

THINK IAS

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For UPSC CSE

25 - 26 August 2024

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 **SAMYAK IAS, NEAR RIDDHI-SIDDHI, JAIPUR**

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Defence

17. Jet engines to munitions: India, US to speed up co-production - Indian Express

Geography

1. Mass Wasting - The Hindu

Relevance: Important Geophysical Phenomenon

Context

- **About:** Movements that carry rock debris down slopes because of gravity.
- **Speed:** Can be slow or fast .
- Types: Creep, flow, slide, and fall.
- Nature: Solely influenced by gravity and do not involve agents like water, glaciers, wind, or waves.
- Factors: Weak materials, steep slopes, and heavy rainfall. Thinly bedded rocks, cliffs, and lack of vegetation.

Slow Movements

Creep	Solifluction
<ul style="list-style-type: none"> ● Meaning: A slow and gradual movement of soil downhill. ● Factors: Freezing and thawing. 	<ul style="list-style-type: none"> ● Meaning: Process of slow downslope flowing of soil mass or fine-grained rock debris saturated/lubricated with water. ● Occurrence: Permafrost regions

Rapid Movements

Debris flow	<ul style="list-style-type: none"> ● Meaning: Occurs when the rock or soil mass loses coherency when lots of water is involved. ● Debris becomes mixed up completely and flows as liquid mud.
Mudflow	<ul style="list-style-type: none"> ● Meaning: Occurs when a liquid mass of soil, rock debris and water that moves quickly down a well defined channel. ● Occurrence: Mountainous semi-arid environments.
Debris avalanche	<ul style="list-style-type: none"> ● Meaning: A rapidly churning mass of rock debris, soil, water, and air that moves down steep slopes. ● Factors: Trapped air may increase the speed of an avalanche.
Landslides	<ul style="list-style-type: none"> ● Meaning: Movement in which the materials involved are relatively dry.

Society

2. What did the 2013 panel say on death penalty for rape? - The Hindu

Relevance: Salient features of Indian Society

Context

After the brutal rape and murder of a doctor on duty at Kolkata's R.G. Kar Medical College and Hospital on August 9, there has been a clamour of voices seeking the death penalty for the accused. The Justice J.S. Verma Committee recommendations, which led to the amendment of criminal laws in 2013, had specifically said it was not inclined to recommend the death penalty for rape even for the rarest of rare cases.

Justice Verma Committee

- **About:** It provided for enhanced sentences for rape, increasing it from 7 years to 10 years, 20 years, and life, but "short of death".
- **Stance on marital rape:** The Verma Committee endorsed the conclusion that a rapist remains a rapist regardless of his relationship with the victim.
- **Union government stance:** It refused to criminalise marital rape. Under the BNS, exception 2 of Section 63 states that "sexual intercourse or acts by a man with his wife, the wife not being under 18 years of age, is not rape."
- **Gender rights:** It pointed out that "the ethos of empowerment of women does not limit itself to political equality, but also extends, in equal terms, to social, educational, and economic equality."

HIGHLIGHTS

Justice JS Verma

Panel recommendations on **Sexual Crime Laws**

<ul style="list-style-type: none"> Amendment of various sections of IPC to provide sterner punishment But no death penalty proposed for rapist. Age of juvenile can remain at 18 Register every complaint of rape Eve-teasing, stalking, unsolicited sexual contact and voyeurism included Need for provisions to address sexual assault on homosexuals Crackdown on Khaps No politicisation of Law enforcement agencies Stopping politicisation of crime 	<ul style="list-style-type: none"> Ambiguity of the responsibility of law and order in Delhi must be removed Marital rape and rape of children at home must be prevented Sexual violence by personnel in uniform must be brought under common law An imminent need to review the continuance of AFSPA in areas as soon as possible Special commissioners for women's safety must be posted in conflict areas Necessary medical aid should not be delayed, even by private 	<ul style="list-style-type: none"> practitioners General laws related to detention of women during regular hours must be strictly followed Strong measures to ensure security and dignity of women in conflict areas Violation of equality of women is a constitutional violation All marriages must be registered, ensuring no dowry is demanded or taken Criminal law amendment bill 2012 should be amended Make journey in public transport safer, especially for women 	<ul style="list-style-type: none"> Juvenile homes have become breeding grounds of all sorts of sex crimes Government apathy towards missing children has to be shaken off, trafficking of minor children must be made a serious offence Non-discrimination for education for women and children must be ensured <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;"><i>What is needed to enforce laws is the sensitivity on the part of those who implement it</i></p> <p style="text-align: center;">(on tackling crime against women)</p> </div>
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PTI GRAPHICS

Crime & Punishment

The following are highlights of a report submitted by the **Justice Verma** Committee, constituted to recommend changes in laws to curb rapes and ensure safety of women:



- **No death** for rapist; minimum 7 years and maximum entire life behind bars
- **Chemical castration** rejected; mutilation of body not permitted by Constitution
- **Gang-rapists** should get minimum 20 years and a maximum of life sentence
- **Rape victim** should not be cross-questioned on moral character
- **Politicians** should be ineligible to contest if court has taken cognizance of crime
- **Armed Forces Special Powers Act** should be amended
- **No need** for sanction to prosecute force members involved in sexual crimes

JAIL TERMS FOR OTHER OFFENCES



Sexual touch:
Up to 5 yrs

Words, gestures,
sexual advances: **1yr**

Attempt to disrobe a
woman: **3-7 yrs**

Stalking: **1-3 yrs**

Voyeurism: **1-3 yrs,**
second conviction:
3-7 yrs

Human trafficking:
7-10 yrs

Trafficking of minor/
more than a person:
Life sentence

Acid attack:
10 yrs-life term

Polity

3. Increasing its share, Centre rolls out new plan, guarantees 50% of basic salary as pension - Indian Express/ UPS vs NPS vs OPS - Indian Express

Relevance: Parliament and State Legislatures—Structure, Functioning




Context

The Union Cabinet recently approved a new Unified Pension Scheme (UPS) for Central government employees which assures 50 per cent of the average salary drawn over the last 12 months of their service as pension.

Unified Pension Scheme

TO ENTAIL TOTAL SPEND OF ₹7,050CR

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> > Under UPS, 50% of average basic pay drawn over last 12 months guaranteed for those completing 25 yrs of service > On death of employee, family pension of 60% (of employee's pension) to be paid to spouse > Min pension of ₹10,000 a month for 10 years of service > Lump-sum payment for every year of service. > Periodic inflation adjustment | <ul style="list-style-type: none"> > Rollout from Apr 1, 2025, but will extend to past retirees > Will result in addl outgo of ₹6,250cr. Another ₹800cr to be spent in clearing arrears > Employees to get one-time option to switch from National Pension Scheme (NPS) to UPS > In NPS, pension based on returns from contribution invested in debt & equity. Not a guaranteed amount |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

<h3>OPS</h3> <p>"Guaranteed 50% of Last Drawn Salary" and "Dearness Allowance Adjustments."</p> <ul style="list-style-type: none"> ● Gratuity ● No Contribution ● Fixed Pension 	<h3>UPS</h3> <p>"50% of Average Basic Pay + Inflation Indexation" and "Guaranteed Pension, Family Benefits."</p> <ul style="list-style-type: none"> ● Assured Family Pension ● Inflation Protection ● Minimum Pension 	<h3>NPS</h3> <p>"Market-Linked Returns" and "No Guaranteed Pension."</p> <ul style="list-style-type: none"> ● Tax Benefits ● Employee Contribution ● Flexible Withdrawals 
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4. Classical Languages - The Hindu

Relevance: Parliament and State Legislatures—Structure, Functioning

Context

Recently, the centres for the promotion of classical Telugu, Odia, Kannada and Malayalam demand autonomy for proper functioning.

