



TATHASTU
Institute of Civil Services

DAILY CURRENT AFFAIRS



6th January, 2024



S.NO.	TOPIC
1.	IS SECULARISM IN INDIA JUST AS SAME AS IN EUROPE?
2.	INDIA'S RENEWED FOCUS: REDEFINING RELATIONSHIPS WITH NEPAL
3.	PRELIMS POINTERS

IS SECULARISM IN INDIA JUST AS SAME AS IN EUROPE?

SOURCE: [THE HINDU](#)

TAG: GS Paper II- **Government Policies & Interventions, Human Resource**
GS Paper III- **Growth & Development, Employment IT & Computers**

UPSC Previous Year Questions:

- Q) Are tolerance, assimilation and pluralism the key elements in the making of an Indian form of secularism? Justify your answer. (2022)
- Q) How is the Indian concept of secularism different from the western model of secularism? Discuss. (2018)
- Q) Distinguish between religiousness/religiosity and communalism giving one example of how the former has transformed into the latter in independent India. (2017)
- Q) How do the Indian debates on secularism differ from the debates in the West? (2014)

WHY IN NEWS?

- ❖ Recently Professor Akeel Bilgrami draws a **parallel between Indian secularism and its European counterpart**, emphasizing **Gandhi's perception of nationalism as anti-imperialist and inclusive**.
- ❖ According to Bilgrami, **Gandhi's approach to nationalism diverged from European forms**, advocating for an **inclusive, anti-imperialistic framework**.

WHAT IS SECULARISM?

- ☛ **Secularism signifies the detachment of religion from political, social, economic, and cultural spheres**, regarding religion as a personal affair.
- ☛ This principle advocates for the **segregation of governmental bodies and representatives from religious institutions**, ensuring that religious beliefs don't influence state affairs.
- ☛ **India**, post the **42nd Constitutional Amendment**, embraced secularism, acknowledging and respecting all religions equally, prioritizing parliamentary laws over religious doctrines, and embracing diversity.
- ☛ A **secular individual derives moral principles** from rational and scientific perspectives rather than religious doctrines.
- ☛ **In the Indian context**, secularism promotes equality among religions, ensuring a state detached from any specific religious affiliation, upholding individual and collective religious freedoms without interference or promotion from the state.

PRINCIPLES OF INDIAN SECULARISM

- ☛ **Conceptual Alignment:** 'Secularism' aligns with the **Vedic idea of 'Dharma nirapekshata'**, signifying the state's neutrality towards religion.
- ☛ **'Sarva Dharma Sambhava'**: Indian secularism embodies the idea of **'Sarva Dharma Sambhava'**, emphasizing equal reverence for all religions, despite differing paths.
- ☛ **Positive Secularism:** Advocated by influential figures like **Vivekananda and Mahatma Gandhi**, **'Positive Secularism'** aligns with India's cultural ethos.
- ☛ **Absence of State Religion:** India doesn't endorse an official state religion. However, personal laws regarding marriage, divorce, inheritance vary based on an individual's religion.
- ☛ **Promoting Plurality:** Indian secularism isn't an end goal but a means to accommodate religious diversity and ensure peaceful coexistence among different faiths.
- ☛ **Emperor Ashoka's Edicts:** **Ashoka's third-century B.C. edicts** notably declared **state non-interference** in religious matters, advocating tolerance and respect for all sects.
- ☛ **Quest for Coexistence:** Despite the emergence of **Jainism, Buddhism, Islam, and Christianity**, India continued



its pursuit of religious toleration and peaceful coexistence.

- **Sufi and Bhakti Movements:** Medieval India witnessed the Sufi and Bhakti movements, led by figures like **Khwaja Moinuddin Chisti, Baba Farid, Sant Kabir Das**, among others, promoting unity and peace among different communities.
- **Akbar's Policy of Tolerance:** Akbar's reign exemplified **religious toleration**; his administration included Hindu ministers, forbade forced conversions, and introduced the **'Din-i-Ilahi' with elements from both Hindu and Muslim faiths**. He also propagated the idea of **'sulh-i-kul' or harmony among religions**, sponsoring religious debates involving theologians from **Brahmins, Jains, and Zoroastrians to foster mutual understanding**.

