

Satyendra Nath Bose

- Bose, a graduate of the [University of Calcutta](#), taught at the University of Dacca (1921–45) and then at Calcutta (1945–56).
- Bose's numerous scientific papers (published from 1918 to 1956) contributed to [statistical mechanics](#),
- the electromagnetic properties of the [ionosphere](#), the theories of [X-ray crystallography](#) and [thermoluminescence](#), and [unified field theory](#).
- Bose's *Planck's Law and the Hypothesis of Light Quanta* (1924) led Einstein to seek him out for collaboration.

Terms

- **Ionosphere** and magnetosphere, regions of [Earth's atmosphere](#) in which the number of electrically charged particles ions and [electrons](#)—are large enough to affect the [propagation](#) of [radio waves](#).
- The charged particles are created by the action of extraterrestrial [radiation](#) (mainly from the [Sun](#)) on neutral atoms and [molecules](#) of [air](#).
- The ionosphere begins at a height of about 50 km (30 miles) above the surface,

but it is most distinct and important above 80 km (50 miles).

- **Crystallography**, a branch of [science](#) that deals with [discerning](#) the arrangement and bonding of [atoms](#) in crystalline [solids](#) and with the geometric structure of [crystal](#) lattices. Classically, the optical properties of [crystals](#) were of value in [mineralogy](#) and [chemistry](#) for the identification of substances. Modern crystallography is largely based on the analysis of the [diffraction](#) of [X-rays](#) by [crystals](#) acting as optical gratings

Thermoluminescence is, emission of [light](#) from some minerals and certain other crystalline materials.

- The light energy released is derived from electron displacements within the crystal lattice of such a substance caused by previous exposure to high-energy radiation

Mimas

- Astronomers believe Mimas, the smallest of the major moons of Saturn, known as the "big seven" or the "inner moons", may have a liquid ocean around 20-30 km under its heavily cratered ice shell.

- Nicknamed “Death Star” for the resemblance of its cratered surface to a space station in the Star Wars franchise, Mimas was an unlikely candidate to host an ocean because the presence of these water bodies is generally marked by modifications of the surface by internal dynamics.

The Hindu

India and Greece

- Greece and India are in many ways ‘prisoners’ of geography.
- They are located in areas strategically important to the global system but are areas that are at the same time geopolitically volatile.
- As recent events in the Red Sea have shown, the security, stability and prosperity of the East Mediterranean region, where Greece is situated, is vitally dependent on the security, stability and prosperity of the Indian Ocean region.
- More than ever before, the political leadership in India and Greece is aware of the compelling strategic reasons and

urgency to build a strategic relationship between the two countries.

- Cooperation at various levels Bilateral strategic, military and business cooperation has been moving along over the years, but at a slow and unhurried pace.
- The Indian Navy and Indian Air Force have been participating in joint exercises with the Greek armed forces and reciprocal exercises are planned from time to time.
- Businesses have also been looking at each other. An Indian construction company, for example, is involved with a major Greek Construction company in the building of a new airport on the island of Crete.
A well-known Indian business family has made major investments in several companies in the food business in Greece.
- A mid-sized Indian shipping company has already opened a brokerage firm in Athens and looks to become a key player in the trans-Atlantic shipping market.

- A large systemic bank in Greece has tied up with a major Indian financial institution to sell mutual fund products globally.
- It is also interesting to note that Greece's most important long-term foreign investor is Indian-Canadian billionaire Prem Watsa, founder and CEO of Fairfax Financial Holdings
- Greece positions itself as the reliable eastern flank of the European Union (EU) and the North Atlantic Treaty Organization in the Eastern Mediterranean, also building its defence industry, the idea of constructing the India-Middle East-Europe Economic Corridor (IMEEC) is gaining in salience
- Greece has been a strong supporter of deeper EU-India relations and is now working to ensure the EU-India bilateral trade and investment agreement (BTIA) is rapidly concluded, which would be a further catalyst to bilateral economic ties.
- There need to be more university student exchange programmes, more cultural exchanges and more media cooperation.

