



## Earthquake in Tibetan China and Nepal

**For Prelims:** [Earthquake](#), [Mt Everest](#), [Indian Tectonic Plate](#), [Himalayan mountain range](#), [Pangaea](#), [Bureau of Indian Standards](#)

**For Mains:** Tectonic Plate Movements , Seismic Zones of India, Tibetan Plateau and Earthquakes

**Source:** [TH](#)

### Why in News?

A magnitude 7.1 [earthquake](#) struck the [Tibetan region of China](#) and parts of [Nepal](#), causing widespread devastation. The quake's epicenter was in [Tingri County](#), within the [Lhasa Terrane](#), near the [Mt Everest region](#).

- This event aligns with findings from research identifying the [Qixiang Co Fault](#), a newly discovered tectonic [fault](#) facilitating the eastward movement of the Tibetan Plateau, thereby increasing seismic activity in the region.

### What are the Causes of Earthquake in Lhasa Terrane?

- **Tectonic Plate Activity:** The earthquake is a result of the ongoing collision between the [Indian and Eurasian plates](#), which began around 50 million years ago.
  - The Indian plate continues to push into the [Eurasian plate](#) at a rate of about **60 mm per year**, causing tension to build up and eventually leading to earthquakes.
- **Historical Context:** Since 1950, more than 21 earthquakes of magnitude 6 or higher have been recorded in the [Lhasa terrane](#).
  - The strongest of these was in 2017 near Mainling, Tibet Autonomous Region of China, with a magnitude of 6.9.

### Indian Tectonic Plate

- Around 200 million years ago, during the breakup of the [supercontinent Pangaea](#), the Indian plate, once part of [Gondwana](#), began drifting northwards at 9 cm per year.
  - This movement led to a collision with the [Eurasian Plate](#), resulting in the uplift of the [Himalayan mountain range](#), a process that continues today.
  - The Indian plate moves northeast at approximately 5 per year, driving Himalayan growth by underthrusting the Eurasian Plate.
  - The Indian Plate is bordered by the [Eurasian Plate to the north](#), the [Australian Plate to the south-east](#), the [African Plate to the south-west](#), and the [Arabian Plate to the west](#).

### What is the Significance of Lhasa Terrane?

- **Lhasa Terrane:** The earthquake occurred in the Lhasa terrane, this region is home to large-scale infrastructure projects, including **China's world's largest hydroelectric dam**, which is being built on the [Yarlung Tsangpo River](#).
  - The Yarlung Tsangpo River enters India as the [Siang](#) and later the [Brahmaputra](#). This raises concerns in India regarding the potential impact on **water flow in Arunachal Pradesh and Assam**.
    - In 2004, a landslide in Tibet created a **glacial lake** that nearly flooded the Sutlej River, prompting India to monitor the situation closely.
- **Environmental Risks:** The Tibetan plateau holds significant water resources and is referred to as the '**third pole**' due to its **glaciers, rivers, and lakes**.
  - Earthquakes in the area can destabilize glaciers and change the course of rivers, increasing the risk of flooding.

## What is the Qixiang Co Fault?

- **Geological Characteristics:** The QXCF is a **sinistral fault (left-lateral fault)**, meaning the blocks on either side of the fault move laterally in a left-handed direction relative to each other.
- **Significance in Tectonic Dynamics:** The QXCF serves as the most significant tectonic boundary across the **Qiangtang Terrane**, a major geological feature of the **Tibetan Plateau seismic zone** (one of China's five major seismic zones)
  - The QXCF helps central Tibet move eastward, adding to the region's complex changes caused by the collision of the Indian and Eurasian tectonic plates.
  - QXCF dynamics **may influence the frequency and intensity of earthquakes** in the area.

## Why is the Himalayan Zone Seismically Active?

- **Tectonic Plate Convergence:** The Himalayas are the result of the collision between the Indian and Eurasian tectonic plates which are still converging at a rate of **40-50 mm/year**, causing constant tectonic stress and leading to seismic activity.
- **Continual Plate Subduction:** The Indian plate is being **continuously subducted beneath the Eurasian plate**, generating **strain** that is released through frequent earthquakes.
- **Presence of Fault Lines:** The region is crisscrossed by multiple fault lines, including the **Main Himalayan Thrust**, that are responsible for frequent seismic events.
  - These faults **store elastic energy that**, when released, causes earthquakes.
- **Complex Tectonic Interactions:** Besides the India-Eurasia collision, other tectonic features, such as the **subduction of the Eurasian plate beneath the Pamir Mountains**, also contribute to the region's seismicity.
  - This convergence of various tectonic forces increases the likelihood of earthquakes.

## What is an Earthquake?

- **About:** An earthquake is the shaking of the Earth's surface caused by the **release of energy, generating seismic waves**.
  - These waves travel in all directions and are recorded on **seismographs**. The starting point beneath the surface is the **hypocenter**, and the point directly above it on the surface is the **epicenter**.
- **Types of Earthquakes:** There are four different types of earthquakes they are tectonic, volcanic, collapse and explosion.
  - A **tectonic earthquake** occurs when the [Earth's crust breaks](#) due to geological forces acting on rocks and adjacent plates, leading to physical and chemical changes.
  - A **volcanic earthquake** is triggered by **volcanic activity**, typically due to the movement of [magma within a volcano](#).
  - A collapse earthquake occurs in underground **caverns or mines**, caused by seismic waves from **surface explosions**. These earthquakes are **usually minor tremors**.
  - An explosion earthquake is an earthquake that is the result of the **detonation of a nuclear and/or chemical device**.
- **Earthquake in India:** India is divided into four seismic zones by the [Bureau of Indian](#)

**Standards:** II, III, IV, and V. **Zone V is the most seismically active**, while Zone II is the least.

- The **Indian Himalayan Region**, being geologically active, primarily falls within Seismic Zones IV and V.

**Drishti Mains Question:**

What are the factors contributing to high seismic activity in the Himalayan region, and how do the convergence of tectonic plates and fault lines increase earthquake likelihood?

## UPSC Civil Services Examination Previous Year Question (PYQ)

### **Mains**

**Q.** The frequency of earthquakes appears to have increased in the Indian subcontinent. However, India's preparedness for mitigating their impact has significant gaps. Discuss various aspects. **(2015)**

**Q.** Discuss about the vulnerability of India to earthquake related hazards. Give examples including the salient features of major disasters caused by earthquakes in different parts of India during the last three decades. **(2021)**

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## La Nina: Impacts, Mechanisms, and Predictions

**For Prelims:** [La Nina](#), [Pacific Ocean](#), [El Nino Southern Oscillation \(ENSO\)](#), [Trade Winds](#), [Monsoon](#), [Palm Oil Production](#), [Oceanic Nino Index](#).

**For Mains:** El NiNo and La NiNa, its effect on weather conditions.

**Source:** [BS](#)

### Why in News?

The long-anticipated [La Nina](#) has emerged, but the [Pacific Ocean](#)'s cooling is mild and unlikely to cause as many weather problems as usual.

- Its **delayed arrival** may have been influenced by the **world's oceans being much warmer** than the last few years.
- La Nina conditions emerge in the **tropical Pacific in December**.

### What is La Nina?

- **About:** La Niña, meaning "**The Little Girl**" in Spanish, is a **cool phase of the [El Nino Southern Oscillation \(ENSO\)](#)**.
  - It is characterized by **colder-than-normal [sea surface temperatures](#)** in the eastern Pacific Ocean.
  - La Nina is one of the three phases of ENSO, alongside **[El Nino \(the warm phase\)](#)** and the **neutral phase**.

