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MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

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DTE June 12

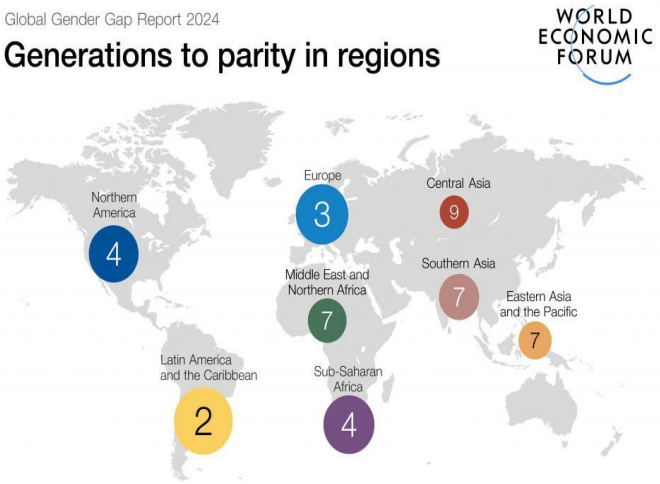
GLOBAL GENDER GAP REPORT 2024

(Syllabus: GS Paper 2 – Social Issues)

Gender Gap Report 2024: India fares worse than Bangladesh, Nepal, Sri Lanka, Bhutan; scores low in political parity indices

Southern Asia

Economy	Rank		Score
	Regional	Global	
Bangladesh	1	99	0.689
Nepal	2	117	0.664
Sri Lanka	3	122	0.653
Bhutan	4	124	0.651
India	5	129	0.641
Maldives	6	132	0.633
Pakistan	7	145	0.570



Context: The World Economic Forum's latest report on the Global Gender Gap highlights significant strides towards gender parity, while underscoring the persistent challenges that continue to hinder full equality.

Global Gender Gap Report 2024

- **About:** An index designed to measure gender equality.
  - Annually benchmarks the current state and evolution of gender parity across different dimensions.
- **Published by**: the World Economic Forum.
- **Parameters**:
  - Economic participation and opportunity
  - Educational attainment
  - Political empowerment
  - Health and survival

Indian context

- **Rank**: India stands at the 129th position, slipping 2 ranks since 2023.
- **Score**: 64.1%
- **Neighbour**: Bangladesh at the 99th position, Nepal at 117th, Sri Lanka at 122nd, and Bhutan at 124th and Pakistan at 145th position.
- **Top ranking countries:** Iceland retaining its top position. The rest are Finland, Norway, New Zealand, Sweden, Nicaragua, Germany, Namibia, Ireland , and Spain .

THE HINDU Page 14

NITROUS OXIDE

(Syllabus GS Paper 3 – Sci and Tech)



Study ranks India second in nitrous oxide emissions

Jacob Koshy
NEW DELHI

India is the world's second largest source of nitrous oxide (N_2O), a greenhouse gas that heats up the atmosphere far more than carbon dioxide. Nearly 11% of such global man-made emissions in 2020 were from India, topped only by China at 16%.

The major source of these emissions comes from fertilizer usage, according to a global assessment of N_2O emissions published in the journal *Earth System Science Data* on Wednesday.

In 2022, the concentration of atmospheric N_2O reached about 25% above the levels seen before the industrial age. In comparison, the concentration of carbon dioxide was 417 parts per million in 2022.

This means that the current level of carbon dioxide in the atmosphere is a thousand times more than that of nitrous oxide, making carbon dioxide reduction the bigger priority among countries trying to contain climate change. However, because nitrous oxide stays longer in the atmosphere and is rising rapidly, scientists in recent years have been warning that it must also be tackled with a greater sense of urgency.

N_2O emissions from human activities have increased by 40% (three million metric tonnes of N_2O per year) in the past four decades, with growth rates between 2020 and 2022 higher than in any previous period since 1980, when reliable measurements began.

Agricultural production using nitrogen fertilizers, such as ammonia, and animal manure contributed 74% of the total anthropogenic N_2O emissions in the last decade. N_2O emissions from human activities, responsible for 6.4% of the effective radiative forcing of greenhouse gases, have added about 0.1 degree Celsius to current global warming.

"This report on the nitrous oxide budget is timely and alarming. It is time India took this wake-up call seriously and changed cropping systems and production practices," said G.V. Ramanjaneyulu, director of the Centre of Sustainable Agriculture.

Monumental change: The Taj Mahal on a clear day after rain washed away pollution in Agra, Uttar Pradesh. SANDEEP SAXENA

Context: India emerged as the world's second largest contributor to nitrous oxide (N_2O), a potent greenhouse gas, accounting for nearly 11% of global man-made emissions in 2020, primarily from fertilizer usage. China led with 16% of these emissions, according to a global assessment.

Key Findings of Study

- **N2O Concentration**: In 2022, atmospheric N_2O reached 336 parts per billion, marking a 25% increase from pre-industrial levels.
- **Emission Growth**: Over the past four decades, human-induced N_2O emissions have surged by 40%, equating to three million metric tons annually.
    - Between 2020 and 2022, emission growth rates were the highest observed since 1980, largely due to agricultural practices.
- **Major Sources**: Agricultural activities using nitrogen fertilizers and animal manure contributed 74% of total anthropogenic N_2O emissions in the last decade.
- **Climate Impact:** These emissions account for 6.4% of the effective radiative forcing from greenhouse gases and have added approximately 0.1°C to global warming.
- **IPCC Guidance**: The IPCC stresses that to meet net-zero emission pathways aligned with the Paris Agreement goals, anthropogenic N_2O emissions must decrease by at least 20% relative to 2019 levels by 2050.
- **Leading Countries**: In 2020, the top emitters were China (16.7%), India (10.9%), the United States (5.7%), Brazil (5.3%), and Russia (4.6%), underscoring the global distribution of N_2O emissions.