Topic- Report on Fintech

The Standing Committee on Communications and Information Technology has raised concerns about the dominance of fintech apps owned by foreign entities in the Indian ecosystem and recommended that local players be promoted.

- It noted that it will be more 'feasible' for regulatory bodies such as the RBI and the NPCI to control local apps, as compared with foreign apps, which operate in multiple jurisdictions.
- Vijay Mani and Munjal Kamdar, Partners at Deloitte India, pointed to local fintech players having a "natural advantage" when it comes to understanding the customer, various ecosystem.
- The Hindu

Human Animal Conflict

What are the reasons for the increase in human-wildlife conflict?

- Experts cite increased area under cultivation around wildlife habitats, changing cropping pattern, significant increase in the population of animals like elephants and tigers due to conservation efforts, and movement of livestock and

humans in wildlife habitats during odd hours as the main reasons for the rise in human-wildlife conflict incidents.

- There has also been a substantial increase in the population of prolific breeders like wild boars and peacocks.
- However, an increased number of incidents involving elephants are due to habitat depletion and fragmentation caused by human activities.
- Moreover, invasive alien species have reduced the availability of food and water.
- Monoculture of species such as eucalyptus and acacia has also adversely affected plant biodiversity.

What are the proposed solutions and why are they not effective?

- Elephant-proof trenches and solar power fences are widely used in Kerala, and they are considered largely effective, provided they are properly maintained.
- As part of the State government's new eco-restoration policy, the Forest department is aiming to plant suitable indigenous plants (wild mango, wild gooseberry, and wild jackfruit) in the forest to ensure wild animals' food

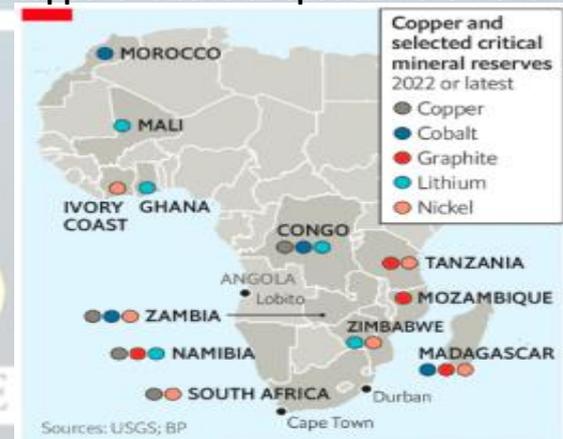
security and dissuade them from entering agricultural lands.

- Such measures need to be supplemented by creating early warning systems that can track the movement of elephants and other dangerous animals using drones and watchers.

The Hindu

Critical minerals in Africa

The Copper belt straddling northern Zambia and the southern part of the Congo still contains some of the richest copper and cobalt deposits in the world.



The Economist

Critical Minerals

- Critical minerals, also known as **strategic minerals or critical raw materials**, are natural resources that play a crucial role in various industrial sectors due to their **unique properties and applications**.
- These minerals are essential for the functioning of **modern economies, technologies, and national security**.
- They are characterized by their **scarcity, high economic value, and significance in strategic industries**.
- Some commonly recognized critical minerals include: **Cobalt, Lithium, Nickel, Iridium** etc.

