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Weekly  
Current Affairs  
Compilation  
for UPSC  
TNPSC KPSC

Guiding Dreams, Empowering Future  
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3<sup>RD</sup> WEEK | Jan-2026



**EXCLUSIVE CURRENT AFFAIRS BULLETIN**

# NATIONAL YOUTH DAY 2026

## GOVERNMENT INITIATIVES FOR YOUTH EMPOWERMENT :

- **Mera Yuva Bharat (MY Bharat):** National digital youth platform linking volunteering, leadership, skilling, mentorship, AI-enabled career services, and Fit India integration.
- **National Service Scheme (NSS):** Promotes civic engagement, social responsibility, and community service among students.
- **Viksit Bharat Young Leaders' Dialogue (VBYLD):** Engages ~3,000 young leaders; digital outreach of over 50.42 lakh youth via MY Bharat and MyGov.
- **Agnipath Scheme:** Four-year military service for youth aged 17.5–21 years; builds discipline, skills, and post-service employability.
- **PM Skilling and Employability Transformation through Upgraded ITIs (PM-SETU):** Upgrades 1,000 ITIs through industry-managed hub-and-spoke model.
- **Skill India Mission:** Integrates PMKVY 4.0, PM-NAPS, Jan Shikshan Sansthan for vocational training, apprenticeships, lifelong learning.
- **PM Viksit Bharat Rozgar Yojana:** Targets creation of 3.5 crore jobs in two years through incentives.
- **Startup India & PM MUDRA Yojana:** Supports 1.97 lakh+ startups; provides collateral-free loans up to 20 lakh for first-generation entrepreneurs.
- **Fit India Movement:** Promotes daily fitness through campaigns like Sundays on Cycle, Fit India School Certification,



## WHY IN NEWS...?

- National Youth Day observed annually on 12 January.
- Marks the birth anniversary of Swami Vivekananda.
- His philosophy guides India's youth development policies.
- Youth empowerment is a key pillar of Viksit Bharat @2047.



digital fitness tracking.

- **Youth Spiritual Summit & Kashi Declaration:** Youth-led roadmap focusing on mental well-being, substance-free living, and value-based leadership.
- **Rashtriya Kishore Swasthya Karyakram (RKSK):** Addresses adolescent nutrition, mental health, reproductive health, substance misuse, NCDs, and injury prevention.

## SWAMI VIVEKANANDA :

- ▶ Swami Vivekananda (1863–1902) was a key spiritual leader, social reformer, and nationalist thinker of modern India.
- ▶ He played a crucial role in introducing Indian philosophy of Vedanta and Yoga to the Western world.
- ▶ He was a disciple of Sri Ramakrishna Paramahansa.
- ▶ His ideas influenced Indian nationalism, social reform, and youth awakening.

## EARLY LIFE AND EDUCATION

- Born as Narendranath Datta on 12 January 1863 in Kolkata.
- Came from an educated Bengali family; father was a lawyer.
- Studied Western philosophy, history, and science.
- Questioned religious dogma and searched for spiritual truth.
- Met Sri Ramakrishna, who shaped his spiritual outlook.

▶ Continued on P2

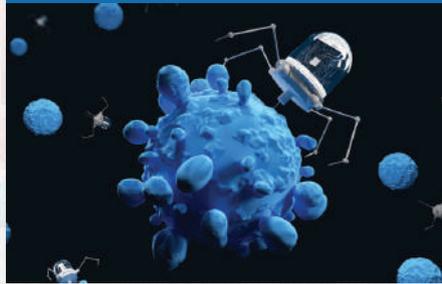
## WHY IN NEWS...?

An IISc Bengaluru researcher has been honoured with the 2025 New York Academy of Sciences Award and is also a recipient of the Tata Sons' Transformation Prize. The researcher developed magnetic nanorobots for targeted, minimally invasive therapy, overcoming a major limitation in cancer treatment by enabling drug delivery deep within tumors without harming healthy tissue. This breakthrough opens new possibilities for advanced healthcare applications of nanotechnology.

