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END-PERMIAN MASS EXTINCTION (EPME)



- The EPME, also known as the **Permian-Triassic Extinction Event** or "**The Great Dying**," was the **most severe extinction event** in Earth's history.
- It occurred approximately **252 million years ago** and marked the **transition from the Permian to the Triassic Period**.
- The Triassic Period is the first period of the Mesozoic Era, lasting from 252 million to 201 million years ago.

Cause:

- When the **supercontinent Pangea** was in the **process of breaking up**, all the land on Earth was still largely clustered together, with the newly formed continents separated by shallow seas.
- An **enormous eruption from a volcanic system** called the **Siberian Traps** seems to have **pushed carbon dioxide levels to extremes**.
- The eruption covered around 2 million square kilometers with lava and was one of the largest volcanic events in Earth's history.
- The eruptions may have caused large amounts of carbon dioxide to be released into the atmosphere and caused a **large-scale global warming** effect of more than 10°C on land and around 8°C on the ocean surface in a short period of time.
- The eruptions may have **also caused acid aerosols and dust clouds** to be released into the atmosphere, which **blocked out the sun** and **prevented photosynthesis** from occurring, effectively causing many food chains to collapse.
- This caused global warming and **ocean acidification**, leading to a massive collapse of the ocean ecosystem.

Impacts:

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- EPME was characterized by the **elimination** of about **90 percent** of the species on Earth, which included more than **95 percent** of the marine species and **70 percent** of the terrestrial species.
- In addition, **more than half** of all taxonomic families present at the time **disappeared**.
- It ranks **first in severity** among the five major extinction episodes that span geologic time.

STARLINK - ELON MUSK'S SATELLITE-BASED INTERNET SERVICE

- Starlink is a low-earth orbit (LEO) satellite constellation with over 7,000 satellites that provide internet access to users via ground terminals.
- It is owned by Elon Musk's SpaceX and is available in around 40 countries.

Working of Starlink

- Satellites continuously orbit the Earth, covering almost the entire habitable surface.
- Ground terminals connect to satellites, which in turn communicate with ground stations physically linked to the internet.
- This setup enables wireless internet connectivity in areas lacking traditional broadband infrastructure.
- **Starlink's Speed and Latency**
 - Offers speeds of around 100 Mbps, similar to many home broadband connections.
 - Latency (time for data transmission) is higher than wired broadband, making it less ideal for applications requiring real-time responsiveness.
- **Starlink's Use in India**
 - Not very useful in cities with strong 5G and wired broadband networks, as these offer better speed and reliability.
 - Highly beneficial for rural and remote areas, providing instant connectivity where traditional networks are unavailable.

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- **Starlink's Potential Benefits**
 - **Bridging the Digital Divide**
 - Starlink can provide internet access to rural and remote areas, helping reduce the gap between urban and rural regions.
 - **Connectivity for Maritime & Offshore Operations**
 - Useful for commercial fishing ships, merchant vessels, offshore oil rigs, and deep-sea researchers.
 - Solo sea voyagers can stay connected for entertainment or emergency assistance.
 - **Disaster Response & Emergency Communication**
 - During natural disasters (tsunamis, cyclones, earthquakes), when telecom infrastructure fails, Starlink can enable quick setup of communication centres for military and emergency responders.
 - Trekkers with Starlink mobile kits can send SOS messages for timely rescue.

Starlink Pricing Structure

- Starlink has two main costs:
 - **User Terminal (Hardware)** – A router-like device required to access the satellite network.
 - **Monthly Subscription Fee** – The cost to stay connected to the service.
- Starlink's pricing in India is not expected to be lower, as the technology's costs remain the same worldwide.
- Final pricing will depend on regulatory approvals and local market adjustments.

Current Status

- No official confirmation on regulatory approvals yet.
 - Airtel and Jio have signed commercial distribution agreements, but regulatory clearance is still pending.
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THE CHALLENGES OF PUBLIC HEALTH EDUCATION IN INDIA

- **Public health plays a critical role in shaping national healthcare systems**, and the increasing demand for professionals in this field has led to the rapid expansion of public health education in India.
- However, a **widening gap between training and employment**, coupled with the absence of a standardised regulatory framework, **has created challenges for aspiring public health professionals**.

Challenges Faced by Public Health Graduates

- **Disparity between Graduates and Jobs**
 - The **demand for entry-level positions** such as research or program assistants far exceeds supply, **leading to fierce competition and low success rates**.
 - The **issue is compounded by a shrinking number of public health roles within the government**, as efforts to establish dedicated public health management cadres in different states have encountered bureaucratic roadblocks.
- **Growing Demand of Private Sector in Healthcare**
 - Unlike government agencies, private hospitals and health institutions often **prioritise hospital administration and business management** over public health expertise.
- **The Quality of Health Education**
 - **Many students enrol without a clear understanding of the field**, while faculty members often lack adequate training and real-world experience.
- **Absence of a Standardised Curriculum**
 - Unlike medical degrees, which fall under the regulatory purview of the National Medical Commission (NMC) or the University Grants Commission (UGC), **MPH programs remain unregulated, raising concerns about their credibility and effectiveness**.

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- **Geographical Barriers**

- Many large and populous states such as Bihar, Jharkhand, and Assam, along with several smaller states, have limited or no institutions offering public health courses.
- This not only restricts access to education for aspiring professionals in these regions but also weakens the overall public health infrastructure.