CONSTITUTIONAL PROVISIONS RELATED TO SECULARISM IN INDIA

- **Article 14:** It provides equality before the law and equal protection of laws to all.
- **Article 16 (1):** It guarantees equality of opportunity to all citizens in matters of public employment and reiterates that there would be no discrimination on the basis of religion, race, caste, sex, descent, place of birth, and residence.
- **Article 25:** It provides 'Freedom of Conscience', that is, all persons are equally entitled to freedom of conscience and the right to freely profess, practice, and propagate religion.
- **Article 26:** Every religious group or individual has the right to establish and maintain institutions for religious and charitable purposes and to manage its own affairs in matters of religion.
- **Article 27:** It provides that the state shall not compel any citizen to pay any taxes for the promotion or maintenance of any particular religion or religious institution.
- **Article 28:** It allows educational institutions maintained by different religious groups to impart religious instruction.
- **Articles 29 and 30:** They provide cultural and educational rights to minorities.
- **Article 51A: (Fundamental Duties)** It obliges all the citizens to promote harmony and the spirit of common brotherhood and to value and preserve the rich heritage of our composite culture.
- **42nd CAA, 1976:** The word secular was inserted in the Preamble. It stated that 'secular' means a republic in which there is equal respect for all religions.

Gandhian Perspective on Indian Secularism:

- **Harmony of Religions:** Gandhi advocated the principle of religious pluralism and mutual respect, valuing all religions equally as paths to the divine.
- **Sarvadharm Sambhava:** He endorsed the philosophy of 'Sarvadharm Sambhava,' emphasizing the equality of all religions and promoting coexistence among diverse faiths.
- **Moral Basis of Secularism:** Gandhi believed in the moral and ethical underpinning of secularism, where values and principles derived from religions should guide public life without promoting any particular faith.
- **Universal Spirituality:** His secularism was rooted in universal spirituality rather than the separation of religion from life. He stressed the integration of spiritual values in politics, emphasizing moral conduct and ethical governance.
- **Emphasis on Tolerance:** Gandhi envisioned a secular India based on tolerance, understanding, and respect for all religious beliefs. He aimed to build a society where different faiths coexisted peacefully.
- **Rejection of Sectarianism:** He opposed religious fundamentalism and sectarian attitudes, advocating for a secular society that fosters unity and embraces diversity.
- **Social Reforms and Secularism:** Gandhi's secularism was deeply intertwined with social reforms, aiming for the eradication of casteism, untouchability, and social inequalities, promoting equality among all religions and communities.

INDIAN VS. EUROPEAN MODEL OF SECULARISM

Aspect	Indian Model of Secularism	European Model of Secularism
State-Religion Interaction	Allows interaction and intervention within legal boundaries	Advocates complete separation, no interaction



Separation of Religion and State	No 'wall of separation'; interaction allowed within limits	Emphasizes complete separation, no intervention
State Support to Religious Ed.	Supports minority religious educational institutions	Doesn't provide financial aid to religious educational entities
State Intervention in Religion	Intervenes to eradicate religious evils	Doesn't intervene in religious practices
Public vs. Private Sphere	Engages religion in public life; state manages religious entities	Religion relegated entirely to private sphere; no public role

COMMONALITIES BETWEEN SECULARISM IN INDIA AND EUROPE:

- **Commitments: Both Indian and European secularism uphold freedom of religious belief and practice.** They endorse **constitutional principles** like equality, freedom of speech, and gender equality. In cases of conflict between these principles and religious beliefs, **constitutional principles take precedence.**
- **Nationalism and Inclusivity:** Mahatma Gandhi viewed nationalism as anti-imperialism and inclusive, rejecting European forms of nationalism. He believed that India didn't face the same religious majoritarianism problems as Europe. But other hand **both the models of secularism talk about inclusivity of vast number of groups, communities** etc.
- **Secularism vs. Secularization:** The distinction between secularism and secularization was emphasized. Secularization is a social process involving the loss of belief in religious doctrines, while secularism is a political doctrine focused on keeping religion separate from politics.
- **Religion and Politics:** Both models advocate keeping religious practices separate from direct influence on politics. Secularism, in this context, isn't about accepting all religions but rather ensuring pluralism—acknowledging and respecting the diversity of religions.

