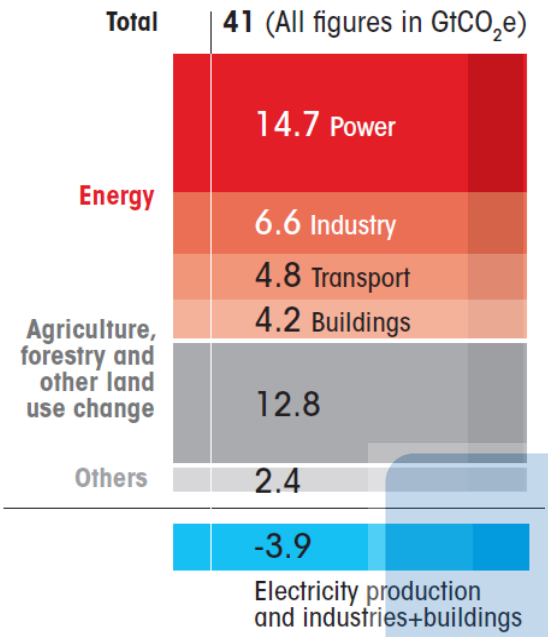
Key Highlights

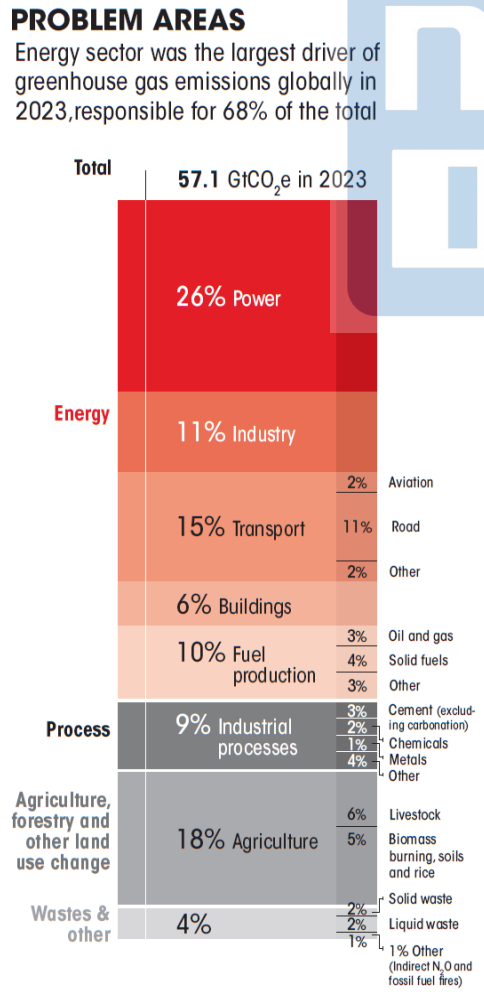
- It outlines strategies to curb greenhouse gas emissions in sectors like energy and agriculture by 2030 and 2035.
- **1.5**°C **Target:** It warned that the **Paris Agreement** objective of keeping global rise in temperatures to within 1.5°C would be gone within a few years.
  - If countries continue with their current policies, global temperature will rise to 3.1°C.
  - If the world meets its current unconditional NDCs, annual GHG emissions will fall by just 4% by 2030, leading to a temperature rise of 2.8°C by the end of the century.
  - If the world meets its current conditional NDCs, annual GHG emissions will fall by just 10% by 2030, leading to a temperature rise of 2.6°C by the end of the century.
  - Greenhouse gas emissions of China and India, two of the top three emitters, grew by 5.2% and 6.1% respectively.



- **Future Predictions:** Current climate actions, even in the most optimistic scenario, could reduce global greenhouse gas emissions by only 10% by 2030 on 2019 levels.
  - The world must reduce annual GHG emissions by 28% by 2030 to limit global warming to below 2°C.
  - The world must reduce annual GHG emissions by 42% by 2030 to limit global warming to 1.5°C.

- Without dramatic cuts to greenhouse gas emissions, the world could face an inevitable 3.1°C temperature rise.





Concern Area

- The energy sector was the largest driver of greenhouse gas emissions globally in 2023,responsible for 68% of the total.