## MAGNETIC NANOROBOTS

- Microscopic machines made of or coated with magnetic materials such as iron oxide.
- Externally powered and guided by applied magnetic fields; no onboard power source.
- Helix-shaped structure mimics corkscrew motion of bacteria.
- External magnetic field controls direction, speed, and drilling motion through tissues.
- Biocompatible structure using silica and

## NANO ROBOTS in Healthcare



iron.

- Coated with cancer drugs and function as targeted drug delivery vehicles.

## PRIMARY APPLICATIONS :

- Minimally invasive therapeutic procedures.
- Targeted Drug Delivery: Direct transport of drugs to tumors, improving efficacy and reducing side effects.
- Hyperthermia Therapy: Localized heating of tumor cells using magnetic response.

- Diagnostic Uses: Biosensing, imaging enhancement, biofilm removal.
- Medical Dentistry: Root canal treatments targeting antibiotic-resistant bacteria (*Enterococcus faecalis*).

## NANOTECHNOLOGY – BASIC CONCEPTS :

- ▶ Engineering and manipulation of matter at nanoscale ( $\leq 100$  nanometres).
- ▶ Molecular simulation used to model behaviour of atoms and nanostructures.

## HEALTHCARE APPLICATIONS OF NANOTECHNOLOGY :

- Targeted Drug Delivery using liposomes, polymers, dendrimers.
- Delivery across Blood-Brain Barrier for neurological disorders.
- Advanced Diagnostics: Improved MRI, CT, fluorescence imaging.

▶▶ Continued on P3

▶▶ From P1

## PHILOSOPHY AND IDEAS

- Advocated Advaita Vedanta – unity of soul and universal spirit.
- Believed in practical Vedanta – applying spiritual ideas to daily life.
- Emphasised self-confidence, strength, and character building.
- Stressed harmony of religions and universal tolerance.
- Believed service to humanity is service to God.

## ROLE IN NATIONALISM

- ✓ Inspired Indian youth with the idea of spiritual nationalism.
- ✓ Asserted India's cultural and civilisational greatness.
- ✓ Viewed poverty removal and social service as national duty.
- ✓ His teachings influenced freedom fighters and reformers.

## CHICAGO ADDRESS

(1893)

- Delivered historic speech at the World's Parliament of Religions in Chicago.
- Began with the address: 'Sisters and Brothers of America'.
- Presented Hinduism as a tolerant and

universal religion.

- Brought global recognition to Indian spiritual traditions.

## RAMAKRISHNA MISSION

- ▶▶ Founded Ramakrishna Mission in 1897.
- ▶▶ Mission objectives include spiritual growth and social service.
- ▶▶ Focus areas: education, healthcare, disaster relief, rural development.
- ▶▶ Mission motto: 'For one's own salvation and for the welfare of the world'.

## VIEWS ON EDUCATION

- Criticised colonial education system for neglecting character building.
- Advocated man-making education.
- Emphasised physical, mental, moral, and spiritual development.
- Supported education for women and the masses.

## VIEWS ON

## SOCIAL REFORM

- Opposed caste discrimination and untouchability.
- Supported women empowerment and education.
- Believed social reform must be rooted in Indian culture.
- Encouraged upliftment of the poor and downtrodden.



## PYQ (2020)

Q. Which of the following was a major contribution of Swami Vivekananda?

- Introduction of the concept of "Satyagraha"
- Reviving Ancient Hindu practices of Yoga and Vedanta
- Establishing the Indian National Congress
- Leading the first Non-Cooperation Movement

Answer: (B)

# White-bellied Heron & Kalai-II Project

## WHY IN NEWS...?

- ▶ Environmental Clearance (EC) has been granted to the 1,200 MW Kalai-II Hydropower Project on the Lohit River in Arunachal Pradesh.
- ▶ Concerns have been raised regarding serious omissions in the Environmental Impact Assessment (EIA).
- ▶ Key concern relates to inadequate assessment of impacts on the critically endangered White-bellied Heron.

