Regional Overview of Food Security and Nutrition 2023

Source: TH

Why in News?

Recently, the **Food and Agriculture Organisation (FAO)** of the United Nations has launched the **Asia-Pacific Regional Overview of Food Security and Nutrition 2023: Statistics and Trends**, which said 74.1% of Indians were unable to afford a healthy diet in 2021.

What are the Key Highlights of the Report?

- **Global:**
  - The prevalence of undernourishment in the Asia and the Pacific region decreased to 8.4% in 2022 from 8.8% of the previous year, equivalent to around 12 million fewer undernourished people than in 2021, but 55 million more than in 2019, prior to the Covid-19 pandemic.
  - With 370.7 million undernourished people, the Asia and the Pacific region represents **half of the world's undernourished people.**
  - Southern Asia accounts for **almost 314 million of the region's undernourished people.** This represents 85 % of undernourished people in the Asia and the Pacific region.
  - There are more **severely food insecure individuals in Southern** Asia than any other subregions.
  - Women across the subregions, except for Eastern Asia, tend to be more food insecure than men.
- **Indian:**
  - **Inability to Afford Healthy Diet**: 74.1% of Indians were unable to afford a healthy diet in 2021, in 2020, the percentage was 76.2.
    - Comparison with Neighboring Countries: Pakistan had 82.2% and Bangladesh had 66.1% of their populations facing difficulties in accessing healthy food.
  - **Regional Nutrition and Food Security:** 16.6% of India's population is undernourished.
    - India has **a lower prevalence of moderate or severe and severe** Food Insecurity compared to the world since 2015.
  - **Children's Health:** Stunting affected 31.7% of children under five, while wasting (low weight for height) was prevalent in 18.7% of children under five.
    - The WHO global nutrition target for childhood wasting is less than 5%.
    - Stunted growth and **development are the result of poor maternal health** and nutrition, inadequate infant and young child feeding practices, and repeated infections interacting with a variety of other factors over a sustained period.
  - **Women's Health:** 53% of the country's women aged between 15 to 49 had anaemia, which was the largest prevalence rate in India in 2019.

- Anaemia impairs health and well-being in women and increases the risk for adverse maternal and neonatal outcomes.
    - **Obesity and Nutrition Indicators:** 1.6% of the country's adults are obese as of 2000, according to the FAO. The figure has increased to 3.9% by 2016.
    - **Exclusive Breastfeeding:** On exclusive breastfeeding among infants 0–5 months of age, India has improved the prevalence with a percentage of 63.7%, which is higher than the world prevalence – 47.7%.
        - India has the highest prevalence of **low birthweight in the region (27.4%), followed by Bangladesh and Nepal.**

What is the Food and Agriculture Organization?

- **About:**
    - FAO is a specialised agency of the **United Nations** that leads international efforts to defeat hunger.
    - **World Food Day** is celebrated every year around the world on 16th October. The day is celebrated to mark the anniversary of the founding of the FAO in 1945.
    - It is one of the UN food aid organisations based in Rome (Italy). Its sister bodies are the **World Food Programme** and the International Fund for Agricultural Development (IFAD).
- **Initiatives Taken:**
    - **Globally Important Agricultural Heritage Systems (GIAHS)**.
    - Monitors the Desert Locust situation throughout the world.
    - The **Codex Alimentarius Commission or CAC** is the body responsible for all matters regarding the implementation of the Joint FAO/WHO Food Standards Programme.
    - The **International Treaty on Plant Genetic Resources for Food and Agriculture** was adopted by the Thirty-First Session of the Conference of the FAO in 2001.
- **Flagship Publications:**
    - The State of World Fisheries and Aquaculture (SOFIA).
    - The State of the World's Forests (SOFO).
    - **The State of Food Security and Nutrition in the World (SOFI).**
    - The State of Food and Agriculture (SOFA).
    - The State of Agricultural Commodity Markets (SOCO).

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. The FAO accords the status of 'Globally Important Agricultural Heritage System (GIAHS)' to traditional agricultural systems. What is the overall goal of this initiative? (2016)

1. To provide modern technology, training in modern farming methods and financial support to local communities of identified GIAHS so as to greatly enhance their agricultural productivity.
2. To identify and safeguard eco-friendly traditional farm practices and their associated landscapes, agricultural biodiversity and knowledge systems of the local communities.
3. To provide Geographical Indication status to all the varieties of agricultural produce in such identified GIAHS.