Nitrous Oxide

- **About**: N_2O is a greenhouse gas (GHG) that is 300 times more potent than carbon dioxide (CO_2) in terms of its global warming potential.
- **Atmospheric Concentration:** It ranks third in concentration among GHGs in Earth's atmosphere, following CO_2 and methane (CH_4), contributing significantly to global warming.
- **Impact on Ozone Layer:** N_2O poses a threat to the ozone (O_3) layer as it accumulates over time, similar to CO_2, although it affects ozone differently than other pollutants.
- **Longevity in the Atmosphere:** It has a long atmospheric lifetime, remaining active for up to 125 years once emitted.
- **Applications:**
- **Medical Use**: N_2O is used by dentists and medical professionals for sedating patients during minor medical procedures, owing to its anesthetic properties.
- **Food Industry**: It serves as a propellant in food aerosols, enabling the dispensing of whipped creams and other culinary foams.

INDIAN EXPRESS Page 11

SATNAMIS SECT

(Syllabus: GS Paper 1 – History & Art & culture)



Satnamis: Dalit religious community with a history of protests

ARJUN SENGUPTA & JAYPRAKASH S NAIDU
NEW DELHI, BALODA BAZAR, JUNE 12

MEMBERS of the Satnami religious sect set fire to the office of the Superintendent of Police and pelted the office of the District Collector with stones in Baloda Bazar in central Chhattisgarh on Monday after alleged inaction over the desecration of a religious site at Amar Cave in the district.

Members of the mostly Scheduled Caste Satnami Samaj or Satnam Panth live mainly in Chhattisgarh and contiguous areas of Madhya Pradesh. The desecrated shrine, known as *Jaitkham*, is located about 5 km from Giraud village in Baloda Bazar district, at the birthplace of Guru Ghasidas, an 18th century saint to whom the Chhattisgarh Satnamis trace their theological lineage.

Early Satnamis of Narnaul

Guru Ghasidas was born in 1756; however, the antecedents of the sect lie further back in history. The expression *sut naam* (literally "true name") was popularised by the 15th century Bhakti poet Kabir, but was likely coined earlier.

Kabir, who rejected idolatry and the orthodoxy of organised religion, was a torchbearer of the *nirguna bhakti* tradition — the worship of an immanent, formless Absolute, which he referred to as *sut naam* or *satya naam* in several of his poems.

In 1657, a mendicant named Birbhan, who was inspired by the teachings of Kabir, founded a Satnami community in Narnaul in present-day Haryana. The Mughal court historian Khafi Khan (1664-1732) wrote that the Satnamis were "some four or five thousand householders in the *pargana* of Narnaul and Mewat... their livelihood and profession is usually agriculture and trade in the manner of Baniyas [or tradesmen] with small capital." (Irfan Habib: *The Agrarian System of Mughal India, 1556-1707*).

"Ritual and superstition were condemned, and allegiance was explicitly rendered to Kabir... Caste distinctions within the community of believers were forbidden... An attitude of sympathy with the poor and hostility towards authority and wealth is apparent [in Satnami preachings]," Habib wrote in his classic 1963 work.

Initially, most Satnamis belonged to an "untouchable" caste engaged in leatherwork. The community has, however, moved away from the profession over time.

Revolt against Aurangzeb

"If anyone should want to impose tyranny and oppression upon [the Satnamis]... they will not tolerate it; and most of them bear arms and weapons," Khafi Khan wrote. In 1672, Satnamis living in present-day Punjab and Haryana rose in revolt against Aurangzeb's ever-increasing tax demands.

EXPLAINED HISTORY

"The revolt...began as a rural affray," Habib wrote. "One of the Satnamis was working in his fields when he exchanged hot words with a [Mughal] *piyada* (foot-trooper), who was guarding the cornheap. The *piyada* broke the Satnami's head by a blow from his stick. Thereupon a crowd of that sect mobbed that *piyada* and beat him so much as to reduce him almost to a corpse." (Habib: *Agrarian System*).

When the local Mughal *shiqdar* (police chief) sent troops to arrest the culprits, open rebellion broke out. The rebels occupied Narnaul and Bairat for some time, but the Mughals eventually crushed the rebellion and killed thousands of Satnamis. Despite lacking weapons and equipment, the Satnamis fought valiantly and "repeated scenes of the great war of Mahabharata", the Mughal chronicler Saqi Mustad Khan wrote in the *Maasir-i-Alamgiri*.

Revival under Ghasidas

Aurangzeb all but wiped out the community, which would see a revival only in the mid-eighteenth century — in present-day Uttar Pradesh under Jagjivandas, and in present-day Chhattisgarh under Ghasidas.