## WHITE-BELLIED HERON – BASIC DETAILS

- Scientific Name: Ardea insignis.
- Also known as Imperial Heron or Great White-bellied Heron.
- Belongs to the family Ardeidae.
- It is the second-largest heron species in the world.



## HABITAT AND ECOLOGY

- ▶ Strictly dependent on free-flowing, fast-flowing eastern Himalayan river systems.
- ▶ Requires low human disturbance riverine habitats.
- ▶ Feeds mainly on fish found in river rapids.
- ▶ Highly sensitive to dams and changes in river flow.

## MORPHOLOGICAL ADAPTATIONS

- ▶ Long, flexible neck with a razor-sharp, serrated bill for catching fish.
- ▶ Compact body and relatively shorter legs for stability in fast currents.
- ▶ Extended toes adapted to grip slippery rocks in turbulent waters.

## CONSERVATION STATUS

- Listed as Critically Endangered on the IUCN Red List.
- Included under Schedule I of the Wildlife Protection Act, 1972.
- Among the rarest birds in the world.

## GLOBAL AND REGIONAL POPULATION

- ✓ Distributed across approximately 165,000 sq km of Himalayan freshwater ecosystems.
- ✓ Range includes Bhutan, India, Myanmar, China, and Bangladesh.
- ✓ Fewer than 60 individuals survive globally.
- ✓ Bhutan hosts around 45% of the global population with 3–5 active breeding pairs.
- ✓ Considered extinct in Nepal and possibly Bangladesh.

## DISTRIBUTION IN INDIA

- Found only in Arunachal Pradesh.
- Recorded in Lohit, Anjaw, and Changlang districts.
- Sighted in and around Namdapha Tiger Reserve and Kamlang Tiger Reserve.

▶ Continued on P4

## ▶ From P2

- Regenerative Medicine: Tissue engineering, stem cell tracking and differentiation.
- Antimicrobial Uses: Nanocoatings on implants and hospital surfaces to prevent HAIs.
- Vaccines & Immunotherapy: Nanoparticle platforms for mRNA vaccines and T-cell activation.



## MAJOR CHALLENGES

- Nanotoxicity: Uncertain long-term effects, bioaccumulation, environmental nanopollution.
- Regulatory Gaps: Existing CDSCO regulations inadequate for nanomaterials.
- Ethical, Legal, Social Issues (ELSI): Data privacy, bodily autonomy, nano-divide.
- Public Trust Deficit: Fear and lack of awareness similar to GMOs.
- High Costs: Expensive instruments, scaling from lab to industry, lab-to-market gap.

## PYQ

Q: Consider the following statements: (2022)

1. Other than those made by humans, nanoparticles do not exist in nature.
  2. Nanoparticles of some metallic oxides are used in the manufacture of some cosmetics.
  3. Nanoparticles of some commercial products which enter the environment are unsafe for humans.
- Which of the



statements given above is/are correct?

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

Answer: (d)  
Mains: PYQ

Q. What is nanotechnology? How is it helping the health sector? (2020)

Q. Why is nanotechnology a key technology of the 21st century? Discuss India's Nano Mission and its developmental scope. (2016)

► From P3

- Observed along the entire Lohit River stretch.

## BEHAVIOUR

- Largely solitary in nature.
- Vocalises using deep croaks, mainly at dawn and dusk.
- Nests in tall trees near riverine habitats.

## ECOLOGICAL SIGNIFICANCE

- Acts as a bio-indicator species for Himalayan freshwater ecosystems.
- Reflects river health, water quality, fish availability, and pollution levels.
- Decline indicates broader ecosystem degradation and collapsing food chains.

## MAJOR THREATS

- Hydropower dams causing habitat fragmentation and altered river flows.
- Reduction in fish availability.
- Increased human disturbance.
- Habitat loss and hunting.
- Very small gene pool and restricted distribution.

