YK GIST

JANUARY 2020

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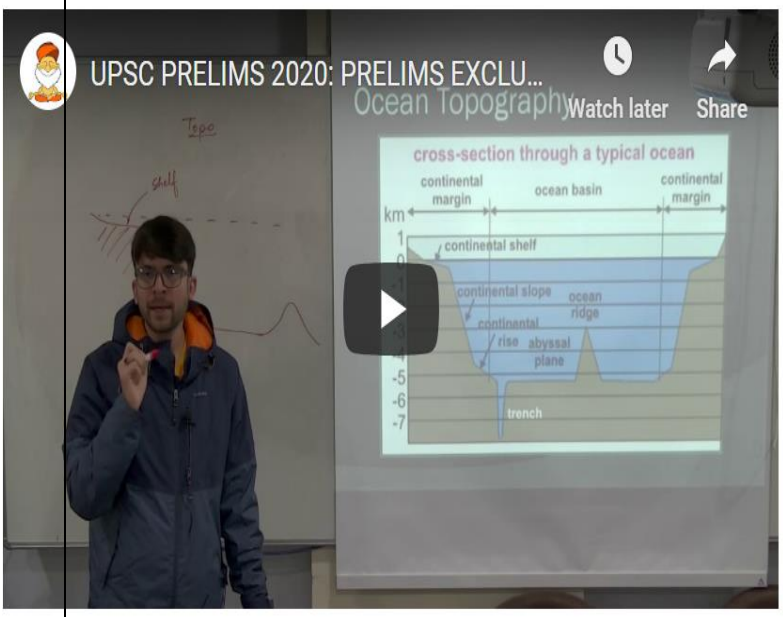

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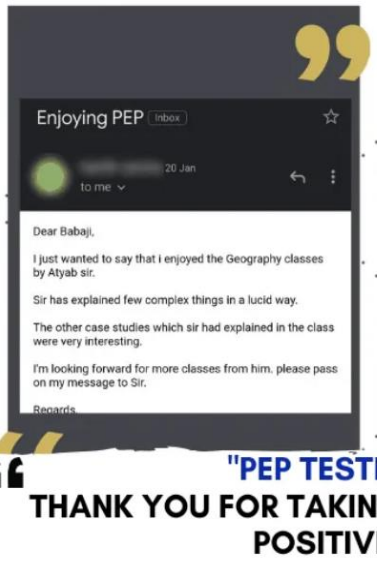

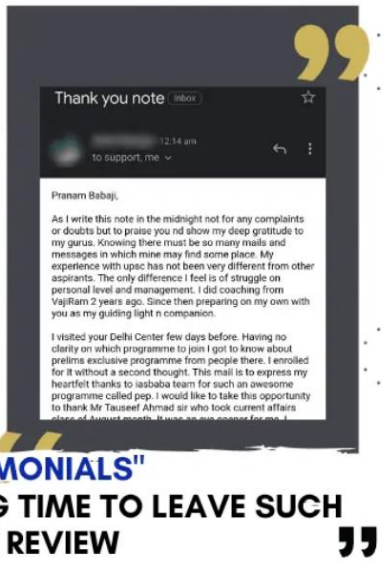

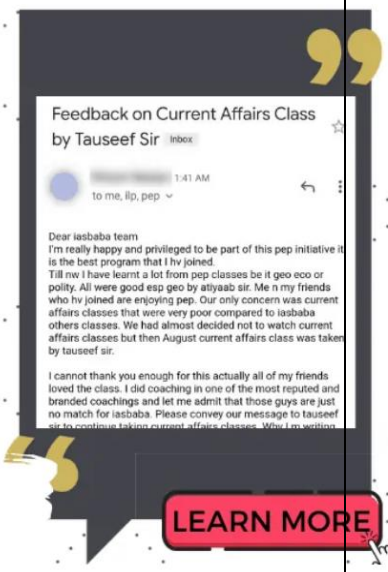

"PEP TESTIMONIALS"

THANK YOU FOR TAKING TIME TO LEAVE SUCH POSITIVE REVIEW

LEARN MORE

Preface

This is our 58th edition of Yojana Gist and 49th edition of Kurukshetra Gist, released for the month of January 2020. It is increasingly finding a place in the questions of both UPSC Prelims and Mains and therefore, we've come up with this initiative to equip you with knowledge that'll help you in your preparation for the CSE.

Every issue deals with a single topic comprehensively sharing views from a wide spectrum ranging from academicians to policy makers to scholars. The magazine is essential to build an in-depth understanding of various socio-economic issues.

From the exam point of view, however, not all articles are important. Some go into scholarly depths and others discuss agendas that are not relevant for your preparation. Added to this is the difficulty of going through a large volume of information, facts and analysis to finally extract their essence that may be useful for the exam.

We are not discouraging from reading the magazine itself. So, do not take this as a document which you take read, remember and reproduce in the examination. Its only purpose is to equip you with the right understanding. But, if you do not have enough time to go through the magazines, you can rely on the content provided here for it sums up the most essential points from all the articles. You need not put hours and hours in reading and making its notes in pages. We believe, a smart study, rather than hard study, can improve your preparation levels.

Think, learn, practice and keep improving!

You know that's your success mantra ☺

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India At UNFCCC COP 25

Context:

- The 25th annual talks under the United Nations Framework Convention on Climate Change (UNFCCC), referred to as the Conference of Parties (COP), was recently held in Madrid.
- It was the 15th meeting of the parties for the Kyoto Protocol (CMP15), and also, it was the second meeting of the parties for the Paris Agreement.
- The prime objective of the conference is to complete the rule-book to the 2015 Paris Agreement that will become effective in 2020 to replace the 1997 Kyoto Protocol (comes to an end in 2020).

It ended without any outcome.

Conference of Parties (COP)

- The COP is the supreme decision-making body of the Convention.
- All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention.
- The first COP meeting was held in Berlin, Germany in March, 1995.

Kyoto Protocol 1997

- The Kyoto Protocol is an international treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that **commits state parties to reduce greenhouse gas emissions,** based on the scientific consensus that (part one) global warming is occurring and (part two) it is extremely likely that human-made CO2 emissions have predominantly caused it.
- This protocol legally binded developed countries to emission reduction targets.
- However, the agreement was widely believed to be ineffective because the world's two top carbon dioxide-emitting countries, China and the United States, chose not to participate

Paris Agreement, 2015

- Paris Agreement or COP21 was adopted in December 2015.
- It aimed to reduce the emission of gases that contribute to global warming.
- The Paris Agreement also aimed at replacing the Kyoto Protocol (to strengthen emission reductions, in 1997)

Aims of Paris Agreement

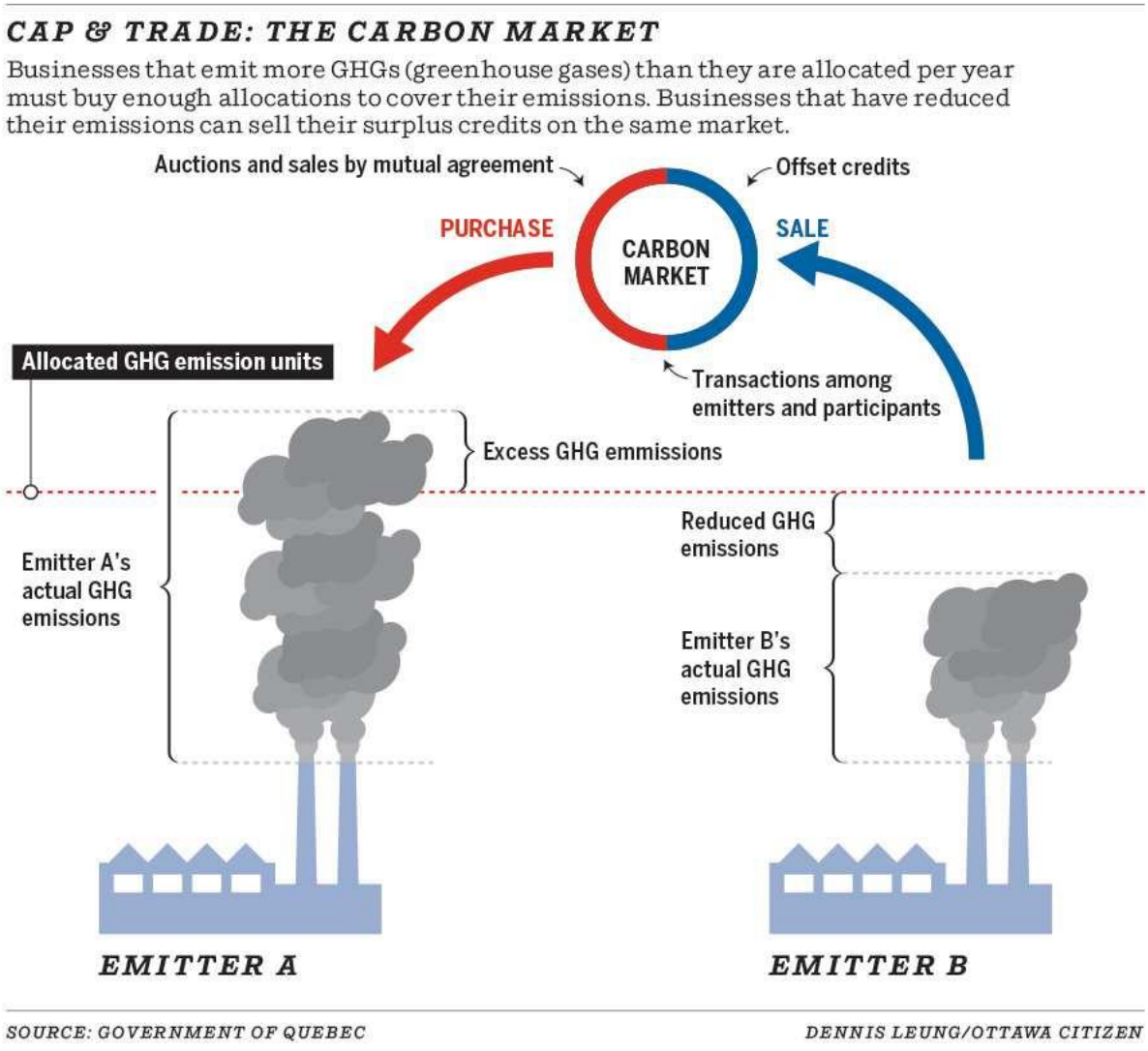
The aim of the agreement is to decrease global warming, enhancing the implementation of the UNFCCC through:

- Holding the increase in the global average temperature to well **below 2 °C above** pre-industrial levels.
- Increasing the **ability to adapt** to the adverse impacts of climate change.
- Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

- This strategy involved so-called 20/20/20 targets, namely the reduction of carbon dioxide (CO2) emissions by 20%, the increase of renewable energy's market share to 20%, and a 20% increase in energy efficiency.