WHAT SHOULD EUROPE LEARN FROM INDIAN SECULARISM?

- **Flexible Engagement: Indian secularism doesn't enforce strict separation** between the state and religions but rather **engages based on constitutional values.** This approach allows **religion-state interactions** that align with **the principles of peace, liberty, and equality.**
- **Differential Treatment:** It acknowledges and accommodates diverse religious practices through special exemptions. This can involve allowing certain practices or granting specific assistance to religious groups to ensure fairness, even if it means differential treatment based on historical or social contexts.
- **Equal Treatment vs. Treating Everyone as Equals:** Unlike the Western model that emphasizes equal treatment for all religions, **Indian secularism focuses on treating all groups with equal concern and respect, sometimes necessitating differential treatment.**
- **Learning from Each Other: Indian secularism's adaptability and differential approach offer potential lessons for Western states** in preventing intergroup violence and addressing religious diversity.

CONCLUSION

Secularism, a fundamental principle in both India and Europe, aims to create a state impartial to religious influences. While their approaches differ—**India's adaptable engagement versus Europe's stricter separation**—they share the **common goal of ensuring religious freedom, equality, and peaceful coexistence.** Each model has strengths and weaknesses, offering learning opportunities for the other, ultimately contributing to the ongoing global discourse on governance amidst religious diversity.



INDIA-NEPAL BILATERAL RELATIONS

INDIA'S RENEWED FOCUS: REDEFINING RELATIONSHIPS WITH NEPAL

SOURCE: [INDIAN EXPRESS](#)

TAG: GS Paper II- **India and its Neighbourhood, Effect of Policies & Politics of Countries on India's Interests**

WHY IN NEWS?

- During the opening of Tribhuvan University Central Library and other projects after the earthquake in Kathmandu, **External Affairs Minister Jaishankar** said, "When Prime Minister Prachanda visited India in June 2023, both leaders decided to strengthen our partnership. India is dedicated to following the principles of unity, development for all, building trust, and collective effort. We aim to include Nepal and other friendly neighbours in our journey of progress. Together, we will achieve more milestones in our relationship in the future."

INTRODUCTION

- India and Nepal, being close neighbors, maintain unique bonds of friendship and cooperation marked by an **open border** and **strong people-to-people** connections based on **kinship and culture**.
- The **border between Nepal and five Indian states**—Sikkim, West Bengal, Bihar, Uttar Pradesh, and Uttarakhand—stretches over **1850 kilometers**.
- The **foundation** of the special ties between the two nations lies in the **India-Nepal Treaty of Peace and Friendship signed in 1950**. Under this treaty, Nepalese citizens enjoy privileges and opportunities equivalent to Indian citizens. It's noteworthy that nearly **8 million Nepalese citizens reside and work in India**.

WHY IS INDO-NEPAL RELATION SO SIGNIFICANT?

- Long-standing Bonds:** Nepal holds a significant place in India's foreign policy owing to **deep-rooted connections that span geography, history, culture, and economy over centuries**.
- Shared Heritage:** Both countries share commonalities in **Hinduism and Buddhism**, notably with **Lumbini, Buddha's birthplace**, situated in present-day Nepal.
- Interwoven Societies:** The nations boast an open border, allowing unrestricted movement of people, with familial ties woven through marriages, known as **Roti-Beti ka Rishta**.
- Foundation of Relations:** The **India-Nepal Treaty of Peace and Friendship from 1950** forms the foundation of the special relationship between the two nations.
- Strategic Positioning:** Nepal's pivotal location between India's Himalayan frontiers and its role as a buffer state alongside Bhutan are significant against potential threats from China.
- Ecological Significance:** Rivers originating in Nepal contribute to India's river systems, **offering ecological benefits** and potential for **hydropower generation**.
- Religious Significance:** Nepal houses **numerous Hindu and Buddhist pilgrimage sites**, attracting a vast number of Indian pilgrims.