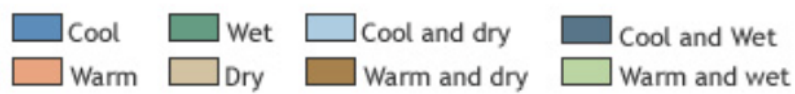
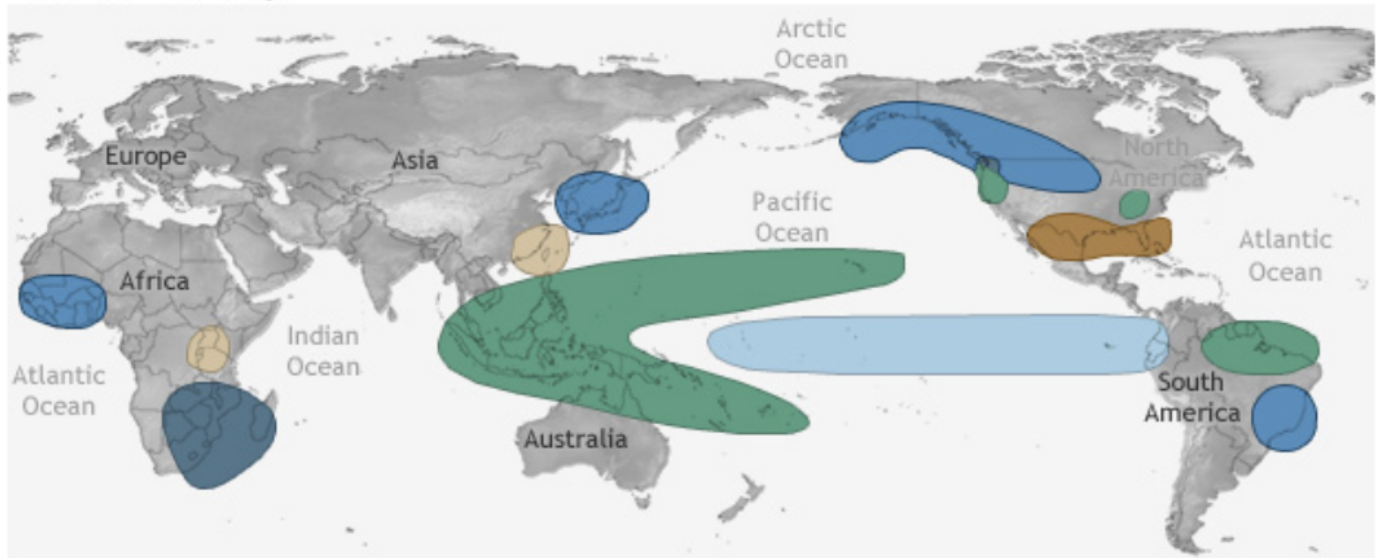
- **Mechanism:** In La Nina, the **trade winds strengthen**, pushing **warm water** toward the **western Pacific**.
  - **Cooler waters** from below **rise in the eastern Pacific**, causing a **temperature drop** in that region.
- **Cycles:** La Niña occurs in **irregular cycles**, typically lasting from **two to seven years**, and often follows an El Niño event.
- **Recent Events:** The most recent La Niña phase lasted from **2020 to 2023**, before transitioning to an El Niño phase in mid-2023.
- **Climate Change:** The **intensity** of La Niña's impacts, such as **extreme temperatures and unusual weather patterns**, is exacerbated by anthropogenic climate change.

## What are the Potential Regional Impacts of La Niña?

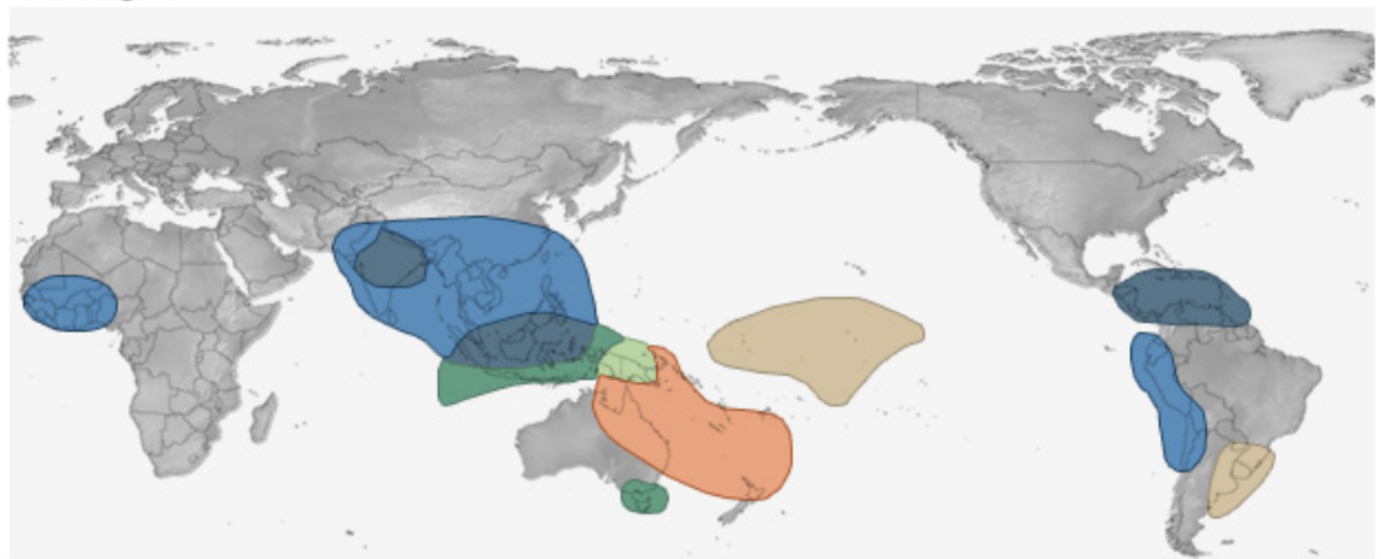
- **Asia:** In India, La Niña is expected to lead to **above-average monsoon rainfall** from **July to September**, which may result in a **decrease** in the production of **pulses** in the Indo-Gangetic Plains, but **rice production** may see an **increase**.
  - In Southeast Asia, including **Indonesia, Malaysia, and the Philippine**, La Niña brings **above-average rainfall**, causing **flooding** but boosting **rice and palm oil production**.
- **South America:** In Southern **Brazil, Uruguay, northern Argentina, and southern Bolivia**, La Niña causes **below-average rainfall**, leading to **drought** and affecting soybeans and maize.
  - In contrast, **Northern Brazil, Colombia, Venezuela, and parts of Ecuador and Peru** experience wetter conditions, leading to potential **flooding**.
- **Africa:** In East Africa, La Niña brings **drier conditions** in December and January, negatively impacting crops harvested in **February and March**.
  - In **Southern Africa**, La Niña causes **above-average summer rainfall**, benefiting agriculture with higher yields of **maize, sorghum, wheat, and soybeans**.
- **Oceania:** In Australia, the region experiences **above-average rainfall in the northern and eastern regions**, often linked to **severe flooding**.
- **North America:** In the US, La Niña causes **drier conditions** in the **south** and **wetter, stormier weather in the north**, including Alaska and Canada.