Let us come back to COP 25

- Ambitions for this conference were limited because many countries were focused on narrow technical details such as the workings of the **globalcarbon markets**.
- It was hoped that countries would resolve to work on more ambitious carbon targets needed to fulfil the goals of the 2015 Paris agreement.



Steps Taken by India:

- India has **reduced emissions intensity of GDP by 21%** and is on track to achieve the goal of 35% emissions reduction as promised in Paris.
- Under Paris Agreement, India **announced 175 GW** targets for renewables of which 83 GW has already been achieved. Indian PM has subsequently **increased the target to 450 GW** at the recent UN Climate Action Summit.
- **Carbon tax** on coal production is being levied at the rate of $6 per tonne.

- Commercial flight was operated on 100% biofuel and India is targeting **blending of 20% ethanol in petrol** by 2030.
- India has leapfrogged **from BS IV to BS VI** for vehicle emission norms and from 1 April, 2020, vehicles will be BS VI compliant.
- 360 million **LED bulbs** have been fitted in homes, and 10 million conventional streetlights have been replaced with LED lights. 80 million **LPG gas connections** have been provided. India's cooling action plan and adaptation plan are working well.
- India has promised creation of **additional carbon sinks** of 2.5 to 3 billion tonnes of carbon equivalent through increasing green cover. In last 5 years, India's **green cover has increased by 15,000 sq. km**.
- India is investing heavily in water conservation. It has taken up a target for restoration of 26 million of degraded land by 2030 during the **14th COP of UN Convention to Combat Desertification in Delh**i. This is **one of the largest programs** in the world to ensure carbon sink in land resources.
- **100% neem coating of urea fertilizer** is appreciated by the world and 170 million **soil health cards** are taking care of the soil health, thus creating more carbon sinks.
- India has launched the **Coalition for Disaster Resilient Infrastructure,** which is a partnership to support countries through knowledge exchange and provide technical support on developing disaster and climate resilient infrastructure.

Why CoP25 failed?

- The failure of the talks underlined starkly the massive gap between what scientists say the world's nations need to do on climate change, and what the most powerful political leaders on the planet are prepared to even discuss.
- According to scientist, talks focused on some of the rules for implementing the 2015 Paris agreement, but the overriding issue of how fast the world needs to cut greenhouse gas emissions has received little official attention.
- Countries agreed in Paris in 2015 to revisit their climate pledges by 2020. But many countries were pushing this year for a clear call for all countries to submit more ambitious climate pledges next year.
- But countries such as China and Brazil opposed placing any obligation on countries to submit enhanced pledges next year, arguing it should be each country's own decision. They instead argued the focus should be on pre-2020 action by developing countries to meet their previous pledges
- There was a recognition that tougher carbon targets are needed globally, but few countries came up with any and the resolve to come back next year with more ambitious plans was worded too weakly to satisfy most campaigners.

Currently, not enough is being done to meet the three climate goals:

1. Reducing emissions 45 per cent by 2030
2. Achieving climate neutrality by 2050 (which means a net zero carbon footprint)
3. Stabilizing global temperature rise at 1.5°C by the end of the century

India's stance:

- India played a mixed role at the recently concluded 25th Conference of Parties (CoP 25) to the United Nations Framework Convention on Climate Change at Madrid.

- On the question of markets, India emphasised the transition of the Clean Development Mechanism (CDM) credits earned under the Kyoto Protocol to the Paris Agreement.
- Pointed out that those excessively cheap emissions reductions enabled by the CDM as well as the possibility of double counting could corrupt the process.
- India played a strong role in critiquing the developed world's continuing poor record on climate action.
- It argued that unless a stocktaking exercise of the fulfilment of various pre-2020 commitments by developed countries, India would not raise its climate ambition for its next round of Paris Agreement targets due in 2020.
- India also took a lead in calling for more finance for developing countries for climate action, *("not even 2 per cent" of the promised "$1 trillion in the last 10 years" had been delivered)*
- **India is a Party to the**
    - United Nations Framework Convention on Climate Change (UNFCCC)
    - Kyoto Protocol (KP)
    - Paris Agreement (PA): Has mechanisms like global stock-take and ratcheting up action every 5 years to address climate change and avoid adverse consequences.
- **Coalition for Disaster Resilient Infrastructure:** Will serve as a platform to generate and exchange knowledge on different aspects of climate and disaster resilient infrastructure
- **'Leadership Group for Industry Transition'** launched jointly by India and Sweden, will provide a platform for government and the private sector in different countries to work together on accelerating low carbon growth and cooperation in the area of technology innovation.
- **India will also insist upon the principle of 'equity and common but differentiated responsibilities':** It means that while all countries should do their best to fight global warming, developed countries – with deeper pockets, who were primarily responsible for the climate mess – should take a bigger share of the burden than the developing and under-developed countries.

Way forward

- It is entirely appropriate for countries such as India to insist on not taking on an even more unfair share of the global mitigation burden unless developed countries deliver on the minimal parameter of fulfilling their existing promises.
- It is crucial that India continue to push developed countries in this fashion as the entire global climate action framework has been put in jeopardy by the inaction of big polluters.

This is the time for ownership and this is the time for responsible action. India very much believes Thoreau's statement that says,

"What is the use of a house, if you have not got a tolerable planet to put it on?"

Note:

COP 22: Marrakesh, Morocco

COP23: Bonn, Germany

COP24: Katowice, Poland

COP25: Madrid, Spain – The effort would be to get the 'Paris rulebook' all done and dusted so that all rules are in place for the agreement to kick-in.

Clean Development Mechanism (CDM):

- The Clean Development Mechanism (CDM), defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries.
- Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO2, which can be counted towards meeting Kyoto targets.
- The mechanism is seen by many as a trailblazer. It is the first global, environmental investment and credit scheme of its kind, providing standardized emissions offset instrument, CERs.
- A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers.
- The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction or limitation targets.

Zero Carbon Law

- New Zealand's Parliament passed The Zero-Carbon Act, which will commit New Zealand to zero carbon emissions by 2050 or sooner, as part of the country's attempts to meet its Paris climate accord commitments.
- This is the first legislation in the world to make a legally binding commitment to living within 1.5 degrees Celsius of global warming.
- **The key aims of the Act include:**
    - Reduce all greenhouse gases (except methane) to net zero by 2050,
    - Reduce emissions of biogenic methane (produced from biological sources) up to 24-47 percent below 2017 levels by 2050 and to 10 percent below 2017 levels by 2030
    - Establish an independent Climate Change Commission
    - Establish a system of emissions budget.

About Biogenic methane

- It is emitted by livestock, waste treatment and wetlands.
- The Act proposes separate targets for biogenic methane because methane is a short-lived gas and degrades into the atmosphere over the decades even though it is a more potent greenhouse gas than carbon dioxide

Kayakalp"- an initiative for Award to Public Health Facilities

"Kayakalp" initiative will encourage every public health facility in the country to work towards standards of excellence to help the facilities stay clean and hygienic. The initiative towards total "Swacchta" in public health facilities is aimed towards building confidence of the users in public health facilities, provide quality service and encourage team work.

Kayakalp awards were launched by Union Health Ministry in 2015 as part of the Swachh Bharat Abhiyan to felicitate Public Health Facilities (PHCs) for maintaining high standards of sanitation and hygiene. Objective isto inculcate culture of cleanliness for gaining the trust and confidence of community in these facilities. The Union Health Ministry grants the awards through the National Health Mission.

Water Management: Building a Resilient Nation

What is the Problem?

Today, billions of people are still living without safe water – their households, schools, workplaces, farms and factories struggling to survive and thrive. Marginalized groups – women, children, refugees, indigenous peoples, disabled people and many others – are often overlooked, and sometimes face discrimination, as they try to access and manage the safe water they need.

What does 'safe water' mean?

'Safe water' is shorthand for a 'safely managed drinking water service': water that is accessible on the premises, available when needed, and free from contamination. Access to water underpins public health and is therefore critical to sustainable development and a stable and prosperous world. We cannot move forward as a global society while so many people are living without safe water.

Human right to water?

In 2010, the UN recognized "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights."
The human right to water entitles everyone, without discrimination, to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use; which includes water for drinking, personal sanitation, washing of clothes, food preparation, and personal and household hygiene.

Why are people being left behind without safe water?

People are left behind without safe water for many different reasons. The following are some of the 'grounds for discrimination' that cause certain people to be particularly disadvantaged when it comes to accessing water:

- Sex and gender
- Race, ethnicity, religion, birth, caste, language, and nationality
- Disability, age and health status
- Property, tenure, residence, economic and social status

- Other factors, such as environmental degradation, climate change, population growth, conflict, forced displacement and migration flows can also disproportionately affect marginalized groups through impacts on water.

In India

India is suffering from 'the worst water crisis' in its history with about 60 crore people facing high to extreme water stress and about two lakh people dying every year due to inadequate access to safe water. The report, titled 'Composite Water Management Index' further said the crisis is only going to get worse.

- 600 million people in India face high to extreme water stress in the country.
- About three-fourth of the households in the country do not have drinking water at their premise.
- With nearly 70% of water being contaminated, India is placed at 120th amongst 122 countries in the water quality index.
- 75% of households do not have drinking water on premise.
- 84% rural households do not have piped water access.

Major Issue: Data and centre-state and inter-state cooperation are some of the key levers that can help address the crisis. Data systems related to water in the country are limited in their coverage, robustness, and efficiency.

- **Limited coverage:** Detailed data is not available for several critical sectors such as for domestic and industrial use, for which data is only available at the aggregate level and lacks the level of detail required to inform policies and allocations.
- **Unreliable data:** The data that is available can often be of inferior quality, inconsistent, and unreliable due to the use of outdated methodologies in data collection. For example, estimates on groundwater are mostly based on observation data from 55,000 wells, while there are 12 million wells in the country.
- **Limited coordination and sharing:** Data in the water sectors exists in silos, with very little inter-state or centre-state sharing, thereby reducing efficiencies.