Select the correct answer using the code given below:

(a) 1 and 3 only
(b) 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Ans: (b)

India's Coal Plants: SO2 Emission Control

Source: DTE

Why in News?

Recently, an analysis by the **Centre for Research on Energy and Clean Air (CREA)** has found less than 8% of **India's coal-based power** plants have installed the **SO$_2$ emission** reduction technology recommended by the **Union Ministry of Environment, Forest and Climate Change (MoEF&CC)** to keep **Sulfur Dioxide (SO$_2$) emissions** in check.

- According to a 2019 **Greenpeace study**, India is the largest emitter of **SO$_2$** in the world.

What are the Technologies to Reduce SO2 Emissions?

- **Flue Gas Desulfurization (FGD):**
  - **FGD** is the process of removing sulphur compounds from the exhaust emissions of fossil-fueled power stations.
  - This is done through the addition of absorbents, which can remove up to **95%** of the **sulphur dioxide** from the **flue gas.**
  - Flue gas is the material emitted when fossil fuels such as **coal, oil, natural gas,** or wood are burned for heat or power.
- **Circulating Fluidized Bed Combustion (CFBC):**
  - CFBC Boiler is an **environment-friendly** power facility to reduce the discharge of pollutants such as **nitrogen oxide** and **sulphur oxide** by injecting **air** and **lime** at the same time for burning.
  - A **bed of solid particles** is said to be **fluidized** when the **pressurised fluid** (liquid or gas) is passed through the medium and causes the **solid particles** to behave like a fluid under certain conditions. **Fluidization** causes the transformation of the state of solid particles from **static to dynamic.**
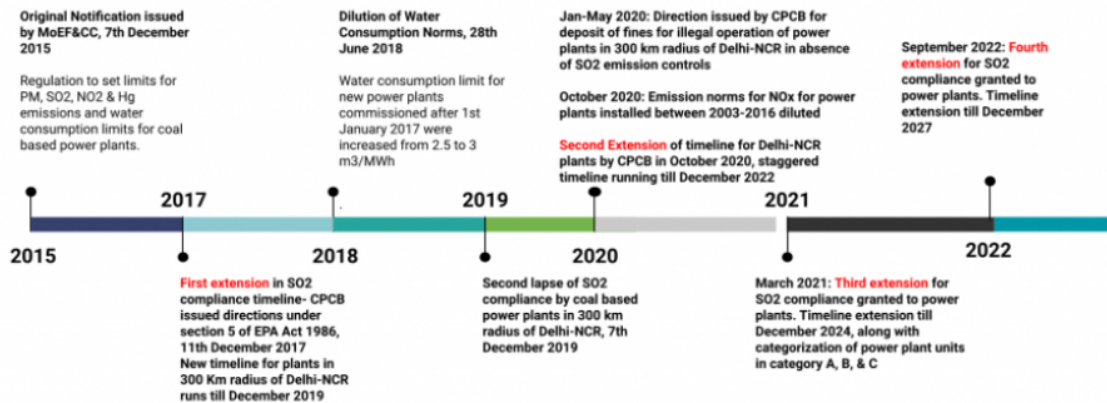
What are the Key Findings of the Study?

- Only a combined capacity of **16.5 Gigawatts(GW)** of coal plants have installed **FGDs** and **Circulating Fluidised Bed Combustion (CFBC)** boilers equivalent to **5.9 GW** across India.
- The **CREA analysis** found that **92 %** of the country's coal power plants function without FGDs.
- Blanket extension of the deadline for all **coal power plants** without checking on their progress by **MoEF&CC** and **Central Pollution Control Board (CPCB)** played a major role in derailment of emission controls from coal-based electricity generation units.
  - The **MoEF&CC** introduced emission standards in **2015** for regulating **PM, SO$_2$, NOx, and Hg (Mercury)** emissions.
  - The deadline has been extended four times for units in Delhi and the National Capital Region (NCR) and three times for most other units across the country.
- India's energy generation installed capacity stands at **425 GW.** The thermal sector holds a predominant position within the overall installed capacity, encompassing **coal (48.6%), gas**

(5.9%), lignite (1.6%) and a minimal share **(<0.2%) from diesel.**

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Timeline of Emission Standard notification, its dilutions, and extensions for coal-based power stations over the past seven years

Original Notification issued by MoEF&CC, 7th December 2015

Regulation to set limits for PM, SO2, NO2 & Hg emissions and water consumption limits for coal based power plants.