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December-February



June-August

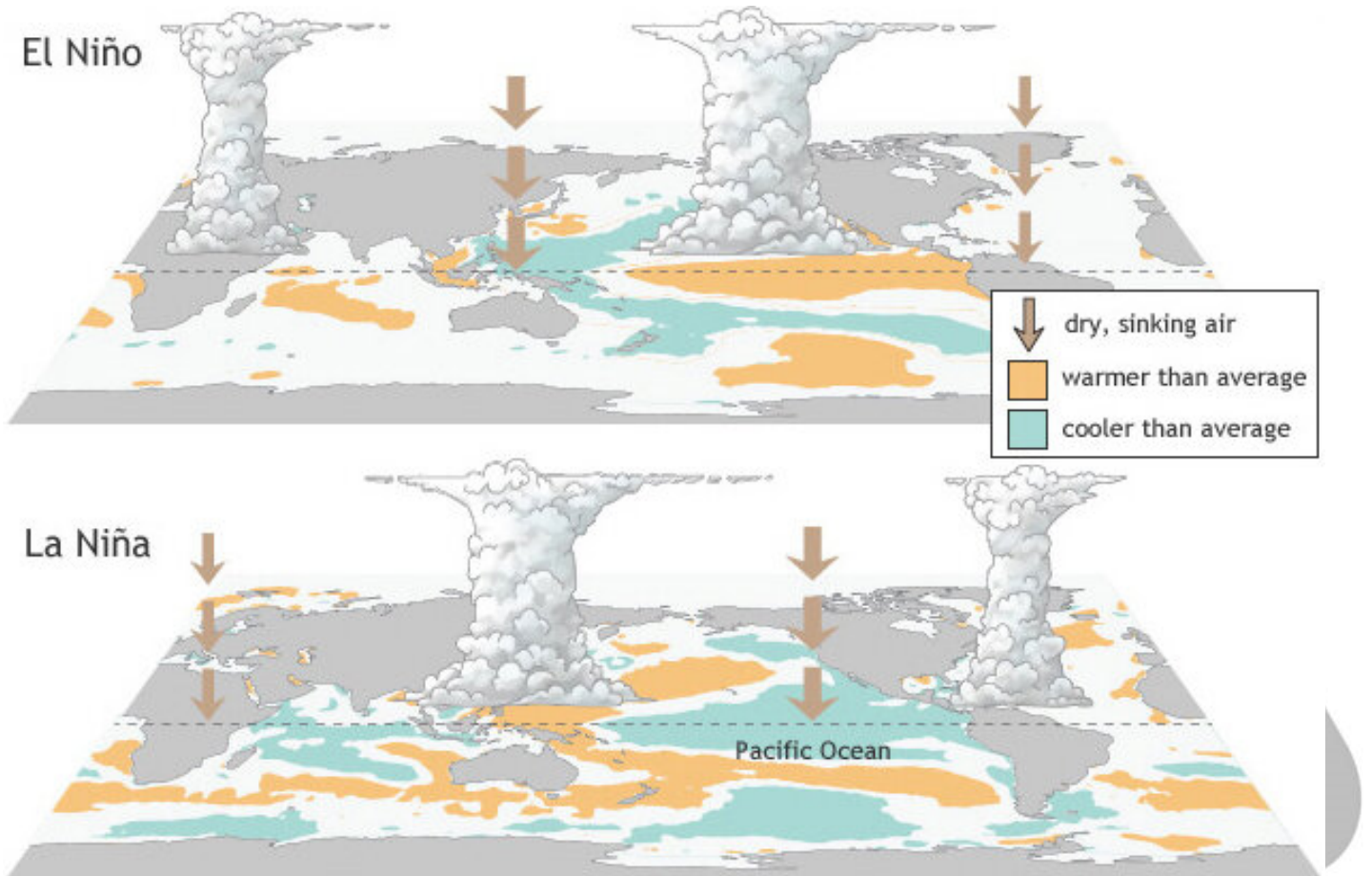


NOAA Climate.gov

## What is El Nino-Southern Oscillation?

- **About:** ENSO is a **recurring climate pattern** involving **periodic changes** in the temperature of waters in the **central and eastern tropical Pacific Ocean**, affecting global weather patterns.
- **Historical Context:** The term El Nino was used by South American fishermen for **warm Christmas waters**.
  - **Sir Gilbert Walker** discovered the **Southern Oscillation**, linking sea pressure changes to atmospheric conditions in the **1960s**, leading to the **ENSO term**.
  - **La Nina and Neutral** became widely used in the **1980s**.
- **Phases of ENSO:**
  - **El Nino:** **Warming ocean temperatures** in the central/eastern Pacific, weakens **easterly winds**, reducing rainfall in Indonesia and increasing it in the central/eastern Pacific.
  - **La Nina:** **Cooling ocean temperatures** in the central/eastern Pacific, **strengthens easterly winds**, increasing rainfall in Indonesia and decreasing it in the central/eastern Pacific.
  - **Neutral:** Tropical Pacific sea surface temperatures are **average**, with atmospheric

conditions showing signs of **either El Niño or La Niña**.



- **ENSO Cycle:** The ENSO cycle oscillates **every 3 to 7 years**, with sea surface temperatures varying between **1°C to 3°C above or below average**.

### How La Niña and El Niño are Predicted?

- **Climate and Observational Data:** Scientists use **climate models** alongside observational data (such as **sea surface temperatures, trade wind strength, and data from satellites and ocean buoys**) to predict the onset of ENSO events (El Niño and La Niña).
  - **Ocean buoys** are **floating devices** placed in the ocean for various purposes, including **environmental monitoring, data collection, and navigation**.
- **Oceanic Niño Index:** **ONI** It compares the **3-month average sea surface temperatures** in the East-Central Tropical Pacific with the **30-year average**.
  - When the difference between the **two is 0.5°C or higher**, it is an El Niño, and when it is **-0.5°C or lower**, it is a La Niña.
- **Niño-3.4 Index:** This index **helps to identify the thresholds** that define El Niño and La Niña events.
  - A value of **0.5°C or greater** is indicative of the **event's initiation**, while a **strong event** requires a temperature anomaly of **1.5°C or more**.
- **Lead Time for Predictions:** La Niña events can be forecasted up to **two years in advance** if they follow a strong El Niño.

# OCEAN WARMING

The ocean absorbs most of the excess heat due to global warming caused by greenhouse gas (GHG) emissions, leading to rising ocean temperatures

## Increase in Ocean Temperature

**1.2°C** from 1950 to 2020

## Projected to Future Increase

**1.7°C to 3.8°C** from 2020 to 2100

### Causes of Ocean Warming (due to Global Warming)

- ↳ **GHG Emissions:** Fossil fuels burning releases CO<sub>2</sub> and GHG
- ↳ **Deforestation:** Lesser trees → More CO<sub>2</sub> & GHG → Global Warming → Warming of Ocean
- ↳ **Industrial Activities:** Emit various pollutants that contribute to greenhouse effect
- ↳ **Agricultural Practices:** Produces methane and nitrous oxide – potent greenhouse gases
- ↳ **Heat Absorption by Oceans:** Oceans absorb ~90% of excess heat generated by GHGs

### Impact of Ocean Warming

- ↳ **Sea Level Rise:** Warmer water expands, causing sea levels to rise
- ↳ **Coral Bleaching:** Corals expels the algae (zooxanthellae) living in their tissues and turn completely white
- ↳ **Ocean Acidification:** Ocean absorbs ~1/4<sup>th</sup> of total CO<sub>2</sub> thus making it more acidic (non-metallic oxides - acidic in nature)
- ↳ **Impacts on Marine Life:** Causes many marine species to shift towards the poles and disrupts food webs
- ↳ **Impacts on Climate Patterns:** Influences atmospheric circulation patterns, such as El Niño and La Niña & extreme weather events



Drishti IAS

## Conclusion

**La Nina**, the cool phase of the El Niño-Southern Oscillation (ENSO), influences **global weather patterns**, affecting **rainfall, agriculture, and climate extremes**. Accurate forecasting through models and indices like **ONI and Nino-3.4** is vital for mitigating its impacts, especially as **anthropogenic climate change** amplifies its intensity and unpredictability.