## KALAI-II HYDROPOWER PROJECT

- A proposed 1,200 MW run-of-river hydropower project with pondage.
- Located on the Lohit River in Anjaw district, Arunachal Pradesh.
- Lohit River is a major right-bank tributary of the Brahmaputra.
- Project developer: THDC India Limited.
- Initially allotted to a private developer but stalled for several years.
- Revived during 2023–24 and transferred to THDC India Limited.
- One of 13 stalled hydropower projects reassigned to central PSUs.

## About LOHIT RIVER

- Originates in the Kangri Karpo range of eastern Tibet, where it is called Zayul Chu.
- Enters India near Kibithu, the easternmost inhabited village of India.
- Flows through Mishmi Hills in Anjaw and Lohit districts.
- Passes near Parasuram Kund and Sadiya before entering Assam plains.
- Flows through Kamlang Wildlife Sanctuary and Mehao Wildlife Sanctuary.
- Joins Siang and Dibang rivers near Kobo, Assam, forming the Brahmaputra.

## OTHER HYDROPOWER PROJECTS ON LOHIT

- Kalai-II Hydroelectric Project – 1,200 MW.
- Demwe Lower Hydroelectric Project – 1,750 MW (currently stalled).
- Demwe Upper – proposed.
- Hutong – proposed.

## PYQ (2010)

**Q. With reference to India's Desert National Park, which of the following statements are correct?**

1. It is spread over two districts.
2. There is no human habitation inside the Park.
3. It is one of the natural habitats of Great Indian Bustard.

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

**Ans: (c)**

**Q. Which one of the following National Parks has a climate that varies from tropical to subtropical, temperate and arctic? (2015)**

- (a) Khangchendzonga National Park
- (b) Nandadevi National Park
- (c) Neora Valley National Park
- (d) Namdapha National Park

**Ans: (d)**

## WHY IN NEWS...?

- Catastrophe Bonds were discussed in the context of India's disaster risk financing needs.
- States like Kerala suggested CAT bonds as a financial safety net during pre-Budget consultations.
- Increasing climate-induced disasters are stressing public finances.

## WHAT ARE CATASTROPHE BONDS?

- Catastrophe Bonds (CAT Bonds) are insurance-linked securities (ILS).
- They transfer disaster-related financial risk from governments or insurers to investors.
- Used mainly for natural disasters like earthquakes, cyclones, floods, and hurricanes.
- Investors receive higher interest compared to normal bonds.

## HOW DO CAT BONDS WORK?

- Government or insurer issues CAT bonds through a Special Purpose Vehicle (SPV).
- Investors provide capital and receive periodic interest.
- Money is kept in secure instruments.
- A predefined trigger event is specified in advance.
- If the disaster occurs, investors lose part or

# Catastrophe Bonds



all of their principal.

- The money is used for disaster relief and reconstruction.
- If no disaster occurs, investors receive full principal plus interest.

## FEATURES

- High interest returns to investors.
- Risk transfer from government to capital markets.
- Quick availability of funds after disasters.
- Low correlation with stock and bond markets.
- Clearly defined triggers such as magnitude of disaster or loss levels.

## SIGNIFICANCE

- Reduces fiscal burden on governments.
- Limits the need for emergency borrowing.
- Provides predictable and rapid disaster funding.
- Encourages private and global capital participation.
- Supports climate adaptation and resilience.

## GLOBAL EXPERIENCE

- CAT bonds emerged in the 1990s after major disasters.
- Countries like Mexico and the Philippines have successfully used CAT bonds.
- Global CAT bond market is growing due to climate change.

## RELEVANCE FOR INDIA

- India is highly vulnerable to floods, cyclones, earthquakes, and droughts.
- Disaster relief largely depends on budgetary allocations.
- CAT bonds can strengthen disaster risk financing.
- Can reduce pressure on public finances.
- Useful for climate-resilient development.

## ADVANTAGES

- Faster access to funds after disasters.
- Reduced dependence on government budgets.
- Higher returns for investors.
- Spreads risk across global investors.