Dilution of Water Consumption Norms, 28th June 2018

Water consumption limit for new power plants commissioned after 1st January 2017 were increased from 2.5 to 3 m3/MWh

Jan-May 2020: Direction issued by CPCB for deposit of fines for illegal operation of power plants in 300 km radius of Delhi-NCR in absence of SO2 emission controls

October 2020: Emission norms for NOx for power plants installed between 2003-2016 diluted

Second Extension of timeline for Delhi-NCR plants by CPCB in October 2020, staggered timeline running till December 2022

September 2022: Fourth extension for SO2 compliance granted to power plants. Timeline extension till December 2027

2015   2017   2018   2019   2020   2021   2022

First extension in SO2 compliance timeline- CPCB issued directions under section 5 of EPA Act 1986, 11th December 2017 New timeline for plants in 300 Km radius of Delhi-NCR runs till December 2019

Second lapse of SO2 compliance by coal based power plants in 300 km radius of Delhi-NCR, 7th December 2019

March 2021: Third extension for SO2 compliance granted to power plants. Timeline extension till December 2024, along with categorization of power plant units in category A, B, & C

What is the Categorisation of Power Plants for Installing FGD?

- In **2021**, the **MoEF&CC** divided the categories of **coal-power plants** based on geography to enforce deadlines.
    - **Category A** is demarcated to **coal-based power plants** within a 10-kilometer radius of the **National Capital Region (NCR)** and of cities with a **million-plus population.**
    - **Category B** is **within a 10 km radius** of critically polluted areas or non-attainment cities.
    - **Category C** is the remaining plants throughout the country.
        - The majority of the country's power plants belong to Category C, with the longest deadlines.

Centre for Research on Energy and Clean Air (CREA)

- **CREA** is an independent research organisation focused on revealing the **trends, causes**, and **health impacts,** as well as the solutions to air pollution.
- It uses **scientific data, research and evidence** to support the efforts of governments, companies and campaigning organisations worldwide in their efforts to move towards **clean energy** and **clean air.**

Way Forward

- **Accelerate FGD Implementation:**
    - Prioritise and expedite the installation of **FGD** technology in coal-based power plants. Encourage and incentivize the adoption of this technology to ensure compliance with emission standards set by the **MoEF&CC.**
- **Expand CFBC Implementation:**
    - Provide support and incentives for power plants to adopt **CFBC technology,** aiming for a broader implementation to enhance environmental sustainability.
- **Stricter Enforcement and Monitoring:**
    - Strengthen regulatory mechanisms for monitoring and enforcing emission standards. Implement strict penalties for non-compliance with deadlines and emission regulations.
- **Research and Development (R&D):**
    - Invest in **research and development** to explore and implement advanced technologies

that go beyond current standards. Foster innovation in clean energy solutions and emission control technologies to make coal-based power generation more sustainable.

Global Status Report on Road Safety 2023: WHO

For Prelims: Global Status Report on Road Safety 2023, **World Health Organization**, Road Fatalities and Safety, **Sustainable Development Goal 3.6.**

Why in News?

Recently, the **World Health Organization (WHO)** has released a report **titled-The Global Status Report on Road Safety 2023,** revealing critical findings and insights regarding road traffic fatalities and safety across the globe.

What are the Key Highlights of the Report?