How will climate change hit supply?

While growth in urban population is leading to increased water demand, climate change will make supply more variable. In some places, it will lead to a reduction of availability. In future, one in six large cities is likely to be at the risk of water deficit.

Increased demand for urban water supply will put pressure on groundwater resources. We investigated urban groundwater stress by calculating the urban groundwater footprint of regional aquifers. Climate change and socio-economic factors like urbanisation will lead to an increasing urban groundwater footprint. Historically, many cities in less developed countries had systems that were inadequate to provide 24X7 water access to its people, a goal that will become even harder to reach in the future.

How is urbanisation affecting the water bodies in the cities?

Urbanisation is taking place at a faster rate in India. Population residing in urban areas in India crossed 30% as per 2011 census, standing at **31.16%.** According to the **Composite Water Management Index (CWMI)** report released by the NITI Aayog in 2018, 21 major cities (Delhi, Bengaluru, Chennai, Hyderabad and others) are racing to reach zero groundwater levels by 2020, affecting access for 100 million people.

Urbanisation affecting Waterbodies:

a. Exploitation of Ground water: We need to also realise that with the country's rapid urbanisation, demand cannot be met by groundwater reserves alone. For instance, according to the Delhi Jal Board estimates, groundwater meets just 10% of Delhi's drinking water needs. The rest is met by surface water sources, most of it transported from outside Delhi.

b. Encroachment: In Bengaluru, 15 lakes have lost their ecological character in less than five years according to a High Court notice to the city's administrative body responsible for civic amenities and some infrastructural assets.

c. Pollution: There is an increasing level of urban population which however is not having enough civic facilities such as adequate infrastructure for the disposal of waste. Therefore, lakes become the dumping grounds for disposing untreated local sewage and solid waste.

d. Eutrophication: Lakes are closed water bodies. Therefore, a large part of the substances that enter in the lakes become a permanent part of it. There is a rapid change in the in the lakes which leads to growth of unwanted weeds destroying ecology of the lakes.

e. Unplanned Tourism Activities: There is unplanned tourism activities as there is no systematic planning and regulation. There is no adequate facility to dump garbage which leads to lakes becoming dumping grounds. Therefore, adequate arrangements for sustainable tourism must be made in cities like Udaipur which is filled with lakes, Dal Lake in Srinagar, etc.

Implications:

Water Quality

- Research within India revealed the scale of urbanisation impacts in Hyderabad, where the number of waterbodies has fallen dramatically. Lakes in Hyderabad were also found to have **fluoride concentrations** exceeding maximum permissible limits set by the Bureau of Indian Standards and World Health Organization.
- Fresh Water Watch measurements identified key links between the nutrient concentration and inputs of raw sewage, domestic waste and industrial effluents.

Urban floods:

- Improper and Inefficient Urbanisation is the primary cause for the floods in urban areas, especially in metros. For instance, failure of the drainage system is believed to be one of the primary causes behind the Chennai floods in December 2015 that led to the death of more than 400 people.

Water Crisis

- Cooum, Buckingham canal and Adayar are the three rivers that runs through the Chennai city, all are dried up and dead due to industrial wastes and lack of civic measures.
- These coupled with over exploitation of ground waters are turning cities into Dry and Dead cities in near future.

National Water Policy

The Centre plans to come out with an updated version of the National Water Policy with key changes in water governance structure and regulatory framework, besides setting up a National Bureau of Water Use Efficiency. There is a need to update the National Water Policy of 2012 in the light of new challenges, especially the adverse effects of climate change.

- Hydrological boundaries, rather than administrative or political boundaries, should be part of the water governance structure in the country, and the Centre is currently talking to the States to build a consensus
- Building consensus among the States within the Constitutional framework is a pre-condition for making the changes as water conservation, along with water harvesting and judicious and multiple use of water, are key to tackling the water challenges that India faces.
- Calling for the rejuvenation and revitalisation of traditional water bodies and resources through the age-old conservation methods. There is a need for disseminating modern water technologies in an extensive fashion.
- In terms of water trade, that water-surplus States such as Chhattisgarh can gain by sharing the resource with the deficient ones.
- There is a need for policy changes for giving incentive to crops using less water. Participatory groundwater management should be promoted in a big way to maintain quality and sustainability.

Jal Jeevan Mission

Government of India has restructured and subsumed the ongoing National Rural Drinking Water Programme (NRDWP) into Jal Jeevan Mission (JJM) to provide **Functional Household Tap Connection (FHTC) to every rural household** i.e., *Har Ghar Nal Se Jal* (HGNSJ) by **2024**.

Proposed Jal Jeevan Mission will be a decentralised, community-managed and sustainable water management scheme –

- Out of 17.87 crore rural households in the country about 14.6 crore which accounts for 81.67 percent are yet to have household tap connections for water.
- JJM envisages a structural change in the provision of drinking water supply services. The service provision should change to 'utility based approach' centered on 'service delivery'
- The government had also integrated different ministries and departments dealing with water into one ministry — the Ministry of Jal Shakti.

Work to be taken up under JJM:

- In-village water supply (PWS) infrastructure for tap water connection to every household
- Reliable drinking water source development/ augmentation of existing sources
- Transfer of water (multi-village scheme; where quantity & quality issues are there in the local water sources)
- Technological intervention for treatment to make water potable (where water quality is an issue, but quantity is sufficient)
- Retrofitting of completed and ongoing piped water supply schemes to provide FHTC and raise the service level
- Grey water management

- Capacity building of various stakeholders and support activities to facilitate the implementation

73rd Amendment of Constitution of India: Gram Panchayats or its sub-committees will play a crucial role in planning, designing, execution, operations and maintenance of the in-village infrastructure under the Jal Jeevan Mission – Every village is to prepare a village action plan (VAP) which will be essentially having three components namely;

1. Water source & its maintenance
2. Water supply and
3. Grey water management

The Way Ahead

Efficiency in Agriculture: The agricultural sector consumes over 85 per cent of the available water today in India, and there is enormous scope to save water here through improved efficiency.

- Shifting cropping pattern from water-intensive to less water consuming crops can save significant amount of water.
- Micro-irrigation method (drip and sprinkler) of rice cultivation promises to enhance water use efficiency with increased crop productivity.
- Rainwater harvesting is one of the cheapest and easiest ways of augmenting water stock.
- Investing and promoting water-recycling technologies and storm water capturing schemes should also be given utmost emphasis.
- The proposed water conservation fee on groundwater extraction is definitely a right step in the direction of regulating water use.

Strict pollution control enforcement:

- User-centric approach to water management, especially in agriculture
- Decentralisation of irrigation commands, offering higher financial flows to well-performing States through a National Irrigation Management Fund
- Steady urbanisation calls for a new management paradigm – augmenting sources of clean drinking water supply and treatment technologies that will encourage reuse.

Rethink water management

- Creative and imaginative governance in the form of building larger storage dams which can store excess water in lesser time is the need of the hour.
- People should be sensitised about the judicious use of water and educated about water-retention dams and other conventional structures such as eari, bawli, talab, anict, dam etc. to store water.
- The old practice of rainwater harvesting should also be popularised. Tamil Nadu has made mandatory installation of water harvesting structures in every house and this must be replicated in other States as well.
- Investing and promoting water-recycling, storm-water capturing technologies and micro-irrigation techniques in crop cultivation can also solve the problem of water scarcity.
- The cost effective method of reviving the traditional small water bodies under the age old practice of Kudimaramath should be given top priority.

Mitigation & Rehabilitation

- Cities need to stop the destruction of local water bodies and local tree cover, treat its sewage properly, harvest rainwater, and stop straightening and concretizing the rivers and encroaching on their floodplain.
- Mapping of the flood prone areas is a primary step involved in reducing the risk of the region. Historical records give the indication of the flood inundation areas and the period of occurrence and the extent of the coverage.
- Enacting the Flood Plain Zoning Bill in states
- The number of casualties is related to the population in the area at risk. Hence, in areas where people already have built their settlements, measures should be taken to relocate to better sites so as to reduce vulnerability.
- No major development should be permitted in the areas which are subjected to high flooding. Important facilities like hospitals, schools should be built in safe areas. In urban areas, water holding areas can be created like ponds, lakes or low-lying areas.

Note:

- **First state to have water policy:** Meghalaya; to address water issues, conservation, and protection of water sources in the state.
- Water is a **State** subject
- **Sustainable Development Goal 6 (SDG 6)** aims to ensure availability and sustainable management of water for all by 2030. By definition, this means leaving no one behind.

'Composite Water Management Index'

This index is an attempt to budge States and UTs towards efficient and optimal utilization of water and recycling thereof with a sense of urgency. The Index and this associated report are expected to:

- **Establish a clear baseline and benchmark for state-level performance on key water indicators**
- **Uncover and explain how states have progressed on water issues over time, including identifying high-performers and under-performers, thereby inculcating a culture of constructive competition among states**
- **Identify areas for deeper engagement and investment on the part of the states.**

The Composite Water Management Index (CWMI) is a major step towards creating a culture of databased decision-making for water in India, which can encourage 'competitive and cooperative federalism' in the country's water governance and management.

River Pollution

Samples taken from two-thirds of the water quality stations spanning India's major rivers showed contamination by one or more heavy metals, exceeding safe limits set by the Bureau of Indian Standards. The study spanned 67 rivers in 20 river basins and was

conducted by Central Water Commission (CWC) from May 2014 to April 2018.

- Iron emerged as the most common contaminant with 156 of the 442 sampled sites registering levels of the metal above safe limits.
- None of the sites registered arsenic levels above the safe limit.
- The other major contaminants found in the samples were lead, nickel, chromium, cadmium and copper.
- Source of metal pollution: Mining, milling, plating and surface finishing industries that discharge a variety of toxic metals into the environment.
- The presence of metals in drinking water is to some extent unavoidable and certain metals, in trace amounts, required for good health. However, when present above safe limits, they are associated with a range of disorders.
- Health Impact: Long-term exposure to the above-mentioned heavy metals may result in slowly progressing physical, muscular, and neurological degenerative processes that mimic Alzheimer's disease, Parkinson's disease, muscular dystrophy and multiple sclerosis.