## CHALLENGES

- Complex structure and design.
- Need for accurate risk modelling.
- Clearly defined triggers required.
- Absence of clear regulatory and taxation framework in India.
- Limited awareness among investors.

### Why in the news...?

Scientists at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institution under the Department of Science and Technology (DST), have developed the first supercomputer-based simulations to explain the Mpemba effect.

### WHAT IS THE MPEMBA EFFECT?

- The Mpemba effect is the phenomenon in which hotter water freezes faster than colder water under specific conditions.
- It challenges conventional understanding of cooling and freezing.

### HISTORICAL BACKGROUND

- ▶ First noted by Aristotle in his work 'Meteorologica'.
- ▶ Rediscovered in the 20th century by Erasto Mpemba, after whom the effect is named.

# Mpemba Effect

### JNCASR STUDY

- Scientists used supercomputer-powered simulations to explain the mechanism.
- Water does not freeze directly; it passes through short-lived intermediate molecular states.
- These states delay ice formation depending on the starting temperature.

- Hotter water can bypass these delays and reach ice nucleation faster.

### SCIENTIFIC SIGNIFICANCE

- ▶ Confirms the Mpemba effect is real, resolving long-standing debates.
- ▶ Not limited to water; observed in other fluid-to-solid phase transitions.
- ▶ Advances understanding of nonequilibrium (out-of-equilibrium) physics.

### APPLICATIONS AND IMPLICATIONS

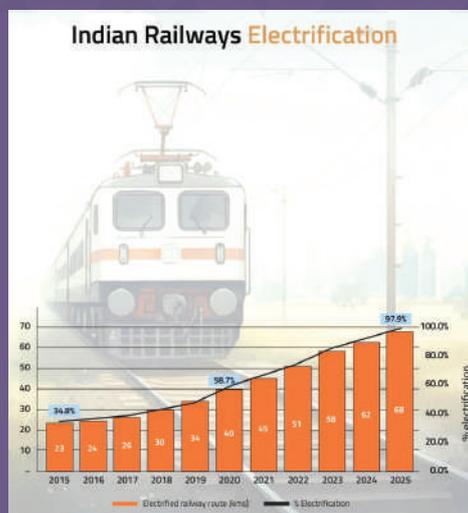
- Helps improve cooling and thermal management systems.
- Useful for next-generation electronics and materials science.
- Represents a major advance in nonequilibrium physics.



# INDIAN RAILWAYS ELECTRIFICATION DRIVE

## ABOUT INDIAN RAILWAYS ELECTRIFICATION

- Indian Railways has electrified 99.2% of its Broad Gauge network.
- Electrification covers 69,427 Route Kilometres (RKMs) out of a total 70,001 RKMs as of November 2025.
- Broad Gauge refers to a track gauge of 1.676 metres between the inner faces of two parallel rail lines.
- The electrification drive aligns railway infrastructure expansion with sustainability goals.



## HISTORICAL SIGNIFICANCE

- Railway electrification in India began in 1925.
- The first electric train ran between Bombay Victoria Terminus and Kurla Harbour.
- This marked the beginning of energy-efficient rail transport in India.

## ACCELERATION IN THE LAST DECADE

- Electrification speed increased from 1.42 km/day during 2004–2014.
- The pace rose sharply to over 15 km/day during 2019–2025.
- Share of electrified tracks grew from 24% in 2000 to over 96% by 2024.
- Electrification reached 99.2% by November 2025.

## STATE AND UT COVERAGE

- Railway networks in 25 States and Union Territories are now 100% electrified.
- Only five States : Rajasthan, Tamil Nadu, Karnataka, Assam, and Goa - have remaining non-electrified sections.
- These residual sections total 574 RKMs, accounting for just 0.8% of the network.

## ECONOMIC AND ENVIRONMENTAL BENEFITS

- Electric traction is approximately 70% more economical than diesel traction.