### Drishti Mains Question:

Q. How does the El Niño-Southern Oscillation (ENSO) influence weather patterns across the globe?

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims

**Q. La Nina is suspected to have caused recent floods in Australia. How is La Nina different from El Nino?(2011)**

1. La Nina is characterised by an usually cold ocean temperature in equatorial Indian Ocean whereas El Nino is characterised by unusually warm ocean temperature in the equatorial Pacific Ocean.
2. El Nino has an adverse effect on the south-west monsoon of India but La Nina has no effect on monsoon climate.

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

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

**Ans: (d)**

### **Mains**

**Q.** Drought has been recognized as a disaster in view of its spatial expanse, temporal duration, slow onset and lasting effects on vulnerable sections. With a focus on the September 2010 guidelines from the National Disaster Management Authority (NDMA), discuss the mechanisms for preparedness to deal with likely El Nino and La Nina fallouts in India? **(2014)**

## **Burqa Ban in Switzerland**

**For Prelims:** [Supreme Court](#), [Hijab](#), [Fundamental Rights](#), Cases Related to Freedom of Religion

**For mains:** [Fundamental Rights](#), Judiciary, Government Policies & Interventions, [Women's Issues](#), Cases Related to Freedom of Religion.

[Source: IE](#)

### **Why in News?**

**Switzerland's** prohibition on face-covering garments, including **burqas and niqabs**, has come into effect from 1<sup>st</sup> January 2025.

- This measure, approved through a nationwide referendum in March 2021, reflects the ongoing **global debate over wearing hijabs and burqas**, an issue that has also sparked significant discourse in India.

### **Karnataka Government on Hijab Ban**

- In 2022, the [Karnataka government passed an order](#) prohibiting the wearing of hijab (headscarf) in government educational institutions.
- The order cited **Section 133(2) of the Karnataka Education Act, 1983**, which grants the **state powers to issue directives** for government schools to follow.
- In 2013, the state used this **provision to make uniforms compulsory**. The latest order states that the **hijab is not an essential religious practice for Muslims** that can be protected under the Constitution.

### **What are the Key Highlights of the Burqas Ban by Switzerland?**

- **Scope and Penalties:** The law bans covering the **nose, mouth, and eyes** in public



spaces and private buildings accessible to the public.

- **Violation** of the rule will be fined up to **1,000 Swiss francs**.

- **Exceptions:** Exceptions to the ban include **planes, diplomatic premises, places of worship, health and safety concerns, native customs**, weather conditions, artistic purposes, and personal protection with prior approval.

## Which Countries Have Banned Face Veils?

- **France:** It is the first European country to **ban full-face veils in public in 2011**, following restrictions on religious symbols in schools since 2004.
- **China:** It has banned burqas, veils, and long beards in Xinjiang province in **2017** as part of anti-extremism measures.
- **Belgium:** Full-face coverings were banned in 2011, with violators facing fines or up to 7 days in jail. The ban was upheld by the European Court of Human Rights in 2017.
- **Sri Lanka:** It has permanently banned face veils in **2021** citing national security, after a temporary ban following the **2019 Easter bombings**.
- **Tajikistan:** In 2024, it has **officially banned hijabs** for women despite over 95% of the population being Muslim.
  - Hijab is also banned in **Germany, Australia, Austria, Bosnia, Herzegovina, Canada, Kazakhstan, Kosovo, Kyrgyzstan, Russia, and Uzbekistan** with varying degrees of restrictions.

## Iranian Hijab Movement

- **Historical Background:** Post-1979 Iranian Revolution, the **hijab was made mandatory for women**, sparking decades of resistance.
- **Protests and Symbolism:** Iconic acts like the "**Girl of Enghelab Street**" protest, where a woman waved her white headscarf on a stick, **symbolize defiance against the dress code**.
  - Protests reignited after the **death of Mahsa Amini**, allegedly due to strict hijab enforcement, leading to widespread demonstrations.
- **Government Crackdown:** Iran enforces the hijab mandate with fines and imprisonment for non-compliance, intensifying societal tensions.
- Currently the movement is supported by **both men and women who oppose the compulsory dress code**, reflecting broader demands for personal freedoms and women's rights.

## What is the Status of Hijab Wearing in India?

- **Amna Bint Basheer v CBSE, 2016:** In [Amna Bint Basheer v CBSE, 2016](#), the Kerala HC ruled that **wearing a hijab is an essential religious practice** but **upheld the CBSE dress code**, allowing additional measures and safeguards as in 2015.
  - The [Central Board of School Education \(CBSE\)](#) argued that the dress code was to prevent unfair practices.
- **Kerala High Court, 2018:** In [Fathima Thasneem v State of Kerala, 2019](#), the case involved two girls who wanted to wear the **headscarf and the Christian missionary school** refused to allow the headscarf.
  - The court ruled in favour of the school's decision, stating that the "**collective rights**" of the school must take **precedence over individual student rights**.
- **Resham v. State of Karnataka, 2022:** Karnataka HC in March 2022, validated the state government's ban on hijabs in government colleges.
  - HC upheld the ban stating that **wearing a hijab did not qualify as an essential religious practice** and the ban **did not violate the Freedom of Speech and Expression**.
- **Split Verdict by Supreme Court (SC), 2022:** In [Resham v. State of Karnataka, 2022](#) case 2-judge bench of SC delivered a split verdict. The case has now been referred to a **larger bench of the SC**.

# Divergent views

A look at what was emphasised by the two verdicts on the hijab ban

DELIVERED BY

**JUSTICE HEMANT GUPTA**

“Secularism is applicable to all citizens, therefore, permitting one ... community to wear their religious symbols would be antithesis to secularism.”

**SCHOOL AND RELIGION:** Religion has no meaning in a secular school run by the state. “Students are free to profess their religion and carry out religious activities other than when they’re attending a classroom.”

**UNIFORM, EQUALITY:**

“... Uniform fosters a sense of ‘equality’ amongst students- instills a sense of oneness, diminishes individual differences...”

DELIVERED BY

**JUSTICE SUDHANSHU DHULIA**

“Wearing hijab should be simply a matter of choice. It may or may not be a matter of essential religious practice, but it still is, a matter of conscience, belief, expression.”

**CLASSROOM IS DIFFERENT:** Though discipline is required in educational institutions, they can't be put on par with a jail or a military camp, as was cited by HC while describing schools as “qualified public spaces”

**TICKET TO EDUCATION:** “If it is worn as a matter of her choice, as it may be the only way her conservative family will permit her to go to school... her hijab is her ticket to education”

## Constitutional Framework for Religious Freedom in India

- The Indian Constitution guarantees the **Right to Freedom of Religion** under **Articles 25-28**, enshrined in **Part III (Fundamental Rights)**:
  - **Article 25(1)**: Ensures the "**freedom of conscience and the right to freely profess, practice, and propagate religion**," providing a negative liberty where the state cannot interfere with religious practices.
  - **Article 26**: Grants the "**freedom to manage religious affairs**," allowing religious denominations to establish and manage institutions for religious and charitable purposes, subject to public order, morality, and health.
  - **Article 27**: Prohibits the state from **compelling citizens to pay taxes** for promoting or maintaining any particular religion, reinforcing the principle of secularism.
  - **Article 28**: Regulates **religious instruction in educational institutions**, restricting religious instruction in state-funded or state-recognized institutions, except where explicitly permitted.
- Additionally, **Articles 29 and 30** safeguard the **cultural and educational rights of minorities**, emphasizing the protection of their unique identities.