Mitigation of Carbon Footprint

Global warming with the burgeoning anthropogenic greenhouse gas (GHG) emissions (400 parts per million from 280 ppm CO_2, emissions of pre-industrial era) has been altering the climate, eroding the ecosystem productivity and sustenance of water, thus affecting the livelihood of people.

GHG footprint needs to be in balance with sequestration of carbon to sustain ecosystem functions. Forests are the major carbon sink (about 45%) that aid in mitigation global warming. The land use land cover (LULC) dynamics leading to deforestation and land degradation is the prime driver of global warming due to the loss of carbon sequestration potential as well as emission.

Carbon Footprint

- Contributed by emissions from the energy sector (68%), agriculture (19.6%), industrial processes (6%), LU change (3.8%) and forestry (1.9%), respectively in India with CO_2, emission of about 3.1 MGg (2017) and the per capita CO_2 emission of 2.56 metric tonnes.
- India has committed at the Paris Climate Change Agreement to reduce its emissions by 33-35% by 2030, which necessitates immediate implementation of carbon capture (with afforestation of degraded landscapes with native species, regulations of LULC change) and de-carbonisation (through large-scale implementation of renewable and sustainable energy alternatives).
- For this, stringent norms must be developed towards
    1. Potential of ecologically fragile regions
    2. Dis-incentives for continued higher emission based on 'polluter pays' principle

3. Adoption of cluster-based decentralized development approaches
4. Incentives for reduced emission

- The carbon trading has demonstrated the potential in monetary values across the globe of Indian forests in capturing carbon. The carbon credit mechanism and streamlining stakeholder's active participations would dramatically reduce the abuse of forests.

What is carbon trading?

- Carbon trading is a market-based system aimed at reducing greenhouse gases that contribute to global warming, particularly carbon dioxide emitted by burning fossil fuels.
- Carbon trading allows countries to reduce their own carbon emissions and sell the saved emissions to other countries for money or technology transfer or project investments. Carbon markets existed under the Kyoto Protocol, which is being replaced by the Paris Agreement in 2020. E.g. A developed country like USA which is unable to meet its reduction target can provide money or technology to the Tidal energy project in Indonesia, and thus claim the reduction of emission as its own.
- Alternatively, the Tidal energy investors can make the investment, and then offer on sale the emission reduction, called carbon credits. Another party, struggling to meet its own targets, can buy these credits and show these as their own.

Is it an effective strategy to mitigate the effects of global warming?

- It achieves the objective of GHG emission reduction at low cost with caps in emissions, sanctions in the form of trade and fines as seen in Kyoto protocol.
- It helps in more effective way to address the global warming with the development of new technologies and technology transfer to utilize the renewable energy potential. E.g. Hydroelectric project investments in countries like Bhutan by India.
- Emission trading provides a way of establishing rigour around emissions monitoring, reporting and verification – essential for any climate policy to preserve integrity.
- Emission trading results in a synergetic effect by way of integrations and collaborations and collective effort to fight the climate change. E.g. an industrial area in a third-tier town may not be able to contribute to climate change if not collaborations with global companies which is facilitated by the emission trading.

… but there are disadvantages as well

- It becomes ineffective if the companies have the wherewithal to invest heavily offsetting the carbon price they pay.
- Determining physical actions that companies must take, with no flexibility, is not guaranteed to achieve the necessary reductions.
- Establishing a regulated price is a policy nightmare and take years to come to a consensus and also faces a backlash. E.g. Carbon cess.
- As accounting the exact emissions is difficult, the issues in emission counting rendered by the developed countries has resulted in just number magic rather than actual reduction in emissions.
- Creating a market in something with no intrinsic value such as carbon dioxide is very difficult.

- The low carbon pricing mixed with politics has made the scheme ineffective where in the overall emissions have increased rather than decrease.

Managing Electronic Waste

Electronic industry is one of the world's largest and fastest growing manufacturing industries. It has provided some leverage to the socio-economic and technological growth of the developing society of India.

However, it creates new environmental challenges- "Electronics Waste" or "e-waste" that consists of obsolete electronics devices. Solid waste management, which is already a critical task in India, is becoming more complicated by the invasion of e-waste, particularly computer waste.

The Global E-waste Monitor, 2017 published by the United Nations University estimated that India generates about 20 lakh ton of e-waste annually, nearly 82% of which is personal devices.

- Personal Computers (PCs) contain certain components, which are highly toxic, posing environmental and health challenges. This fast growing waste stream has been accelerating because the global market for PCs is far from saturation and the average life span of a PC is decreasing rapidly.
- Rapid economic growth, coupled with urbanisation and a growing demand for consumer goods, has increased both the production and consumption of electronics and electrical equipments.
- India's recycling sector is still underdeveloped. Most people are unaware of potential negative impact.
- When these products are dumped in landfills or incinerated, they pose health risks because of the hazardous materials they contain.

Effects on Air, Water, and Soil:

- When electronic items containing heavy metals are improperly disposed, these heavy metals leach through the soil to reach groundwater channels which eventually run to the surface as streams or small ponds of water. Burning of e-waste in open landfill for obtaining gold and other precious metals produces fine particulate matter and causes **cardio-vascular and pulmonary ailments** in children.
- Drinking water contaminated with lead affects the central and nervous system and causes poor brain growth, dwarfism, hearing disability, and impaired formation and function of blood cells.
- Since, these chemicals are not biodegradable; they persist in the environment for long time, increasing the risk of exposure.

Salient features of the E-waste (Management) Amendments Rules, 2018

- The phase-wise collection targets for e-waste in weight shall be 10% of the quantity of waste generation as indicated in the EPR plan during 2017-18, with a 10% increase every year until 2023.

- Separate e-waste collection targets have been drafted for new producers, i.e. those producers whose number of years of sales operation is less than the average lives of their products.
- Producer Responsibility Organisations (PROs) shall apply to the Central Pollution Control Board (CPCB) for registration to undertake activities prescribed in the Rules.

Challenges Ahead:

- Only 1.5 per-cent of e-waste generated in India gets recycled. Lack of awareness about e-waste and its recycling as well as the role of the unorganised sector are the added challenges to the problem.
- The base metals which can be reused are lost and result in soil contamination due to unorganised and crude dismantling.
- A consumer of an electric or electronic device is not apprised of the end of value chain of the product.
- Often, information is not provided along with the product packing about the e-collection centre for the product sold.
- The responsibility of the consumers is also not specified along with the product.

Solutions that can address the issue:

- **Repair & Reuse:** The product designers must ensure the longevity of the products through their re-use, repair, and/or upgradability features.
- **Recovery** of metals, plastic, glass, and other materials reduce the magnitude of e-waste.
- **Clear regulatory instruments** to control both exports and imports of e-waste
- Putting in place environmentally sound management practices
- Manufactures of products must be made financially, physically, and legally responsible for their products.
- All vendors of electronic devices shall provide take-back and management services for their products at the end of life of those products.
- Collection systems are to be established so that e-waste is collected from the right places ensuring that this directly comes to recycling unit.
- Extended Producer Responsibility (EPR) authorisation has been provided to 726 producers by the CPCB. It specifies the collection targets for the specified time (five years); but unfortunately, no independent mechanism has been put in place to check or verify the claims made in authorisations resulting in slack implementation.

Recently, Ministry of Electronics and Information Technology (MeitY) has developed a guideline on uniform inventorisation of e-waste in the country. As per information available with CPCB, 69,414 MT of e-waste was collected, dismantled, and recycled during 2017-18.

Technical and policy-level interventions, proper implementation, capacity building, and increasing the public awareness are the need of the time, to convert this challenge into an opportunity and set global credible standards concerning environmental and occupational health.

Plastic Waste in Construction and Road Making

Can construction of road be the solution?

At a time when the entire world is grappling with disposal problems of huge volumes of plastic waste, road construction provides a solution to plastic waste. To increase recycling rates, in 2015, the Indian government made the use of plastic waste in the road construction industry mandatory.

In this process, plastic products made of PET, PVC, HDPE, LDPE and polypropylene are first sorted from plastic waste, cleaned, dried and shredded. Once all the plastic waste is shredded, it is heated at 165 degree Celsius. Next, the shredded pieces are added to a bitumen mix, which is also heated at 165 degree Celsius. The final mix is used for constructing roads.

India has built 100,000 kilometres of roads in at least 11 states using discarded plastic since 2015.The roads made from waste plastic are more durable against extreme weather conditions like floods and heat as compared to conventional ones, points a report by the World Economic Forum. According to the Union Ministry of Environment, Forest and Climate Change, one tonne of plastic waste is used with nine tonnes of bitumen to lay a kilometre of road. Depending on the quality of tar, 10-30 per cent of it is replaced with the waste plastic.

In terms of economics, the plastic-layered roads are cost effective. To prevent plastics from reaching landfills and entering water bodies, recycling of plastic waste to build roads in the states and national highways should be stepped up further. Melting down old plastic waste to repurpose it into useful new items is one of the ways of reducing the plastic in the oceans and landfills.

Benefits

- Found to be more resistant to erosion from weather and vehicle use, and the number of new potholes formed is reduced.
- Use of plastic along with bitumen in construction of roads not only increases its life and smoothness but also makes it economically sound and environment friendly.
- Such roads were not subject to stripping when come in contact with water.
- Use of higher percentage of plastic waste reduces the need of bitumen by 10%. It also increases the strength and performance of the road.

Malnutrition

The wasting of millions of young children, owing to malnutrition, is a key imbalance. According to the World Bank Global Nutrition Report – 2018, malnutrition costs India at least $10 billion annually in terms of lost productivity, illness and death and is seriously retarding improvements in human development and further reduction of childhood mortality.

Global Hunger Index (GHI) 2019

While India is tagged as a country with 'serious' levels of hunger, climate change will further worsen its undernutrition levels, the Global Hunger Index (GHI) 2019, a report jointly published by Concern Worldwide, an Irish aid agency, and Welthungerlife, a German NGO has highlighted.

