

# The Analyst

## **CURRENT AFFAIRS Handout**

25th March 2025



## Food wastage



**CONTEXT** Alarmingly, India ranks among the top contributors to this global food wastage issue.

## Important terms

Food Loss (Dry matter + Quality)

Infra

Logistics

Tech

Natural Disasters

Food Waste (Spoilage/ Expiry)

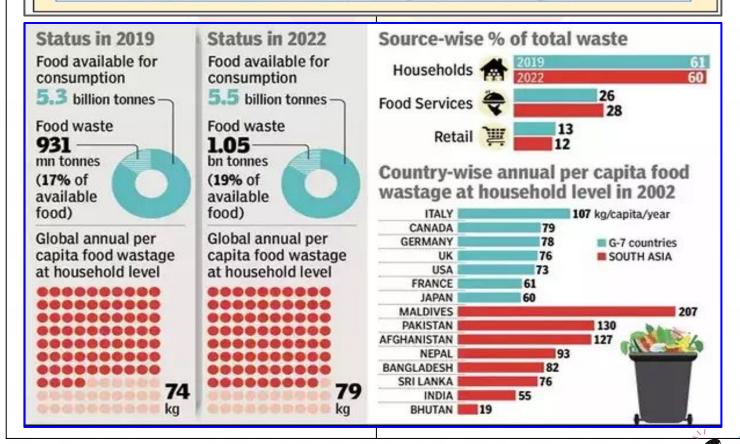
Mkt forces

Consumers

**Eating habits** 

Food Wastage

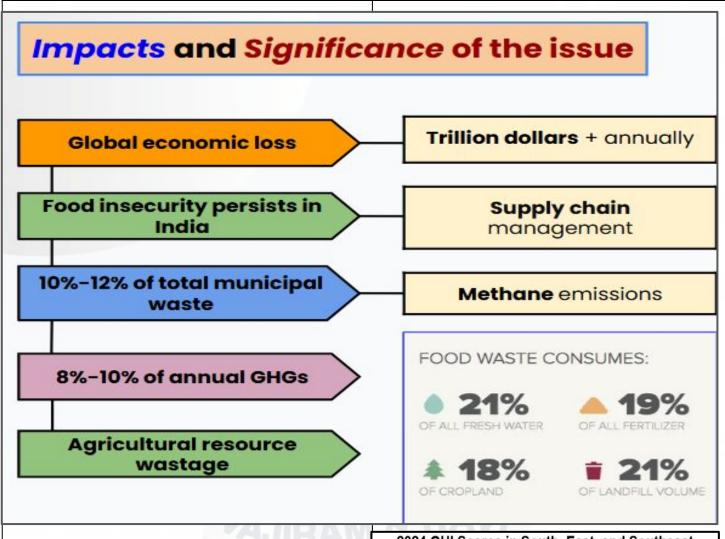
Food wastage, as defined by FWIR 2024, includes edible and inedible parts discarded from the food supply chain, from manufacturing and retail to restaurants and households. This differs from food loss, which occurs earlier in the supply chain due to issues such as poor storage,