## What are the Arguments in Favour and Against Such Ban?

- **Arguments in Favour of Ban:**
  - **Uniformity and Discipline:** Enforcing a dress code **promotes uniformity** and fosters **discipline** in educational institutions.
    - It **prevents the display of overt religious symbols**, maintaining a **neutral and**

**inclusive space** free from religious divisions.

- **Gender Equality:** Hijab and similar practices are often viewed as **tools of patriarchy that perpetuate gender inequality** and restrict women's freedom.
- **Integration into Society:** Prohibiting such practices can **encourage integration into the broader society**, avoiding potential alienation caused by visible religious markers.
- **Not Absolute Fundamental Right:** Fundamental rights are not absolute and are **subject to reasonable restrictions**.
  - The right to religion under Article 25 **cannot override other fundamental rights**, particularly in **government-funded educational institutions**.
- **Security Concerns:** Such bans also aim to **prevent anonymity that may hinder identification**, deter **misuse of garments to conceal weapons**, and **enhance public safety** in high-risk areas.
  - For example: **2019 Easter bombings in Sri Lanka**, the suicide bombers blended in with the public.
- **Arguments Against Ban:**
  - **Freedom of Religion: Article 25** of the Indian Constitution guarantees the **right to practice and profess religion**, banning such practices may create a sense of alienation and exacerbate social tensions.
  - **Autonomy and Choice:** Imposing a ban **infringes on personal liberty** and the right of individuals, particularly women, to make choices about their attire.
  - **Impact on Education:** Restricting hijab **may discourage female students** from conservative backgrounds **from attending schools**, adversely affecting their education and empowerment.
    - For example: In 2019-20, **Muslim girls had lower school attendance rates** than Hindu girls in most states.
    - Such bans can also **hinder educational access**, disproportionately affecting girls from conservative backgrounds and **further marginalizing these groups**.

## Conclusion

The hijab/burqa debate highlights the **need to balance individual freedoms with societal values and institutional discipline**. While religious rights are protected under the Constitution, they are not absolute and must align with public order and equality. Judicial rulings emphasize inclusivity and gender equality, underscoring the importance of fostering dialogue and crafting policies that respect personal freedoms without hindering access to education or marginalizing communities.

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### Mains:

**Q.** How the Indian concept of secularism is different from the western model of secularism? Discuss. (2016)

**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)

# Future of Jobs Report 2025

**For Prelims:** [World Economic Forum \(WEF\)](#), [Future of Jobs Report](#), [Green Transition](#), [AI](#), [Renewable Energy](#), [Low-Income Economies](#), [Stakeholder Capitalism](#), [Global Competitiveness Index](#), [Global Gender Gap Index](#), [Energy Transition Index](#), [Global Risk Report](#), [Global Travel and Tourism Competitiveness Index](#), [GenAI](#), [Semiconductors](#), [Quantum](#), [Encryption](#).

**For Mains:** Impact of technological advancements on global labor markets.

[Source: HT](#)

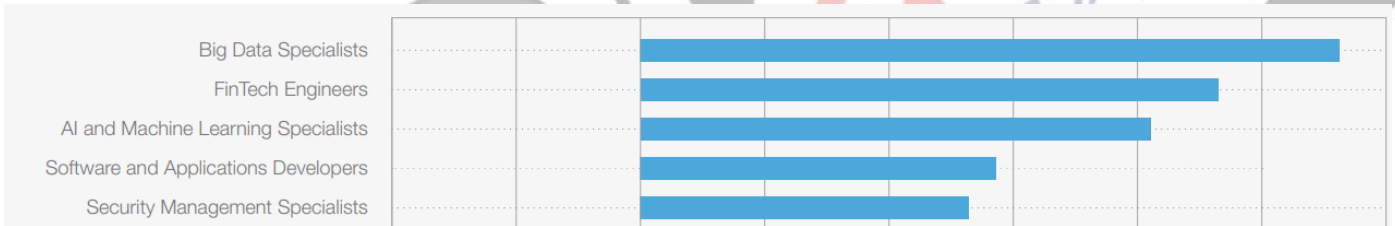
## Why in News?

The [World Economic Forum \(WEF\)](#) released its '[Future of Jobs Report 2025](#),' highlighting **key findings and changes** expected to **shape the global job market by 2030**.

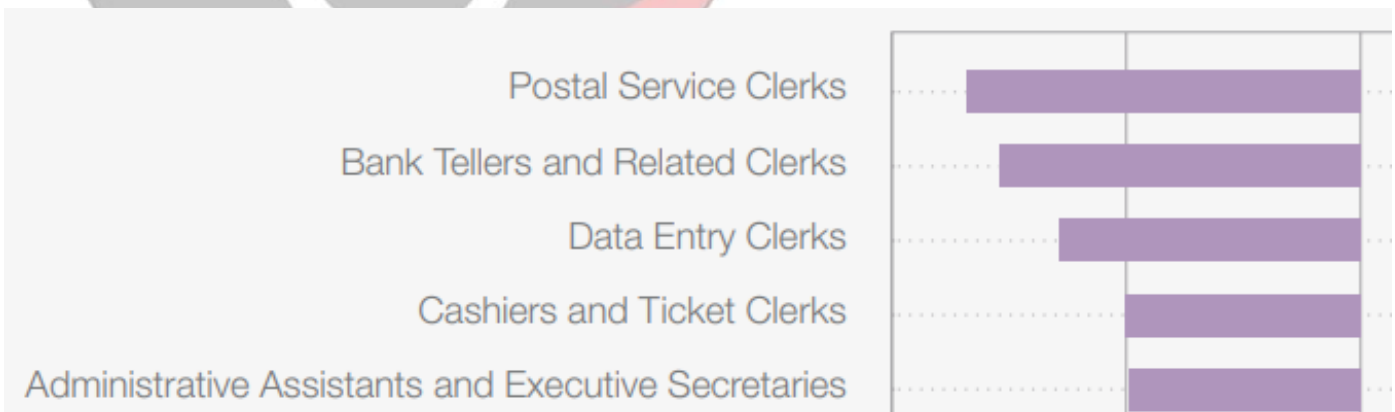
- The report, based on inputs from **55 economies**, **projected** a net increase of **78 million jobs by 2030** and highlighted how **technology, economic shifts, and the [green transition](#)** impact jobs and skills.

## What Are the Key Findings of the WEF Report?

- **Fastest-Growing Roles:** The fastest-growing roles include frontline jobs (farmworkers, delivery), care economy positions, tech roles, and green transition jobs.



- **Declining Roles:** The report finds that clerical roles such as cashiers, data entry clerks, and bank tellers are expected to decline significantly.



- **Job Displacement and Creation:** **Automation**, investments in **renewable energy** and **aging populations** displaces jobs but creates **new tech and machine management roles**.
  - Slower economic growth is expected to **displace 1.6 million jobs globally**.
- **Technological Advancements:** Broadening [digital access](#) is the most transformative trend,

with **60% of employers** expecting it to **reshape businesses** by 2030.