- **Road Traffic Fatalities:**
  - Road traffic deaths worldwide **decreased by 5% between 2010 and 2021,** totaling 1.19 million fatalities annually.
  - 108 UN member nations reported a drop in road traffic deaths during this period.
  - India **witnessed a 15% increase in fatalities,** rising from **1.34 lakh in 2010 to 1.54 lakh in 2021.**
- **Countries with Significant Reductions:**
  - Ten countries **succeeded in reducing road traffic deaths by over 50%:** Belarus, Brunei Darussalam, Denmark, Japan, Lithuania, Norway, Russian Federation, Trinidad and Tobago, United Arab Emirates and Venezuela.
  - Thirty-five more countries made notable progress, reducing deaths by 30% to 50%.
- **Regional Distribution of Deaths:**
  - 28% of global road traffic deaths occurred in the **WHO South-East Asia Region, 25%** in the **Western Pacific Region**, 19% in the African Region, 12% in the Region of the Americas, 11% in the Eastern Mediterranean Region, and 5% in the European Region.
  - Low- and middle-income **countries bear a disproportionate burden,** with 90% of deaths occurring in these nations despite having only 1% of the world's motor vehicles.
- **Vulnerable Road Users:**
  - 53% of all road traffic **fatalities are vulnerable road users**, including pedestrians (23%), riders of powered two- and three-wheelers (21%), cyclists (6%), and users of micro-mobility devices (3%).
  - Pedestrian **deaths rose by 3% to 274,000**, while cyclist deaths increased by nearly 20% to 71,000 between 2010 and 2021.
  - However, deaths among car and other 4-wheeled light vehicle occupants slightly decreased, **making 30% of global fatalities.**
- **Progress on Safety Standards and Policies:**
  - Just six countries have laws that meet WHO best practice for all risk factors (speeding, drink–driving, and use of motorcycle helmets, seatbelts and child restraints) while 140 countries (two-thirds of UN Member States) have such **laws for at least one of these risk factors.**
  - A limited number of countries have legislation covering key vehicle safety features and require safety inspections for road users.
- **Call for Action:**
  - Global Motor-Vehicle Fleet Growth is expected to double by 2030, urging the need for robust safety regulations and infrastructure improvements.
  - The report sets a baseline for efforts to meet the United Nations Decade of Action 2021–2030 target to halve road traffic deaths by 2030.

What are the Initiatives Related to Road Safety?

- **Global:**
  - **Brasilia Declaration on Road Safety (2015):**

- The declaration was signed at the second Global High-Level Conference on Road Safety held in Brazil. India is a signatory to the Declaration.
- The countries plan to achieve Sustainable Development Goal **3.6** i.e., to halve the number of global deaths and injuries from road traffic accidents by 2030.
  - **Decade of Action for Road Safety 2021-2030:**
    - The **UN General Assembly** adopted resolution "Improving global road safety " with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.
    - The Global Plan aligns with the **Stockholm Declaration**, by emphasizing the importance of a holistic approach to road safety.
  - The International Road Assessment Programme (iRAP) :
    - It is a registered charity dedicated to saving lives through safer roads.
- **India:**
  - **Motor Vehicles Amendment Act, 2019:**
    - The Act hikes the penalties for traffic violations, defective vehicles, juvenile driving, etc.
    - It provides for a Motor Vehicle Accident Fund, which would provide compulsory insurance cover to all road users in India for certain types of accidents.
    - It also provides for a National Road Safety Board, to be created by the Central Government.
  - **The Carriage by Road Act, 2007:**
    - The Act provides for the regulation of common carriers, limiting their liability and declaration of the value of goods delivered to them to determine their liability for loss of, or damage to, such goods occasioned by the negligence or criminal acts of themselves, their servants or agents and for matters connected therewith or incidental thereto.
  - **The Control of** National Highways (Land and Traffic) Act, 2000:
    - The Act provides for the control of land within the National Highways, right of way and traffic moving on the National Highways and also for removal of unauthorized occupation thereon.
  - National Highways Authority of India Act**, 1998:**
    - The Act provides for the constitution of an authority for the development, maintenance and management of NHs and for matters connected therewith or incidental thereto.

India Imposes Onion Export Ban

For Prelims: India Imposes Onion Export Ban, Director General of Foreign Trade (DGFT), Rabi and **Kharif Season**, Food Security.

For Mains: India Imposes Onion Export Ban, Current Scenario of Wheat Distribution Across India.

Source: IE

Why in News?