Potential Solution

- The global potential to reduce sectoral emissions is estimated at 31 GtCO2e / year in 2030 and 41 GtCO2e /year in 2035

COP-16 ON CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

Context

- In a historic move, the world has decided to include indigenous voices in the conservation of biodiversity.

About the 16th COP To CBD

- It was held in **Cali, Colombia**, themed **'Peace with Nature'** and marked a significant step forward in global efforts to halt and reverse biodiversity loss.
- Some 190 nations have agreed to set up a global fund where companies that benefit from the use of digital information of genetic resources share their profit with the traditional custodians of the resources.

Key Outcomes

- **Expanded Role of Indigenous Peoples and Local Communities (IPLCs):** COP16 saw a groundbreaking agreement to enhance the role of IPLCs in biodiversity conservation.
  - It includes greater involvement in decision-making processes and the implementation of conservation projects.

- The agreement recognizes the traditional knowledge and practices of IPLCs as vital for effective biodiversity management.

- **Operationalisation of the Global Mechanism for Digital Sequence Information (DSI):** A new global mechanism was established to share benefits arising from the use of digital sequence information on genetic resources.
  - It aims to ensure fair and equitable sharing of benefits, particularly with countries that provide genetic resources.
- **Kunming-Montreal Global Biodiversity Framework (GBF):** COP16 focused on the implementation of the Kunming-Montreal GBF, which sets ambitious targets for biodiversity conservation by 2030.
  - It includes targets such as protecting 30% of the world's land and oceans, restoring 20% of degraded ecosystems, and reducing pollution from plastics and excess nutrients.

Do You Know?

- **Target 13** of the Kunming-Montreal Global Biodiversity Framework (KMGBF), adopted at **COP-15 in 2022.**
- It seeks to increase the sharing of benefits with the communities earned from the use of genetic resources and **Digital Sequence Information (DSI).**
  - **DSI refers to genetic data** such as nucleotide sequences (DNA & RNA) and protein sequences of organisms.

- **Financial Commitments:** Significant financial commitments were made to support biodiversity conservation efforts. It includes increased funding from both public and private sectors.
  - It highlighted the need for innovative financing mechanisms to mobilize resources for biodiversity projects.
- **Climate-Biodiversity Synergies:** COP16 emphasized the interlinkages between climate change and biodiversity loss.
  - Participants agreed on the importance of integrating biodiversity considerations into climate action plans.
  - The conference called for enhanced cooperation between the CBD and other international frameworks, such as the United Nations Framework Convention on Climate Change (UNFCCC).

MULTI-MILLION DOLLAR FRAUD HITS CARBON OFFSET INDUSTRY

Context

- A multi-million dollar fraud hits the carbon offset industry, raising fundamental concerns about accounting practices of the transactions.

About

- The carbon offset industry, a crucial component in the global fight against climate change, has been rocked by a multi-million dollar fraud scandal.
- It has raised significant concerns about the accounting practices and integrity of carbon offset transactions, highlighting the need for stricter regulations and oversight.

Understanding Carbon Offsets

- Carbon offsets are measurable, verifiable emission reductions from projects that reduce, avoid, or remove greenhouse gases from the atmosphere.
- These projects can range from reforestation and renewable energy initiatives to methane capture and energy efficiency improvements.
- By purchasing carbon offsets, individuals, businesses, and organizations can compensate for their own emissions by supporting these projects.

Role of the UNFCCC

- The **UNFCCC's Carbon Offset Platform** allows users to purchase **Certified Emission Reductions (CERs),** which are units representing one tonne of CO2 equivalent reduced or removed from the atmosphere.
- These CERs are generated by projects that meet rigorous standards set by the UNFCCC, ensuring their environmental integrity and contribution to sustainable development.

How Carbon Offsets Work

- Carbon credits are issued for activities that either avoid greenhouse gas (GHG) emissions or remove GHGs from the atmosphere.
- Each carbon credit represents one tonne of carbon dioxide or its equivalent in GHGs avoided or removed.
- These credits are then bought by businesses to offset their emissions and meet climate goals.
- The voluntary carbon market has flourished in recent years.
    - However, the absence of a globally negotiated agreement to govern this market has left it vulnerable to fraudulent activities.