- Key technologies **in demand for high skills** include **Artificial intelligence (AI)** and **information processing (86%)**, **robotics and automation (58%)**, and **energy technologies (41%)**.
- **Green Transition:** **Climate-change** mitigation and adaptation trends are driving demand for roles such as **renewable energy engineers**, **environmental engineers**, and specialists in electric and autonomous vehicles.
- **Demographic Shift:** Aging populations and shrinking workforces impact labor supply.
  - Aging in **high-income economies** drives demand for **healthcare**, while growing workforces in **low-income economies** boost demand for **educators and talent managers**.
- **Geoeconomic Fragmentation:** Geopolitical tensions and trade restrictions are prompting business model transformations in **34% of organizations**.
  - Businesses are more likely to **offshore and reshore their operations**.
  - Geopolitical tensions are boosting demand for **security roles and cybersecurity skills**.
- **India Related Findings:** India is leading in AI skills enrollments with corporate sponsorship significantly boosting **GenAI training**.
  - Employers in India aim to outpace global tech adoption, with 35% expecting **semiconductors** and computing technologies, and 21% anticipating **quantum and encryption** to transform operations.
  - **India and Sub-Saharan African** nations, will supply nearly **two-thirds** of new workforce entrants in the coming years.

## World Economic Forum (WEF)

- **About:** WEF is an international organization for **public-private cooperation**, headquartered in **Geneva, Switzerland**.
  - It engages global leaders to shape agendas across **industries, regions, and globally**.
- **Foundation:** Founded by **Klaus Schwab in 1971** as the **European Management Forum**, WEF introduced "**stakeholder capitalism**," which emphasizes **long-term value** for all stakeholders, not just short-term profits for shareholders.
- **Evolution:** In **1973**, the WEF expanded its focus to **economic and social issues**. It introduced membership for the world's leading **1,000 companies in 1975**.
  - In **1987**, it became the **World Economic Forum**, broadening its role as a platform for dialogue. It was recognized as an **international organization in 2015**.
- **Major Reports:** WEF publishes key reports, including the **Global Competitiveness Index**, **Global Gender Gap Index**, **Energy Transition Index**, **Global Risk Report**, and **Global Travel and Tourism Competitiveness Index**.

## What are the Challenges to Employment in India due to Emerging Technologies?

- **Job Displacement:** According to the **International Labour Organization (ILO)**, sectors like **manufacturing and services** are experiencing automation of **repetitive tasks**, leading to **potential job displacement**.
- **Skill Mismatch:** There's a growing need for expertise in **AI, cybersecurity, and data science**. However, a significant portion of the workforce lacks these **specialized skills**, leading to a mismatch between job requirements and available talent.
- **Uneven Technology Adoption:** Urban areas are rapidly **adopting new technologies**, while rural regions **lag behind**, leading to disparities in employment opportunities and economic growth.
- **Informal Sector Challenges:** Workers in the informal sector, which constitutes a **significant part of India's economy**, may find it hard to transition to technology-driven jobs due to **lack of access to training and education**.

## Way Forward

- **Upskilling:** Governments, businesses, and educational institutions should collaborate to create specialized **upskilling programs tailored to emerging sectors**.
  - Employers should create **career progression pathways** to help employees transition from declining to growing roles.
- **Diversity, Equity, and Inclusion (DEI):** Companies should invest in **diversity recruitment programs**, aiming to tap into underrepresented communities and regions, thus enhancing the talent pool.
- **AI Adoption for Workforce:** Embrace a mix of **human creativity and AI efficiency** where humans and machines can **collaborate rather than compete**, improving productivity without sacrificing employment.
- **Retaining Talent:** Conduct regular **pay reviews**, ensure compensation transparency, and offer incentives like **stock options, bonuses, and benefits** to boost retention and skill development.
- **Public Policy Support:** Governments should fund **reskilling and upskilling initiatives**, especially for industries impacted by technology, and offer **retraining, financial support, and job placement for displaced workers**.

## Conclusion

The WEF's '**Future of Jobs Report 2025**' underscores the need for **upskilling, adapting to technological shifts, and prioritizing diversity** in the workforce. Governments and businesses must collaborate to create **resilient labor markets** by investing in skills, AI, and inclusive growth strategies to meet future job demands.

### **Drishti Mains Question:**

Discuss the impact of technological advancements and economic conditions on global labor markets by 2030.

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### **Prelims**

**Q. The Global Competitiveness Report is published by the (2019)**

- (a) International Monetary Fund
- (b) United Nations Conference on Trade and Development
- (c) World Economic Forum
- (d) World Bank

**Ans: (c)**

**Q. Which of the following gives 'Global Gender Gap Index' ranking to the countries of the world? (2017)**

- (a) World Economic Forum
- (b) UN Human Rights Council
- (c) UN Women
- (d) World Health Organization

Ans: (a)

## Mains

Q. What are the salient features of 'inclusive growth'? Has India been experiencing such a growth process? Analyse and suggest measures for inclusive growth. (2017)

## Modhweth Festival

Source: TH

Why in News?

**The Toda tribe**, one of the **oldest Dravidian ethnic groups** in the **Nilgiris Hills** of **Tamil Nadu**, celebrated their traditional '**Modhweth**' festival to mark the New Year.



### What is the Modhweth Festival?

#### ▪ About:

- It is celebrated annually on the last Sunday of December or the first Sunday of January.
- It is held at **the Moonpo temple in Muthanadu Mund village**, located in the **Nilgiri district**.
- The Moonpo temple features a **unique vertical spire with a thatched roof and a flat stone on top**, making it one of the last Toda temples of its kind in the Nilgiris.

#### ▪ Rituals and Celebrations:

- Prayers are offered to the deity, **Thenkish Amman**, for good health, rains, and a bountiful harvest in the coming year.
- **Participants perform a dance outside the temple** as part of the celebrations.

#### ▪ Unique Customs:

- Toda youth showcase their **strength and masculinity by lifting a greased boulder** weighing around 80 kg.

- As per traditional customs, **women do not participate in the celebrations.**

## What is the Toda Tribe?

### ▪ About:

- Toda Tribe is a **pastoral tribe** of the **Nilgiri Hills of southern India.**
- The Todas are classified as a **Particularly Vulnerable Tribal Group (PVTG)** in **Tamil Nadu.**
- The Toda language is **Dravidian** but is the **most unusual and different** among the languages belonging to the Dravidian family.

### ▪ Significance:

- Toda lands are part of the **Nilgiri Biosphere Reserve**, designated as an **International Biosphere Reserve by UNESCO.**
- Their territory is recognized as a **UNESCO World Heritage Site.**

### ▪ Religion and Beliefs:

- Their religious practices revolve around a **pantheon of gods**, with **Tökisy (goddess) and Ön (god of the underworld)** as the central deities.

## Nilgiri Biosphere Reserve

### ▪ About:

- It was the **first biosphere reserve in India established in 1986.**
- The reserve spans across three Indian states: **Tamil Nadu, Karnataka, and Kerala.**
- It is **India's first biosphere reserve under UNESCO's Man and the Biosphere Programme.**
- Home to several tribal groups such as the **Adiyan, Aranadan, Kader, Kurichian, Kuruman, and Kurumbas.**
- It portrays the confluence of **Afro-tropical and Indo-Malayan biotic zones** of the world.