Recently, the Director General of Foreign Trade (DGFT) has announced **a ban on onion exports** until March 2024, issuing a **notification converting the export policy of onions** from **'Free' to 'Prohibited'.**

- The current supply shortage, caused by early depletion of 2022-23 rabi season stocks and anticipated lower **kharif** 2023 output, along with increased festive demand, has led to a significant rise in onion prices.
- The government has also **revised the stock limit for** wheat, the stock limit has been halved to 1,000 tonnes for wholesalers, and for retailers to 5 tonnes.

Why has the Government Banned Export of Onion Price?

- **Price Control:**
  - By restricting onion exports, the government aims to prevent price surges or fluctuations within the domestic market.
    - To combat spiraling prices, the Centre had imposed a Minimum Export Price of USD 800 per tonne on onions in October 2023. Earlier, in August, the government imposed a 40% export duty on onions.
  - Onions have a history of significant price volatility, and an export ban helps in stabilizing prices, making them more affordable for local consumers.
- **Addressing Scarcity:**
  - Factors like adverse weather conditions, **lower production, or increased demand can lead to a scarcity** of onions within the country.
  - By banning exports, the government ensures that the available supply is directed towards meeting domestic demands first.
- **Food Security:**
  - Onions are a staple in Indian cuisine, and any scarcity can impact **food security.** By curbing exports, the government ensures that the **population has access to this essential food item** without facing shortages or unaffordable prices.

What are the Key Facts About Onion?

- Onion is an important horticultural commodities grown worldwide for their culinary purposes and medicinal values.
- India is the **second largest producer** of onion after China.
- Maharashtra, Karnataka, Orissa, Uttar Pradesh, Gujarat, Andhra Pradesh and Tamil Nadu are the major onion producing states.
- Maharashtra **ranks first in Onion production** with a share of **42.53% followed by Madhya Pradesh** with a share of 15.16% in 2021-22 (3rd Advance Estimate).

Why has the Government Put Stock Limits on Wheat?

- The revised stock limits aim to **prevent hoarding practices by entities involved in wheat stocking.** By imposing stricter limits, the government intends to **discourage artificial scarcity** and ensure a fair distribution of wheat across various stakeholders.
- Excessive hoarding can lead to **an imbalance between supply and demand**, causing price fluctuations that may negatively impact consumers.
- Regulating wheat stocks ensures **that sufficient quantities remain available in the market to meet the country's food requirements.** It helps **maintain food security by preventing shortages and ensuring access to this staple food** item for consumers.

What is the Current Scenario of Wheat Distribution Across the Country?

- India is the world's **second-biggest wheat producer after China.** But it accounts for less than 1% of the global wheat trade. It keeps a lot of it to provide subsidised food for the poor.
- Major wheat-growing states in India are **Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Bihar and Gujarat.**
- Major Export Destinations (2022-23): Bangladesh, Indonesia, Korea Rep., United Arab Emts and Yemen Republic.

Truth and Reconciliation Commission

Source: IE

Why in News?

Recently, **the Supreme Court unanimously upheld the abrogation of Article 370 by the Centre in 2019** and also recommended setting up a **Truth and Reconciliation Commission (TRC)** to look into alleged violations of human rights by both state and non-state actors in Jammu & Kashmir.

What is a Truth and Reconciliation Commission (TRC)?

- **About:**
  - A **Truth and Reconciliation Commission**, also known as a **'truth and justice commission'** or simply, a **'truth commission',** is an official mechanism to not just acknowledge, but also reveal, wrongdoings by a government or sometimes non-state

actors.
- **Objective:**
  - The truth commission is one that is focused on the past, rather than in ongoing events.
  - It investigates a pattern of events that took place over a period of time.
  - The commission engages directly and broadly with the affected population, gathering information on their experiences;
  - It is a **temporary body**, with the aim of concluding with a final report.
  - Commission is officially authorized or empowered by the state under review.

Which Nations have Already Established TRC?

- The two best known and most consequential commissions are considered to be set up in **South Africa, Australia** and **Canada.**
- In India's neighborhood, truth commissions have been set up in **Sri Lanka** and **Nepal.**
- In **South Africa,** the first post-apartheid government of **President Nelson Mandela** established a **TRC** in 1995 with the aim of **uncovering the truth of human rights violations** during the decades of apartheid.