How Carbon Offsets Work

- **Calculation:** The first step in offsetting carbon emissions is to calculate your carbon footprint.
    - It can be done using various tools, such as the carbon footprint calculator available on the UNFCCC platform.
- **Reduction:** Before purchasing offsets, it is essential to reduce emissions as much as possible through energy efficiency, renewable energy, and other measures.
- **Offsetting**: After reducing emissions, the remaining unavoidable emissions can be offset by purchasing CERs.
    - These offsets support projects that reduce or remove greenhouse gases, effectively balancing out the buyer's emissions.

Benefits of Carbon Offsets

- **Environmental Impact:** Carbon offset projects help mitigate climate change by reducing greenhouse gas concentrations in the atmosphere.
- **Sustainable Development:** Many offset projects also contribute to sustainable development by providing social, economic, and environmental benefits to local communities.
- **Corporate Responsibility:** For businesses, purchasing carbon offsets can enhance corporate social responsibility and improve brand reputation.

Call for Reform

- **Enhanced Verification and Validation:** Implementing stricter verification and validation processes to ensure the accuracy and legitimacy of carbon credits.
- **Transparency and Accountability:** Increasing transparency in the carbon offset market by requiring detailed reporting and disclosure of project data.
- **International Standards:** Developing and enforcing international standards for carbon offset projects to prevent fraud and ensure consistency across markets.
- **Regulatory Oversight:** Strengthening regulatory oversight to monitor and regulate the activities of carbon offset project developers and traders.

THE POVERTY, PROSPERITY, AND PLANET REPORT 2024

Context

- Recently, the **World Bank** released its '**The Poverty, Prosperity, and Planet Report 2024'** which provides a comprehensive post-pandemic assessment of global progress towards ending poverty, boosting shared prosperity, and ensuring a livable planet.

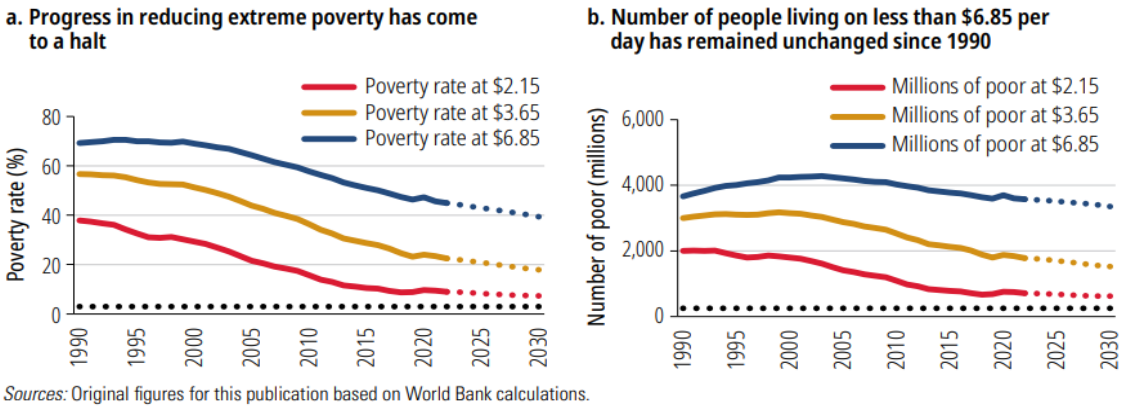
About

- **Theme of the Report:** 'Pathways Out of the Polycrisis' highlights the interconnected challenges facing the world and explores potential solutions.

Key Findings

- **Global Poverty Trends:** The report reveals that global poverty reduction has slowed significantly. As of 2024, nearly 700 million people (8.5% of the global population) live in extreme poverty, surviving on less than $2.15 per day.
    - Sub-Saharan Africa remains the most affected region, accounting for 67% of the world's extreme poor.