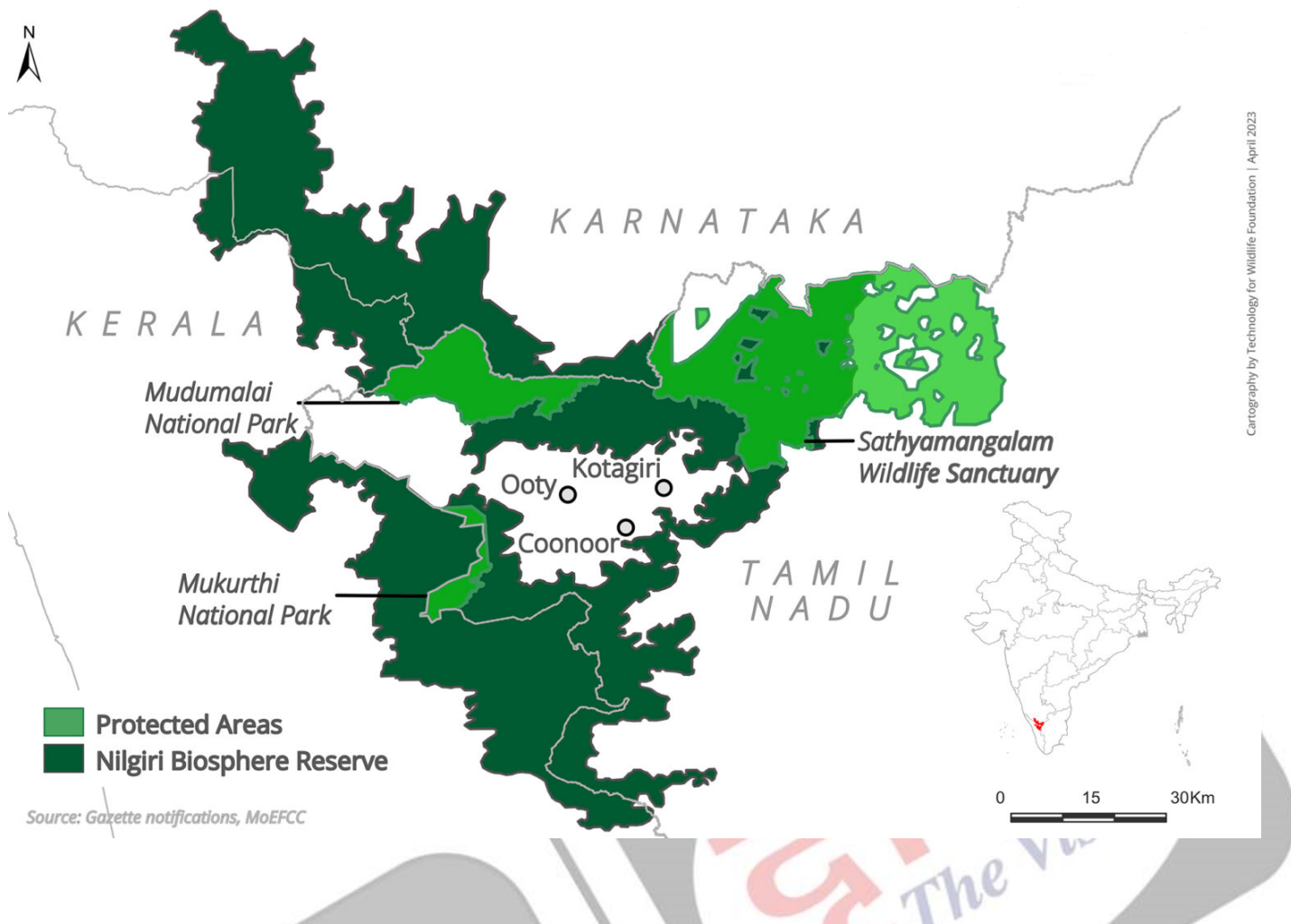
### ▪ Fauna:

- Animals like **Nilgiri tahr, Nilgiri langur, gaur, Indian elephant** and freshwater fishes **such as Nilgiri danio (Devario neilgherriensis), Nilgiri barb** are found here.

### ▪ Protected Areas in NBR:

- The **Mudumalai Wildlife Sanctuary, Wayanad Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park** and **Silent Valley** are the protected areas present within this reserve.





## UPSC Civil Services Examination, Previous Year Question (PYQ)

**Q. Consider the following pairs: (2018)**

**Craft - Heritage of**

1. Puthukkuli shawls — Tamil Nadu
2. Sujni embroidery — Maharashtra
3. Uppada Jamdani — Karnataka saris

**Which of the pairs given above is/are correct?**

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

**Ans: (a)**

**Q. Which of the following hills are found where the Eastern Ghats and the Western Ghats meet? (2008)**

- (a) Anaimalai Hills

(b) Cardamom Hills

(c) Nilgiri Hills

(d) Shevoroy Hills

**Ans: (c)**

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## India-US Initiatives in Defence and Nuclear Cooperation

**Source:** [HT](#)

### Why in News?

The **US [National Security Advisor](#)** visited India and signed **new initiatives** in areas such as technology and defence.

### What are the new initiatives signed between India and the US?

- **Civil Nuclear Cooperation:** US announced to **remove restrictions** e.g., supply of **US nuclear reactors** on Indian nuclear entities like **[Bhabha Atomic Research Center \(BARC\)](#)** to implement **[India-US civil nuclear cooperation agreement](#)**.

**Sonobuoy Co-Manufacturing:** It aims to bolster the Indian Navy's **underwater threat detection capabilities**, particularly in detecting submarines and other hostile underwater objects.

- **Missile Export Control:** The US NSA briefed India on updates to **missile export controls** under the **[MTCR](#)**, enhancing **space cooperation** and creating new collaboration opportunities.
- **India** became a member of the **MTCR in 2016**.
- **Advancement of [iCET](#):** Both nations reaffirmed cooperation in emerging technologies such as **artificial intelligence, quantum computing, telecommunications, and space**.

**Note:** India and the US decided to **curb terrorism** through 'de-radicalisation' of vulnerable communities.

### What are Sonobuoys?

- **About:** Sonobuoys are **expendable, electro-mechanical acoustic sensors** designed to detect, classify, and track underwater sounds from ships and submarines.
  - They are primarily used in **anti-submarine warfare (ASW)**.
- **Functioning:** They are dropped in **canisters**, activate upon hitting water, and deploy an **inflatable system** with a **radio transmitter** on the surface.
  - They remain active for around **24 hours** and are designed to **operate only once**.
- **Communication:** The inflatable system on the surface of the water **maintains communication** with the **ship or aircraft** tracking the sonobuoy.

### India-US Civil Nuclear Cooperation Agreement

- **About:** Also known as the **123 Agreement**, it allows India to **access nuclear fuel, technology,**

**and reactors** for peaceful purposes like energy generation, even though India is **not** a signatory to the [Nuclear Non-Proliferation Treaty \(NPT\)](#).

- **Key Components:** India agreed to place its **civilian nuclear facilities** under [IAEA](#) safeguards to ensure peaceful use of nuclear material.
  - The US sought a [NSG exemption](#) to enable trade with India's expanding peaceful nuclear sector.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims

**Q. In India, why are some nuclear reactors kept under "IAEA safeguards" while others are not? (2020)**

- (a) Some use uranium and others use thorium
- (b) Some use imported uranium and others use domestic supplies
- (c) Some are operated by foreign enterprises and others are operated by domestic enterprises
- (d) Some are State-owned and others are privately owned

**Ans: (b)**

**Q. In the Indian context, what is the implication of ratifying the 'Additional Protocol' with the 'International Atomic Energy Agency (IAEA)'?(2018)**

- (a) The civilian nuclear reactors come under IAEA safeguards.
- (b) The military nuclear installations come under the inspection of IAEA.
- (c) The country will have the privilege to buy uranium from the Nuclear Suppliers Group(NSG).
- (d) The country automatically becomes a member of the NSG.

**Ans: (a)**

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## GOBARdhan Scheme

**Source: DTE**

The **Centre for Science and Environment (CSE)** has highlighted lack of transparency in data of operational [Compressed Biogas \(CBG\) plant](#) on [GOBARdhan portal](#).