Criteria to be designated as a classical language

- **High antiquity of early texts**/recorded history spanning 1,500–2,000 years.
- **Possession of a body of ancient literature**/texts considered valuable heritage by generations.
- **Presence of an original literary tradition** not borrowed from another speech community.
- **The classical language and literature being distinct from modern**, there can also be a discontinuity between the classical language and its later forms or its offshoots.

Recognised Classical Languages

Sl. No.	Languages	Year of Declaration
1.	Tamil	2004
2.	Sanskrit	2005
3.	Telugu	2008
4.	Kannada	2008
5.	Malayalam	2013
6.	Odia	2014

Benefits of Classical Language Status

- **Two major international awards** annually for scholars of eminence in the language.
- **Establishment of a Centre of Excellence** for Studies in the Classical Language.
- **Requesting the University Grants Commission (UGC) to create Professional Chairs** in Central Universities dedicated to the classical language.

Environment

5. Kuno National Park - Indian Express

Relevance: Conservation, Environmental Pollution and Degradation



- **Location:** Sheopur district in Madhya Pradesh nestled near the Vindhyan Hills.
- **Naming:** Named after Kuno River (One of the main tributaries of the Chambal River) that cuts across it.
- **Designation:** Initially established as a wildlife sanctuary, in 2018, it was elevated to a national park.
- **Vegetation:** Grassland vegetation with a few rocky outcrops.
- **Flora:** Kardhai, Salai, and Khair trees, 123 tree species, 71 shrub species, 32 exotic and climbing species, and 34 bamboo and grass species.
- **Fauna:** Jungle cat, Indian leopard, sloth bear, Indian wolf, striped hyena, golden jackal, Bengal fox and dhole, 120 bird species.

6. Gir Speed Monitoring System - Indian Express

Relevance: Conservation, Environmental Pollution and Degradation

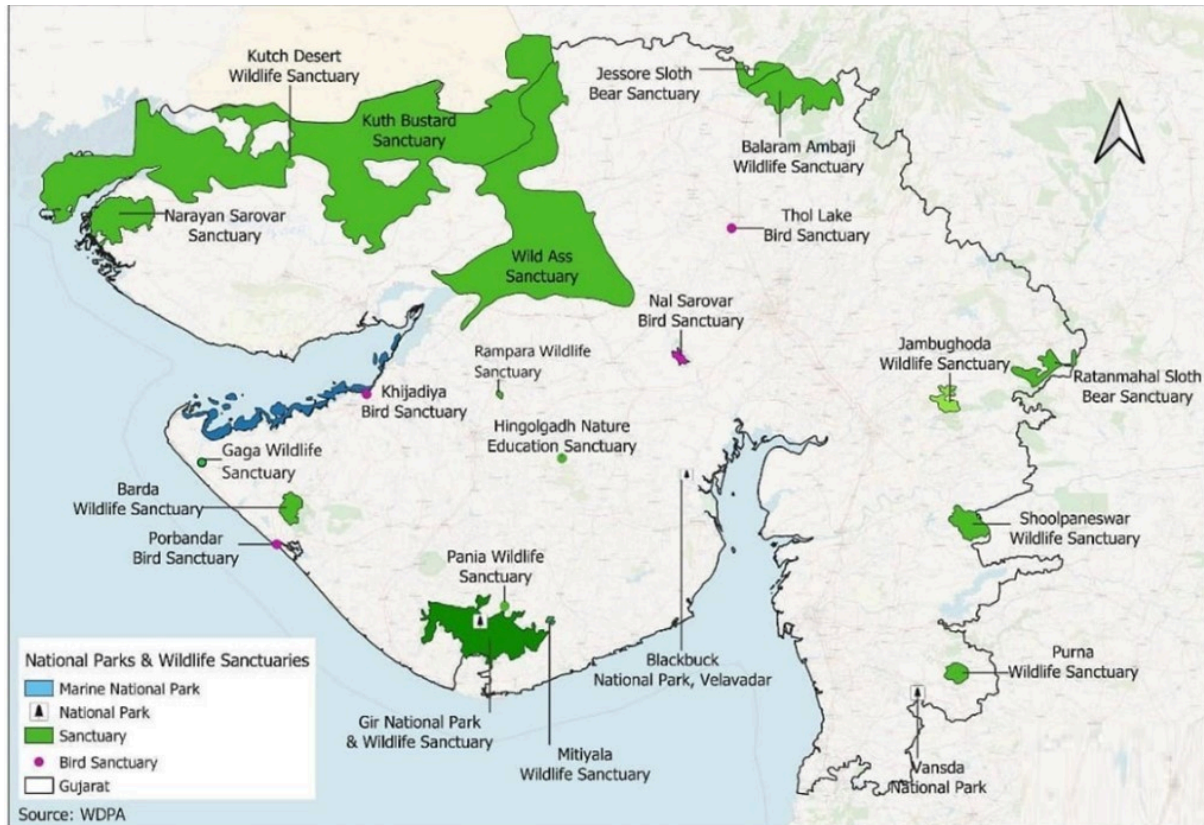
Context

To prevent death of wild animals and ensure safety of humans taking the roads criss-crossing Gir National Park and Wildlife Sanctuary (GNPWLS), the habitat of Asiatic lions, the Gujarat forest department has installed high-tech speed monitoring system as well as thermal and optical cameras along a 1-km stretch of state highway 26.

Gir Speed Monitoring System

- **Installation:** 54 cameras and 20 LED display units along the 1-km stretch installed.
- **Features of the cameras:** 16 thermal and optical cameras, 8 pan-tilt-zoom (PTZ) cameras and 4 automatic-number-plate-recognition (ANPR) cameras, four speed guns, & four strobe lights.
- **Control unit:** Integrated with the Gir Hi-Tech Monitoring Unit at Sasan – the headquarters of GNPWLS around 10 km away – through a dedicated network of cables.

Gir National Park and Wildlife Sanctuary (GNPWLS)



- **Location:** Junagadh district of Gujarat.
- **About:** The only natural habitat of Asiatic lions declared as a sanctuary in 1965 and a national park in 1975.
- **Vegetation:** The largest compact tract of dry deciduous forests in the semi-arid western part of India.
- **Community:** Maldharis- religious pastoral communities living in Gir whose settlements are called "nesses".