There are several theories as to the sources of Ghasidas' inspiration and spiritual development — from Sant Ravidas (15th or 16th century) to Kabir. However, "most present-day Satnamis either deny or know nothing of a connection between Ghasidas and the previous Satnami movements" in northern India, religious studies scholar Ramdas Lamb wrote in *Rapt in the Name: The Ramnamis, Ramnam, and Untouchable Religion in India* (2002).

Nonetheless, the religious philosophy of Guru Ghasidas echoed that of the older Satnamis. His "first and foremost rule was the worship of one true God, through the chanting of his name, 'Satnam', and the abolition of any form of image worship," Lamb wrote. This rejection of deity worship effectively allowed the 'untouchable' Satnamis to transcend the restrictions on temple-entry.

Ghasidas also asked his followers to abstain from eating flesh (and flesh-like fruits such as eggplant), and consuming alcohol, smoking, or chewing tobacco. He asked them to use brass utensils instead of clay, stop working with leather and carcasses, and to wear a necklace of beads made from tusi, like those worn by the Vaishnavas and Kabirpanthis. He also told his followers to drop their caste names and use 'Satnami' instead.

The Satnamis today

At the time of Ghasidas' death, his following was estimated to be nearly a quarter million strong, belonging almost entirely to a particular Scheduled Caste. He stipulated a lineage of gurus who would lead the sect after him, starting with his son Balakdas.

According to Lamb, by the late 1800s, a two-tiered organisational structure developed with the guru at the top, and several village-level priests below him. This structure broadly persists even now. "These priests performed marriages, mediated disputes, meted out penance as well as acted as intermediaries in the organisation," Lamb wrote.

Over the years, many Satnamis adopted caste-Hindu practices, beliefs and rituals, and came to see themselves as part of the Hindu religious mainstream. Some started to worship idols of Hindu Gods, and claimed to be of Rajput or even Brahmin lineage.

Satnamis are now an increasingly assertive political force. Satnami leaders enjoy clout over not just members of the sect, but also over the rest of Chhattisgarh's 13% SC population.

The sect has been historically associated with the Congress, but since 2013, some Satnami gurus have shifted allegiance multiple times. The Satnami vote is today divided among various political parties in Chhattisgarh.

Context: Members of the Satnami religious sect set fire to the Superintendent of Police's office and pelted the District Collector's office with stones in Baloda Bazar, central Chhattisgarh, protesting alleged inaction over the desecration of a religious site at Amar Cave.

Satnamis Revolt

- **Timing**: The Satnamis revolted during the reign of Mughal emperor Aurangzeb.
  - The revolt began in 1672 when a Mughal soldier killed a Satnami.
- **Reasons:** Many Hindus resented Aurangzeb's strict Islamic policies, which included the revival of the Islamic Jizya tax (poll tax on non-Muslim subjects), banning music and art, and destroying Hindu temples.
- **Initial Retaliation**: Other Satnamis took revenge on the Mughal soldiers, and in turn, the Mughal soldiers repressed the Satnamis.
- **Suppression of the revolt**: Aurangzeb personally intervened, leading to the dispatch of 10,000 troops with artillery.
  - The Mughals eventually suppressed the Satnami revolt after intense fighting.

Satnami Sect

- **About:** It is known for challenging political and religious authority by rallying around an understanding of God as "satnam."
- **Founded by**: A saint named "Birbhan" in 1657 in Narnaul in Haryana.
- **Demographics**: Members of the Satnami sect, mostly belonging to the Scheduled Caste, reside primarily in Chhattisgarh and adjacent areas of Madhya Pradesh.
- **Social Composition:** This sect is thought to be an offshoot of the Ravidasi sect and comprised of the lower strata of Hindu society, particularly leather workers, sweepers, carpenters, goldsmiths, etc.
- **Locations**: A significant shrine for the Satnami community is the Jaitkham, located about 5 km from Giraud village in Baloda Bazar district.
- The Chhattisgarh Satnamis trace their theological lineage to Guru Ghasidas, an 18th-century saint who is revered in the community.
- **Practices**: The followers of this sect kept their heads shaven (thus called Mundiyas) and abstained from liquor and meat.
- **Religious Text**: The religious granth of the Satnamis is called Pothi.

DTE June 12

KALA AZAR
(Syllabus: GS Paper 3 – Sci and tech)

WHO comes up with new framework to combat kala-azar in eastern Africa

Context: The World Health Organization (WHO) has introduced a new framework aimed at guiding health authorities, policymakers, and stakeholders in the eradication of kala azar disease in eastern Africa.

Kala Azar

- **About:** Visceral leishmaniasis (VL), also known as kala-azar or "black fever", is the most severe form of leishmaniasis and, without proper diagnosis and treatment, is associated with high fatality(95%).
- **Caused by:** Leishmaniasis is a disease caused by protozoan parasites of the genus Leishmania.
- **Symptoms:** Include fever, weight loss, fatigue, anaemia, and substantial swelling of the liver and spleen.
- **Global status:** VL is the second-largest parasitic killer in the world (after malaria), responsible for an estimated 20,000 to 30,000 deaths each year worldwide.
  - In 2022, eastern Africa accounted for 73% of the global VL caseload, with 50% of cases occurring in children under 15 years old.
  - Between 2004 and 2008, Bangladesh, India, and Nepal collectively accounted for 70% of the global VL caseload.
  - In 2023, WHO announced that Bangladesh had successfully eradicated VL, becoming the first country worldwide to achieve this milestone.
- **India's Status:** India has achieved its target to eliminate visceral leishmaniasis, according to data from the National Centre for Vector Borne Diseases Control (NCVBDC).