- **Compressed Biogas (CBG):** CBG is a [renewable energy](#) source produced from organic waste, including **agricultural residues**, cattle dung, municipal solid waste, and sewage sludge.
  - It helps in **replacing fossil fuels**, managing agricultural and animal waste, and reducing open burning.
- **GOBARdhan Scheme:** The [Galvanizing Organic Bio-Agro Resources Dhan \(GOBARdhan\)](#)

initiative focuses on converting [waste into wealth](#) to promote a circular economy.

- It aims to establish a strong ecosystem for [Biogas/Compressed Biogas \(CBG\)/Bio-CNG plants](#) to foster sustainable growth.
- The Department of Drinking Water and Sanitation (DDWS), [Ministry of Jal Shakti](#), serves as the **nodal department**.

▪ **Key Issues:**

- **Slow Adoption:** Only **115 CBG plants are functional** as of December 2024, against the target of 5,000 by 2030.
- **Information Gaps:** The **GOBARdhan portal** lacks details on feedstocks used by specific CBG plants.
- **Operational Transparency:** The portal lacks a section for **operational plants** with updated information, making it difficult for policymakers to address entrepreneurs' challenges.

**Read More:** [India's Green Future through BioCNG](#)

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## 10 Years of NITI Aayog

On **1<sup>st</sup> January 2025**, [NITI Aayog \(National Institution for Transforming India\)](#) completed a **decade** since its establishment on **1st January 2015**, replacing the [Planning Commission](#) to align with the requirements of a dynamic, market-driven economy.

- **NITI Aayog** is an **advisory body** created through a resolution of the union cabinet (i.e. **neither constitutional nor statutory body**).

### Key Achievements & Contribution:

- Shifted focus from **financial allocation to policy advisory**, promoting decentralized governance.
- **Strengthened competitive and cooperative federalism** through data-driven indices like the [SDG India Index](#) and [Composite Water Management Index](#).
- Assisted states in establishing [State Institutions of Transformation \(SITs\)](#) to improve governance and policy implementation.
- [Aspirational Blocks Programme \(2023\)](#) focused on 500 underdeveloped blocks to achieve 100% coverage of key government schemes.
- [Atal Innovation Mission \(AIM\)](#) trained over one crore students through initiatives like **Atal Tinkering Labs** and **incubation centres** to promote innovation and **entrepreneurship** and expanded innovation ecosystems to regional languages and focuses on **tribal and hilly areas**.
- Conceptualized initiatives like [e-Mobility](#), [Green Hydrogen](#), and the [Production-Linked Incentive \(PLI\) Scheme](#).

# NITI Aayog

(National Institution for Transforming India)

## HISTORY- PLANNING COMMISSION

Set up in **1950**  
to direct investment  
activity

Replaced by **NITI  
Aayog** on January  
1, 2015

### Composition of #NITLaayog

- Chairperson**  
Prime Minister
- Governing Council**  
CMs (States) and Lt Governors (UTs)
- Regional Councils**  
Formed on need-basis, comprising CMs  
and Lt Govs of the region
- Members**  
Full-time basis
- Part-time Members**  
Max 2, rotational, from relevant institutions
- Ex-officio Members**  
Max 4 from Council of Ministers,  
nominated by PM
- Special Inviters**  
Experts, specialists, practitioners with  
domain knowledge
- Chief Executive Officer**  
Appointed by PM for fixed tenure  
(Secy rank)
- Secretariat**  
As deemed necessary

## OBJECTIVES

- ↳ Foster **cooperative federalism**
- ↳ Develop mechanisms to **formulate credible plans (village level)**
- ↳ Interests of **national security** in economic strategy and policy
- ↳ Special **attention to weaker sections**
- ↳ Provide advice and encouragement to partnerships between **key stakeholders, national-international Think Tanks, research institutions**
- ↳ Create **knowledge, innovation and entrepreneurial support system**
- ↳ **Platform** for inter-sectoral and inter-departmental **issues resolution**
- ↳ Maintain **state-of-the-art Resource Centre**

### NITI Aayog vs Planning Commission

<b>NITI Aayog</b>	<b>Planning Commission</b>
Advisory Think Tank	Extra-constitutional body
Wider expertise	Limited expertise
Secretaries (CEO) appointed by PM	Secretaries appointed by usual process
Bottom-up approach	Top-Down approach
No Mandate to impose policies	Imposed policies on states
No power to allocate funds	Allocated funds to ministries/state govts

## Major Initiatives

- ↳ SDG India Index
- ↳ Atal Innovation Mission
- ↳ e-AMRIT Portal (electric vehicles)
- ↳ Good Governance Index
- ↳ India Innovation Index
- ↳ Aspirational District Programme
- ↳ 'Methanol Economy' programme

## Issues

- ↳ **No powers** in granting **discretionary funds** to states
- ↳ Only an **advisory body**
- ↳ **No role in influencing private or public investment**
- ↳ **Politicisation of the organisation**
- ↳ **Lacks the requisite power** to bring positive change



Drishti IAS

Read More: [NITI Aayog](#)

# Tidal Tail

[Source: PIB](#)

A study led by [Indian Institute of Astrophysics \(IIA\)](#) researchers has revealed the formation of an **ultra-diffuse galaxy** at the end of the **longest tidal tail ever discovered**, associated with the **galaxy NGC 3785**, located 430 million light-years from **Earth in the Leo constellation**.

- **Tidal Tail:** A **tidal tail** is a long, narrow stream of **stars and gas** created when **galaxies interact or merge**.
  - Gravitational forces during these interactions pull material from the outer regions of the galaxies, **stretching it into elongated streams** that extend into space.
  - Tidal tails can persist long after the **merger, serving as a signature of recent galaxy interactions**.
  - These tails provide valuable insights into how galaxies evolve and form stars.
  - Notably, a small portion of a galaxy's stellar formation occurs within tidal tails, highlighting their role in galaxy dynamics and evolution.
- **Galaxy NGC 3785:** It is a **lenticular galaxy** located in the Leo constellation, north of the **celestial equator** (imaginary circle that extends from [Earth's equator](#) into space), making it more visible from the northern hemisphere.
  - A galaxy is a vast collection of gas, dust, stars, and solar systems, held together by [gravity](#). Earth is part of one such galaxy.



Read more: [Dark Matter and Dark Energy](#)

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# Emergency Declared in Trinidad and Tobago

[Source: IE](#)

**Trinidad and Tobago** has declared a state of **emergency** following a surge in gang violence in the country, which has led to raising the annual death toll to the highest since 2013.

- Trinidad and Tobago has a population of **1.5 million** and records one of the **highest murder**

rates.

- Previous states of emergency were declared in **2014** for gang violence and in 2021 for [Covid-19](#) restrictions.

### Engagements with India:

- Trinidad and Tobago became the **first Caribbean country to adopt India's UPI platform**.
- Both countries granted each other **Most Favored Nation (MFN)** status in **1997**.
- Bilateral trade reached a record **USD 368.96 million in FY 2023-24**.
- The **Indian Diaspora** constitutes about **42%** of the total population of the country.

### About Trinidad and Tobago:

- **Capital:** Port of Spain.
- **Location:** Island nation in the **southeastern West Indies**, near **Venezuela and Guyana**.
- **Independence:** Gaining independence from the **UK on 31st August 1962**, and becoming a **republic in 1976**, the nation is a member of the [Caribbean Community \(CARICOM\)](#).
- **Geographical Features:**
  - **Highest Point:** Mount Aripo.
  - **Major Rivers:** Ortoire and Caroni.
  - **Natural Resource:** Pitch Lake, the world's largest asphalt reservoir.
  - **Mountain Range:** **Northern Range**, part of the **Andes** extension.



Read More: [2nd India-CARICOM Summit](#)