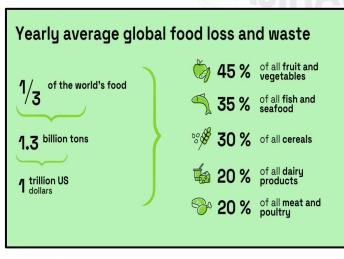


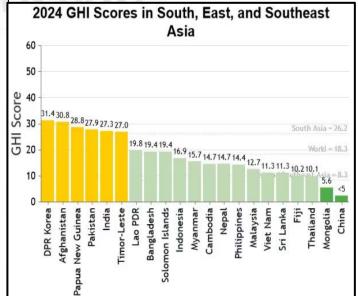
### **Food wastage**



**CONTEXT** Alarmingly, India ranks among the top contributors to this global food wastage issue.





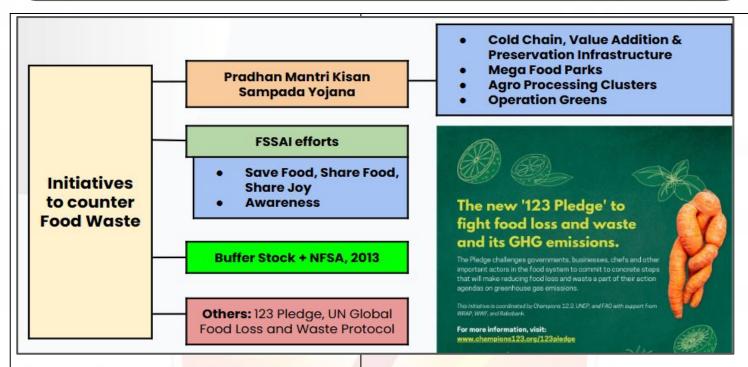




## **Food wastage**



**CONTEXT** Alarmingly, India ranks among the top contributors to this global food wastage issue.



#### **Solutions @ SYSTEMIC Levels**

- Government Initiatives
  - Farming related
  - Cold storage + Transport
  - Strengthen regulations
  - Food rescue programs
- Business and Retail Sector
  - Food redistribution
  - Food labelling
  - o **Inventory** management
  - Zero-waste policies
- Educational Awareness

#### **International EFFORTS**

- France's Anti-Food Waste Law (2016)
- Denmark's 'WeFood' Stores

#### **Solutions @ INDIVIDUAL level**

- Smart Meal Planning & Shopping
- Efficient Storage
- Creative Use of Leftovers
- Composting
- Food banks and charities

#### MAINS PRACTICE QUESTION

The key is not just increasing food production but optimizing existing resources. Comment.

(15 Marks, 250 words)

### Environmental impact of food loss and waste



Food loss and waste is responsible for about 8% of global greenhouse gas (GHG) emissions



Volume of **water** used to produce lost or wasted food is equivalent to three times the volume of **Lake Geneva** 



Nearly **30%** of the world's **agricultural land** is currently occupied to produce food that is ultimately never consumed



If food use and **distribution** is better managed, **14%** of all **GHG emissions** from **agriculture** could be avoided by 2050



## Food wastage



**CONTEXT** Alarmingly, India ranks among the top contributors to this global food wastage issue.

## **UPSC PYQ (P) 2018**

With reference to the provisions made under the National Food Security Act, 2013, consider the following statements:

- The families coming under the category of 'below poverty line (BPL)' only are eligible to receive subsidised food grains.
- The eldest woman in a household, of age 18 years or above, shall be the head of the household for the purpose of issuance of a ration card.
- Pregnant women and lactating mothers are entitled to a 'take-home ration' of 1600 calories per day during pregnancy and for six months thereafter.

Which of the statements given above is/are correct?

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

## **UPSC PYQ (P) 2016**

Which of the following is/are the indicator/ indicators used by IFPRI to compute the Global Hunger Index Report?

- 1. Undernourishment
- 2. Child stunting
- 3. Child mortality

Select the correct answer using the code given below.

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





## Localised urban agenda



<u>CONTEXT</u>: India is on the cusp of an **urban metamorphosis**; however, India's urban future is shaped by blueprints drawn far from the streets where people live.

### India's <u>Urban Evolution</u>

JNNURM (2005-2014)	Infrastructure + governance reforms
Pradhan Mantri <b>Awas Yojana</b>	Affordable housing
AMRUT Cities	Water supply, sewage
Swachh Bharat Mission	Sanitation and waste management
Smart Cities Mission	Improve the <b>quality of life</b> in 100 selected cities
<b>Metro</b> Projects	High-cost infrastructure

<u>Criticism</u>: These schemes follow a <u>top-down approach</u>





Ensuring A Planned Urban Transformation
Atal Mission for
Rejuvenation and
Urban Transformation
(AMRUT)

Launched on 25th June. 2015



500 cities (ULBs) with a population of one lakh or more covering approx. 60% of urban population in the country



Total outlay of ₹1 lakh crore including Central Assistance of ₹50,000 crore (from 2015-2016 to 2019-2020)

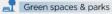


Thrust areas include:



Sewerage & septage management

Storm water drainage



Non-motorized urban transport

Capacity building



#### <u>Centre vs. State</u> Role in Urbanisation

#### WHY/ HOW does the Centre intervene?

- Cities are "engines of economic growth"
- Infra-led development (metros, highways)
- Urban funding via centrally sponsored schemes

#### **<u>Finance Commission</u>** Conditionalities

- 15th FC (2021-26): tied grants to reforms
- Reduces city autonomy

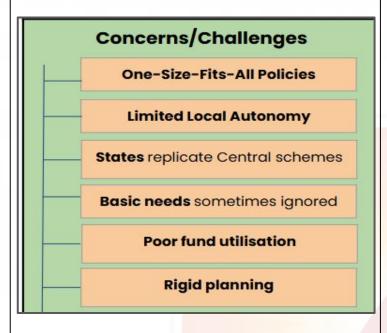




## Localised urban agenda



**CONTEXT**: India is on the cusp of an **urban metamorphosis**; however, India's urban future is shaped by blueprints drawn far from the streets where people live.