7. Govt announces three new Ramsar sites: Why do wetlands need protection? - Indian Express

Relevance: Conservation, Environmental Pollution and Degradation

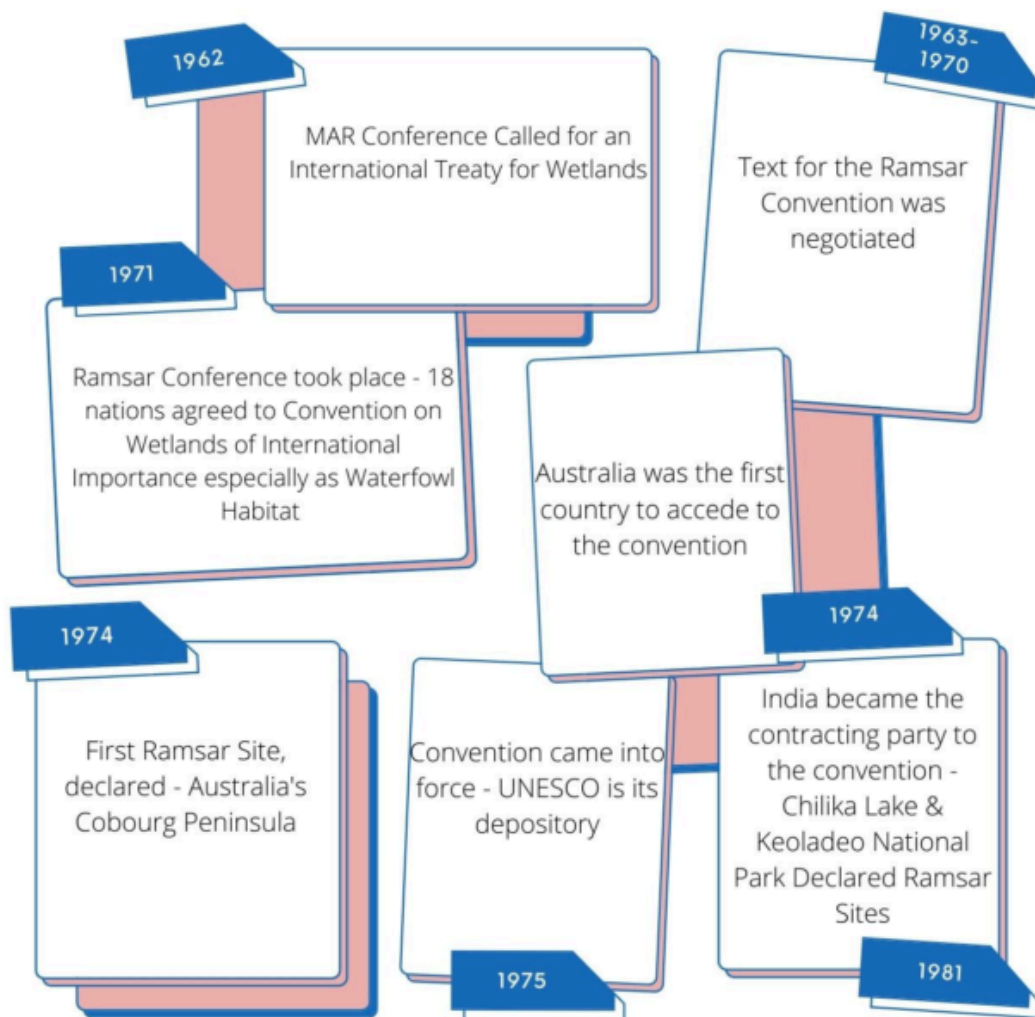
Context

Union Environment Minister recently announced three new Ramsar sites in Tamil Nadu and Madhya Pradesh, taking the total of such sites in India to 85. The new additions are the Nanjarayan Bird Sanctuary and the Kazhuveli Bird Sanctuary in Tamil Nadu, and the Tawa Reservoir in Madhya Pradesh.

RAMSAR CONVENTION

ADOPTED IN 1971

For the conservation of wetlands of national and international importance



Wetlands

- **Definition as per Ramsar convention:** Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.
- **Components:** Lakes, rivers, underground aquifers, swamps, marshes, and other major water bodies.
- **Benefits:**

- Help regulate climate conditions through carbon sequestration, that is, carbon storage from the atmosphere.
- Among the most productive ecosystems in the world, comparable to rainforests and coral reefs.
- An immense variety of species of microbes, plants, insects, amphibians, reptiles, birds, fish and mammals can be part of this ecosystem.

Ramsar sites

- **About:** An intergovernmental treaty signed in 1971 in Ramsar, Iran which encourages the protection and conservation of wetlands worldwide by designating them as such.
- **Signatories:** 172 signatory countries who are obligated to create wetland reserves and promote the wise use of wetland habitats.
- **India as a member:** India joined it in 1982, initially designating the Chilika Lake in Orissa and Keoladeo National Park in Rajasthan. Today, it has among the highest number of Ramsar sites in Asia.

Designation Of Ramsar Site

Criterion 1:- The wetland must contain a representative, rare or unique example of natural or near natural wetland type found within the appropriate biogeographic region.

Criterion 2:- The wetland must support vulnerable, endangered, or critically endangered species or threatened ecological communities.

Criterion 3:- The wetland must support populations of plant and or animal species important to maintain the biodiversity of a particular biogeographic region.

Criterion 4:- The wetland must support plant and or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Criterion 5:- The wetland must support 20,000 or more waterbirds.

Criterion 6:- The wetland must regularly support 1% of the individuals in a population of one species or subspecies of waterbird.

Criterion 7:- The wetland must support a significant proportion of indigenous fish subspecies,.

Criterion 8:- The wetland must be an important source of food for fishes, spawning ground, nursery.

Criterion 9:- The wetland must support 1% of the individuals in a population of one species of wetland dependent non-avian animal species.

New Ramsar sites

- **Nanjayanan Bird Sanctuary, Tamil Nadu:** Located on the banks of river Noyyal, it was originally a water reservoir for irrigation use but now serves various migratory birds flying along the Central Asian Highway.
- **Kazhuveli Sanctuary, Coromandel Coast:** One of the largest brackish water wetlands in south India & a home to many globally endangered species, like the black-headed ibis and greater flamingo. It is also a stopover for migratory birds along the East Asian-Australasian Flyway.
- **Tawa Reservoir, Madhya Pradesh:** Created by damming the Tawa River, the reservoir became a massive wintering ground for migratory birds.