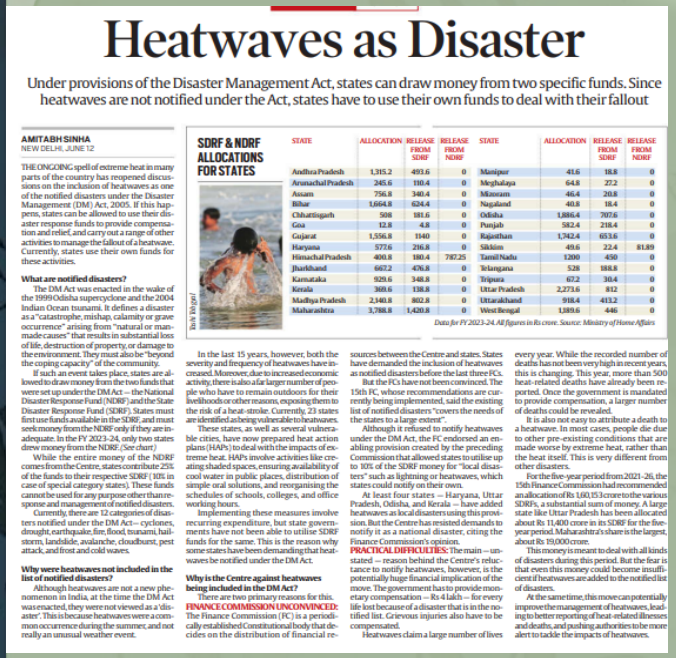
Outline of Framework

- The new framework for eastern Africa presents a similar opportunity for the nine endemic countries, offering a comprehensive approach for countries to implement strategies, assess progress, identify gaps, and build capacity.
- **Five Main Strategies for VL Elimination:**
  - Early Diagnosis and Treatment
  - Integrated Vector Management
  - Effective Surveillance
  - Advocacy, Social Mobilisation, and Partnership-Building
  - Implementation and Operational Research.
- **Regional Targets by 2030**:
  - **Reduction in VL Incidence:** Achieving a 90 per cent reduction in VL incidence in the eastern Africa sub-region to fewer than 1,500 cases per year by 2030.
  - **Prompt Detection and Treatment**: Ensuring detection and treatment of 90 per cent of cases within 30 days of onset of symptoms by 2030.
  - **Elimination of VL Deaths in Children**: Achieving a 100 per cent decline in VL deaths in children by 2030.

INDIAN EXPRESS Page 11

DISASTER MANAGEMENT (DM) ACT, 2005

(Syllabus: GS Paper 3 – Disaster Management)



Heatwaves as Disaster

Under provisions of the Disaster Management Act, states can draw money from two specific funds. Since heatwaves are not notified under the Act, states have to use their own funds to deal with their fallout

AMITABH SINHA
NEW DELHI, JUNE 12

THE ONGOING spell of extreme heat in many parts of the country has reopened discussions on the inclusion of heatwaves as one of the notified disasters under the Disaster Management (DM) Act, 2005. If this happens, states can be allowed to use their disaster response funds to provide compensation and relief, and carry out a range of other activities to manage the fallout of a heatwave. Currently, states use their own funds for these activities.

What are notified disasters?

The DM Act was enacted in the wake of the 1999 Odisha supercyclone and the 2004 Indian Ocean tsunami. It defines a disaster as a "catastrophe, mishap, calamity or grave occurrence" arising from "natural or man-made causes" that results in substantial loss of life, destruction of property, or damage to the environment. They must also be "beyond the coping capacity" of the community.

If such an event takes place, states are allowed to draw money from the two funds that were set up under the DM Act — the National Disaster Response Fund (NDRF) and the State Disaster Response Fund (SDRF). States must first use funds available in the SDRF, and must seek money from the NDRF only if they are inadequate. In the FY 2023-24, only two states drew money from the NDRF. (See chart)

While the entire money of the NDRF comes from the Centre, states contribute 25% of the funds to their respective SDRF (10% in case of special category states). These funds cannot be used for any purpose other than response and management of notified disasters.

Currently, there are 12 categories of disasters notified under the DM Act — cyclones, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, and frost and cold waves.

Why were heatwaves not included in the list of notified disasters?

Although heatwaves are not a new phenomenon in India, at the time the DM Act was enacted, they were not viewed as a "disaster". This is because heatwaves were a common occurrence during the summer, and not really an unusual weather event.

SDRF & NDRF ALLOCATIONS FOR STATES

Ritik Bangal

STATE	ALLOCATION	RELEASE FROM SDRF	RELEASE FROM NDRF	STATE	ALLOCATION	RELEASE FROM SDRF	RELEASE FROM NDRF
Andhra Pradesh	1,315.2	493.6	0	Manipur	41.6	18.8	0
Arunachal Pradesh	245.6	110.4	0	Meghalaya	64.8	27.2	0
Assam	756.8	340.4	0	Mizoram	46.4	20.8	0
Bihar	1,664.8	624.4	0	Nagaland	40.8	18.4	0
Chhattisgarh	508	181.6	0	Odisha	1,886.4	707.6	0
Goa	12.8	4.8	0	Punjab	582.4	218.4	0
Gujarat	1,556.8	1140	0	Rajasthan	1,742.4	653.6	0
Haryana	577.6	216.8	0	Sikkim	49.6	22.4	81.89
Himachal Pradesh	400.8	180.4	787.25	Tamil Nadu	1200	450	0
Jharkhand	667.2	476.8	0	Telangana	528	188.8	0
Karnataka	929.6	348.8	0	Tripura	67.2	30.4	0
Kerala	369.6	138.8	0	Uttar Pradesh	2,273.6	812	0
Madhya Pradesh	2,140.8	802.8	0	Uttarakhand	918.4	413.2	0
Maharashtra	3,788.8	1,420.8	0	West Bengal	1,189.6	446	0