Article 370

- **Article 370** in the **Indian constitution** gave special status to **Jammu and Kashmir**, a region disputed by **India, Pakistan** and **China.**
- It was drafted by **N Gopalaswami Ayyangar,** a member of the **Constituent Assembly of India,** and was added to the constitution as a **'temporary provision' in 1949.**
- It allowed the state to have its **own constitution, flag** and autonomy over most matters except **defense, foreign affairs** and **communications.**
- It was based on the terms of the **Instrument of Accession,** which was signed by the ruler of **Jammu and Kashmir, Hari Singh,** in **1947** to join India after an invasion by Pakistan.

UPSC Civil Services Examination Previous Years' Questions (PYQs)

Mains:

Q. To what extent is Article 370 of the Indian Constitution, bearing marginal note "Temporary provision with respect to the State of Jammu and Kashmir", temporary? Discuss The future prospects of this provision in the context of Indian polity. **(2016)**

Saiga Antelope

Source: DTE

Why in News?

The **International Union for Conservation of Nature (IUCN) Red List** has recently reclassified the status of the **Saiga Antelope (*Saiga tatarica*)** from **Critically Endangered** to **Near Threatened.**

- This significant update reflects positive conservation efforts and offers a hopeful outlook for the survival of the Saiga antelope species.

What are the Key Facts about Saiga Antelope?

- **About:**
  - The saiga antelope is a **large, nomadic, migratory herbivore t**hat lives across the Eurasian Steppe.
    - It's found in Kazakhstan, Mongolia, the Russian Federation, Turkmenistan, and Uzbekistan.
  - It belongs to the family of Bovidae(order Artiodactyla).
  - The Saiga has two subspecies: ***Saiga tatarica tatarica*** (found in most of the range) and ***Saiga tatarica mongolica*** (found only in Mongolia).
  - Typical habitat consists of **flat open areas** covered with low-growing vegetation, allowing animals to run quickly.
  - They have an **unusual hanging nose,** which makes them look like a camel, although they are goat-sized, and male saigas have horns.

- **Decline in Saiga Population:**
  - The Saiga, which has roamed the earth since the last **Ice Age**, faced a drastic decline in its population by more than 95% within a decade after the collapse of the **Soviet Union in 1991.**
  - The decline was primarily **due to poaching for the species' meat and horn.** The horn is used in **Chinese Traditional Medicine.**
  - In 2015, a major epidemic killed more than 200,000 animals, which was a blow to the species' promising recovery.
- **Conservation:**
  - Conservation efforts have led to a **positive change in the global Red List status of the Saiga antelope.**
    - **Kazakhstan** has shown commendable leadership in species recovery, implementing **anti-poaching initiatives,** law enforcement measures, and establishing State Protected Areas.
    - The Convention on the **Conservation of Migratory Species of Wild Animals (CMS)** has facilitated cooperation among governments and civil society organizations for the conservation of the Saiga antelope.
  - The Saiga antelope population has soared to **over 1.9 million,** with the Mongolian subspecies witnessing a notable increase, reaching 15,540 individuals in the 2023 census.
- **Ongoing Challenges:**
  - **Poaching**, illegal trade, disease, **climate change**, disturbance, and infrastructure development continue to pose challenges.

Mental Health Initiatives in India

Why in News?

Recently, the Ministry of Health and Family Welfare has shed light on the initiatives aimed at addressing mental health **concerns in the country.**

What are the Highlighted Mental Health Initiatives?