#### The future lies in:

- ✓ Empowered city governments.
- ✔ Responsive governance.
- ✔ Flexible financial devolution

#### MAINS PRACTICE QUESTION

India's urbanisation is diverse, and centralised missions cannot address local variations. How far do you concur with this statement? Analyse.

(15 Marks, 250 words)

#### **Way Forward**

#### **Financial Devolution Reform**

- 70% of urban funds be directly transferred to States
  - Role of State Finance
     Commissions
- 30% retained for national priorities

#### Empowering Local Governance

- City governments as primary decision-makers
- Community participation
  - Participatory budgeting
- Flexible, demand-driven governance

## <u>Decentralised, Need-Based</u>

### <u>Planning</u>

- City-specific fund allocation
- Local govts: investment priorities
- Knowledge agencies in evidence-based policymaking
  - ✓ Locally-driven development

(not top-down impositions)

✓ Efficient resource allocation

(funds based on city needs)

Sustainable & inclusive growth

(people-centric planning)



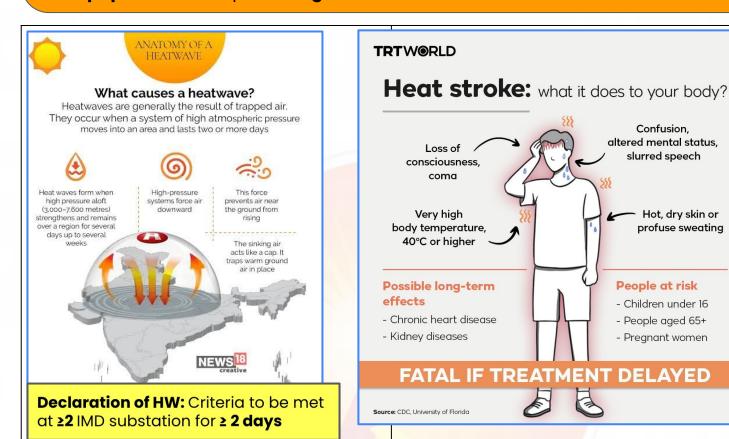


### **India's Heat Action Plans**



**SYLLABUS:** GS 3: Environmental pollution and degradation

**Newspaper: INDIAN Express Page No: 16** 

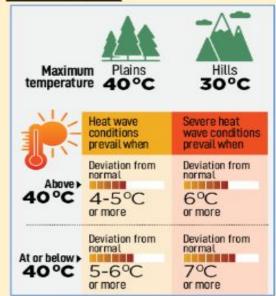


#### What are HEAT WAVES?

NDMA: Period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the North-Western parts of India.

- Between March and June
- Rare cases: extend till July

#### **IMD** criteria



#### **Recorded** Temperature

- Heatwave: ≥45°C
- Severe heatwave: ≥47°C

Coastal Conditions (≥37°C; ≥4.5°C)





### **India's Heat Action Plans**



**SYLLABUS:** GS 3: Environmental pollution and degradation

Newspaper: iNDIAN Express Page No: 16

#### What is a Heat Action Plan?

#### Early warning system

#### Preparedness plan

"The Plan presents immediate as well as longer-term actions to increase preparedness, information-sharing, and response coordination to reduce the health impacts of extreme heat on vulnerable populations,"

- NDMA implementing HAPs in 23 states
  - State Govt. collaboration
- Key Components of a Heat Action Plan

**Heatwave forecasts** 

Training medical staff

Guidelines on heat-related illnesses; Tree plantation drives **Public alerts** 

Cooling centers/ Water stations

Cool roofs, green spaces, shaded walkways

by Delhi-based research organisation Sustainable Futures Collaborative (SFC).

The analysis, 'Is India Ready for a Warming World? How Heat Resilience Measures Are Being Implemented for 11% of India's Urban Population in Some of Its Most At-Risk Cities', was authored by researchers at SFC, King's College London, and the Universities of Harvard, Princeton, and California.