AREAS OF COOPERATION

❖ Defence Cooperation:

- Bilateral Support:** India and Nepal share a comprehensive defence cooperation, encompassing equipment supply, training, and disaster assistance.
- Mutual Exercises:** The joint military exercise '**SURYA KIRAN**' alternates between both countries, fostering collaboration in military strategies.
- Honorary Recognition:** Since 1950, both nations have bestowed the honorary rank of General on each other's Army Chief, symbolizing their harmonious relationship.
- Gorkha Regiments:** The Indian Army enlists soldiers from Nepal's hill districts, with about **32,000 Gorkha Soldiers presently serving in India**.
- Humanitarian Response:** Following the 2015 earthquake, India rapidly dispatched assistance comprising relief materials, medical support, and aid for power sub-stations in Nepal.



❖ **Post-Earthquake Rehabilitation:**

- **Immediate Aid:** India promptly dispatched relief materials and deployed medical teams after the 2015 earthquake, providing substantial financial and infrastructural support to Nepal.
- **Reconstruction Efforts:** Post-earthquake, India pledged significant financial assistance, signing MoUs and implementing reconstruction projects in various sectors like housing, health, education, and cultural heritage.
- **Progress and Partnership:** Substantial work in housing reconstruction has been completed, witnessed by the Prime Ministers of both nations in January 2020, marking substantial progress.

❖ **Connectivity and Development Partnership:**

- **Infrastructure Focus:** India's developmental assistance emphasizes grassroots infrastructure in sectors like health, education, water resources, and community development.
- **Border Development:** Efforts include the enhancement of roads in the Terai area, establishment of cross-border rail links, and **Integrated Check Posts in several locations.**
- **Financial Assistance:** The budget allocated for 'Aid to Nepal' in FY 2019-20 was **INR 1200 crore**, alongside Lines of Credit totalling USD 1.65 billion for infrastructure development.
- **Agricultural Collaboration:** A new partnership in agriculture between India and Nepal aims to foster collaborative projects in research, development, and education, recognizing their reliance on agriculture for sustenance.

❖ **Water Resources Cooperation:**

- **River Connectivity:** Nepal-India relations are significantly tied to shared rivers, vital for irrigation and power generation in both nations.
- **Collaborative Mechanism:** A three-tier bilateral mechanism since 2008 addresses water resource, flood management, and hydropower concerns.

❖ **Energy Cooperation:**

- **Long-Standing Agreement:** Dating back to 1971, the Power Exchange Agreement enables power supply to border regions using each other's transmission infrastructure.
- **Transmission Lines:** Multiple transmission interconnections facilitate power exchange and trade, bolstered by projects like the **Muzaffarpur-Dhalkebar and cross-border petroleum pipelines.**
- **Power Trade Agreement:** The 2014 Agreement outlines the framework for power trade, aiming to bolster cross-border transmission and grid connectivity.

❖ **Economic Ties:**

- **Trade Statistics:** India is Nepal's largest trading partner with bilateral trade reaching INR 57,858 crore (US\$ 8.27 billion) in 2018-19.
- **Major Imports:** Nepal mainly imports petroleum products, vehicles, machinery, medicines, and agricultural equipment from India.
- **Indian Investments:** Indian firms constitute over 30% of Nepal's foreign direct investments, spanning industries like banking, insurance, education, and telecom.

❖ **Education and Culture:**

- **Scholarship Programs:** India annually offers around 3000 scholarships to Nepalese nationals across various disciplines.
- **Cultural Ties:** Collaborative initiatives include cultural events, symposia, media exchanges, and the establishment of libraries to enhance cultural relations and information exchange.
- **Bilateral Agreements:** Several agreements and MoUs between institutions from both countries promote cultural exchange, media cooperation, and educational partnerships.

INDIA-NEPAL RELATIONS REDEFINED

- ❖ India, led by PM Modi, aims to redefine its relationships in the neighbourhood, particularly with Nepal.
- ❖ Recent agreements, including importing **10,000 MW of hydroelectricity and a financial package of USD 75 million for post-earthquake infrastructure**, demonstrate this commitment.