Main threats plaguing wetlands

- **Unsustainable development:** An astonishing 87% of the world’s wetlands have been lost in the last 300 years to provide land for housing, industry and agriculture;
- **Pollution:** Around 80% of global wastewater is released into wetlands untreated, with pollution from factories, fertilisers, pesticides and major spills posing serious threats to the ecosystem;
- **Invasive species:** Wildlife in wetlands are particularly vulnerable to invasive species, are often introduced by humans, because water provides easy pathways for them to spread and grow; and
- **Climate change:** Changes in rainfall patterns and temperature pose an existential threat to wetlands, and the flora and fauna that inhabit them.

8. Nicobar project will not disturb or displace indigenous tribes, says Environment Minister - The Hindu

Relevance: Conservation, Environmental Pollution and Degradation

Context

The development of a port and airport in the pristine Nicobar islands “will not disturb or displace” any of the Shompen, one of the indigenous, vulnerable tribes native to the island, according to Environment Minister.

Shompen Tribe

Short to medium stature, have a round or nearly broad head shape, narrow nose, a broad facial profile, having Mongoloid features.

They speak their own language having many dialects. Members of one band do not understand the dialect of the other.

Pandanus fruit, which they call Iarop.

Semi-nomadic hunter-gatherers and their main sources of livelihood are hunting, gathering, fishing, and horticultural activities.

They live in small groups.

Nomadic & typically set up forest camps where they live for a few weeks or months.

Nuclear families comprising husband, wife, and their unmarried children.

A Shompen family is controlled by the eldest male member, who controls all activities of the women and kids.

Monogamy is the general rule, although polygamy is allowed too.

Appearance:

Language:

Staple food:

Society:

Shompen Tribe

About:

One of the most isolated tribes on Earth & one of the least studied Particularly Vulnerable Tribal Groups (PVTGs) in India.

Distribution:

Dense tropical rain forests of the Great Nicobar Island of A&N group of Islands.

Biological hotspot:

Campbell Bay National Park, Galathea National Park, and Great Nicobar Biosphere Reserve.

Population:

The estimated population of Shompen is 229, as per Census 2011.

Great Nicobar Island Project



- **About:** A mega project to be implemented at the southern end of the Andaman and Nicobar islands.
- **Components:** An international container transshipment terminal, a greenfield international airport, township development, and a 450 MVA gas and solar based power plant over an extent of 16,610 hectares in the island.

Great Nicobar

- **About:** Southernmost island of the Nicobar Islands Archipelago.
- **Area:** 1,03,870 hectares
- **Vegetation:** Tropical evergreen forest ecosystems.
- **Flora:** 650 species of angiosperms, ferns, gymnosperms, bryophytes, etc.
- **Fauna:** Over 1800 species, some of which are endemic to this area.
- **Tribes:**
 - Mongoloid Shompen Tribe.
 - Mongoloid Tribe, Nicobarese

Which one of the following pairs of islands is separated from each other by the 'Ten Degree Channel'? (2014)

- A. Andaman and Nicobar
- B. Nicobar and Sumatra
- C. Maldives and Lakshadweep
- D. Sumatra and Java

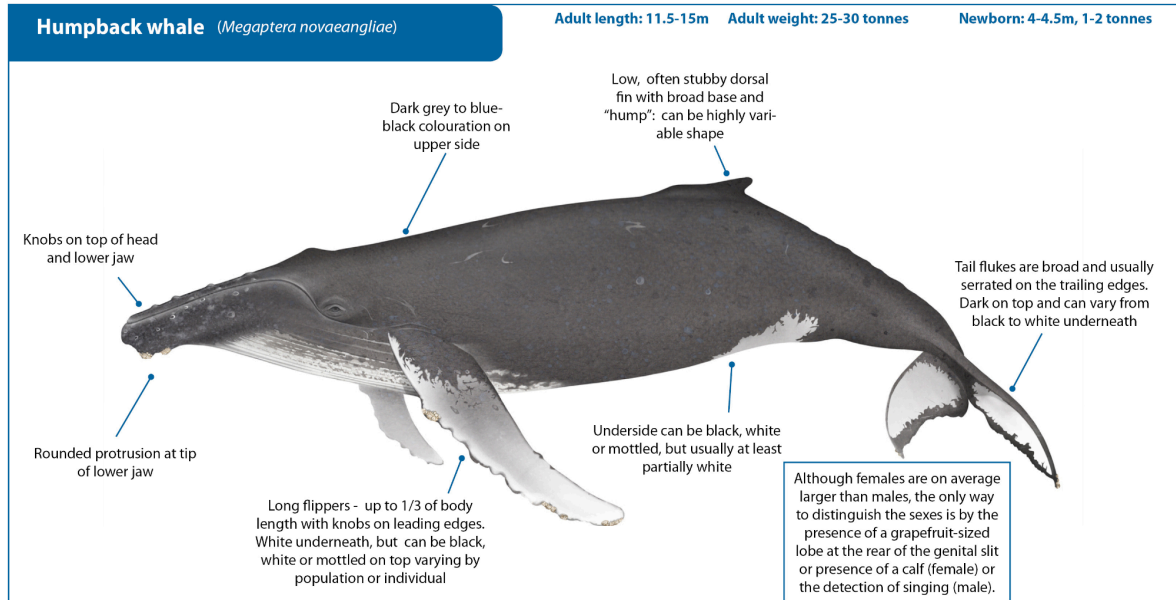
9. Humpback Whales - The Hindu

Relevance: Conservation, Environmental Pollution and Degradation

Context

Researchers have now found that humpback whales do not just create the 'bubble-nets' but they manipulate this unique tool in a variety of ways to maximise their food intake in Alaskan feeding grounds.

Humpback Whales



- **Scientific Name:** *Megaptera novaeangliae*
- **Naming:** Named because of the shape of the hump on its dorsal fin and the distinctive look of its back when diving.
- **Distribution:** All oceans and have one of the longest migrations of any mammal on the planet.
- **Size:** Range from 12 to 16 metres in length and weigh ~ 36 metric tons.
- **Feeding habits:** They use bubble netting method in which bubbles are exhaled as the whale swims in a spiral below a patch of water dense with food. The curtain of bubbles confines the prey to a small area in the middle of which one or more whale's surface.
- **Lifespan:** 80 - 90 years.
- **IUCN Red List Status:** Least Concern