- India in terms of hunger rankings has slipped from 95th rank in 2010 to 102nd in 2019.
- India's poorer neighbours — Bangladesh, Nepal, and even Pakistan — have overtaken India in the battle against hunger.
- Because of its large population, India's GHI indicator values have an outsized impact on the indicator values for the region. India's child wasting rate is extremely high at 20.8%—the highest wasting rate of any country in this report for which data or estimates were available
- Its (India) child stunting rate, 37.9%, is also categorized as very high in terms of its public health significance. In India, just 9.6% of all children between 6 and 23 months of age are fed a minimum acceptable diet

Good health is at the core of human development:

- **Economic progress–** Healthy people live more, are more productive and save more, resulting in increased investments and thus economic progress.
- **Education–** Healthy population can be more learned and also look for higher educational opportunities.
- **Economic freedom–** Due to savings on health expenditure, healthy population has more disposable income, giving them better choices economically.
- **Nutrition–** A healthy person can absorb nutrition better, which in turn increases his/her productivity in other spheres of life.
- **Fertility–** Healthier populations tend to achieve optimum fertility rates due to lesser child mortality ratio and higher economic development, for example Scandinavian countries.
- **Productivity–** A healthy individual can produce better outcomes and is less likely to be absent from work.
- **Social benefits–** A healthy person can have better access to social services as well as help improving the social capital of a nation.
- **Learning and innovation–** A healthy body includes a healthy mind and with a sound mental health free from depression, anxiety, stress etc. can the learning outcomes be improved along with excelling in innovation.

POSHAN Abhiyan: POSHAN Abhiyan is government's multi-ministerial convergence mission with the vision to ensure attainment of malnutrition free India by 2022. It is focusing on

ensuring the nutrition of children, women, and pregnant mothers in impoverished areas and the government seems to be looking at community management of the problem.

POSHAN Atlas:

- In a bid to tackle malnutrition, the government is developing an Atlas to map the crops and food grains grown in different regions of the country so that nutritious protein-rich food in local areas can be promoted.
- The Ministry of Women and Child Development in association with the Bill & Melinda Gates Foundation and Deendayal Research Institute is developing a POSHAN atlas under POSHAN Abhiyan.
- The POSHAN atlas will map the crops and food grains grown in different regions of the country because the solution to tackling malnutrition lies in promoting regional cropping patterns and embracing local food that are rich in protein

To tackle Malnutrition

In India, to combat the malnutrition levels both immediate and long term interventions are needed. There is still a need for a more humane-cum-holistic approach and this can only be achieved by an active multi-sector approach, reinforced with a new set of national-level policies or guidelines around the usage of a community-based approach of addressing acute malnutrition in India.

- To end hunger, food producers must be supported to receive adequate remuneration. There is a need for sound measures to protect farmer incomes, including income transfers to farmers, minimum support-price guarantees and crop insurance, and a massive expansion of farm credit. For farm workers, a refocus on land reforms is called for, and, a greatly expanded and effectively managed rural employment guarantee programme with attention to land and watershed development, small irrigation and afforestation. There must also be an urgent and comprehensive shift to sustainable agricultural technologies less dependent on irrigation, chemical fertilisers and pesticides, to reverse our agri-ecological crisis.
- Hunger can't be combated without addressing the burgeoning job crisis. It also entails labour reforms which protect job security, fair work conditions and social security of all workers. The time has come for an urban employment guarantee programme, to help build basic public services and infrastructure for the urban poor — especially slum and pavement residents, and the homeless. This should also include employment in the care economy, with services for child-care, children and adults with disability and older persons.
- The Public Distribution System must be universalised (excluding income tax payees), and should distribute not just cereals but also pulses and edible oils. Further, we need to reimagine it as a decentralised system where a variety of crops are procured and distributed locally. Both pre-school feeding and school meals need adequate budgets, and the meals should be supplemented with nutrient-rich foods such as dairy products, eggs and fruits. Social protection also entails universal pension for persons not covered by formal schemes, universal maternity entitlements to enable all women in informal work to rest and breast-feed their children, a vastly expanded creche scheme, and residential schools for homeless children and child workers.

- Malnourishment results not just from inadequate food intakes, but also because food is not absorbed due to frequent infections caused by bad drinking water, poor sanitation and lack of healthcare. India's nutrition failures are also because of persisting gaps in securing potable water to all citizens, and continued open defecation despite optimistic official reporting. There is an urgent requirement for a legally enforceable right to healthcare, with universal and free out-patient and hospital-based care, free diagnostics and free medicines.
- Focusing on adolescent girls, before they become mothers, is critical to break India's intergenerational cycle of malnutrition. There is a need to provide impetus on aspects such as compulsory breastfeeding, adequate complementary feeding, immunization practices, hidden hunger (micronutrients) among malnourished women which leads to babies being born with low birth weight (LBW) (for example, a single bout of diarrhea can push an LBW baby towards acute malnutrition), energy-dense nutritious food (necessary for recovery of SAM children), and access to clean water and sanitation (WASH) for families.
- Ending hunger and undernutrition in a changing climate demands large-scale action to address the inequities exacerbated by climate change while minimizing environmental changes that could prove catastrophic to human life. It requires us to better prepare for and respond to disasters, support resilience and adaptation among the most vulnerable groups and regions, address global inequalities, mitigate climate change without compromising food and nutrition security, make financing for climate action fair and effective, and radically transform food systems.

Having a clear cut, state specific, contextual community based solution to address acute and chronic malnutrition is the need of the hour

What happened in Bihar?

Children in Bihar's Muzaffarpur and adjoining districts have been plagued with Acute Encephalitis Syndrome (AES) which has resulted in loss of lives. The rising death toll of children in Bihar's Muzaffarpur district not only points to a health crisis, but also the crippling healthcare infrastructure in the state.

Numbers indicating the sorry state

- According to the latest data available with the ministry of health and family welfare, about 79.5% of the 1,719 villages in Muzaffarpur district do not have a public healthcare facility. There are only 630 public healthcare facilities in Muzaffarpur.
- According to the census of 2011, Bihar is the third most populous state in India, with around 40% of its population below the poverty line.
- The major health and demographic indicators of the state, such as infant mortality rate, maternal mortality ratio, and total fertility rate, are substantially higher than the all-India average, and reflect the poor health status of the people.
- The state has a shortage of 1,210 sub-centres, 131 primary health centres (PHCs), and 389 community health centres (CHCs).

Three issues emerged out of these concurrent flare-ups.

- First, despite this region being endemic to brain fever, there is a dearth of reliable research-based evidence on what kills so many children each year.
- Secondly, the serious lack of health infrastructure in Bihar and Uttar Pradesh makes handling of such outbreaks and disease epidemics more challenging.
- Thirdly, the Centre issued Rs 88.5 crore to the Bihar state government in the last fiscal year to strengthen its public health system. Astonishingly, the state government spent less than one-third of it.

The confusion over what has killed over 100 children in Bihar is a symptom of the gangrenous rot in public healthcare in India. While even doctors are casually bandying about the term Acute Encephalitis Syndrome (AES) to talk about the disease that has repeatedly struck one of the poorest regions in the country, the fact is untrained health workers may use the term AES to talk about an undiagnosed brain disease which manifests symptoms like convulsions, loss of consciousness, etc. But when doctors use the phrase after a 100 deaths, it is a worrying sign—the doctors themselves are not sure of what they are dealing with.

While experts agree that a host of diseases and ingestion of certain toxins exhibit the symptoms seen in the current outbreak in Bihar, the fact that over 300 children have been hospitalised should have immediately pointed at lines of investigation to ascertain cause. Instead, there is confusion; with senior doctors at one of the major treatment hospitals in Bihar calling it a case of heat-wave related morbidity while a set of researchers who studied past outbreaks in the region believe it to be litchi-toxicity related critical hypoglycaemia.

Irrespective of whether a biological agent or malnutrition is to blame, Bihar's poor track record in ensuring that the poorest have access to adequate nutrition and distrust in the public health care system is major causes for the deaths.

The Numbers are Unsettling

- **Malnutrition:** There is enough evidence to show that malnourished children are more prone to the infection. In Bihar, 48 percent of the children are stunted, 20.8 percent are wasted and 44 percent children are underweight. For Uttar Pradesh, these numbers stand at 46 percent, 18 percent and 39.5 percent, respectively. More than 63 percent children in both the states are anaemic. Only 25 percent households in Bihar and 35 percent in Uttar Pradesh have access to sanitation facilities.
- **Healthcare Resources:** In terms of healthcare resources, each doctor in Bihar serves an average population of 28,391, and in Uttar Pradesh, the average is about 20,000 per doctor. To put this in context, each doctor in Tamil Nadu serves about 9,544 people. Bihar has one hospital bed per 8,645 people and Uttar Pradesh has 2,904 people per bed. Tamil Nadu has 899 people per bed.
- **Total Expenditure on Health:** Despite such skewed numbers, only 3.94 percent of Bihar's total expenditure is for health, the second lowest after Haryana.

The Way Forward

- A greater push is needed for supporting the development of dedicated public health cadres in States. Whether it is combating a Nipah virus outbreak in Kerala or preventing the death of children due to the Acute Encephalitis Syndrome in Bihar, a strong public

health system is crucial. In fact, in a rapidly urbanising and densely populated India, the risk of disease outbreaks and spreading of contagion is much higher.

- Prevention and efficient disease management is the key to reducing the bulging patient load.
- A key enabler for implementing these reforms and programmes is an increase in government health expenditure to at least 2.5 per cent of GDP by, if not before, 2025. State governments also have a key role to play in ensuring that they spend at least 8 per cent of their budget on the health sector.

At a time when public health in India languishes amidst shortages of doctors and inadequate infrastructure and government spending remains low, it is important to recognise the Bihar child deaths as a preventable tragedy. With this in mind, state governments failing to make the most of what are accorded to them for public health must be held to account.

We must make the recent deaths in Bihar a turning point for prioritising public health in India!

Special Focus: Ayushman Bharat PMJAY

Ayushman Bharat is a conscious attempt to holistically address health, encompassing prevention, promotion and ambulatory care at the primary, secondary and tertiary levels. Ayushman Bharat has been designed on the fundamental precepts that prevention is better than cure, and that no one should fall into poverty because of expenditure on healthcare, or die, because they cannot afford treatment.

*It promises to bring healthcare to the poorest through **two components**:*

1. **Health and Wellness Centres (HWCs)** delivering comprehensive primary healthcare through the development of 1.5 lakh HWCs
2. **PM-JAY**, the health assurance scheme delivering secondary and tertiary care to 55-crore people through a health cover of Rs 5 lakh per family per year.