### Findings of analysis

Although all nine cities had shortterm emergency measures such as access to drinking water and changing work schedules, long-term actions were either absent or were poorly implemented, the study said.

Long-term measures such as "making household or occupational cooling available to the most heat-exposed, developing insurance cover for lost work, expanding fire management services for heat waves, and electricity grid retrofits to improve transmission reliability and distribution safety" were missing in all cities, according to the study.





### **India's Heat Action Plans**



**SYLLABUS:** GS 3: Environmental pollution and degradation

Newspaper: iNDIAN Express Page No: 16

Actions like expansion of urban shade and green cover and creation of open spaces that dissipate heat were implemented without focusing on populations and areas that experienced the greatest heat risk, the analysis said.

It also noted that long-term strategies that were being implemented focused largely on the health system, and not on prevention.

More funding was required to implement long-term actions, the study found. It noted that possibilities of long-term action were limited by institutional constraints.

"The top problem identified by respondents was local coordination between government departments, both within and between municipal, district, and state government departments," the study said.

#### **CHALLENGES of HAPs**

Assessment of Socio economic differences/ Real
time data

"HAPs static in nature"

Weak legal backing

Inconsistent methods across
States

## Q. What are the possible limitations of India in mitigating global warming at present and in the immediate future? (2010)

- 1. Appropriate alternate technologies are not sufficiently available.
- 2. India cannot invest huge funds in research and development.
- Many developed countries have already set up their polluting industries in India

## Which of the statements given above is/are correct?

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



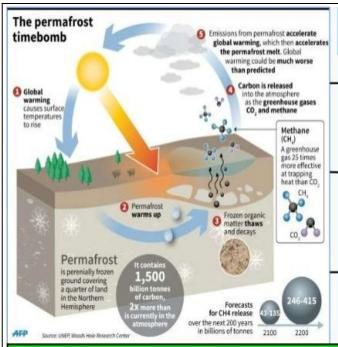


## J&K Permafrost study



**SYLLABUS**: **GS3**- Conservation

Newspaper: The Hindu Page No: Science II



#### What is a <u>PERMAFROST</u>?

Permafrost is any ground (soil, rock, sediment) that remains

Туре	Description	Example Regions
Continuous	>90% frozen ground	Arctic, Ladakh (high-altitude zones)
Discontinuous	50-90% frozen	Parts of Kashmir, Siberia
Sporadic	<50% frozen	Himalayan foothills

#### Why is Permafrost Important?

- Massive carbon reserves
- "Glue" holding rocks and soil
- Influences water cycles

#### Why is Permafrost Melting?

- PRIMARY: Global warming
- Human Activities
- Deforestation → Less shade → Faster thawing
- Construction → Disturbs frozen ground
- <u>Wildfires</u> → Darkens surface → Absorbs more heat

#### **Planning for permafrost**

The experts suggested that while existing roads cannot be closed, the construction of future ones should be informed by the presence or absence of permafrost. This could be a long-term strategy to ensure

#### Consequences of Thawing

#### **Environmental Impacts**

- Carbon Bomb Effect
  - Methane (CH₄) & CO₂ → +ve
     Feedback loop
- Glacial Lake Outburst Floods
  - 65/332 proglacial lakes in J&K risky
  - 2023 South Lhonak Lake (Sikkim) GLOF
- Landslides & Rock-Ice Avalanches
  - 2021 Chamoli Disaster (Uttarakhand)

#### Socio-Economic Risks

- Infrastructure Damage
- Water Security Threats
- Hydropower Vulnerability

According to Rashid, while environmental impact assessments are conducted for projects like hydroelectric power projects, whether they adequately account for GLOFs and other cryospheric hazards is unclear. "Increased awareness of permafrost-related risks has only emerged following major disasters. Previously, GLOFs were primarily associated with Nepal, but events such as the Kedarnath disaster, the South Lhonak Lake outburst, and incidents in Ladakh have highlighted their broader relevance,"