Sci and Tech

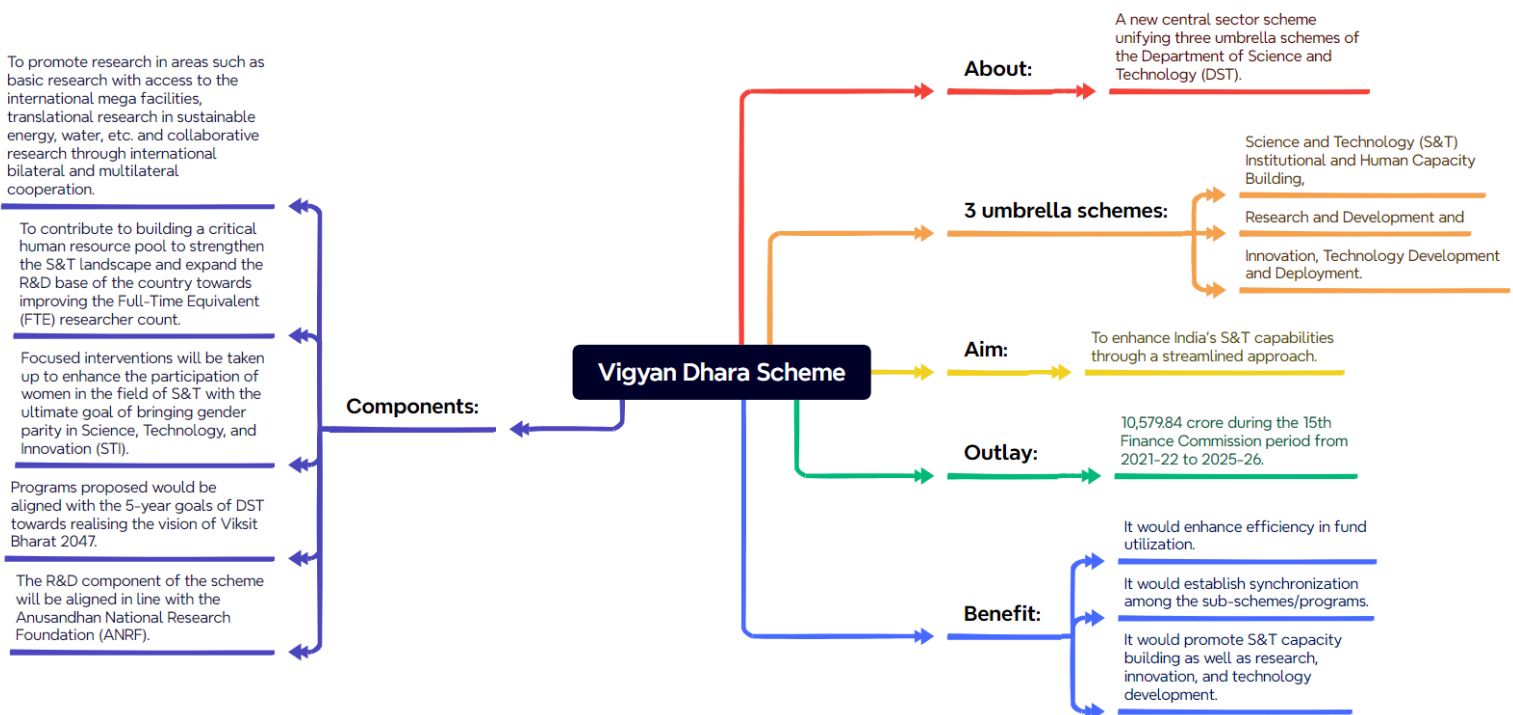
10. To boost research, Cabinet clears Vigyan Dhara, biotech initiatives - Indian Express

Relevance: Achievements of Indians in Science & Technology

Context

The Union cabinet recently greenlit two significant initiatives aimed at bolstering the country's scientific and biotechnological capabilities.

Vigyan Dhara Scheme



BioE3 (Biotechnology for Economy, Environment and Employment) Policy

- **Nodal Department:** Department of Biotechnology
- **Aim:** Fostering high-performance biomanufacturing.
- **High-performance biomanufacturing:** Ability to produce products from medicine to materials, address farming and food challenges, and promote manufacturing of bio-based products.
- **6 Thematic areas:**
 - Bio-chemicals, bio-enzymes, and bio-polymers, which will mainly have industrial, consumer, and scientific applications.
 - Smart proteins and functional foods that can complement land-based food production, reducing pressure on land resources.
 - Bio-therapeutics - Targeted therapy is emerging as the cutting-edge treatment for several genetic conditions and cancers.
 - Agriculture, supporting development of bio-fertilizers and bio-pesticides.

- Developing bio-fuels and bio-chemicals, especially those that are developed from captured carbon emissions. This will help in creating a circular economy.
- Marine and space application to focus on developing products from marine ecosystems.

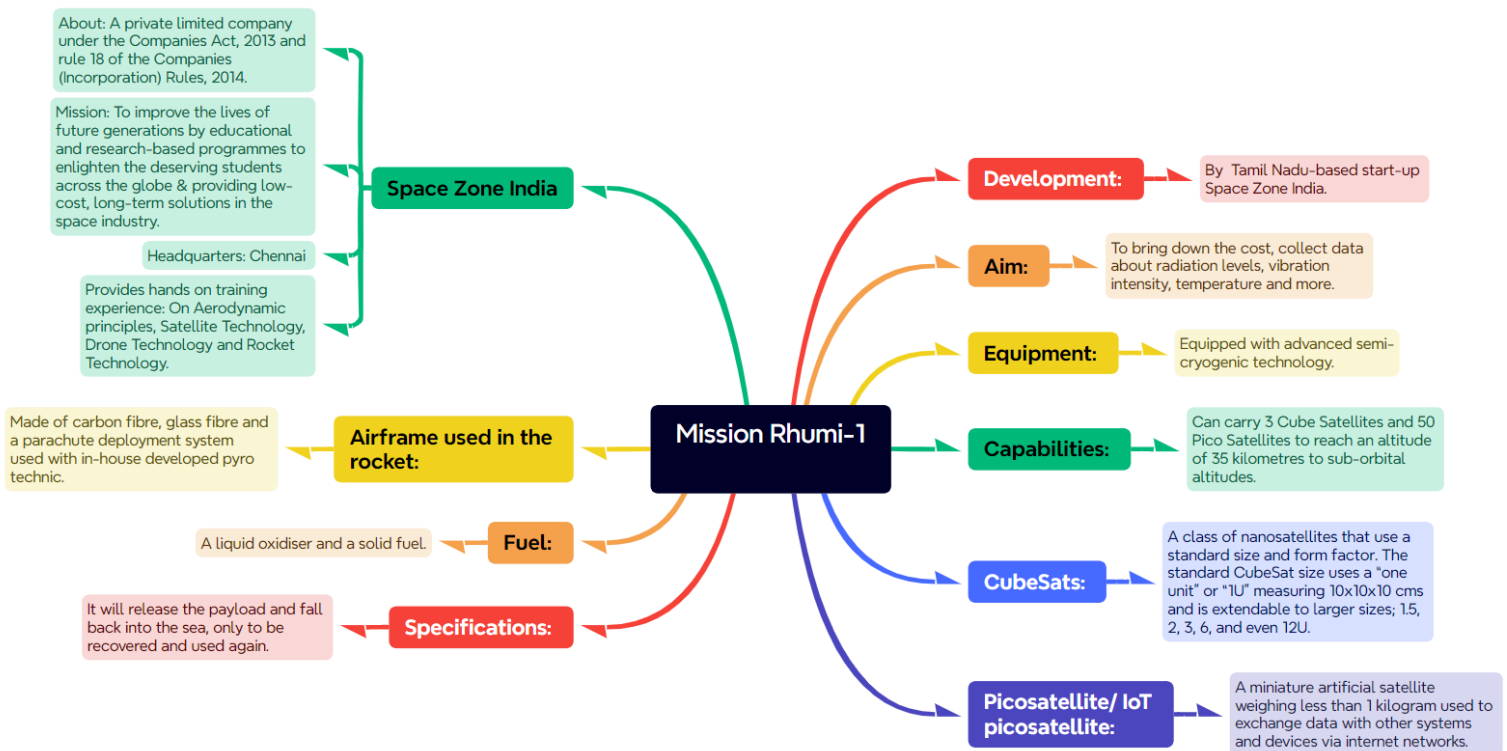
11. RHUMI-1 - Indian Express

Relevance: Achievements of Indians in Science & Technology

Context

India launched its first reusable hybrid rocket 'RHUMI-1', developed by the Tamil Nadu-based start-up Space Zone India with Martin Group, from Thiruvidadandai in Chennai recently.

