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THE HINDU

The looming crisis of world unemployment

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 2

Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Why in Focus?

- The World Bank has warned of a growing **global jobs crisis**. Around **1.2 billion young people** in the Global South are expected to enter working age over the next decade, but only about **400 million jobs** may be created.
- This raises concerns that the **demographic dividend** of developing countries, including India, could turn into a demographic challenge if adequate employment is not created.

Key Highlights:

- A **demographic dividend** occurs when the working-age population (15 to 64) becomes larger than dependents (0-14 and 65+), creating potential for higher **productivity, savings and economic growth** through proper investment in skills and employment.
- The traditional development path is changing, as **manufacturing** is no longer absorbing low-skilled workers at the scale seen during earlier industrialisation.

- **Automation, robotics and Artificial Intelligence (AI)** are reducing labour requirements in manufacturing, contributing to **premature deindustrialisation** in developing economies.
- Modern industries increasingly demand **digital and specialised skills**, while many young people lack access to quality education, vocational training and digital infrastructure.
- **Private-sector-led employment generation** is essential. Easier regulations, affordable finance, stronger property rights and predictable governance can help **Micro, Small and Medium Enterprises (MSMEs)** expand.
- Better **roads, ports, electricity and digital connectivity** can create jobs while reducing business costs and improving participation in **global value chains**.
- India faces **skill-job mismatch, underemployment, low female labour force participation and high dependence on agriculture**, limiting the benefits of its demographic dividend.

Implications:

- The projected gap between new workers and available jobs could lead to widespread **youth unemployment and underemployment**, particularly in developing countries.
- **Jobless growth** can weaken the relationship between economic growth and improvements in household incomes and living standards.
- Technology-driven growth may benefit skilled workers disproportionately, increasing **income**



inequality and the digital divide.

- Persistent unemployment among educated and ambitious youth can contribute to **social frustration, political polarisation, crime and instability**.
- Low participation of women in the workforce represents a major loss of **human capital and economic potential**, particularly for countries with large young populations.

Way Forward:

- Countries should promote **employment-intensive growth** alongside high-technology sectors, particularly through MSMEs, food processing, tourism, textiles and green manufacturing.
- **Education and skilling** must be closely linked with industry requirements through vocational training, apprenticeships and stronger industry–institution partnerships.
- Investment in **physical and digital infrastructure** should be accelerated to create jobs and improve productivity.
- Governments should create a more supportive environment for private investment through **simplified regulations, affordable credit, stable policies and stronger institutions**.
- India should adopt **sector-specific employment strategies**, including modern agriculture, food processing, healthcare and care services, tourism and green industries, while increasing **female labour force participation**.

Mains Question:

India's large young population can become an economic asset only when supported by adequate productive employment. Discuss the challenges in realising India's demographic dividend and suggest measures to promote employment-intensive growth. (15 marks, 250 words)

America's new-age military populism takes shape

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 2

Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Why in Focus?

- The United States is undertaking major changes in its **defence organisation, military leadership and warfare technology** under the second Trump administration.
- The shift reflects the changing nature of warfare, particularly the growing importance of **drones, Artificial Intelligence (AI), cyber capabilities and autonomous systems**, while also raising concerns about the politicisation of military institutions.

Key Highlights

- The United States has renamed the **Department of Defense (DoD)** as the **Department of War (DoW)**, reviving its historical name. The change is presented as part of a broader effort to reshape the country's defence and security approach.
- A proposed **Autonomous Warfare Command (AutoWarCom)** aims to accelerate the development, procurement, testing and deployment of **drones and autonomous warfare systems**.
- **Project Meridian** has been launched to examine the future of warfare and strengthen U.S. **technological superiority**, particularly in competition with **China**. Its short timeline reflects the rapid pace of technological change in warfare.
- The **"Fortress America"** initiative seeks to make U.S. military bases more **self-sufficient in electricity and cyber connectivity**, strengthening resilience against disruptions and cyberattacks.
- The administration has proposed a **20% reduction in general and flag officer positions by January 2027**. It has also sought changes in military recruitment and the establishment of new cadet programmes.
- The reforms reflect a wider shift in military priorities from traditional manpower-based warfare towards **technology, automation, Artificial Intelligence, cyber warfare, space capabilities and precision systems**.

Implications

- **Politicisation of military institutions** may weaken institutional neutrality and professional military decision-making if defence reforms become closely linked with political and cultural agendas.
- **Leadership disruption** caused by large reductions in senior military positions could affect institutional experience, command continuity and strategic decision-making.
- **Technology and ethical concerns** arise from the growing use of autonomous weapons, particularly regarding **human control, accountability and compliance with International Humanitarian Law (IHL)**.
- **The changing nature of warfare** means that modern conflicts increasingly depend on **AI, drones, cyber operations, space systems and precision weapons**, making traditional measures of military strength insufficient.
- **U.S.-China strategic competition** could intensify the development of advanced military technologies and contribute to a wider **arms race**.
- **Civil-military balance** must be maintained between **democratic civilian control, military professionalism and operational effectiveness**.

Way Forward

- Defence reforms should be guided primarily by **strategic requirements and future warfare**, rather than short-term political considerations.
- Clear frameworks should be developed for the **responsible use of AI and autonomous weapons**, ensuring meaningful human oversight.
- Military modernisation should combine **advanced technology with trained personnel, institutional expertise and professional leadership**.
- Greater investment is needed in **cybersecurity, space capabilities, drones, AI, electronic warfare and resilient military infrastructure**.
- International dialogue should establish **norms, transparency and confidence-building measures** for emerging military technologies and prevent an uncontrolled arms race.