1. Transformation in Bilateral Ties:

- External Minister highlights the substantial progress in various sectors, emphasizing the significance of connectivity—physical, digital, and energy-related—in strengthening ties and people-to-people linkages.

2. India's Commitment to Inclusive Development:

- The government of India vows to uphold inclusive development principles (sabka sath, sabka vikas, sabka vishwas, sabka prayas) and extend this development journey to friendly neighbours, including Nepal.

3. Post-quake Reconstruction and Collaborative Efforts:

- Inauguration of multiple reconstruction projects in Kathmandu, including schools, health facilities, and a cultural heritage project, post-2015 earthquake.
- India's substantial contributions, including funding 50,000 houses completed in 2021, with a total contribution of \$1 billion.

4. Bilateral Agreements and Shared Responsibilities:

- Discussions included power sector cooperation, project implementation, the Treaty of Peace and Friendship of 1950, security, and boundary-related matters.
- PM Modi's '**HIT**' formula for India-Nepal relations, emphasizing **highways, lways (digital connectivity), and Transways, was reiterated as a framework for enhancing ties.**

RECENT INITIATIVES BETWEEN INDO-NEPAL

❖ **Power Sector Cooperation:** India and Nepal have recently signed significant agreements:

- ☛ **Long-Term Power Trade:** The nations agreed on a long-term trade deal aiming to import 10,000 MW of electricity from Nepal in the foreseeable future.
- ☛ **Hydropower Projects:** MoUs between NHPC, India, and Vidyut Utpadan Company Ltd, Nepal, were signed for the development of **Phukot Karnali and Lower Arun hydroelectric projects**. Both countries are committed to the **Pancheshwar multipurpose project**, enhancing collaboration on the **Mahakali River's shared water resources**.
- ☛ The Phukot Karnali Hydro Electric Project intends to generate 480 MW of power using the Karnali River's flow, with an average annual generation of about 2448 GWh. It includes a high RCC dam and an underground powerhouse.

❖ **Transport Development:** Several initiatives have been undertaken to bolster connectivity and trade relations:

- ☛ **Transmission Line and Rail Link:** A groundbreaking ceremony for the Gorakhpur-Bhutwal Transmission Line and the launch of an Indian Railway cargo train from Bathnaha to Nepal Customs Yard signify efforts to improve connectivity.
- ☛ **Integrated Checkposts (ICPs):** Inauguration of **ICPs at Nepalgunj and Rupaidiha facilitates** smoother cross-border trade and eases the movement of goods and people.

❖ **Other Strategic Initiatives:** Additional significant endeavors between India and Nepal include:

- ☛ **Petroleum Pipelines:** Plans to extend the first cross-border petroleum pipeline from Motihari to Chitwan by an additional 69 km in Nepal and constructing a second one from Siliguri to Jhapa in eastern Nepal.
- ☛ **Revised Treaty of Transit:** A revised agreement signed on June 1, 2023, provides Nepal access to India's inland waterways, allowing the use of Indian ports like Haldia, Kolkata, Paradip, and Visakhapatnam for third-country trade. This is poised to reduce transportation costs and time for Nepalese traders.
- ☛ **Fertiliser Plant Collaboration:** India's collaboration with Nepal in establishing a fertilizer plant underscores the importance of agricultural cooperation between the two nations.

CONCLUSION

In conclusion, the recent agreements and collaborative efforts between India and Nepal mark a definitive shift in their relationship, emphasizing a redefined and strengthened alliance. The signed pacts, especially in the power sector and infrastructure development, showcase a mutual commitment to foster robust economic ties and enhance connectivity. This evolution signifies a significant transformation in the Indo-Nepal relationship, emphasizing shared goals, cooperative development, and a commitment to elevating bilateral relations to new heights.

TOPIC

DISCRIPTION

ESTIMATE NATIONAL INCOME

WHY IN NEWS?

- ❖ The **National Statistical Office (NSO)**, under the **Ministry of Statistics and Programme Implementation**, has released the **First Advance Estimates (FAE)** of National Income for the **financial year 2023-24**.

ABOUT NATIONAL INCOME:

- ❖ **Definition:**
 - ☛ National income of a country represents the **sum total of incomes earned by its citizens** during a **specific period**, typically a year.