## J&K Permafrost study



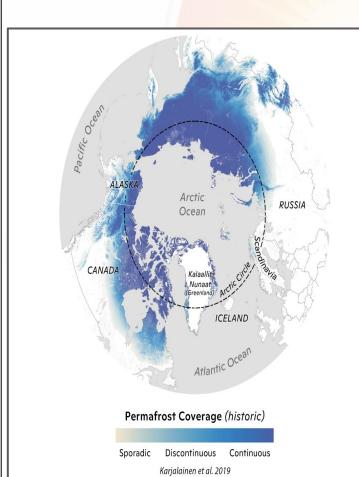
<u>SYLLABUS</u>: GS3- Conservation

Newspaper: The Hindu Page No: Science II

"Households in permafrost-rich regions face varying degrees of risk," he added. "In Ladakh, steep slopes containing permafrost are home to residential settlements. Military infrastructure in Ladakh is at risk, posing concerns for national security. Many strategic roads pass through permafrost zones, and their degradation due to permafrost thaw or mass wasting could have severe implications for connectivity."

"We mostly rely on satellite remote sensing to monitor land surface temperatures," Kamal added.

"However, there is currently no *in-situ* monitoring in these regions. Deploying data loggers in the same catchment areas would allow us to track temperature fluctuations more accurately. These data loggers could also help calibrate satellite data and identify any biases, making permafrost monitoring more precise and reliable."



#### **UPSC PYQ (P) 2019**

Which of the following statements is/are correct about the deposits of 'methane hydrate'?

- Global warming might trigger the release of methane gas from these deposits.
- Large deposits of 'methane hydrate' are found in Arctic Tundra and under the sea floor.
- Methane in atmosphere oxidizes to carbon dioxide after a decade or two.

Select the correct answer using the code given below.

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

### UPSC PYQ (M) 2021

How do the melting of the Arctic ice and glaciers of the Antarctic differently affect the weather patterns and human activities on the Earth? Explain.





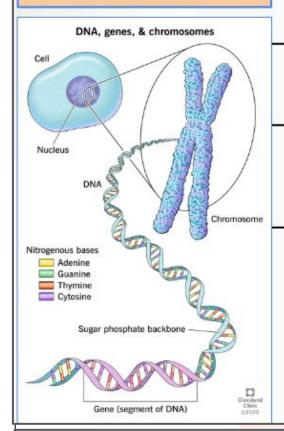
## **DNA Polymorphisms**



**SYLLABUS:** GS-3: Awareness in fields of S&T

Newspaper: The Hindu Page No: 9

#### **DNA Structure**



**Polymorphisms:** Small variations in DNA sequences that differ between individuals

**Short Tandem Repeats:** Repeating DNA sequences (e.g., GATC GATC GATC).

- No. of repeats varies between individuals
- Unrelated people will have different STR lengths

#### What is DNA Fingerprinting?

- Unique biological identifier
- Based on genetic code
- <u>Identical twins</u>: only people with same DNA fingerprint

#### It is used for

- Forensics
- Paternity/Maternity tests
- Disaster victim identification
- Organ transplant matching

#### **DNA Fingerprinting**

#### **Step 1: DNA Extraction**

- A drop of blood Ø
- Cheek swab (saliva)
- Hair root (with cells)
- · Old bones or teeth

#### Step 3: Capillary Electrophoresis

- DNA fragments are separated by size using an electric field.
- Detection: A laser reads fluorescent-tagged DNA fragments

#### Step 2: PCR (Polymerase Chain Reaction)

- Purpose: Millions of copies of STR regions.
- Process:
  - 1. Heat it up: Denaturation (95°C) (DNA unzips)
  - Cool it: Annealing (60°C) (Tiny "primers" stick)
  - 3. Warm it slightly: Extension (72°C)
- Result: Billions of DNA copies in 1-2 hours

#### Step 4: Creating the DNA Profile

- STR lengths are recorded for 13-20 genetic markers.
- Example:

STR Marker	Father's Copy	Mother's Copy
D3S1358	15 repeats	17 repeats
TH01	7 repeats	9 repeats

This table = DNA fingerprint (unique to each person)





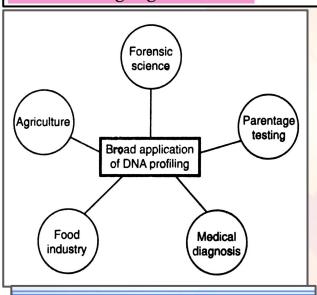
## **DNA Polymorphisms**



**SYLLABUS:** GS-3: Awareness in fields of S&T

Newspaper: The Hindu Page No: 9

DNA fingerprints can establish parent/child relationships and help identify individuals from their mortal remains at disaster sites. DNA from blood stains, sweat, and spit from cloth or soil, retrieved from crime scenes, can be used to identify suspects. Experts also use them to identify or exclude potential donors during organ donation.