Mission Rhumi-1



12. CHILE'S ATACAMA SALT FLAT SINKING DUE TO LITHIUM MINING: NEW STUDY - Indian Express

Relevance: Science and Technology- Developments

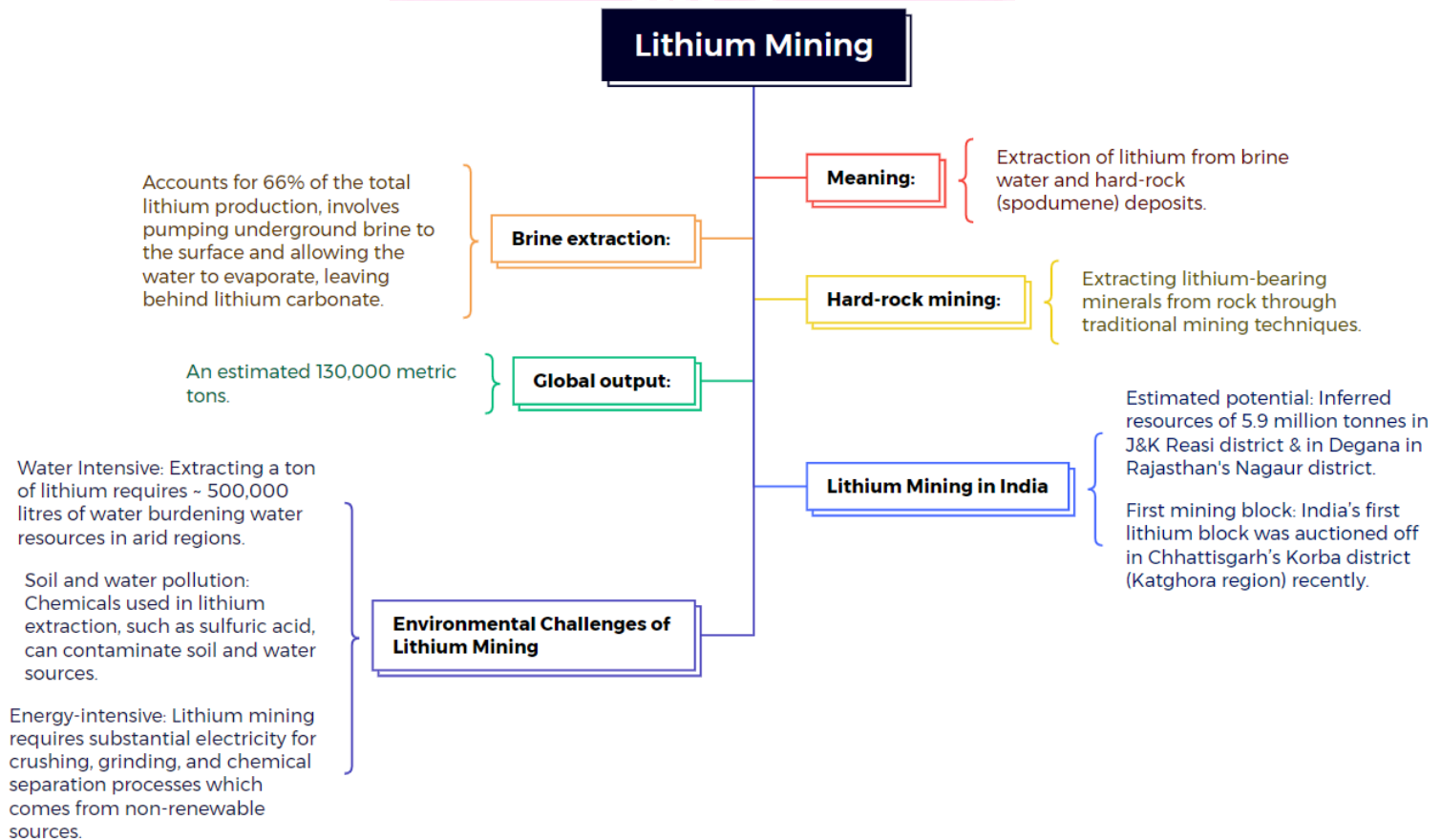
Context

According to a new study, Chile's Atacama salt flat is sinking at a rate of 1 to 2 centimetres per year due to lithium brine extraction — a process in which salt-rich

water is pumped to the surface and into a series of evaporation ponds to eventually obtain lithium.

Fallouts of lithium mining in Atacama

- **Drawbacks of brine evaporation method:** It requires massive quantities of fresh water, which is already scarce, especially in the Atacama Desert leaving indigenous communities and wildlife living in the region parched.
- **Use of toxic chemicals:** Sulfuric acid and sodium hydroxide used for lithium extraction contaminate soil and water, poisoning ecosystems and endangering species.
- **Impact on biodiversity:** A 2022 study found that lithium mining has led to a decline in the number of flamingos in the area — due to a drop in water levels in the Atacama, fewer flamingos are reproducing.



13. Eight years on, NIV still relies on U.S. CDC for Zika test kits - The Hindu

Relevance: Science and Technology- Developments

Context

The lack of accurate test kits and assays necessary for testing the Zika virus is faced by most national labs and government medical colleges across India. The reason: as of February 16, 2023, the Indian drug regulator (CDSCO) has not approved any test kit for Zika virus testing.

India has no locally developed tests for Zika virus

Zika virus outbreaks across India are occurring with increasing regularity

Labs in India have access to only conventional RT-PCR and Elisa for testing Zika virus, which are not highly reliable

As of February 16, 2023, no kit for Zika virus testing has been approved by the Indian drug regulator



NIV has been using Trioplex RT-PCR test kit developed by the Atlanta-based CDC for Zika virus testing since 2016



Labs and institutions in India do not get access to clinical samples of novel infectious viruses



U.S. FDA approves diagnostic tests based on synthetic genomic fragments, while the Indian drug regulator insists on validation using clinical samples

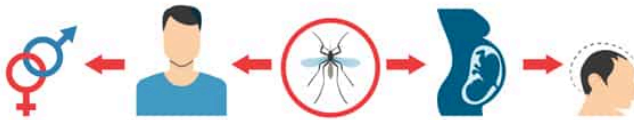
The Thiruvananthapuram-based Institute of Advanced Virology has developed an assay for testing Zika virus and validated it using multiple methods

In the absence of wide availability of Zika tests, timely detection and control of outbreaks is a challenge

Zika Virus

THE ZIKA VIRUS

Virus is transmitted by *Aedes aegypti* mosquito, the same mosquito that transmits dengue and chikungunya. Its name comes from the Zika forest of Uganda, where the virus was first isolated in 1947.