MEASURES OF NATIONAL INCOME:

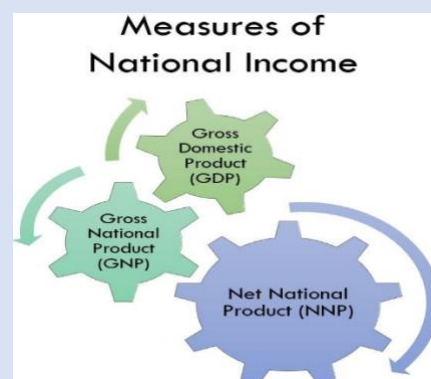
- ❖ **GDP (Gross Domestic Product):** The **total value of all goods and services** produced within the country's borders.
- ❖ **GNP (Gross National Product):** Similar to GDP but includes **income earned abroad by the country's residents**.
- ❖ **NNP (Net National Product):** Represents the net value of goods and services after accounting for depreciation.

NATIONAL INCOME ACCOUNTING EQUATION

Equation: $Y = C + I + G + (X - M)$

Components:

- Y: National income*
- C: Personal consumption expenditure*
- I: Private investment*
- G: Government spending*
- X: Net exports*
- M: Imports*



KEY POINTS ABOUT THE RECENT ESTIMATES:

- ❖ **Economic Growth:**
 - ☛ The Indian economy is projected to **grow by a robust 7.3% in FY 2023-24**, surpassing the **provisional growth rate of 7.2%** in the last financial year.
- ❖ **GDP Estimates:**
 - ☛ **Real GDP (Constant Prices):** Estimated at ₹171.79 lakh crore for 2023-24, with a **growth rate of 7.3% compared to the previous year**.
 - ☛ **Nominal GDP (Current Prices):** Estimated at ₹296.58 lakh crore, with a **growth rate of 8.9% for 2023-24**.
- ❖ **Methodology:**
 - ☛ The Advance Estimates are **indicator-based** and use a **benchmark-indicator method**, extrapolating **data from the previous year** using **relevant indicators** reflecting **sectoral performance**.
 - ☛ Data from **various ministries, departments, and private agencies** contribute to the **compilation of estimates**.

ABOUT NATIONAL STATISTICAL OFFICE (NSO):

- ❖ **Nodal Agency:**



- NSO operates as the **nodal agency under the Ministry of Statistics and Programme Implementation** for the planned development of the statistical system in India.
- ❖ **Norms and Standards:**
 - It **establishes and maintains norms and standards for statistics**, covering concepts, **definitions, data collection methodology**, processing, and result dissemination.
- ❖ **Components:**
 - NSO comprises the **Central Statistical Office (CSO)**, the Computer center, and the **National Sample Survey Office (NSSO)**.
- ❖ **Index of Industrial Production (IIP):**
 - NSO compiles and **releases the IIP every month in the form of 'quick estimates'**, providing insights into the industrial production scenario.
- ❖ **Annual Survey of Industries (ASI):**
 - **Conducts the ASI**, offering **statistical information to assess and evaluate changes in the growth**, composition, and structure of the organized manufacturing sector.

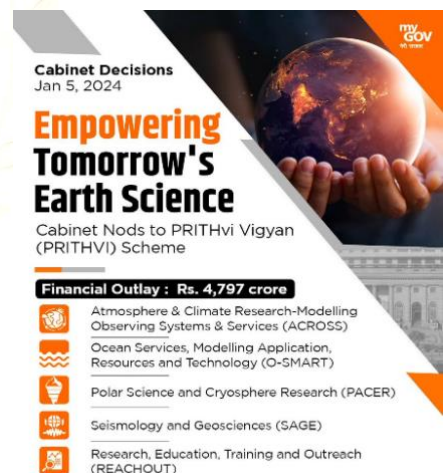
“PRITHvi Vigyan” (PRITHVI)- SCHEME

WHY IN NEWS?