Data for FY 2023-24. All figures in Rs crore. Source: Ministry of Home Affairs

In the last 15 years, however, both the severity and frequency of heatwaves have increased. Moreover, due to increased economic activity, there is also a far larger number of people who have to remain outdoors for their livelihoods or other reasons, exposing them to the risk of a heat-stroke. Currently, 23 states are identified as being vulnerable to heatwaves.

These states, as well as several vulnerable cities, have now prepared heat action plans (HAPs) to deal with the impacts of extreme heat. HAPs involve activities like creating shaded spaces, ensuring availability of cool water in public places, distribution of simple oral solutions, and reorganising the schedules of schools, colleges, and office working hours.

Implementing these measures involve recurring expenditure, but state governments have not been able to utilise SDRF funds for the same. This is the reason why some states have been demanding that heatwaves be notified under the DM Act.

Why is the Centre against heatwaves being included in the DM Act?

There are two primary reasons for this.

FINANCE COMMISSION UNCONVINCED: The Finance Commission (FC) is a periodically established Constitutional body that decides on the distribution of financial resources between the Centre and states. States have demanded the inclusion of heatwaves as notified disasters before the last three FCs.

But the FCs have not been convinced. The 15th FC, whose recommendations are currently being implemented, said the existing list of notified disasters "covers the needs of the states to a large extent".

Although it refused to notify heatwaves under the DM Act, the FC endorsed an enabling provision created by the preceding Commission that allowed states to utilise up to 10% of the SDRF money for "local disasters" such as lightning or heatwaves, which states could notify on their own.

At least four states — Haryana, Uttar Pradesh, Odisha, and Kerala — have added heatwaves as local disasters using this provision. But the Centre has resisted demands to notify it as a national disaster, citing the Finance Commission's opinion.

PRACTICAL DIFFICULTIES: The main — unstated — reason behind the Centre's reluctance to notify heatwaves, however, is the potentially huge financial implication of the move. The government has to provide monetary compensation — Rs 4 lakh — for every life lost because of a disaster that is in the notified list. Grievous injuries also have to be compensated.

Heatwaves claim a large number of lives every year. While the recorded number of deaths has not been very high in recent years, this is changing. This year, more than 500 heat-related deaths have already been reported. Once the government is mandated to provide compensation, a larger number of deaths could be revealed.

It is also not easy to attribute a death to a heatwave. In most cases, people die due to other pre-existing conditions that are made worse by extreme heat, rather than the heat itself. This is very different from other disasters.

For the five-year period from 2021-26, the 15th Finance Commission had recommended an allocation of Rs 1,60,153 crore to the various SDRFs, a substantial sum of money. A large state like Uttar Pradesh has been allocated about Rs 11,400 crore in its SDRF for the five-year period. Maharashtra's share is the largest, about Rs 19,000 crore.

This money is meant to deal with all kinds of disasters during this period. But the fear is that even this money could become insufficient if heatwaves are added to the notified list of disasters.

At the same time, this move can potentially improve the management of heatwaves, leading to better reporting of heat-related illnesses and deaths, and pushing authorities to be more alert to tackle the impacts of heatwaves.

Context: The ongoing spell of extreme heat in many parts of the country has once again reopened discussions on the inclusion of heatwaves as one of the notified disasters under the Disaster Management (DM) Act, 2005.

Disaster Management (DM) Act, 2005

- **Establishment:** The National Disaster Management Act (NDMA) was formulated in response to significant natural disasters like the 1999 super-cyclone in Odisha, the 2001 earthquake in Gujarat, and the 2004 tsunami.
- **Creation of Authorities**: National Disaster Management Authority (NDMA) at the national level.
    - State Disaster Management Authorities (SDMAs) at the state level.
- **Nodal Agency**: The Ministry of Home Affairs
- **Financial Provisions**: The Act includes provisions for setting up funds for disaster relief and other emergency situations, ensuring financial resources are readily available during crises.
- **Formation of Agencies**: The Act mandates the creation of various agencies and organizations at the national, state, and district levels. These entities are crucial for ensuring efficient disaster response and management.

Notified Disasters

- **Definition**: The NDMA defines a disaster as a "catastrophe, mishap, calamity or grave occurrence" caused by natural or man-made factors, resulting in significant loss of life, property destruction, or environmental damage. It must exceed the community's ability to cope.
- **Examples:** Cold waves, cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloudbursts, pest attacks, and frost waves.
- **Provisions and Invocation**: If a state experiences a notified disaster, the provisions of the Disaster Management Act can be invoked.
- **Funds:** Under the Act, states can access two funds: the National Disaster Response Fund (NDRF) at the national level and the State Disaster Response Fund (SDRF) at the state level.
- **Reason Heatwave not Included**: When the Act came into being in 2005, heatwave or heat-related illnesses, which were quite common in northern India, were not viewed as a disaster.