#### **UPSC PYQ (P) 2022**

## Consider the following statements: DNA Barcoding can be a tool to:

- 1. assess the age of a plant or animal.
- distinguish among species that look
   alike
- identify undesirable animal or plant materials in processed foods.

## Which of the statements given above is/are correct?

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

DNA is very stable. Scientists have extracted it almost intact from 65,000-year-old human remains preserved only by desiccation or cold. Many 'cold cases' have been solved by examining new profiles made from DNA extracted from crime scene materials in the archives. DNA fingerprints have also exonerated wrongly accused convicts.

## **UPSC PYQ (P) 2019**

With reference to the recent developments in science, which one of the following statements is not correct?

- (a) Functional chromosomes can be created by joining segments of DNA taken from cells of different species.
- (b) Pieces of artificial functional DNA can be created in laboratories.
- (c) A piece of DNA taken out from an animal cell can be made to replicate outside a living cell in a laboratory.
- (d) Cells taken out from plants and animals can be made to undergo cell division in laboratory petri dishes.





## **Bullet train mishap**

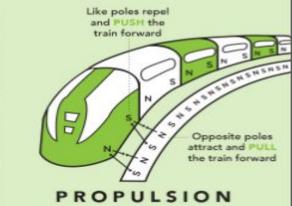


SYLLABUS: GS 3- Railways

Newspaper: The Hindu Page No: 12

# National High-Speed Rail Corporation Limited Like poles repel and PUSH the train upward Like poles repel and PUSH the train forward

LEVITATION



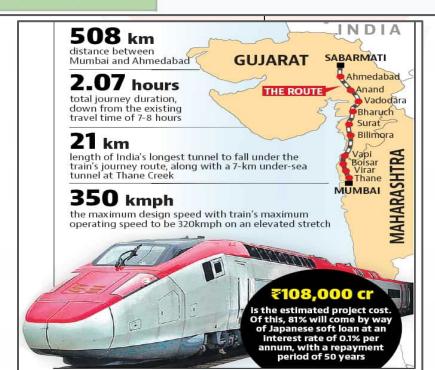
#### Shinkansen Technology

#### **Aerodynamic Shape**

Automatic Train Control Earthquake Detection Pressure-Sealed Cabins **Electric Multiple Units** 

**Regenerative Braking** 

**Belt and Road Initiative** 







## **Bullet train mishap**



SYLLABUS: GS:3- Railways

Newspaper: The Hindu Page No: 12

## **PROGRESS REPORT**

With commercial operations scheduled to begin in 2027, here's how the work is progressing so far



≥ 100% land acquisition completed in Gujarat, Dadra & Nagar Haveli and Maharashtra

△ All civil engineering contracts awarded in Gujarat and Maharashtra

The laying of first RC track bed as used in Shinkansen has started in Surat and Anand

≥ First mountain tunnel (350m) completed in Valsad in 10 months; work on India's first undersea rail tunnel (7 km) has started in Mumbai

≥ First steel bridge (70m) erected across NH-53 in Surat; bridge works on six rivers completed ➤ Foundation work done for all eight stations in Gujarat

#### HIGH-SPEED TRAVEL

Running at a maximum speed of 320kmph, the bullet train will significantly reduce the travel time between Ahmedabad and Mumbai

#### BULLET TRAIN

2.07 hrs (two stops) 2.58 hrs (all 10 stops)

- ....

#### AIRPLANE

3.10 hrs (including the 2-hour check-in time)

RAIL 5-7 hrs



CAR 8 hrs



9.30 h



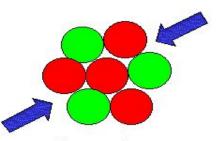
2023 postponed to 2028-2030

Land Acquisition (~75%)

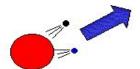
**Ecologically sensitive** zones

Financial Viability

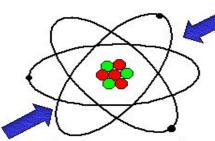
**Displacement** 



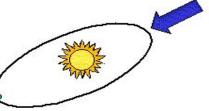
Strong force binds the nucleus



Weak force in radioactive decay



Electromagnetic force binds atoms



Gravitational force binds the solar system





#### **Dare2eraD TB**



SYLLABUS: GS 2- Health

Newspaper: The Hindu Page No: 12

### Types of Drug-Resistant TB

- Mono-resistance
- Poly-resistance (EXCL: isoniazid and rifampicin)
- Multidrug-resistant TB
- Extensively drug-resistant TB (amikacin, kanamycin, or capreomycin)