- **National Mental Health Programme (NMHP):**
    - The NMHP**, initiated in 1982** and restructured in 2003, aims to **modernize mental health facilities and upgrade psychiatric wings** in medical institutions.
    - Additionally, the **District Mental Health Programme (DMHP)** since 1996 has focused on community mental health services at the primary healthcare level , spanning 716 districts.
        - DMHP provides outpatient services, counselling, psycho-social interventions, and support for severe mental disorders at community health and primary health centres.
    - Together, they constitute a comprehensive strategy for mental health care in India.
- **National Tele Mental Health Programme:**
    - NTMHP was launched in October 2022, to further improve access to quality mental health counselling and care services in the country.
    - **National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru** is the National Apex Centre, coordinated activities of **Tele MANAS** across India.
        - 25 States/UTs have established 36 **Tele Mental Health and Normalcy Augmentation Systems (MANAS)** Cells for extending mental health services.
        - Handling a total of 63,806 calls on the helpline number.
- **NIMHANS and iGOT-Diksha Collaboration:**
    - NIMHANS provides psychosocial support and training through the **(iGOT)-Diksha platform.**
        - Online training for health workers conducted by NIMHANS on the (iGOT)-Diksha platform.
- **Ayushman Bharat – HWC Scheme:**
    - The **Ayushman Bharat - Health and Wellness Centres (AB-HWCs)** are part of the **Ayushman Bharat Programme.**
        - The program aims to provide a wider range of services, including preventive, promotive, curative, rehabilitative, and palliative care(a specialized medical approach that **aims to improve the quality of life for people with serious illnesses)**.
    - Operational guidelines on **Mental, Neurological, and substance use disorders (MNS)** at **Health and Wellness Centres (HWC)** have been released under the ambit of Ayushman Bharat.
- **Addressing Pandemic-Induced Mental Health Challenges:**
    - The Government has established a **24/7 helpline offering psychosocial support to various population segments.**
        - Issuance of guidelines and advisories catering to **different societal groups.**
    - Advocacy through diverse media platforms to manage stress and anxiety, fostering a supportive environment.
- **Financial Support for Mental Health Institutions:**
    - The District Mental Health Programme receives a fund allocation of Rs. 159.75 Crore for States/UTs under the **National Health Mission for 2022-23.**

Other Initiatives Related to Mental Health

Turbulence

Turbulence, often encountered in everyday phenomena like **flowing fluids**, holds a profound level of organization that scientists are still striving to understand.

- Turbulence is **a complex fluid motion characterized by chaotic fluctuations, unpredictable variations,** and the formation of **swirling patterns called vortices.**
- The balance between fluid **inertia (fluid's tendency to keep moving) and viscosity (motion-slowing force)** determines whether a flow is **laminar (well-ordered) or turbulent (highly unstable).**
    - **When inertia dominates, turbulence emerges.**
- **Applications of Turbulence:**
    - Meteorological models leverage turbulence studies for **more accurate short-term weather predictions,** essential for disaster preparedness.
    - Studying turbulence helps assess the **dispersion of pollutants** in the atmosphere, influencing **environmental policies.**

Goldfish

- **Goldfish** was one of the earliest fish to be domesticated and a relatively small member of the **Carp family.**
- Releasing it into the **wild can lead to giant sizes, making them invasive** and harmful to native marine life, damaging fragile ecosystems.
    - It can eat almost anything and everything, including algae**, aquatic plants, eggs, and invertebrates.**
    - They can tolerate a **wide range of water temperatures,** reach **sexual maturity quickly**, and **reproduce several times** in one season.
    - **Feral goldfish** are also destructive, as they help spawn harmful algal blooms by consuming the algae and expelling nutrients that promote its growth.

Celebrating Energy Efficiency: National Energy Conservation Day 2023

The **National Energy Conservation Day,** observed on 14th December annually, serves as a platform to highlight India's achievements in energy efficiency.

- Hosted by the **Bureau of Energy Efficiency** under the Ministry of Power, Government of India, the event is integral to the **Energy Conservation Act 2001'**s mandate to **promote and regulate energy efficiency.**
- The **Bureau of Energy Efficiency, established in 2002**, operates with a mission to reduce the energy intensity of India's economy through self-regulation, market principles, and collaboration with designated consumers and agencies, aligning with the Energy Conservation Act's regulatory and promotional functions.

Tihar Store

- The **Tihar Jail** Store resumed its operations with a new outlet offering products crafted by the prisoners which was previously halted by the **COVID-19 pandemic.**
  - This initiative aims to provide **rehabilitation opportunities** for the inmates, giving them a chance at a better life.
- The shop offers a variety of products, including **clothes, artificial jewelry, bread, buns, candles, soaps, toilet cleaners, furniture,** and **confectionery items.**
- Past records of jail inmates like their conduct, health and the duration of time spent in the jail will be taken into consideration before letting them run the shop.
- The sale proceeds will go to the **treasury** and each convict will be paid according to approved **wages.**