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JAN AUSHADHI KENDRAS

(Syllabus: GS Paper 2 – Health)



Nepal seeks India's help to set up Jan Aushadhi Kendras

After Mauritius, now Nepal has approached India to set up Jan Aushadhi Kendras in their country, which would allow their citizens to benefit from low cost 'Made in India' generic medicines. The Pradhan Mantri Bharatiya Janaushadhi Pariyojana is a Central government scheme under which quality generic medicines are made available at affordable prices via dedicated outlets called Pradhan Mantri Bharatiya Janaushadhi Kendras (PMBJK). India currently has over 10,000 PMBJKs across the country.

Context: After Mauritius, now Nepal has approached India to set up Jan Aushadhi Kendras in that country, which would allow its citizens to benefit from low cost 'Made in India' generic medicines.

Jan Aushadhi Kendras

- **Establishment:** It was initially introduced in 2008 as the "Jan Aushadhi Medical Store," and rebranded in 2015 as the 'Pradhan Mantri Jan Aushadhi Yojana' (PMJAY).
  - In 2016, it underwent another renaming to "Pradhan Mantri Bharatiya Janaushadhi Pariyojana" (PMBJP).
- **Under**: Pradhan Mantri Bhartiya Janaushadhi Pariyojana
- **Launched by**: Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers.
- **Objective**: To provide quality medicines at affordable prices for all, with a particular focus on reducing out-of-pocket expenses in healthcare, especially for the economically disadvantaged.
- **Generic Drugs at Lower Prices**: PMBKs offer generic drugs that are available at lower prices while maintaining an equivalent standard in terms of quality and efficacy compared to more expensive branded drugs.
- **Availability of Medicines**: All therapeutic medicines are made accessible through Jan Aushadhi Stores, ensuring a wide range of medicines for various medical needs.
- **BPPI Establishment:** The Bureau of Pharma Public Sector Undertakings of India (BPPI) operates under the Department of Pharmaceuticals, managing the procurement, supply, and marketing of generic drugs through PMBJPK.
- **Financial Support**: Government extends financial support to eligible NGOs, Trusts, agencies, and individuals for establishing Jan Aushadhi stores.
  - Eligible entities can receive one-time financial assistance of up to ₹2.50 lakh to set up and operate Jan Aushadhi stores, enhancing accessibility to affordable generic medicines.

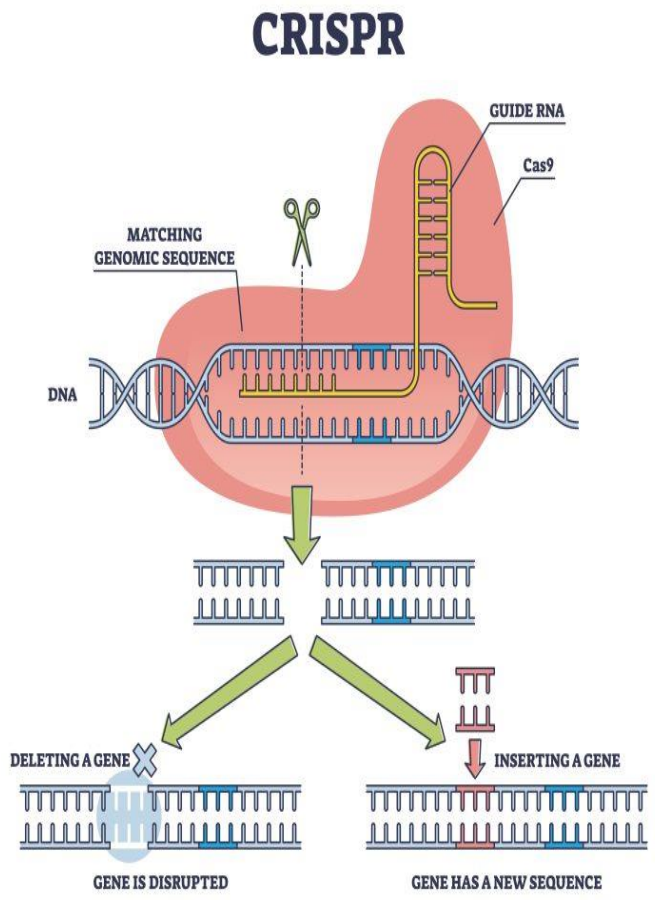
ALL INDIA RADIO

June 11

CRISPR CAS9 TECHNOLOGY

(Syllabus: GS Paper 3 – Sci and Tech)

Research team uses CRISPR/Cas9 to alter photosynthesis for the first time



Context: Researchers recently used CRISPR/Cas9 to alter photosynthesis for the first time.