What are the numbers for the year gone by?

- More than 20,000 HWCs have been made operational. More than five crore people have been screened for a whole range of common non-communicable diseases.
- Under PM-JAY, more than 45 lakh hospital admissions have taken place for cashless treatment in more than 18,000 empanelled hospitals across the country, resulting in savings of more than Rs 13,000 crore for the beneficiary families.
- Every three seconds, a beneficiary is being treated, and the numbers continue to rise.
- Eleven states/UTs have expanded the coverage to include almost all families. In addition, 23 states/UTs have expanded the beneficiary base with the same benefit cover as under PMJAY or lower in some cases. Several states have merged their many ongoing schemes with PMJAY to make implementation simpler for both beneficiaries and participating hospitals.
- The private sector has played an active role in the early pick up of the scheme. More than half of the empanelled hospitals are private. Over 62 per cent of the treatments have been done by private hospitals. PM-JAY has created a massive demand for private (and public) sector services by making hospital facilities accessible to 55 crore people.

- With the setting up of 1.5 lakh HWCs by 2022, an expected 1.5 lakh jobs will be created for community health officers, including 50,000 multi-purpose health workers. It has generated estimated 50,000-60,000 jobs in the first year itself and is expected to add over 12.5 lakh jobs in both public and private sectors over the next three to five years, with 90 per cent of them in the healthcare sector and the remaining in allied sectors such as insurance and implementation support.

Release of a National Digital Health Blueprint (NDHB)

To 'manage and analyse' the big data generated by the Centre's flagship health programme, Ayushman Bharat

- Given that doctors in both the public and private sectors regularly complain about the lack of comprehensive records of their patients, the digital registry envisaged by the NDHB could fulfil a longstanding requirement of the health sector.
- The proposed data compendium is also in keeping with global trends in healthcare where digital technology is used to make treatment options more personalised and precise.
- Big data can also be used to prevent epidemics and improve the efficiency of drugs.

What more needs to be done?

The ambitious Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (PMJAY) completes a year, with impressive numbers to show but it still faces challenges of sustainability, synchronization and financial fulfilment.

Funding Issues:

- The allocation of just ₹2,000 crore during the current year to the PMJAY cannot provide the promised cover to the large population sought to be included. Not all States and Union Territories are in a position to raise their own share, and a few have not even joined the scheme.
- The challenge of funding, therefore, remains. And without adequate budgetary commitments, the implications of pooling the financial risk for such a large segment of the population through insurers or state-run trusts or societies make the outcomes uncertain.
- Along with delivery and quality, the government will need to adopt innovative funding models for long-term sustainability. While government spending on healthcare in India is one of the lowest in the world at around 1.2% of GDP, the country's health system is crippled with shortage of workforce, poor infrastructure, compromised quality and unavailability of services.

Universal Health Coverage is a must:

- It is essential to reduce the pressure on secondary and tertiary hospitals for expensive treatments by investing in preventive and primary care facilities. Here, the 150,000 health and wellness centres of the National Health Protection Mission can play a valuable role.
- The first-order priority should be to draw up a road map for universal health coverage, through continuous upgradation of the public sector infrastructure.

Infrastructure issues:

- There is a severe shortage of medical personnel, including doctors and nurses, as well as a dearth of hospitals and hospital beds. This shortage is especially stark in rural areas.
- In many places, primary health centres, community health centres, and sub-centres are located too far from people's homes. Even in the big cities, patients often have to run from one hospital to another in search of a particular facility or a bed.
- Private infirmaries are the preferred option for most, if only because of treatment is assured. The poor, however, typically find themselves shut out not just by steep prices—which Ayushman Bharat expects to overcome—but also invisible class barriers.

Scaling Up:

- The uneven geographic distribution of poor families makes it difficult to find out the real targeted beneficiaries given the uneven geographic distribution of poor families. Inspite of many people having been treated under the scheme, many remain unaware of the programme.
- There is a need to scale up this programme with quality and sustainability for all stakeholders. We need to strengthen delivery mechanism which includes expansion of private providers' network, shift towards organized care delivery, innovations, speciality, low cost, and value-based care.

Overall

- Other factors pushing the programme to its limits include increasing population, disease burden, concentration of health services in urban areas, and lack of awareness of the scheme among a major chunk of entitled beneficiaries.

The success of the programme will rely on a reformed and adequately resourced public sector to lead implementation, delivery, and monitoring of the scheme.

Note: Under the 7th schedule of the Indian Constitution, health is a state subject.

Ayushmaan Bharat can be a Game Changer only if:

- *Collaboration is the key:* The Central government collaborates successfully with State governments and the industry, and focusses aggressively on the operational and implementation aspect of these initiatives. Government and industry should develop partnerships with the focus on improving the coverage and providing access to quality healthcare services to the people.
- Capacity building of the existing resources: Increased capacity-building of the resources at hand during policy formulation.
- Technology: Strong emphasis on the adoption of technology by the entire healthcare ecosystem to provide accessible and affordable patient care to the last mile of the country.
- Role of States: State ownership and commitment of them is critical as the states are expected to agree for 40 per cent share under the NHPS (Health: State subject). Also, absorptive capacity of States needs to be increased.

- Clarity on the Services being provided: More clarity on the kind of services that will be provided by government health facilities and for which conditions patients will have to use private parties and what mechanisms are being thought of.
- Price matters: Establishment of uniform pricing systems for various health interventions, including diagnostics and medicines, and making them transparent by displaying them in hospital premises.
- Community Engagement: Continuum of care system needs to be established by linking institutions or hospitals, with health centres and the community. Community engagement is thus crucial in planning and implementation of the programme and in ensuring that the health and wellness centres and the primary health centres are responsive to the needs of the community.
- Special Unit to measure success, course correct: For effective implementation, an independent body or unit may be set up within the Ministry of Health & Family Welfare to plan, coordinate, and provide technical backstopping to states, including in capacity building and development of standards and guidelines for the programme. Such a unit will ensure uniform and systematic approach to programme implementation across the country.

Janani Suraksha Yojana

Objective: Reduce maternal and infant mortality by promoting institutional delivery among pregnant women

- Janani Suraksha Yojana, a conditional cash transfer scheme- was launched in 2005 as part of the National Rural Health Mission (NRHM) to improve maternal and neonatal health by promotion of institutional deliveries (childbirth in hospitals).
- The aim was to improve India's infant and maternal mortality rates through institutional deliveries.
- Under JSY, pregnant women choosing to deliver at the hospital and the health worker who motivated her to take the decision get cash incentives- Rs.1,400 for the woman and Rs.600 for the Accredited Social Health Activist in rural areas and Rs.1,000 and Rs.200 respectively in urban areas.
- The motto of cash incentive was to reduce financial barriers to accessing institutional care for delivery.

Increased hospitalisation

- The researchers of the study 'Health and Morbidity in India: 2004-2014', based on analysis of the 60th and 71st round of NSSO data, found a causal link between JSY and increase in hospitalisation, even for non-childbirth-related ailments.
- While the fertility rates in Indian women have steadily declined from 2.88% in 2004 to 2.4% in 2014, JSY has impacted overall hospitalisation of women in India.
- It has led to 15% increase in institutional childbirth with a commensurate decline in deliveries at home.
- Also, there is tremendous increase of 22% in deliveries in government hospitals. This is due to 8% decline in childbirth at private hospitals and a 16% decline in childbirth at home.

- The scheme has increased the probability of woman being hospitalised by 1.3% which has resulted in 2% overall increase in hospitalisation of women in India.
- Though this increase might appear marginal but it is very significant as women in rural India are known to delay in seeking health interventions.

Positive changes

- This scheme has led to enhancement in utilisation of health services among all groups especially among the poorer and underserved sections in the rural areas.
- This has reduced prevalent disparities in maternal care.
- Previous studies on JSY had shown reduction in maternal mortality rates. But there was no evidence if it had reduced socio-economic inequalities, i.e. difference in access to maternal care between individual people of higher or lower socioeconomic status.
- In the IHDS study, three key services of maternal care were used for the analysis:
    1. Full antenatal care (full ANC)
    2. Safe delivery
    3. Postnatal care

Major findings

Services used

- Increase in utilisation of all three maternal healthcare services between the two rounds was remarkably higher among illiterate or less educated and poor women.
- This shows the effect of JSY scheme where women with little or no education were motivated to utilise maternal health care services.

Reduced disparities

- The usage of all three maternal healthcare services by the OBC, Dalit, Adivasi and muslim women increased between the surveys.
- There was narrowing of gap between the less educated and more educated women and between the poorer and richer women.
- It was also found that women in their early twenties were more likely to avail of each of the three maternal health care services as compared to their older women.
- Also, the incidence of women availing maternal healthcare services decreases with the increase in the number of children they have delivered.

Inequality persists

- There still exists inequality in the access to maternal care.
- Though there is gap in access to healthcare between the marginalised group of women and those who are financially better-off, it has declined since the advent of the JSY program.
- There is still high incidence of maternal mortality rate in India. As per the latest series on maternal health, India accounted for 15% of the total maternal deaths in the world in 2015 — second only to Nigeria — with 45,000 women dying during pregnancy or childbirth.

Support of other schemes

- Percentage of women reporting sick has also increased partially due to result of other health insurance schemes like Rashtriya Swasthya Bima Yojana.

- Having insurance is associated with a 17% increase in probability of being hospitalized in a government facility and an 8% increase in the probability of hospitalization in a private hospital.

Challenge to tackle

- Though the economic significance of 2% increase is little, it has to be understood that JSY was not to increase overall hospitalisation. It was only to reduce maternal and infant mortality. But now it is seen that women are going for childbirth and are also coming in for other ailments to the hospitals.
- This has however raised concerns about quality of care with increasing number of caesarean sections and hospital-acquired infections.
- Increased hospitalisation for deliveries in public sector is an achievement. But this has also increased the dangers of decreased health care quality. Here, the health outcomes are not aligned with public health goals.