#### Causes of Drug Resistance

- Incomplete or improper treatment
- Direct transmission

### What is Dare2eraD?

The genome sequencing initiative, part of Data-Driven Research to Eradicate TB (Dare2eraD TB), an umbrella programme of the DBT, was launched in 2022 with a goal to sequence about 32,500 samples

Of the sequenced samples, 7% are said to be resistant to a single drug. The preliminary numbers were reported at an event organised by the DBT on Monday to mark World TB Day.

he Department of Biotechnology, under the Ministry of Science and Technology, has completed the genomic sequencing of a third, or 10,000 samples, of the target of 32,500 samples of Mycobacterium tuberculosis – the bacterium behind tuberculosis (TB) – in a bid improve the understanding of drug-resistant TB and capture unique genomic features of the bacterium in India.





#### **Dare2eraD TB**



SYLLABUS: GS:2- Health

Newspaper: The Hindu Page No: 12

Prime Minister Narendra Modi, in 2018, at the End TB Summit, claimed that India would "eradicate" tuberculosis in the country by 2025. This, he underlined, would be five years ahead of the World Health Organization's (WHO) target of 2030. India has the highest number of diagnosed TB cases and

from across the country. It is tied to the Centre's broader mission to eliminate TB. Nine labs of the DBT, the Council of Scientific and Industrial Re-

search (CSIR) and the Indian Council of Medical Research (ICMR) are involved in the programme as part of a consortium called Indian Tuberculosis Genomic Surveillance. Officials said they expected all the samples to be sequenced by October 2025.

In WHO parlance, 'eradicating' a disease means bringing the number of cases close to zero. "Eliminating TB," the WHO says, means getting the number down to about one in a million. As per the latest estimates, India has 1,990 cases per million in 2022, down from 2,370 per million in 2015.

India accounts for about 28% of new TB cases worldwide. This again, refers to those who have been clinically confirmed to

tially up to 3,000 per million, Dr. Soumya Swami-



## The Analyst Handout

## **Daily Quiz**



25th March, 2025

## Q1. Regarding the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), consider the following statements:

- 1. AMRUT was launched in June 2015 with a mission outlay of ₹50,000 crore to cover 500 cities across India.
- 2. The mission aims to ensure a 24/7 water supply in over 1,000 cities by 2024.
- 3. The funding for the AMRUT mission is shared between the central and state governments in a 60:40 ratio.

#### Which of the statements given above are correct?

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

#### Answer: a

## Q2. Regarding the 123 Pledge, consider the following statements:

- The 123 Pledge is an initiative introduced by the United Nations Environment Programme (UNEP) to encourage individuals and communities to contribute towards environmental sustainability.
- 2. The pledge emphasises 123 actions individuals can take to protect the environment, including reducing waste, conserving water, and supporting renewable energy.

#### Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

#### Answer: c

## Q3. Regarding Glacial Lake Outburst Floods (GLOFs), consider the following statements:

- GLOFs occur when a glacial lake's natural dam, typically made of ice or debris, fails, leading to the sudden release of a large volume of water.
- GLOFs are primarily a concern in the Arctic and Antarctic regions but have little impact in the Himalayan and other mountain ranges.

## Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

#### Answer: a

## Q4. Regarding heat waves in India, consider the following statements:

- A heat wave is declared when the maximum temperature exceeds 40°C in coastal areas and 45°C in interior areas of the country.
- 2. The NDMA has implemented Heat Action Plans (HAPs) in 23 states to mitigate the impact of heat waves on vulnerable populations.

## Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

#### Answer: b

## Q5. Regarding Tuberculosis (TB), consider the following statements:

- 1. Pulmonary TB is the most common type of tuberculosis and primarily affects the lungs, whereas extrapulmonary TB affects organs outside the lungs, such as the kidneys, bones, and brain.
- 2. Drug-resistant TB (DR-TB) occurs when the virus-causing TB develop resistance to the standard TB medications.

## Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

#### Answer: a







## **VAJIRAM & RAVI**

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