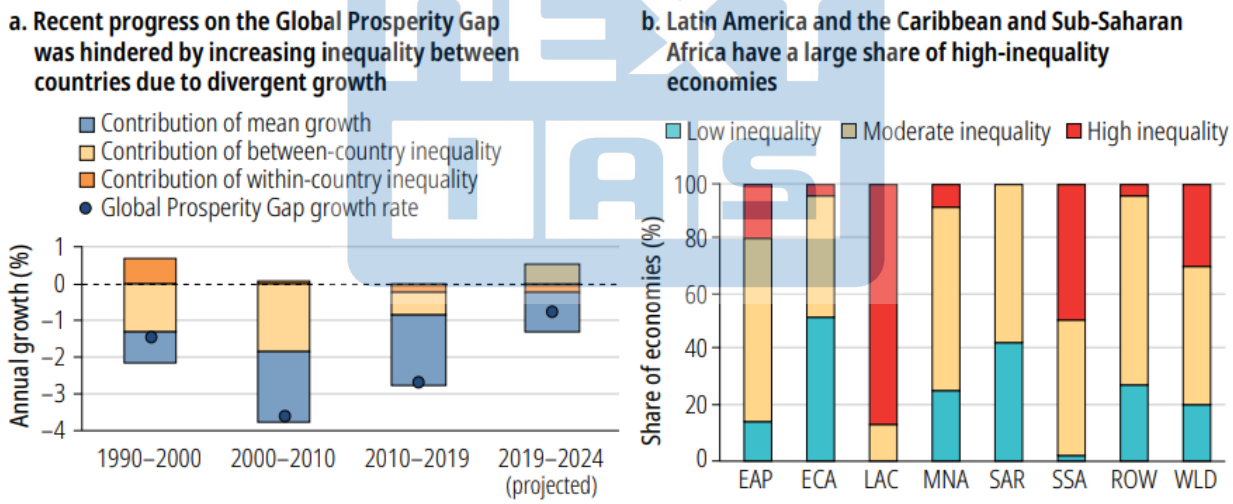
Global extreme poverty reduction has slowed to a near standstill, with 2020–30 set to be a lost decade



Sources: Original figures for this publication based on World Bank calculations.

- **Shared Prosperity:** Progress in shared prosperity has stalled, with around 3.5 billion people (44% of the global population) living on less than $6.85 per day.
    - The number of people living on less than this standard has barely changed since the 1990s due to population growth.

Progress on boosting shared prosperity around the world has slowed down



Sources: Original figures for this publication based on World Bank calculations.

- **Environmental Sustainability:** The report emphasizes the need for sustainable development practices that do not come at unacceptably high costs to the environment.
    - It calls for integrating environmental considerations into poverty reduction and economic growth strategies.

Pathways Out of the Polycrisis

- **Improving Labor Incomes:** Creating more and better jobs, particularly in sectors that

are resilient to economic shocks, is crucial for improving labor incomes.

- Investing in education, infrastructure, and basic services can enhance people's ability to benefit from and contribute to economic growth.

- **Inclusive Growth:** Policies that promote inclusive growth are essential for reducing poverty and boosting shared prosperity. This includes targeted social protection programs and measures to reduce inequality.
- **Sustainable Practices:** Adopting sustainable agricultural practices, protecting natural resources, and reducing pollution are vital for ensuring a livable planet.
  - The report highlights the importance of international cooperation and innovative financing mechanisms to support these efforts.

TRUMP 2.0: A NEW ERA FOR INDIA-US RELATIONS

Syllabus: GS2/International Relation

Context

- Donald Trump's election as US' 47th president is the start of a new political era, and its impact would be felt across the world, across sectors.

Importance of India-US Relations

- The relationship between India and the United States has evolved into one of the most significant partnerships in the 21st century.
- It spans **economic, strategic, and cultural dimensions**, reflecting the shared values and mutual interests of the world's largest democracies.

Strategic Interests

- The two nations are motivated by **common interests:** India aims to become the world's third-largest economy, while the US seeks reliable allies to counterbalance China's growing influence.
  - Their shared focus on economic growth and security can lead to deeper co-operation in areas like **counterterrorism and Indo-Pacific stability.**
- **Defence and Security:** Trump's emphasis on reducing US involvement in foreign conflicts might push India to take a more prominent role in regional security.
  - It could lead to increased defence collaborations and arms deals, bolstering India's military capabilities.
  - There could be increased cooperation in technology and defence, with the US likely to open up more military hardware for Indian defence forces.

Economic Interests

- Both **India and the US** share a pro-business stance and a focus on economic growth, which could drive substantial changes on the global economic stage.
- Trump's **'America First' policy,** while often seen as isolationist, aligns with Modi's **'Make in India' initiative**, potentially fostering deeper economic ties.