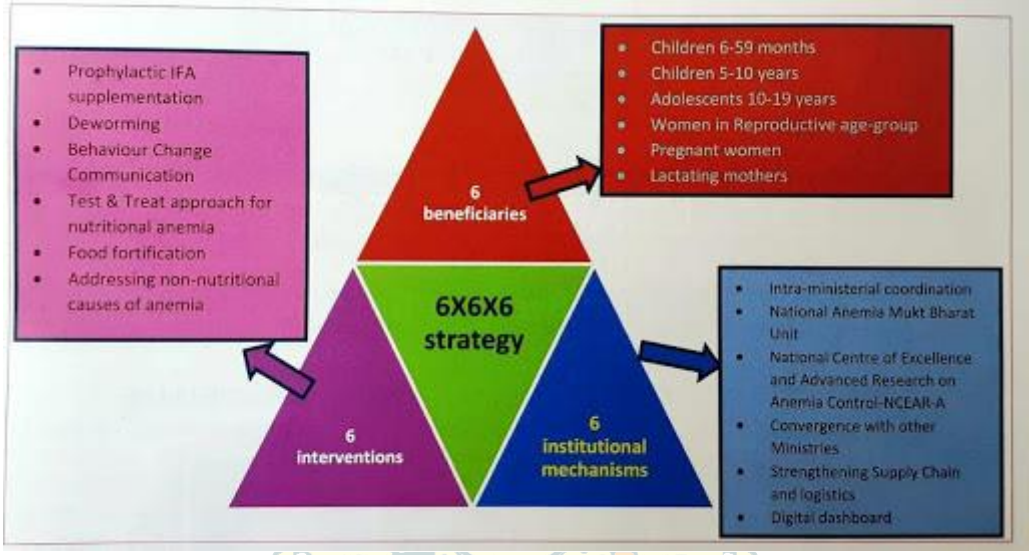
Anaemia in women

According to National Family Health Survey (NFHS)–IV (2015-16), the prevalence of anaemia among women aged 15 to 49 years is 53%. According to National Family Health Survey (NFHS)–IV (2015-16), the prevalence of anaemia among adolescent girls aged 15-19 years is 54%.

Under the National Health Mission (NHM), the steps taken to tackle anaemia are:

1. Anaemia Mukt Bharat (AMB) has been launched in the year 2018 as part of Intensified National Iron Plus Initiative (NIPI)Program for accelerating the annual rate of decline of anaemia from one to three percentage points. The target groups for AMB are Children 6-59 months, 5-9 years, Adolescent Girls & Boys of 10-19 years, Women of Reproductive Age (15-49 years), pregnant Women and Lactating mothers.
2. Weekly Iron and Folic Acid Supplementation (WIFS) Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys. The intervention under WIFS include supervised weekly ingestion of Iron Folic Acid (IFA) tablet (each IFA tablet contains 100mg elemental iron and 500µg folic acid) for 52 weeks in a year.To control worm infestation biannual de-worming with Albendazole 400mg is done, six months apart.
3. Health management information system & Mother Child tracking system is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.
4. Universal screening of pregnant women for anaemia is a part of ante-natal care and all pregnant women are provided iron and folic acid tablets during their ante-natal visits through the existing network of sub-centers and primary health centers and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs). These women are also counselled for dietary habits.
5. Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) has been launched to focus on conducting special ANC check up on 9th of every month with the help of Medical officers/ OBGYN to detect and treat cases of anaemia.
6. Every pregnant woman is given iron and folic acid, after the first trimester, to be taken 1 tablet daily for 6 months during ante-natal and post-natal period each. Pregnant women, who are found to be clinically anaemic, are given two tablets daily.

7. To address anaemia due to worm infestation, deworming of pregnant women is done after first trimester preferably in second trimester of pregnancy.
8. Operationalization of Blood Bank in District Hospitals and Blood Storage Unit in Sub district facilities such as Sub-Divisional Hospital/ Community health Centers is being taken to tackle complications due to severe anaemia.
9. To tackle the problem of anaemia due to malaria particularly in pregnant women and children, Long Lasting Insecticide Nets (LLINs) and Insecticide Treated Bed Nets (ITBNs) are being distributed in endemic areas.
10. Health and nutrition education through IEC & BCC to promote dietary diversification, inclusion of iron folate rich food as well as food items that promotes iron absorption.
11. MCP Card and Safe Motherhood Booklet is being distributed to the pregnant women for educating them on dietary diversification and promotion of consumption of IFA.
12. Information, Education and Communication (IEC) material in the form of posters, hoardings, wall-writings and audio-visuals have been developed & disseminated to the States/UTs to promote prevention of anaemia.



The Burden that India is Carrying - Tuberculosis (TB)

Tuberculosis (TB) is a disease caused by bacteria called **Mycobacterium tuberculosis**. The bacteria usually attack the lungs, but they can also damage other parts of the body.
TB spreads through the air when a person with TB of the lungs or throat coughs, sneezes, or talks. If you have been exposed, you should go to your doctor for tests. You are more likely to get TB if you have a weak immune system.

- TB is, by and large, easily diagnosable and curable. It is unacceptable that it nevertheless remains the leading causes of death from any single infectious agent worldwide.
- Each day, thousands of people with TB die, often because of inequitable access to quality diagnosis and treatment.
- In addition, the rapid emergence of drug-resistant forms of TB (DR-TB) in many countries brings a fresh set of needs including new and comprehensive diagnostic tests and second-line TB drugs, and health systems trained anew to manage DR-TB.

Three processes: Infection, Progression, Transmission

- **Infection:** Infection occurs when TB bacilli are inhaled. Bacilli may stay in the lungs or travel to other organs. Infection is lifelong, with bacilli lying dormant. This phase is "latent TB", diagnosed by a tuberculin skin test (TST). The "annual rate of TB infection" (ARTI) is about 1%. Cumulatively, 40% to 70% of us are living with latent TB. From this reservoir pool, a few progress to TB disease, one by one, 5-30 years, average 20 years, later.
- **Progression:** Progression occurs when bacilli become active, multiply and cause pathology; now we have "active TB".
- **Transmission:** When active TB affects the lungs, the bacilli find an exit route to the atmosphere, necessary for transmission.

Symptoms of TB in the lungs may include

- A bad cough that lasts 3 weeks or longer
- Weight loss
- Loss of appetite
- Coughing up blood or mucus
- Weakness or fatigue
- Fever
- Night sweats

In India:

- India not only accounts for a fifth of the world's TB burden, it also has the largest number of people living with multidrug-resistant TB.
- India has fought to retain its status as a maker and distributor of generic medicines, thereby protecting the right to health of people in developing countries.
- Indian patent law contains important provisions that help protect and promote public health goals — for example, by overcoming bids by big pharma to evergreen patents of old drugs, through compulsorily licensing for certain drugs, and by permitting pre- and post-grant opposition to patents to challenge unfair patenting practices by big pharma.

Reasons for the rising crisis

In addition to the failure of political machinery, the other major reasons for this are as follows:

- Adult and child under-nutrition
- Lack of active door-to-door detection
- Shortage of drugs
- Increasing Multi-Drug Resistant TB (MDR-TB) and Extensive Drug Resistant TB (XDR-TB)
- Total Drug Resistant TB acting as an assured death warrant
- Inadequate prescription by doctors and inadequate follow up of proper prescription by patients is aggravating the problem of antibiotic resistance
- Disease becoming expensive and difficult to treat
- Poor quality serological tests for diagnosis; poor quality diagnosis and treatment by medical practitioners
- Delay in implementation of critical programmes under the Revised National TB Control Programme (RNTCP) such as expansion of the GeneXpert pilot programme, scaling up of drug sensitivity testing, and the introduction of a child-friendly paediatric TB drug.

India's vision: To end TB by 2025, five years ahead of the World's Target under SDG's

- India's estimated annual TB burden is 28 lakhs, 27% of the global total; our population is only 18%. Every day 1,200 Indians die of TB — 10 every three minutes.
- According to Health Ministry data, only 63% of the patients infected with the airborne disease are currently under treatment. Further, 1,47,000 patients are resistant to first- and second-line TB medicines.
- At the current rate of progress, global targets to eliminate TB by 2030 will be missed by a 150 years.

India's War on TB – The Way Forward

Countering Delay in Diagnosis:

- To block transmission, treatment should begin as soon as a symptom shows up. As cough is a very common symptom of many diseases, doctors don't think of TB until other treatments fail.
- Partnership with the private sector is essential for early diagnosis of TB.
- Universal primary health care, a basic human right, and a diagnostic algorithm for early diagnosis are essential for TB control.
- To retard progression: Employ the biomedical method is drug treatment of latent TB. Experts recommend an age window of 5-10 years when all children must be screened with TST; those with latent TB must be treated to prevent progression.

Private Sector: The private sector has a very crucial role to play in checking the rise of TB as it is the first place a patient from an urban area visits. We need to make them a partner in this fight.

- Strict guidelines need to be followed to report cases of TB to government.
- Developing a comprehensive set of national guidelines could strengthen private sector engagement in TB
- Efforts should be made to map and categorise private practitioners based on the nature of their education, experience and services provided.
- Private hospitals need to be penalised for failure to report early TB cases to government. This will enhance the accountability of the private players.
- If cannot provide free treatment, it needs to refer the patient to a government clinic.
- Identification, focusing, messaging and testing (IFMeT): Key to successful private-public partnerships to fight TB

Strengthening research: We urgently require rapid and cost-effective point-of-care devices that can be deployed for TB diagnosis in different settings across the country.

- Additionally, new drug regimens are necessary for responding to the spread of drug-resistant strains as is an effective vaccine for preventing TB in adults. It is a big challenge in current times, which is due to irregular treatment.
- Operational research for optimising service delivery is also critical because it is often the case that diagnostics and drugs do not reach those who need them the most.
- TB with other disease like HIV is difficult to treat and the research needs to be strengthened in this field.
- The India TB Research and Development Corporation launched in 2016 must play a pivotal role in accelerating these efforts.

Technology: Technology has to be introduced and utilized in the most effective manner to ensure early access and monitoring.

Ending social stigma: TB is not a health issue alone. It is a broader societal challenge. Patients often hesitate to seek treatment or deny their condition altogether for fear of losing social standing. The consequence is that TB becomes a death sentence for many even though it is a fully curable illness. Women are disproportionately affected with estimates suggesting that 100,000 Indian women are asked to leave their homes every year after being diagnosed with TB.

- Mass awareness campaigns like 'TB Harega Desh Jeetega' can play an important role in breaking social taboos.
- Local communication channels such as community radios and street plays must also be leveraged.
- Children should be engaged through anganwadis and schools for disseminating accurate messages about TB to their families.
- Paediatric TB is often a neglected area. Children come from low socio-economic strata with social stigma and discrimination which needs to be de-stigmatised.