CRISPR Cas9 Technology

- **About**: CRISPR is an acronym representing Clustered Regularly Interspaced Short Palindromic Repeats.
- It is an innovative technology that provides geneticists and medical researchers with the capability to alter precise segments of the genome.
- **Discovery:** Some bacteria possess a natural defense mechanism akin to CRISPR/Cas9, allowing them to target and disable viral DNA sequences by snipping them out and incorporating a part of it into their own genome for future immunity.
- **Components**
  - **Cas9 Enzyme**: Central to CRISPR/Cas9 is the Cas9 enzyme, likened to molecular scissors, capable of precisely cutting both strands of DNA at a predetermined location within the genome.
  - **Guide RNA (gRNA)**: Comprising a short pre-designed RNA sequence within a longer scaffold, the gRNA serves as a molecular guide, directing the Cas9 enzyme to the specific target site on the DNA.
- **CRISPRs are unique segments of DNA** with specialized functions.
- **The protein Cas9, also known as "CRISPR**-associated," functions as an enzyme resembling molecular scissors, proficient in cleaving DNA strands.
- This capability enables researchers to conveniently modify DNA sequences and manipulate gene behaviour.
- **Mechanism of Action:** The guide RNA is engineered to bind with high specificity to a particular sequence on the DNA, ensuring Cas9 cuts precisely at the intended genomic location.

IFSCA
(Syllabus: GS Paper 3 – Economy)

New rules for direct listing in July: IFSCA

International financial services regulator IFSCA will finalise a revised norms for direct listing of companies at GIFT City by early-July, chairman K. Rajaraman said on Wednesday.

Rajaraman said the highest decision making body of the International Financial Services Centres Authority (IFSCA) will approve the norms by end of June and the same will be notified by early July.

"Based on our interactions with various users, we have realized that our regulations need a little update. Therefore, what we have done in the last two months is to update our listing regulations," he told reporters here.

He, however, did not specify the exact changes that will come out in the revised norms. Though unlisted companies can list on the international exchanges even now, he said the companies will be able to list under the revised norms by August.

For the companies already listed in India, capital market regulators Sebi (Securities and Exchange Board of India) has to amend a slew of its existing regulations before such entities access the foreign money through the GIFT City, he said. PTI

Context: International financial services regulator IFSCA will finalise a revised norms for direct listing of companies at GIFT City by early-July.

International Financial Services Centres Authority (IFSCA)

- **Establishment:** on April 27, 2020, by the International Financial Services Centres Authority Act, 2019.
- **Headquarters:** GIFT City, Gandhinagar in Gujarat.
- **Objective:** It is a unified authority for the **development and regulation of financial products**, **financial services and financial institutions** in the International Financial Services Centre (IFSC) in India.
  - It was established as a **unified regulator** with a holistic vision in order to promote ease of doing business in IFSC and provide world class regulatory environment.
  - At present, the GIFT IFSC is the **maiden international financial services centre** in India.
  - Prior to the establishment of IFSCA, the domestic financial regulators, namely, RBI, SEBI, PFRDA and IRDAI regulated the business in IFSC.

- **Composition**: Nine members, appointed by the central government.
- **The IFSCA (FinTech Incentive) Scheme:**
  - **Domestic FinTechs:** seeking access to overseas markets; listing on IFSCA recognised stock exchanges; extending business to the IFSCs either by way of authorisation or registration or through the regulatory sandbox.
  - **Foreign FinTechs:** seeking market access to IFSCs in India, seeking access to domestic market under Inter-Operable Regulatory Sandbox (IORS) framework.
- **Role of IFSCA**
  - **Unified Regulatory Authority**: IFSCA serves as a unified regulatory authority responsible for the development and oversight of financial products, services, and institutions within India's International Financial Services Centre (IFSC).
  - **Transition from Domestic Regulators**: Before IFSCA's establishment, domestic financial regulators such as RBI, SEBI, PFRDA, and IRDAI governed business activities within IFSC.

NHRC Issues An Advisory On The Protection Of Human Rights Of The Widows

Context: The National Human Rights Commission (NHRC) has issued an advisory to Centre, State governments and UT Administrations to ensure widows' welfare and protection of their human rights.

National Human Rights Commission (NHRC)

- **Statutory Status:** The NHRC-India has been set up under the **Protection of Human Rights Act** passed by Parliament in **1993.**
- **Accreditation:** It has been accredited as an 'A' Status NHRI since the beginning of the accreditation process for NHRIs in 1999, which it retained in 2006, 2011, and in 2017 also after a deferment.
- **Mission**: The **Commission is responsible for spreading of human rights awareness** amongst the masses and encouraging the efforts of all stake holders in the field of human rights literacy not only at the national level but at international level too.
- **Members:** The NHRC consists of the chairperson and five members (excluding the ex-officio members)
- **Appointment:** President on recommendation from six-member committee – PM, Speaker LS, Deputy Chairman RS, LOP – RS & LS, Home Min.
- **Qualification:**
  - Chairman – Should be retired CJI or judge of the SC
  - Members – A serving or retired judge of the SC, a serving or retired CJ of HC and three persons (at least 1 woman) having knowledge or experience w.r.t human rights.
- **Tenure:** 3yrs or 70 age and eligible for re-appointment.
- **Removal**: They can only be **removed upon proven charges of misconduct** or incapacity, substantiated through an inquiry overseen by a Supreme Court Judge.

THE HINDU

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LIVER FATTY DISEASE

(Syllabus: GS Paper 3 – Sci and Tech)

Tackling the fatty liver disease epidemic



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The theme for International Fatty Liver Day this year, an awareness initiative observed annually in June, is 'Act Now, Screen Today'. This theme resonates more urgently today than ever before. Liver diseases were predominantly associated with excessive alcohol use and this remains an important cause of advanced chronic liver disease. However, in recent years, we are seeing the emergence of a silently growing threat to liver health – non-alcoholic fatty liver disease. As our understanding of this condition has evolved, we now know that fatty liver is closely linked to metabolic health, cardiac health, and a risk for developing cancers. This disorder has now been appropriately reclassified and is known as 'Metabolic dysfunction-associated steatotic liver disease' (MASLD). It has also resulted in a paradigm shift in how we approach liver health. The key is to screen, test, and treat.