THE HINDU ANALYSIS PDF BY SAURABH PANDEY SIR

Q "Human animal conflict is due to both non-human and human related factor"

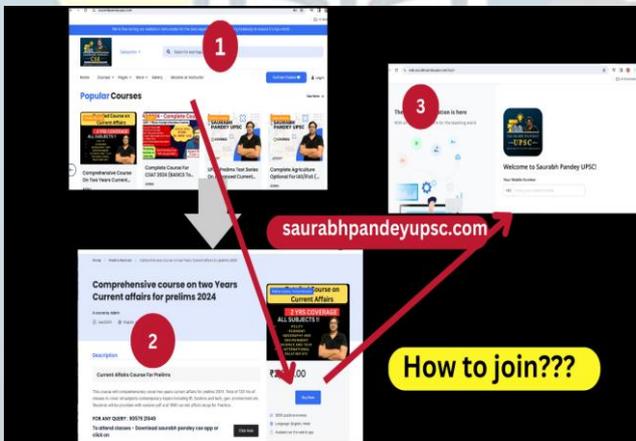
Explain

प्रश्न "मानव-पशु संघर्ष गैर-मानवीय और मानव-संबंधी दोनों कारकों के कारण होता है" स्पष्ट करें

SEND ANSWER- SAURABH PANDEY UPSC

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sample class notes

- Attappady Thuvara has seeds with white coat.
- These are bigger and have higher seed weight than the regular variety.
- Compared to the garlic produced in other areas, the garlic from the Kandiyaalloor Vattavada area of Devikulam block panchayat in Idukki contains higher amount of sulphides, flavonoids, and proteins.
- Onattukara Ellu and its oil are famous for its unique health benefits.
- Relatively higher antioxidant content in Onattukara Ellu helps in fighting the free radicals which destroy the body cells.
- Kodungalloor Pottuvellari cultivated in Kodungalloor and parts of Enakulam is consumed as juice and in other forms.
- This snap melon, which is harvested in summer, is excellent for quenching thirst.
- **The Tamakoshi River**
- The Tamakoshi River is part of the Koshi or Sapta Koshi river system in Nepalese Himalayas.
- It originates from the Ronggarhar Chu and Lapchi Gang rivers close to the Nepal-Tibet border.
- It flows in a southern direction through Bagmati Province in Nepal, namely through Dolakha District and Ramechhap District.



By saurabh pandey sir

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CSE

(CIVIL SERVICES EXAMINATION)

FROM BASICS TO UPSC BRILLIANCE

WHAT TN WANTS

- Tamil Nadu had sought a direction to Karnataka to release 50.5 tmc feet of Cauvery water to save 40k acres of samba crop
- It also sought court help to ensure Karnataka stuck to the water releases in keeping with the 2007 order of Cauvery Water Disputes Tribunal

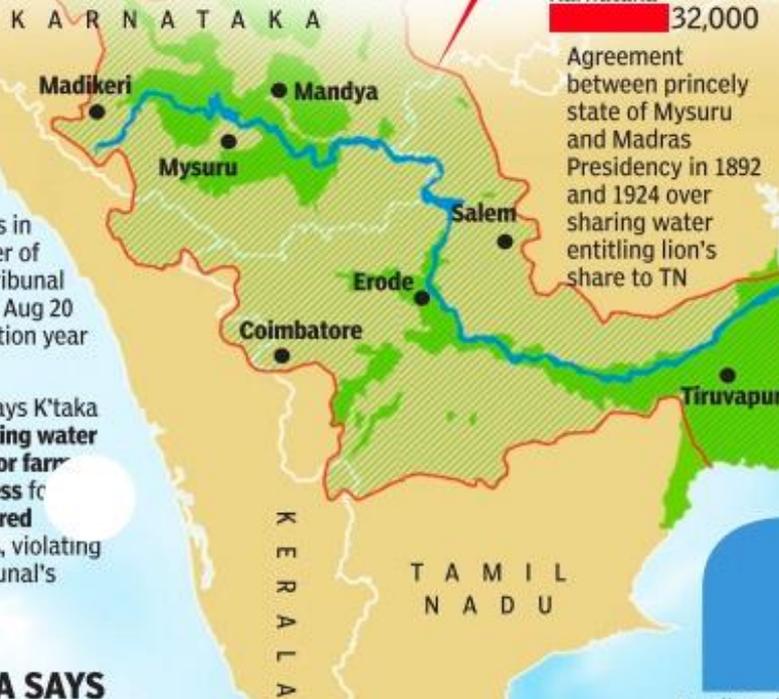
The Cauvery basin reservoirs – Kabini, Hemavathy, Harangi and KRS – have combined storage of 51 tmc ft

starting Aug 20 in irrigation year 2016-17

- TN says K'taka is diverting water meant for farms in distress for undeclared projects, violating the tribunal's orders