Major initiatives taken by India–

Shift to Daily regime of medication: With DOT Centres, the treatment will be at individual door level leading to no defaulter.

Cash benefit for TB patients & Medical Practitioner:

- About 35 lakh identified Tuberculosis patients across the country will soon get Rs. 500 every month from the Centre as social support. The cash benefit for social support will cover loss of wages, travel and mainly nutrition.
- INR 500/- to the private medical practitioner for notification of the disease

Will this work: Need to incentivise both the patients and the private practitioners as both the sides will ensure that they stand to gain from the treatment, which, in the long term, might lead to behavioural change.

Web-based Application – Nikshay: To enable health functionaries at various levels across the country to monitor TB cases in their areas

- Patients receive daily SMSes to ensure they continue their medication.
- The medicines come with a toll free number that is visible only after the medicine has been taken out of the foil pack; patients are required to give the number a missed call.
- Every missed call is tracked, and when there are too many gaps, the patient is traced, often by treatment supervisors who travel to remote areas on bikes that the programme pays for.

Introduction of Cartridge-Based Nucleic Acid Amplification Test (CBNAAT): It is a revolutionary rapid molecular test which simultaneously detects Mycobacterium tuberculosis and rifampicin drug resistance. This test is fully automated and provides results within two hours. It is a highly sensitive diagnostic tool and can be used in remote and rural areas without sophisticated infrastructure or specialised training.

Note: March 24th is celebrated as World Tuberculosis Day

Public Health Disasters

People across the world are faced with a wide and diverse range of risks associated with Public health disasters. These comprise infectious disease outbreaks, natural hazards, unsafe food and water, chemical and radiation incidents, antimicrobial resistance, the effects of climate change, and other sources of risk.

Developments such as climate change, unplanned urbanization, population growth, migration and state fragility are increasing the frequency, severity and impacts of many types of public health disasters throughout the world.

India has faced many public health disasters in recent cases of Nipah, Zika, Chikungunya and Avian Influenza outbreak along with Japanese Encephalitis among children in Bihar.

Most common response to Public Health disaster:

- **Risk Assessment:** A multi-disciplinary central team from the National Centre for Disease Control to investigate and respond, in close coordination with state government officials.
- **Emergency preparedness:** Syndromic surveillance enhancement. Hospital and community surveillance strengthening. Involvement of national testing laboratories like National Institute of Virology conducted laboratory testing to confirm and rule out cases.
- **Response and Recovery:** Specific guidelines such as case definitions; guidelines for hospital infection prevention and control; guidelines for sample collection and transportation; clinical management guidelines for suspected and confirmed cases; guidelines for safe disposal of dead bodies; and information for the general public and for health care personnel. Risk communication messages to the community, public, partners and other stakeholders.
- **Training and capacity building for health care personnel in the following areas:** sample collection and transportation; safe disposal of dead bodies; contact tracing; hospital waste management; hospital infection prevention and control; and the use of personal protective equipment.
- **Multisectoral and multidisciplinary approach:** The government coordination amongst all relevant sectors including zoonoses, wildlife, animal husbandry, human health, clinicians, pulmonologists, neurologists, biologists and private sector.
- **Disease Surveillance system with common control room:** The Strategic Health Operations Centre (SHOC) at the National Centre for Disease Control to monitor the outbreak.

The management of these risks is vital to protect people's health from emergencies and health disasters, to ensure local, national and global health security, to attain UHC and to build the resilience of communities, countries and health systems.

Preparedness measures are necessary to deal in emergencies of public health disasters. It is important for implementing the SDGs, including the pathway to Universal Health Coverage and target 3d to "strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks."

Section: Prelims Oriented News

GARBH-ini – A Mission to promote Maternal and Child Health and develop prediction tools for pre-term birth

Launch of WHO India Country Cooperation Strategy 2019–2023

The Country Cooperation Strategy (CCS) provides a strategic roadmap for WHO to work with the Government of India towards achieving its health sector goals, in improving the health of its population and bringing in transformative changes in the health sector.

Four areas identified for strategic cooperation of WHO with the country encompass:

- To accelerate progress on UHC
- To promote health and wellness by addressing determinants of health
- To protect the population better against health emergencies
- To enhance India's global leadership in health

Besides the health priorities detailed in the strategy, focus needs to be given on other equally pertinent health areas of environmental and occupational health, accidents and road injuries, and good nutrition and food safety.

The implementation of this CCS will build on the remarkable successes in public health that India has demonstrated to the world. It's a great opportunity to showcase India as a model to the world in initiatives such as digital health, access to quality medicines and medical products, comprehensive hepatitis control program and Ayushman Bharat.

The India CCS is one of the first that fully aligns itself with the newly adopted WHO 13th General Programme of Work and its 'triple billion' targets, the Sustainable Development Goals (SDGs) and WHO South-East Asia Region's eight Flagship Priorities. It captures the work of the United Nations Sustainable Development Framework for 2018–2022. The CCS outlines how WHO can support the Ministry of Health & Family Welfare and other allied Ministries to drive impact at the country level. The strategy document builds on other key strategic policy documents including India's National Health Policy 2017, the many pathbreaking initiatives India has introduced — from Ayushman Bharat to its National Viral Hepatitis programme and promotion of digital health amongst others.

SABLA Scheme for Adolescent Girls

- Enable the Adolescent girls for self-development and empowerment
- Improve their nutrition and health status.

- Promote awareness about health, hygiene, nutrition, adolescent reproductive and sexual health (ARSH) and family and child care.
- Mainstream out of school adolescent girls into formal/non formal education.
- Provide information/guidance about existing public services such as PHC, CHC, Post Office, Bank, Police Station, etc.

National Technical Board on Nutrition (NTBN)

- It has been constituted to make technical recommendations on policy-relevant issues on nutrition.
- The role of the board is advisory in nature.
- It has to advise the states and UTs on preventive measures and management of SAM children.
- The board has to coordinate the collation, synthesis of existing scientific and operational research, identify research gaps and make technical recommendations for the research agenda.
- It has to provide technical guidance on the design of nutrition surveys proposed by the states/UTs, other sectors and institutions and their coherence with ongoing National Health and other surveys.
- It has to formulate India specific growth indicators including stunting.

NITI Aayogs's PPP Policy for Health Sector

- The PPP plan drafted by NITI Aayofg involves linking private medical colleges with the government district hospitals, in which the **private entities can convert half of the hospital beds into paid beds**
    - **Reason**: Limited resources available with the Union and State governments

- **Criticism:** Regressive model which commercialises the already small public health system

- It would further reduce access to public health institutions: especially when o**nly 25% of non-hospitalised and 45% of hospitalised patients seek health care from public health institutions**
    - Increases out-of-pocket health expenditure of Citizens

Low Immunisation Coverage

The immunization coverage in the country is at 92.2% (as per HMIS for April 2019 to Dec 2019). However there are still pockets of low coverage –

- Lack of awareness of benefit of Immunization

- Apprehensions of Adverse Effect Following Immunization (AEFI)
- Travelling of children
- Refusal for vaccination
- Operational gaps

To mitigate the identified reasons of low immunization coverage, strategic interventions like advocacy, social mobilization, community engagement, inter personal communication at family level and media engagement are undertaken.

The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) aims at correcting the imbalances in the availability of affordable healthcare facilities in different parts of the country in general, and augmenting facilities for quality medical education in the under-served States in particular.

Mahatma Gandhi's View on Sanitation

"Everyone is His Own Scavenger" - Cleanliness is a personal responsibility and the key to removing untouchability.

"The Scavenger's Work Must be Our Special Function in India"

"Swaraj Ought to Begin with Our Streets"

"**Sanitation is More Important than Independence**"

Prelims oriented Questions

Consider the following statements about Central Water Commission

1. It is a premier technical organization of India in the field of Water Resources, formed via notification in 1975
2. It is presently functioning as an attached office of the Ministry of Home Affairs

Which of the above statement(s) given above is/are correct?

a. **1 only**

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

Regarding "carbon credits", which one of the following statements is not correct?

(a) The carbon credit system was ratified in conjunction with the Kyoto Protocol

(b) Carbon credits are awarded to countries or groups that have reduced greenhouse gases below their emission quota

(c) The goal of the carbon credit system is to limit the increase of carbon dioxide emission

(d) Carbon credits are- traded at a price fixed from time to time by the United Nations Environment Programme

Consider the statements with reference to 'Blue Carbon'

(a) It is carbon stored in coastal, terrestrial and marine ecosystem

(b) The Blue Carbon Initiative currently focuses on carbon in coastal and terrestrial ecosystems – mangroves, tidal marshes, sea grasses and forests

(c) The rates of blue carbon sequestration and storage capacities in ecosystems are comparable to (and often higher than) those in carbon-rich terrestrial ecosystems such as tropical rainforests and peatlands.

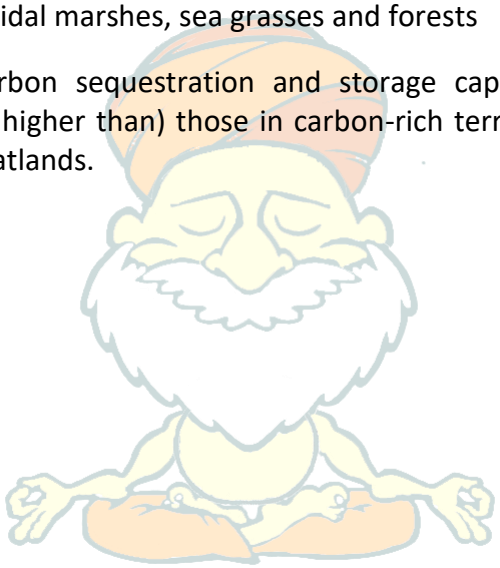
Correct code/s

(a) Only 1

(b) Only 3

(c) 2 and 3

(d) 1,2 and 3



Jatayu Conservation Breeding Centre is located in which State/Union Territory of India?

a. Uttar Pradesh

b. Bihar

c. Haryana

d. Andaman & Nicobar Islands

Global Migration Report is released by which organisation/body?

a. World Economic Forum

b. World Bank

c. **International Organization for Migration (IOM)**

d. None of the above

All the best ☺