- It significantly reduces carbon emissions and air pollution.
- Electrification lowers dependence on imported fossil fuels.

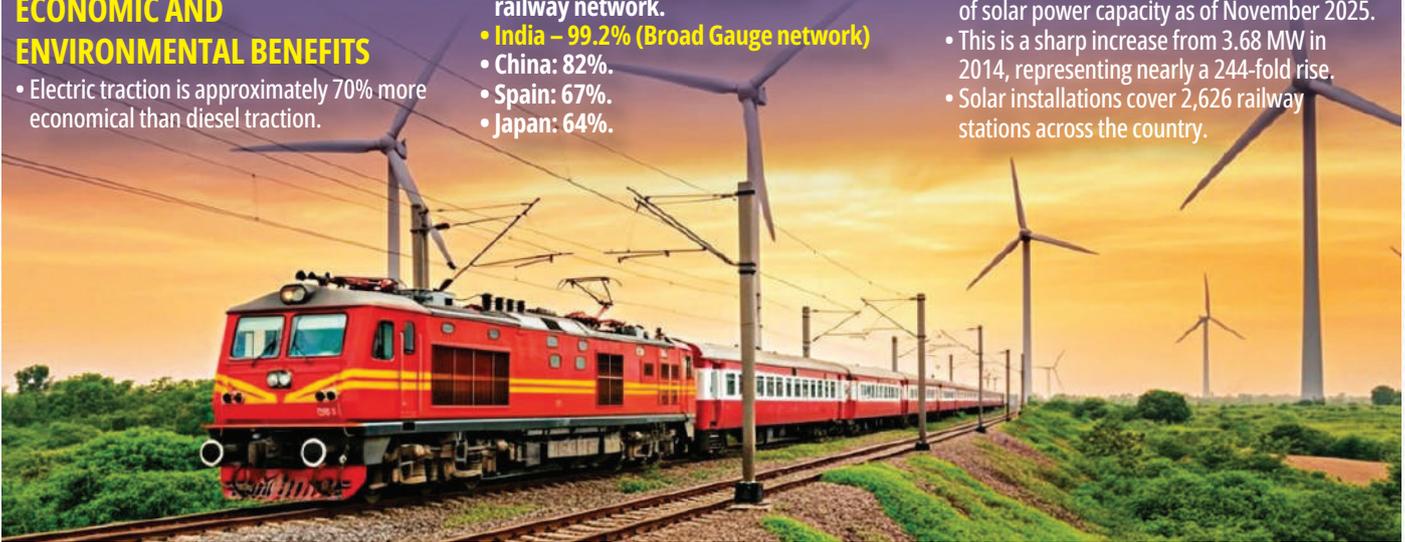
## GLOBAL COMPARISON (AS OF 2025)

- Switzerland: 100% electrified railway network.
- India – 99.2% (Broad Gauge network)
- China: 82%.
- Spain: 67%.
- Japan: 64%.

- France: 60%.
- Russia: 52%.
- United Kingdom: 39%.
- India stands among the world leaders in railway electrification.

## RENEWABLE ENERGY INTEGRATION

- Indian Railways has commissioned 898 MW of solar power capacity as of November 2025.
- This is a sharp increase from 3.68 MW in 2014, representing nearly a 244-fold rise.
- Solar installations cover 2,626 railway stations across the country.



# Olive Ridley Turtles (ORTs)

## BACKGROUND

- The ongoing Olive Ridley Turtle nesting season is facing serious threats from human activities.
- Recent observations report turtle carcasses entangled in fishing nets.
- Artificial coastal lighting is disrupting nesting and hatchling orientation.
- These developments raise concerns for marine biodiversity conservation and policy enforcement.



## FACTS

- Olive Ridley turtles are the world's smallest sea turtles.
- They have a heart-shaped carapace, olive to grayish-green in colour.
- Found in tropical regions of the Pacific, Indian, and Atlantic Oceans.
- Habitat includes open ocean as well as coastal waters.