Conclusion

- The field of public health is critical for the well-being of any nation, yet India's rapidly growing pool of public health graduates faces significant employment and educational challenges.
 - The expansion of public health education, while a positive development, has not been matched by job creation, leading to an oversaturated market.
 - Strengthening the public health workforce is essential not only for improving employment prospects but also for ensuring a robust and resilient healthcare system for the future.
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INCENTIVE POLICY FOR ELECTRONIC COMPONENTS MANUFACTURING

- The IT Ministry has finalized an incentive policy worth around ₹23000 crore over six years to boost electronic components manufacturing and deepen domestic value addition.
- The scheme follows the success of the PLI scheme for smartphone assembly but aims to address the low domestic value addition of 15-20%, targeting an increase to 30-40%.
- **Targeted Components**
 - The scheme will support the manufacturing of key electronic components such as:
 - Display modules
 - Camera sub-assemblies
 - Printed circuit board assemblies
 - Lithium cell enclosures

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- Resistors, capacitors, ferrites, and more
- **Employment Generation**
 - The initiative aims to create 91,600 direct jobs over six years.
 - Annual incentive payouts will range from ₹2,300 crore to ₹4,200 crore, conditional on companies meeting investment, production, and employment targets.
- **Investment Eligibility**
 - Both greenfield (new projects) and brownfield (existing projects) investments are eligible. Foreign companies can participate by either transferring technology to an Indian company or forming joint ventures with domestic firms.
- **Demand-Supply Gap in Electronic Components**
 - A government assessment identified a \$100 billion domestic demand-supply gap, which increases to \$140 billion with exports.
 - India's current production capacity is only \$10.75 billion, covering just 10% of total electronics production.
- **Challenges in Domestic Manufacturing**
 - **Lack of Scale** – India's electronic components sector lacks large-scale domestic production.
 - **High Investment to Turnover Ratio** – Unlike smartphones, where ₹1 investment yields ₹20, in components, it only yields ₹2-4.
 - **High Import Dependence** – Electronics imports account for **75%** of total electronics production, making it the second-largest import category after oil.

Conclusion

- The government's incentive scheme is a crucial step to reduce import dependence, scale up domestic manufacturing, and integrate India into the global supply chain.
- By addressing infrastructure, investment challenges, and skill development, the initiative aims to establish India as a key player in electronic components manufacturing.

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SUPREME COURT'S STAND ON LINGUISTIC SECULARISM AND LANGUAGE RIGHTS IN INDIA

- The Supreme Court of India has played a crucial role in shaping language policies and upholding linguistic secularism, a principle that promotes **acceptance of the aspirations of different language speakers**.
- This was highlighted in the **2014 judgment of U.P. Hindi Sahitya Sammelan vs State of U.P.**, where the court emphasized that India's language laws are **not rigid but accommodative**, ensuring that linguistic diversity is preserved.

Language Conflicts and Constitutional Provisions:

- **Article 343 & The Official Language Debate**
 - Article 343 of the Constitution states that **Hindi in Devanagari script is the official language** of the Union. However, Hindi is **not the national language**, as it is not spoken uniformly across all states.
 - The **Munshi-Ayyangar formula**, introduced during the Constituent Assembly debates in 1949, sought to **balance regional language interests while designating Hindi as the official language**.
- **Article 29(1) & Minority Language Rights**
 - This article provides **constitutional protection** for any group with a **distinct language, script, or culture**, ensuring they have the right to **conserve and promote their linguistic identity**.
 - The Supreme Court has clarified that this right is applicable to **both majority and minority communities**, emphasizing **equal language rights for all citizens**.
- **Article 351 & The Promotion of Hindi**
 - Article 351 directs the govt. to promote Hindi to **develop it as a medium of expression for India's composite culture**. However, courts have ruled that **this does not mean Hindi can be imposed upon individuals or institutions**.

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The National Education Policy (NEP) and Language Controversy:

- The National Education Policy (NEP) 2020 has reignited the language debate.
- Critics, including Tamil Nadu, argue that the policy promotes Hindi at the cost of regional languages.
- The Supreme Court's past rulings reinforce that **no language should be imposed against the will of people**, as language is an emotional and cultural issue.
- Justice Krishna Iyer, in his remarks on the **216th Law Commission Report**, stated:
 - "I am all for Hindi as a personal preference, but I am all against Hindi by compulsion. Linguistic militancy will alienate and divide, but federal pluralism is democratic sensitivity."
- This highlights the importance of **voluntary language adoption** rather than **forced implementation**.

Future Implications of Linguistic Secularism:

- Given the ongoing debates on language policies, the Supreme Court's principle of linguistic secularism will likely shape future policies in education and administration. Some key implications include:
 - **Greater Autonomy for States:** States will continue to have the right to determine language policies for education and administration based on local needs.
 - **Protection of Regional Languages:** The emphasis on linguistic secularism ensures that regional languages are preserved and not overshadowed by Hindi or English.
 - **Legal Challenges to Language Imposition:** Any attempt to impose a particular language could face legal scrutiny, as seen in previous court rulings.
 - The courts will play a critical role in balancing national integration with linguistic diversity, ensuring that language policies remain inclusive and democratic.
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BHADRA RIVER



Bhadra River is the east-flowing river in **Karnataka**.

Course:

- It begins at the **Western Ghats** range and flows across the **Deccan Plateau**.
- The **tributaries** **Somavahini**, **Thadabehalla**, and **Odirayanahalla** join it.
- The river flows across the **Bhadra Wildlife Sanctuary**.
- The Bhadra **meets the Tunga River** at Koodli, a small town near Shivamogga.
- The **combined river** continues east as the **Tungabhadra**, a major **tributary** of the **Krishna River**.
- **Tungabhadra joins Krishna** at Sangamaleshwaram in **Andhra Pradesh**.
- The **Krishna River** finally ends in the **Bay of Bengal**.

The total length of Bhadra is **178 km**, and it is sub-montane in character.

Bhadra Dam is a dam built across the Bhadra River near Lakkavalli village.