It can be transmitted through sexual interactions as well.

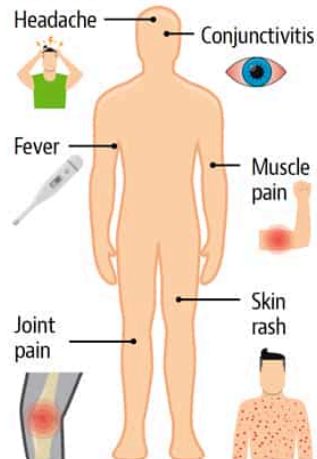
In pregnant women, Zika can cause birth defects such as microcephaly - unusually small heads - and other brain abnormalities in babies. The infection can also cause Guillain-Barre syndrome, a rare neurological disorder that causes paralysis.



THE ZIKA VIRUS

There is no treatment or vaccine for the Zika infection.

SYMPTOMS



TREATMENT

- Call a doctor
- Take medications
- Take rest
- Drink water



PREVENTION

- Use insect repellent
- Cover bed
- Use mosquito net
- Wear long sleeve shirts



14. Sonoluminescence - The Hindu

Relevance: Science and Technology- Developments

- **About:** A phenomenon where small gas bubbles in a liquid emit a brief flash of light when exposed to intense sound waves.
- **Discovery:** First observed in 1934 by two German engineers studying sonar, a method of using sound waves for navigation similar to how bats operate.
- **Working:**
 - Process begins when a tiny bubble trapped in a liquid is subjected to powerful sound waves which cause the bubble to rapidly expand and contract due to alternating high and low-pressure phases.
 - Contraction phase: The bubble compresses so rapidly that its internal temperature increases to several thousand kelvins which ionizes the gases inside the bubble, resulting in the emission of light energy for a fraction of a second—about a trillionth of a second.
- **Natural occurrence:** Pistol Shrimp has a specialized claw that snaps shut with remarkable speed, creating a high-velocity jet of water. This jet forms a low-pressure bubble that, upon collapsing, produces a loud sound, intense heat, and a brief flash of light.
- **Applications:** Potential use in fields like thermonuclear fusion and acoustic imaging.

15. Punjab, Kerala, Gujarat reported most of the H1N1 deaths, says NCDC - The Hindu

Relevance: Science and Technology- Developments

Context

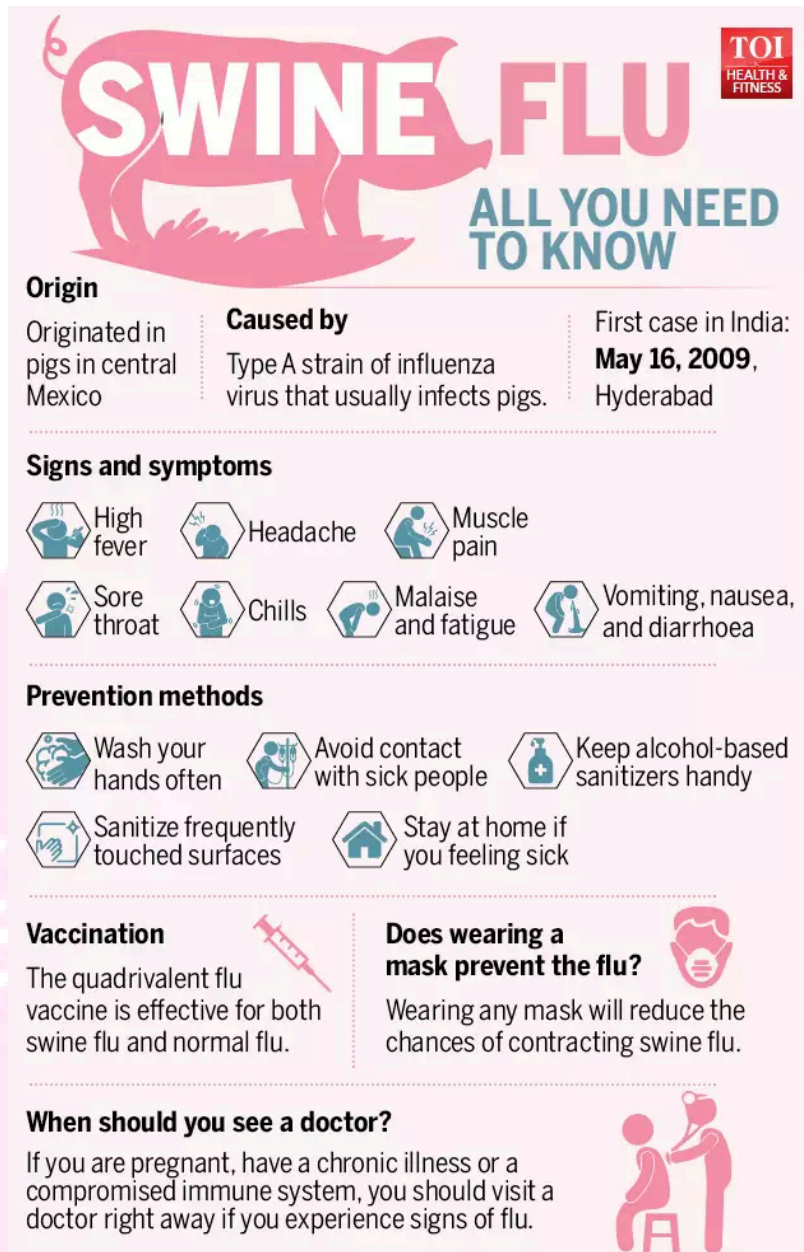
Punjab (41), Kerala (34), and Gujarat (28) top the list of States that have recorded the maximum number of deaths by influenza A (H1N1), according to the latest figures released by National Centre for Disease Control (NCDC), which collects data from across India.

Current scenario

- **Affected states:** Punjab (41 deaths), Kerala (34 deaths), and Gujarat (28 deaths) are the states with the highest mortality rates.
- **Highest number of cases:** Delhi, Gujarat, and Kerala.

H1N1 Influenza

- **About:** A subtype of the Influenza A virus, commonly known as swine flu.
- **Infection:** Can infect both humans and pigs, causing respiratory illnesses.
- **Transmission:** Through respiratory droplets when an infected person coughs, sneezes, or talks & by touching contaminated surfaces.
- **First case in India:** The first confirmed case of H1N1 in India was reported in May 2009.