## DIET AND BEHAVIOUR

- Olive Ridley Turtles are omnivorous.
- Diet includes jellyfish, snails, crabs, and algae.
- They undertake long-distance migrations from the Pacific Ocean to the Indian Ocean.
- They reach Indian coastal waters between November and December.
- They remain along Indian coasts until April–May.
- Known for synchronised mass nesting called arribada.
- Arribada occurs on narrow sandy beaches near estuaries and bays.
- Each female lays approximately 100–140 eggs per nesting.

## MAJOR NESTING SITES IN INDIA

- Gahirmatha, Odisha – largest mass nesting site in the world.
- Rushikulya River mouth, Odisha.
- Devi River mouth, Odisha.
- Visakhapatnam and Kakinada coast,

- Andhra Pradesh.
- Andaman and Nicobar Islands.

## LEGAL AND INTERNATIONAL PROTECTION

- All five species of sea turtles in India are protected under Schedule I of the Wildlife Protection Act, 1972.
- Listed under Appendix I of CITES, prohibiting international commercial trade.
- Olive Ridley Turtles are listed as Vulnerable on the IUCN Red List.

## CONSERVATION MEASURES

- Operation Olivia by the Indian Coast Guard enforces fishing bans.
- Turtle Excluder Devices (TEDs) are mandatory in Odisha.
- Tagging programmes are used to track migration.
- A two-year telemetry study (2025–2027) in Tamil Nadu will use satellite and flipper tags to study behaviour, nesting, and fisheries interaction.

## MAJOR THREATS

- Illegal poaching and egg trade despite international bans.
- Accidental bycatch in trawl and gill nets is the leading cause of mortality.
- Threats peak during the nesting season.
- Artificial coastal lighting disrupts nesting and hatchling movement.

# INDIA'S SHAKSGAM VALLEY: CHINA & PAKISTAN CONNECTION :

## Overview

- The Shaksgam Valley dispute has re-surfaced in the context of India–China relations.
- The issue involves sovereignty, strategic access, and the China–Pakistan nexus.

## LOCATION OF SHAKSGAM VALLEY

- ▶ Also known as the Trans Karakoram Tract.
- ▶ Located in the Hunza–Gilgit region of Pakistan-occupied Kashmir (PoK).
- ▶ Lies near the trijunction of India, Pakistan, and China.
- ▶ Situated north of the Siachen Glacier and close to the Karakoram Pass.

## HISTORICAL BACKGROUND

- ▶ Before 1947, Shaksgam Valley was part of the princely state of Jammu and Kashmir.
- ▶ After Partition, Pakistan occupied the area.
- ▶ In 1963, Pakistan ceded around 5,180 sq km of the valley to China through a boundary agreement.
- ▶ India rejects this agreement as illegal and invalid.

## CHINA'S CLAIM & STRATEGIC MOTIVES

- China has increased infrastructure activities in the region.
- The area is linked to the China–Pakistan Economic Corridor (CPEC).
- Control of the valley provides strategic access through the Karakoram range.
- It strengthens China–Pakistan military and logistical coordination.

## INDIA'S STRATEGIC CONCERNS

- ✓ The region is close to both the Line of Control (LoC) and Line of Actual Control (LAC).
- ✓ Chinese presence threatens India's strategic buffer near Siachen and Ladakh.
- ✓ Roads and infrastructure may alter the military balance.



## INDIA'S OFFICIAL POSITION

- India maintains Shaksgam Valley is its sovereign territory.
- India does not recognise the 1963 China–Pakistan agreement.
- Projects under CPEC in PoK are considered violations of Indian sovereignty.

## PAKISTAN'S ROLE

- Pakistan ceded the territory without legal authority.

- This act strengthened China–Pakistan strategic partnership.
- It complicates India's territorial claims.

## GEOPOLITICAL SIGNIFICANCE

- ▶ The dispute reflects unresolved Himalayan boundary issues.
- ▶ Infrastructure is being used as a strategic tool.
- ▶ It impacts regional security and diplomacy.