- The Trump administration is expected to revive negotiations for a **Free Trade Agreement,** which had seen intense discussions during his first term.
- The growth of **Global Capability Centres (GCCs)** in India, driven by US companies, is one such area where collaboration could flourish.
- Under Trump 2.0, India might face trade skirmishes, but it is better prepared today with export-friendly policies like the **Production Linked Incentive (PLI) scheme** and the **semiconductor program.**

Trade Policies

- Trump's protectionist stance, including higher tariffs on imports, could pose challenges for Indian exporters. **During his first term,** Trump was vocal about reducing the trade deficit with countries like India.
- **Trump's unpredictable policy** shifts could create economic instability. For instance, changes in **trade agreements or sanctions** on countries like Iran could disrupt **India's energy supplies** and increase costs.
- **For India,** this could complicate trade relations, especially in sectors like IT, pharmaceuticals, and textiles, which rely heavily on the US market.
- His administration imposed tariffs on several Indian goods, and similar measures could be expected in his second term.

Immigration Overhaul: Deportations and Visa Restrictions

- Stricter immigration laws could impact the Indian workforce in the US, particularly in the tech sector. With Trump 2.0, there is a likelihood of further restrictions, which could impact the flow of skilled Indian professionals to the US.
    - The already difficult process for legal migration to the US, particularly through the **H-1B visa program,** will likely become even more restrictive under his administration.

Energy Policies

- Trump's energy policies, which favour fossil fuel production, could lead to lower global oil prices.
    - It might benefit India, a major oil importer, by reducing its import bill.
    - However, it also poses **challenges for global climate change efforts,** an area where India has been making significant strides.

Global Implications

- **Trade Wars and Global Economy:** The return of Trump's aggressive trade policies could reignite trade tensions with major economies like China and the European Union.
    - It could disrupt global supply chains and impact economic stability worldwide.
    - For emerging economies like India, navigating these tensions will be crucial to maintaining growth.
- **Geopolitical Dynamics**: Trump's foreign policy, marked by unpredictability and a transactional approach, could alter geopolitical alliances.

- For India, this means balancing its strategic partnership with the US while managing relations with other global powers like China and Russia.

- **Climate Change and Sustainability:** Trump's scepticism towards climate change and his support for fossil fuels could slow down global efforts to combat climate change.
  - It is a significant concern for India, which is vulnerable to climate impacts and has been actively working towards sustainable development goals.

LEAD CONTAMINANT

Context

- A study published in Science found that Lead in turmeric sold in India, Nepal and Pakistan were several times higher than the regulatory limit.

About Lead (Pb)

- Lead is a heavy metal and a naturally occurring element found in the Earth's crust. It is soft, malleable, and has a relatively low melting point.
- **Sources of Lead Exposure:** Industrial Processes like Mining, smelting, manufacturing, recycling.
  - Product Usage likeLead-acid batteries (largest consumer), paints, pigments, stained glass, ceramics, ammunition.
  - Water Contamination by leaks from old lead-based plumbing.
- **Health Effects:** Brain and nervous system damage, Reduces cognitive abilities and kidney failure.
  - Over 1.5 million deaths in 2021 due to cardiovascular effects from lead.
- **Environmental Effect:** An increase in lead concentration in soil from 0 ppm to 1000 ppm significantly impacts

Actions to Mitigate Lead Exposure

- WHO clinical management guidelines for lead exposure.
- Global Alliance to Eliminate Lead Paint: It is a voluntary partnership formed by the UNEP and the WHO to prevent exposure to lead through promoting the phase-out of paints containing lead.
- Banning use of leaded petrol.

2024 TO CROSS 1.5°C THRESHOLD

Context

- According to the World Meteorological Organization (WMO) and the European Union's Copernicus Climate Change Service (C3S), 2024 is on track to be the hottest year on record.