Growing burden

The trends in fatty liver disease prevalence are alarming. MASH (Metabolic dysfunction-associated steatohepatitis), a progressive form that causes liver inflammation and scarring, is expected to become the most common cause of chronic liver disease and the leading indication for liver transplantation. The global prevalence of MASLD is estimated at 25-30%. In 2022, a meta-analysis revealed that in India, among adults, the pooled prevalence of fatty liver was 38.6%, while among obese children, it was around 36%.

There is a close link between fatty liver disease and metabolic syndrome, including obesity, diabetes, high blood pressure, and abnormal cholesterol levels. Individuals with these conditions have high MASLD prevalence rates: 55.5%-59.7% for diabetes, 64.6%-95% for obesity, and 73% for severe metabolic syndrome. Consuming excessive carbohydrates, especially refined carbs and sugars, worsens these conditions by causing metabolic problems. When the body has too much glucose, it increases insulin production to help cells absorb the glucose. However, constantly eating too many carbs causes persistently high insulin levels, leading to insulin resistance, where cells become less responsive to insulin.

There is a close link between fatty liver disease and metabolic syndrome, including obesity, diabetes, high blood pressure, and abnormal cholesterol levels

Insulin resistance disrupts normal metabolism and promotes the conversion of excess glucose into fatty acids, which are then stored in the liver. The liver cells fill up with fat, leading to fatty liver. Over time, this continuous damage affects the liver's ability to function properly, progressing from simple fatty liver to more severe conditions like such as steatohepatitis and cirrhosis, which are hallmarks of MASLD, and may require a liver transplant.

Despite this growing burden of fatty liver disease, it often goes undetected as there is usually no warning or symptom in the early stages. Diagnosis is usually made at an advanced stage, often when significant liver damage has already occurred. The key to early diagnosis is simple – a comprehensive health screening that includes a thorough history, physical examination, blood tests, and an ultrasound of the abdomen. Physical examination will include height, weight, body mass index (BMI), abdominal girth, and waist-to-hip ratio to assess visceral fat, which is an important marker of metabolic health. Blood tests to cover cardio-metabolic risk factors include a blood count, sugar profile, blood lipid profile, liver function tests, and kidney tests. In a cohort of 50,000 people screened at Apollo Hospitals, amongst the 33% that had fatty liver, as observed using an ultrasound of the abdomen, only one in 3 had elevated liver enzymes in their blood test. An ultrasound of the abdomen is an important test to screen for liver disease and an important first step to diagnose fatty liver. It is often missed or not included in many health checks, largely because of the limited availability of radiologists as well as stringent regulatory approvals.

Advanced liver tests will include liver fibrosis assessment to look for liver scarring, most accurately done by using newer technologies such as vibration-controlled transient elastography. This is a simple non-invasive tool and it measures liver stiffness to assess early stages of liver fibrosis. It can also be used to regularly monitor the progression and responses to treatment. Together, these tools – ultrasound, comprehensive metabolic screening, and elastography – form an integrated approach to effectively detect and manage liver diseases at an early stage.

Personalisation is the key

The selection of screening tests and the frequency with which they are performed should be personalised. This decision should be based on factors including an individual's risk factors such as family history, lifestyle, and pre-existing health conditions. Clinicians should not make generic assumptions given the patient's age or physical markers alone as we are increasingly witnessing non-communicable diseases break traditional stereotypes and impact very diverse people, including children. Moreover, multiple factors affect liver health, necessitating integrated strategies that combine dietary modifications, regular physical activity, and effective weight management to mitigate liver disease risks.

The liver is a 'silent organ' that typically does not exhibit noticeable signs of damage until it reaches an advanced stage. It is important that we are aware of the impact our lifestyle choices make in the long run. We need to take active control of our health, be aware of what we consume, and go for frequent screenings because the groundwork for a happy life begins with good health.

Context: This year's theme for International Fatty Liver Day, observed annually in June, is 'Act Now, Screen Today', emphasizing the importance of early screening and intervention for liver health.

Liver Fatty Disease

- **About**: It is a condition in which fat builds up in your liver.
- **There are two main types:**
  - **Nonalcoholic fatty liver disease:** NAFLD is a form of liver disease characterized by the accumulation of fat in the liver unrelated to alcohol consumption. There are two types:
    - ✓ **Simple fatty liver:** Involves fat accumulation without significant inflammation or liver cell damage. It typically does not progress to cause liver damage or complications.
    - ✓ **Nonalcoholic steatohepatitis (NASH)**: Involves inflammation and liver cell damage alongside fat accumulation. This condition can lead to liver fibrosis (scarring), and in severe cases, may progress to cirrhosis or liver cancer.
  - **Alcoholic fatty liver disease:** It is due to heavy alcohol use
    - ✓ Also called alcoholic steatohepatitis
- **Symptoms:** Both non-alcoholic fatty liver disease (NAFLD) and alcoholic fatty liver disease typically manifest as silent conditions with minimal or no symptoms.
- **Treatment**: Usually the first line of treatment is to lose weight. It helps reduce fat, inflammation, and scarring in your liver.

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