- ❖ *The Union Cabinet has **approved a ₹4,797-crore program called 'Prithvi' aimed at consolidating five existing schemes of the Ministry of Earth Sciences (MoES)**. This initiative is **designed to enhance long-term observations of the Earth's atmosphere, oceans, geosphere, cryosphere, and solid earth**.*

ABOUT THE PRITHVI SCHEME:

- ❖ **Scheme Approval:**
 - Union Cabinet, chaired by Prime Minister Narendra Modi, approves the "PRITHvi Vigyan (PRITHVI)" scheme of the Ministry of Earth Sciences.
- ❖ **Implementation Period and Cost:**
 - Scheduled for implementation from 2021-26.
 - Overall cost: Rs. 4,797 crore.
- ❖ **Encompassed Sub-Schemes:**
 - Five ongoing sub-schemes included: ACROSS, O-SMART, PACER, SAGE, and REACHOUT.



OBJECTIVES OF PRITHVI SCHEME

- ❖ **Long-term Observations:**
 - Augment and **sustain long-term observations of the Earth's atmosphere, ocean, geosphere, cryosphere, and solid earth** to monitor vital signs and changes.
- ❖ **Modeling Systems Development:**
 - Develop modelling systems to understand and **predict weather, ocean, and climate hazards**.
- ❖ **Exploration of Polar and High Seas Regions:**



ISRO tests fuel cell to potentially power space missions- 'POEM3'

- ☛ Explore polar and high-seas regions for the discovery of new phenomena and resources.
- ❖ **Technology Development for Oceanic Resources:**
 - ☛ Develop technology for exploration and sustainable harnessing of oceanic resources for societal applications.
- ❖ **Translation of Knowledge:**
 - ☛ Translate knowledge and insights from Earth systems science into services for societal, environmental, and economic benefit.

WHY IN NEWS?

- ❖ ISRO successfully tests a 100W-class Polymer Electrolyte Membrane Fuel Cell-based Power System (FCPS) on its orbital platform, **POEM3**.
- ❖ The test was conducted on **January 1**, following the **launch on board PSLV58**.

ABOUT THE TESTS

- ❖ **Fuel Cell Technology:**
 - ☛ ISRO demonstrates a fuel cell that utilizes hydrogen and oxygen for power generation in space.
- ❖ **Power Generation:**
 - ☛ Successful short-duration test generates 180W power using hydrogen and oxygen.
- ❖ **Versatile Byproducts:**
 - ☛ Byproducts of heat and water from the fuel cell are considered essential, making the system suitable for diverse requirements in human space missions.
- ❖ **Future Power Systems for Space Stations:**
 - ☛ ISRO Chairperson S Somanath mentions that the fuel cell, designed by the Vikram Sarabhai Space Centre (VSSC), serves as a precursor to future power systems for space stations.



OBJECTIVES OF THE TESTS

- ❖ **Application in Human Space Missions:**
 - ☛ Demonstrate the viability of fuel cells for human space missions, providing essential power along with heat and water byproducts.
- ❖ **Space Station Preparation:**
 - ☛ The fuel cell's success aligns with ISRO's vision for multiple test vehicle missions and an unmanned spaceflight under the Gaganyaan mission in preparation for a space station in low Earth orbit by 2035.
- ❖ **Zero-Emission Cells on Earth:**
 - ☛ The fuel cells, with zero-emission characteristics, may find applications on Earth as potential replacements for vehicle engines.
- ❖ **Silicon-based Cell Development:**
 - ☛ Another experiment involves a Silicon-based cell developed by VSSC, offering a low-cost and lighter alternative to current cells with improved energy generation efficiency.
- ❖ **Battery Mass Saving:**



DISCOVERY OF PALAEO-LITHIC TOOLS

- ☛ The **Silicon-based cell is poised for use in upcoming operational missions, providing 35-40% battery mass saving**, and demonstrating survivability and performance in harsh space environments.

- ❖ **Use of Spent Rocket Stages:**

- ☛ ISRO utilizes the **spent stages of rockets, like the PSLV Orbital Experimental Module (POEM)**, as platforms for technology demonstrations, showcasing the **reusability and efficiency of space resources**.