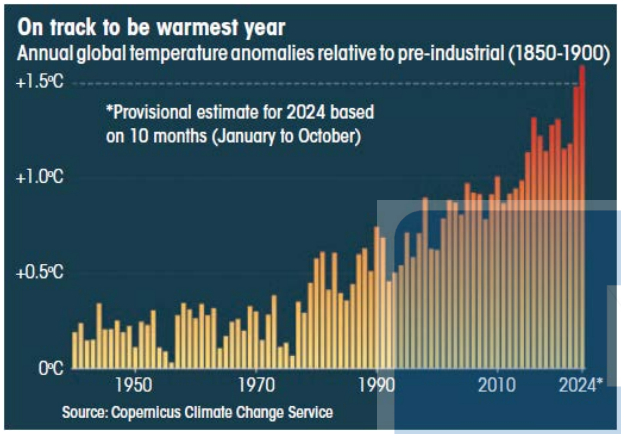
About

- The year 2024 is poised to become a pivotal moment in the history of climate change, as global temperatures are set to temporarily exceed the critical 1.5°C threshold above pre-industrial levels.
- This alarming development underscores the urgent need for intensified climate

action and highlights the profound impacts of global warming on our planet.

Record-Breaking Temperatures

- The global mean surface air temperature from January to September 2024 was 1.54°C above the pre-industrial average, driven by a strong El Niño event.



- It marks a significant milestone, as it is the first time the annual average temperature is expected to surpass the 1.5°C threshold.

Implications of Exceeding 1.5°C

- The temporary crossing of the 1.5°C threshold does not mean that the long-term goal of the Paris Agreement has been breached.
    - The **Paris Agreement** aims to keep global temperature rise well below 2°C and pursue efforts to limit it to 1.5°C above pre-industrial levels.
- However, even a temporary excess has serious implications. Every fraction of a degree of warming increases the frequency and intensity of extreme weather events, such as heatwaves, floods, and storms.

Climate Extremes and Impacts

- The year 2024 has already witnessed a series of extreme weather events, including record-breaking rainfall, devastating floods, rapidly intensifying tropical cyclones, and relentless droughts.
- These events have caused massive economic and human losses, particularly affecting vulnerable communities.
- The WMO's State of the Climate 2024 Update highlights that the past decade (2015-2024) will be the warmest on record, with accelerating glacier loss, rising sea levels, and increasing ocean heat.

Key Measures

- **Reducing Greenhouse Gas Emissions:** Accelerating the transition to renewable energy sources, enhancing energy efficiency, and implementing carbon pricing mechanisms are crucial steps to reduce emissions.
- **Strengthening Climate Resilience:** Investing in infrastructure and systems that can withstand extreme weather events, protecting ecosystems, and supporting adaptation efforts in vulnerable regions are essential for building resilience.
- **International Cooperation:** Enhanced collaboration among nations is vital to achieve the goals of the Paris Agreement. This includes sharing technology, knowledge, and financial resources to support climate action globally.

Path Forward

- The crossing of the 1.5°C threshold in 2024 should serve as a wake-up call for the global community. It emphasises the need for urgent and ambitious climate action to mitigate the impacts of global warming.

AVIAN INFLUENZA (HPAI) H5N1 VIRUS

Context

- Recently, concerns mounted after US' Department of Agriculture reported that a pig on a backyard farm in Oregon was infected with bird flu, caused by the highly pathogenic avian influenza (HPAI) H5N1 virus clade 2.3.4.4b.

About the Avian Influenza (Bird Flu)

- It refers to a disease caused by infection with avian (bird) influenza Type A viruses. These viruses naturally occur among wild aquatic birds worldwide and can infect domestic poultry and other bird species.

Virus Types and Reservoirs

- Avian influenza A viruses have been isolated from over 100 different species of wild birds globally.
- Wild aquatic birds, including ducks, geese, swans, gulls, and terns, serve as reservoirs for these viruses. They can carry the virus in their intestines and respiratory tracts without getting sick themselves.
- Some species, like ducks, may not exhibit symptoms even when infected, but they can shed the virus in their saliva, nasal secretions, and faeces.

Subtypes and Lineages

- Influenza A viruses are divided into subtypes **based on two surface proteins: hemagglutinin (HA) and neuraminidase (NA).**
- Among birds, 16 HA and 9 NA subtypes have been identified. For instance:
    - **H5N1:** This subtype has caused significant concern. It has led to outbreaks in poultry and has occasionally infected humans. The current public health risk from H5N1 remains low, but monitoring is crucial.
    - **H7N2, H3N8, and others:** These subtypes also circulate among birds and occasionally cause infections in other animals like horses and dogs.