SWINE FLU
ALL YOU NEED TO KNOW

Origin
Originated in pigs in central Mexico

Caused by
Type A strain of influenza virus that usually infects pigs.

First case in India:
May 16, 2009,
Hyderabad

Signs and symptoms

- High fever
- Headache
- Muscle pain
- Sore throat
- Chills
- Malaise and fatigue
- Vomiting, nausea, and diarrhoea

Prevention methods

- Wash your hands often
- Avoid contact with sick people
- Keep alcohol-based sanitizers handy
- Sanitize frequently touched surfaces
- Stay at home if you feeling sick

Vaccination
The quadrivalent flu vaccine is effective for both swine flu and normal flu.

Does wearing a mask prevent the flu?
Wearing any mask will reduce the chances of contracting swine flu.

When should you see a doctor?
If you are pregnant, have a chronic illness or a compromised immune system, you should visit a doctor right away if you experience signs of flu.

16. Tanager-1: Why NASA has launched a satellite to track methane emissions - Indian Express

Relevance: Science and Technology- Developments

Context

Last week, a satellite developed by a coalition of companies and organisations, including NASA's Jet Propulsion Laboratory, was launched aboard a SpaceX Falcon 9 rocket from Vandenberg Space Force Base in California. Known as Tanager-1, the satellite can detect major emitters of carbon dioxide and methane.

Tanager-1 Satellite

- **Launch vehicle:** SpaceX Falcon 9 rocket.

- **Launch site:** Vandenberg Space Force Base, California.
- **Development:** Developed by NASA's Jet Propulsion Laboratory and other partners.
- **Objective:** Detection of major carbon dioxide (CO₂) and methane (CH₄) emissions.
- **Focus:** Targeting key greenhouse gases that significantly contribute to global warming.
- **Features:**
 - **Spectrometes:** Utilizes advanced imaging spectrometers from NASA's Jet Propulsion Laboratory.
 - **Methodology:** Measures light wavelengths reflected from the Earth's surface to identify specific atmospheric compounds.
 - **Infrared signatures:** Identifies and quantifies greenhouse gases like CO₂ and CH₄ by their unique infrared signatures.
 - **Coverage:** Capable of monitoring emissions across 130,000 square kilometres daily.

Methane

- **Potency:** About 80 times more effective than CO₂ at warming the atmosphere over 20 years.
- **Contribution:** 30% of global warming since the Industrial Revolution.
- **Health implications:** Linked to the formation of ground-level ozone, contributing to up to one million premature deaths annually.

Defence

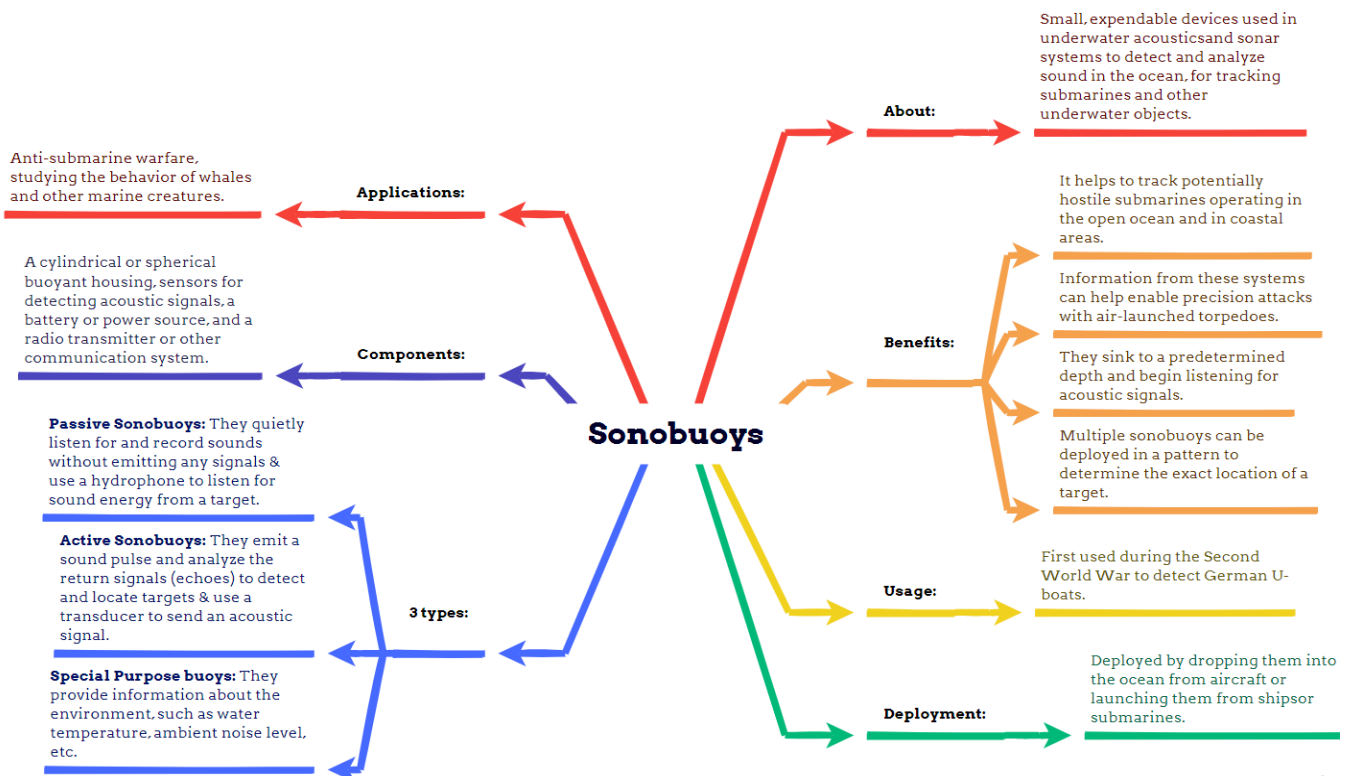
17. Jet engines to munitions: India, US to speed up co-production - Indian Express

Relevance: Science and Technology- Developments

Context

The US government recently approved the proposed sale of \$52.8-million anti-submarine warfare (ASW) sonobuoys and related equipment to India for the multi-role MH-60R Seahawk helicopters being inducted by the Indian Navy to hunt submarines.

Sonobuoys



MH-60R Seahawk helicopters

- **About:** Designed for anti-submarine warfare (ASW), anti-surface warfare (ASuW), search and rescue (SAR), medical evacuation (MEDEVAC) and vertical replenishment (VERTREP).
- **Features:**
 - Integrated with almost all the ships under the Indian Navy.
 - Capable of firing torpedoes, missiles and has advanced precision.
 - Comprise Chaff and Infrared Flares which can be deployed automatically upon detection of a threat.
 - Only chopper in the Indian Navy with a self-defence capability from incoming gunfire or missiles.