- ❖ **Other Experiments on POEM:**

- ☛ The **POEM's third flight includes ten experiments, including a radiation shielding experiment**, an amateur radio, and three propulsion systems by space start-ups.

WHY IN NEWS?

- ❖ *Recent floods in the **Mulugu district of Telangana**, particularly in Bengaluru, have led to the **discovery of palaeolithic quartzite tools**.*
- ❖ *The **tools, including hand axes**, were found in the dried-up streambed after the floods.*

ABOUT THE DISCOVERY

- ❖ **Location and Context:**

- ☛ Discovery made in the streambed **between Gurrevula and Bhupatipuram villages in Mulugu district, Telangana**.

- ☛ Floods in July 2023 exposed the **palaeolithic quartzite tools**.

- ❖ **Discovery Details:**

- ☛ Led by **Sriramoju Haragopal**, a team of amateur historians made the discovery.

- ☛ **Stone axe**, measuring **15.5cm in length, 11cm in width, and 5.5cm in thickness**, found by researcher **Eleswaram Janardanachari**.

- ❖ **Historical Significance:**

- ☛ Stone axe identified as belonging to the **Lower Palaeolithic period**, dating back **approximately 30 lakh years ago**.

- ☛ Palaeolithic Age, also known as **Old Stone Age or Early Stone Age**, spans around **33 lakh years BC**, lasting for **10,000 years**.



HISTORICAL CONTEXT - EAST INDIA COMPANY'S SURVEY

- ❖ In **1863**, the **Geological Survey team of the East India Company** discovered a palaeolithic site at **Attirampakkam near Madras (present-day Chennai)**.

- ❖ The site included **bifacial hand-axes made by early humans**, estimated to be **about 15 lakh years old**.

- ❖ This historical context led to the **labeling of the Palaeolithic culture as the Madras Hand-Axe Industry or Madrasian Culture**.

GREENFIELD CORRIDOR

WHY IN NEWS?

- ❖ ***Union Minister Nitin Gadkari's announcement of greenfield corridors in Kerala for enhanced road connectivity is in the news.***



- ❖ *The inauguration of three projects and the foundation laying for nine national highway projects, totaling 105 km, is a significant development.*

ABOUT GREENFIELD CORRIDORS:

- ❖ **Announcement:**

- ☛ Nitin Gadkari announces greenfield corridors for Kerala's road connectivity.

- ❖ **Projects Inaugurated:**

- ☛ Virtually inaugurated three projects and laid the foundation for nine national highway projects.
- ☛ **Projects total 105 km, costing ₹1,464 crore under the Bharat Pariyojana scheme.**

- ❖ **Importance of Infrastructure:**

- ☛ **Emphasizes the significance of infrastructure development and road connectivity for boosting Kerala's appeal to tourists worldwide.**

- ❖ **Green Technologies:**

- ☛ Incorporates green technologies for **conservation of natural resources.**
- ☛ Use of **cement-treated sub-base, reclaimed asphalt pavement, local/marginal materials (lime, fly ash, waste plastic), and bio-engineering measures for slope protection (hydroseeding, coco/jute fibre).**

- ❖ **Key Greenfield Corridors:**

- ☛ **NH-966 Kozhikode-Palakkad stretch (121 km)** estimated at ₹10,371 crore to reduce travel time.
- ☛ **NH-744 Kollam-Sengottai stretch and Thiruvananthapuram Outer Ring Road** aimed at reducing travel time.

- ❖ **Upgradation Projects:**

- ☛ **SH1/NH 183 Thiruvananthapuram-Kochi stretch, Kutta Malappuram Economic Corridor, and NH-544 Angamali-Kundanur stretch** to be upgraded for improved connectivity.

- ❖ **Mumbai-Kanyakumari Corridor:**

- ☛ Progress update on the **Mumbai-Kanyakumari corridor (1,619 km, costing ₹60,999 crore in Kerala)** expected to significantly reduce travel time.

- ❖ **Future Projects:**

- ☛ Work in progress for the **Bengaluru-Malappuram corridor (323 km with 72 km in Kerala).**
- ☛ **Mumbai-Kanyakumari economic corridor transformation** expected to impact Kerala's **travel dynamics, passing through multiple states.**