Virus Classification

- **Low Pathogenicity Avian Influenza (LPAI):** These viruses cause mild or no signs of disease in poultry. However, some LPAI viruses can mutate into highly pathogenic strains.
- **Highly Pathogenic Avian Influenza (HPAI):** HPAI viruses cause severe disease and high mortality in infected poultry. Only specific subtypes (such as H5 and H7) are classified as HPAI.

Transmission and Contagiousness

- Avian influenza A viruses are highly contagious among birds. Infected birds can transmit the virus to susceptible birds through direct contact or contaminated surfaces.

- Domesticated bird species, such as chickens, ducks, and turkeys, can become sick and even die from avian influenza.
- Poultry workers and bird outbreak responders should follow strict biosecurity measures to prevent the spread of the virus.

GLOBAL HEALTH EMERGENCY CORPS (GHEC)

Context

- Recently, the **World Health Organization (WHO)** has activated the **Global Health Emergency Corps for the first time** in response to the **recent MPOX outbreak,** signalling an urgent response effort to control the disease across multiple regions.

About the Global Health Emergency Corps (GHEC)

- It aims to create a robust, interconnected health emergency workforce capable of responding swiftly and effectively to health crises worldwide.
- It also aims to enable countries to assess, structure, and invest in their national health emergency corps by outlining modalities for collaboration and support between countries and partners, ensuring better coordination during emergency responses.

Vision and Objectives

- The vision of the GHEC is to establish a health emergency workforce that is centered in countries and coordinated regionally and globally.
- It is designed to enhance ***health emergency prevention, preparedness, response, and resilience (HEPR)*** efforts. It focuses on:
- **Connected Health Emergency Leaders:** Building a network of health emergency leaders who can coordinate and lead response efforts.
- **Health Emergency Surge Capacities:** Ensuring that countries have the capacity to rapidly scale up their response during emergencies.
- **Health Emergency Workforce:** Developing a skilled and ready workforce to tackle health emergencies.

MPOX

- Mpox, ***previously known as monkeypox***, is a **viral illness** caused by the **monkeypox virus**, a member of the **Orthopoxvirus genus**.
- It is an enveloped **double-stranded DNA virus**, closely related to the viruses that cause **smallpox and cowpox.**
- The monkeypox virus was **first identified in humans** in 1970 in the **Democratic Republic of the Congo (DRC)**.
- There are **two distinct clades** of the virus: **clade I** (with subclades Ia and Ib) and **clade II** (with subclades IIa and IIb).

Key Components of GHEC

- **Emergency Medical Teams (EMT) Initiative:** Mobilizing medical teams to provide immediate care during health emergencies.

- **Global Outbreak Alert and Response Network (GOARN):** Coordinating international outbreak response efforts.
- **International Association of National Public Health Institutes (IANPHI):** Strengthening public health institutes globally.
- **Public Health Emergency Operations Center Network (EOC-NET):** Enhancing the operational capabilities of emergency operations centers.
- **Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET):** Providing training and capacity building for epidemiologists and public health professionals.
- **Standby Partnership Network (SBP):** Facilitating the rapid deployment of experts during emergencies.
- **Global Health Cluster:** Coordinating health response efforts in humanitarian crises.

Implementation and Impact

- Since its inception, the GHEC has been actively working to consolidate a vision of an interoperable and globally connected health emergency workforce.
- In October 2024, WHO and its partners conducted a scenario-based exercise to test the design of the GHEC and discuss concrete steps for implementation.
- This exercise involved representatives from various countries, including Brazil, Mozambique, and Qatar, who shared their insights and experiences.

SNOWFALL AND RAINFALL IN SAUDI ARABIA

Context

- **Saudi Arabia's Al-Jawf region** experienced heavy snowfall and rainfall reportedly for the **first time in recorded history**, with the desert landscape blanketed in a layer of white.

About

- Saudi Arabia, known for its vast deserts and arid climate, has recently experienced an unusual weather phenomenon: snowfall and significant rainfall, creating a striking contrast to the **region's typical dry conditions.**
- These rare events have sparked interest and discussions about climate variability and change in the region.
- The **National Center of Meteorology (NCM)** attributed the snowfall to a potent **low-pressure system over the Arabian Sea.**
    - As moisture-laden air moved northward, it collided with the residual warmth of the desert, resulting in thunderstorms, heavy rain, and snow.
    - This rare combination of factors led to the unusual weather patterns observed in Al-Jawf and other parts of northern Saudi Arabia.