A century-old wrangle

Cauvery stretches over 802km with origin at Tala-cauvery of Karnataka's Kodagu district



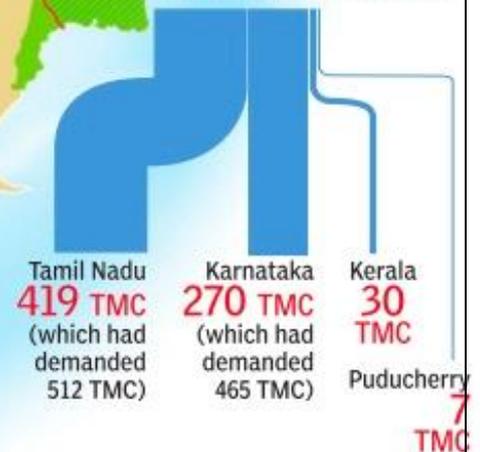
Cauvery Basin (sqkm)
 Tamil Nadu 44,000
 Karnataka 32,000

Agreement between princely state of Mysuru and Madras Presidency in 1892 and 1924 over sharing water entitling lion's share to TN

Dispute continued after Independence, finally Cauvery Water Disputes Tribunal formed in 1990

In 2007, after 16 years, water court validated the agreements of 1892 and 1924 executed between government of Madras and Mysore

THE WATER COURT SAID



WHAT KARNATAKA SAYS

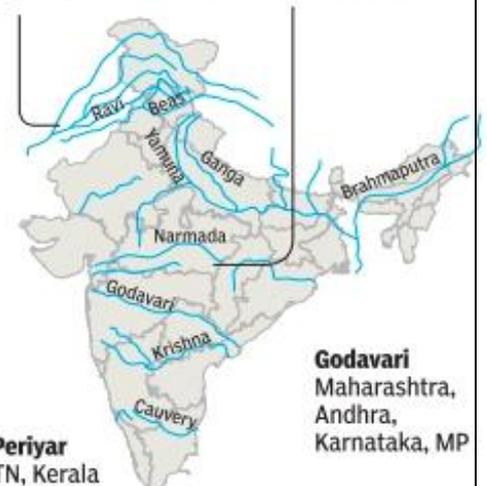
- Karnataka says it is facing a 'severe distress year' and has a deficit of 80 tmc feet in its four reservoirs
- Karnataka CM says at least 40 tmc ft is required to meet the drinking water needs of Bengaluru, Mysuru and other cities, and villages and remaining standing crops
- F S Nariman, fighting for Karnataka, said there were recent "rain deficit months" and it was difficult to release the water due to TN



WATER WAR: A protest in on the Mysore-Bangalore highway in Mandya on Tuesday

Other major inter-state river disputes

Ravi & Beas States fighting Punjab, Haryana, Rajasthan	Narmada MP, Gujarat, Maharashtra, Rajasthan	Krishna Maharashtra, Andhra, Karnataka
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Periyar
TN, Kerala

Godavari
Maharashtra, Andhra, Karnataka, MP

DECIDE MATTER IN 10 DAYS, WATER COMMITTEE TOLD

- Supreme Court directed Karnataka to release 15,000 cusecs of Cauvery water per day to TN for next 10 days
- Noting TN's samba crop would be adversely affected, SC directed Karnataka to ensure TN is supplied water
- SC directed TN to approach supervisory committee within three days for release of Cauvery water as per the final order of the Cauvery Water Disputes Tribunal
- The court asked the committee to decide on TN's plea in ten days from Monday