Impact of Rainfall

- Rainfall in Saudi Arabia is generally scarce and sporadic, with most precipitation occurring during the winter months.

- Regions such as Riyadh, Mecca, Asir, Tabuk, and Al Bahah have experienced significant downpours, leading to flash floods and temporary rivers in typically dry areas.
    - The moisture is expected to **benefit the region's flora**, potentially leading to a vibrant spring bloom. Al-Jawf, known for its **wild lavender and chrysanthemum**, could see an abundance of these seasonal plants.
    - On the downside, the heavy rains have caused disruptions, including reduced visibility, hazardous driving conditions, and damage to infrastructure.

Climate Change Conversations

- The unusual weather patterns in Saudi Arabia have fueled discussions about climate change and its effects on the region. While snowfall and heavy rains are rare, they are not entirely unprecedented.
- The mountains of Al-Lawz, northwest of Tabuk, also experienced snowfall earlier in 2024. These events highlight the increasing variability in weather patterns, which could be linked to broader climatic shifts.

OKINAWICIUS TEKDI

Context

- A new **jumping spider species** has been discovered from a hill in **Pune, Maharashtra**. Christened as Okinawicius Tekdi, the species belongs to the genus **Okinawicius Prószynski**.

About the Okinawicius Tekdi

- It was discovered on **Baner Hill in Pune**, a region known for its diverse flora and fauna by researchers Atharva Kulkarni and Rishikesh Tripathi.
- The name Okinawicius tekdi is derived from the Marathi word "tekdi," meaning "hill," reflecting the spider's habitat and the cultural context of the region.
- It has been seen on **plumeria, Ficus and Morinda trees**, but its habitat is still unknown.

SUBJECTIVE QUESTIONS

1. Discuss the factors contributing to acute food insecurity in developing nations, and analyse the potential consequences of this crisis on both individual and societal levels.
2. Discuss the various hidden costs associated with India's agri-food system, including environmental degradation, social inequities, and health implications. Analyse the impact of these costs on rural livelihoods, food security, and overall economic development.

3. Discuss the advancements in cyclone forecasting technology in India and analyse their impact on disaster management and mitigation strategies.
4. Critically analyse the outcomes of COP-16 on the Convention on Biological Diversity (CBD). Discuss the significance of the Nagoya Protocol and its implications for biodiversity conservation and sustainable development.
5. How effective are carbon offset programs in mitigating climate change, and what are the ethical implications of relying on them to reduce carbon emissions?

MCQS

1. Recently, which of the following global institutions released *'The Poverty, Prosperity, and Planet Report 2024'* which provides a comprehensive post-pandemic assessment of global progress towards ending poverty?
   (a) Sustainable Development Solutions Network of UN (UNSDSN)
   (b) World Health Organization (WHO)
   (c) Food and Agriculture Organization (FAO)
   (d) World Bank

2. With reference to the *Global Health Emergency Corps (GHEC),* consider the following statements:
   1. It aims to establish a health emergency workforce that is centered in countries and coordinated regionally and globally.
   2. It is designed to enhance health emergency prevention, preparedness, response, and resilience (HEPR) efforts.

   Which of the statements given above is/are correct?
   (a) 1 only
   (b) 2 only
   (c) Both 1 and 2
   (d) Neither 1 nor 2

3. Term *'Okinawicius Tekdi'* was sometimes appeared in the news, is:
   (a) Spider
   (b) Invasive Plant
   (c) Fossil
   (d) Fish

4. Which one of the following India states has recently recorded its lowest sex ratio at birth (SRB) in the last eight years?
   (a) Haryana
   (b) Rajasthan
   (c) Tripura
   (d) Manipur

5. With reference to *'cyclone forecasting in India'*, consider the following statements:
   1. The satellite collects data on sea surface temperatures, wind speeds and cloud characteristics from space.

2. Buoys collect data on sea currents, winds, humidity, air pressure and temperature.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Answer key: 1. (d) 2. (c) 3. (a) 4. (a) 5. (c)