Mains Question

The changing character of warfare requires military forces to move beyond traditional notions of manpower and physical strength. Discuss the emerging technological transformation in warfare and the challenges it poses for military institutions and global security. (15 marks, 250 words)

Why is Buxa bringing tigers back?

Prelims : General Studies Paper I

General issues on Environmental ecology, Biodiversity and Climate Change.

Mains: General Studies 3

Conservation, environmental pollution and degradation, environmental impact assessment.

Why in Focus?

- A three-year-old tigress, **T138**, was released in **Buxa Tiger Reserve, West Bengal**, on October 2 as part of a phased programme to establish a **viable and self-sustaining tiger population**.
- The move is significant as **Buxa has lacked a stable resident tiger population for years**, making it an important test of India's **tiger reintroduction strategy** in a fragmented landscape.

Key Highlights

- T138 was **translocated from Valmiki Tiger Reserve, Bihar**, which was selected because of its similarity in terrain to Buxa.
- The tigress will initially stay in a **2.3-hectare enclosure to get used to the new surroundings** before being released into the wider reserve.
- **Buxa Tiger Reserve** was declared a tiger reserve in **1983** and is the **15th tiger reserve** in India.
- Buxa Tiger Reserve is situated in the **Alipurduar Sub-division of Jalpaiguri District, West Bengal**.
- It covers about **760.87 sq km** and has corridor connectivity with **Bhutan, Manas Tiger Reserve and Jaldapara National Park**.
- **Habitat degradation, fragmentation, land-use changes and declining prey availability**



have affected Buxa's ability to support a stable tiger population.

- The **National Tiger Conservation Authority (NTCA)** identified Buxa, Dampa and Palamu as reserves with no tigers and began a tiger reintroduction programme in **2018**.
- The **Sundarbans** has around **100 tigers**, but its mangrove habitat differs greatly from Buxa, making it unsuitable as the source for this translocation.
- Tiger reintroduction in India aims to establish a population in areas within the species' **historical range** where tigers have become locally extinct.
- The programme began in **2008** with successful reintroductions in **Sariska and Panna Tiger Reserves** and has since been carried out in **12 tiger reserves**.
- The success has not been uniform. At **Satkosia Tiger Reserve**, translocated tigers faced difficulties adapting to the new environment, along with **human-tiger conflict** and negative local responses.
- The **NTCA and Wildlife Institute of India (WII)** have prepared a protocol covering site selection, feasibility studies, selection of tigers, socio-economic requirements, release and post-release monitoring.
- Buxa faces challenges from **human settlements, tea estates and infrastructure**, including a railway line and heavy road traffic.
- Around **300 families** have been persuaded to relocate to support the tiger reintroduction programme.

Implications

- Successful reintroduction can help restore **tiger populations and ecological balance** in areas where tigers have become locally extinct.
- Long-term success depends on **habitat quality, prey availability and effective monitoring**, not merely releasing tigers.
- **Human-tiger conflict** can threaten conservation efforts if local communities are not adequately involved.
- Infrastructure such as **railways and roads** can affect wildlife movement and increase risks to animals.

- Buxa's connectivity with other forests provides potential for **wildlife movement and landscape-level conservation**.

Way Forward

- Ensure adequate **prey availability and habitat restoration** before expanding the tiger population.
- Strengthen **post-release monitoring** using telemetry, camera traps and field observations.
- Minimise **human-tiger conflict** through community participation, compensation and awareness.
- Reduce wildlife risks from **railways, roads and other linear infrastructure**.
- Follow the **NTCA reintroduction protocol** and adapt management based on the animals' response to the new habitat.

Mains Question

Tiger reintroduction is not merely a wildlife-release exercise but a landscape-level conservation effort. Discuss the major ecological and socio-economic challenges involved in restoring tiger populations in India. (250 words)

Why are States divided over the mining amendment?

Prelims : General Studies Paper I

Indian Polity and Governance-Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: General Studies 2

Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

Why in Focus?

- The **Mines and Minerals (Development and Regulation) Amendment Act, 2026** has expanded the Centre's regulatory powers and restricted certain **State taxation powers** over mineral rights and mineral-bearing lands.



- The amendment has triggered concerns over **fiscal federalism**, especially among mineral-rich States that depend heavily on mineral-related revenue.

Key Highlights

- **Entry 23 of the State List** gives State governments the power to regulate **mines and minerals**.
- This power is subject to **Entry 54 of the Union List**, which allows Parliament to regulate mining and mineral development in the **public interest**.
- **Entries 50 and 49 of the State List** give States the power to tax **mineral rights** and **land**, respectively.
- The **amendment bars States from imposing fresh taxes on mineral rights and mineral-bearing lands**, except under conditions prescribed by the Centre.
 - ◆ It also cancels certain **uncollected past mineral taxes**.
- In **2024**, the Supreme Court held that **States can tax mineral rights, subject to Parliament's power to limit this in the public interest**.
 - ◆ However, Parliament cannot use **Entry 54** to curtail the State's power to tax mineral-bearing land.
- The Centre argues that multiple State-level mineral taxes **increase the cost of domestic minerals**, encourage **imports** and add to the burden on the exchequer.
- Mineral receipts account for **85% of non-tax revenue in Jharkhand** and **80% in Odisha**, compared with 48% in Karnataka, 41% in Madhya Pradesh and 39% in Rajasthan.
- **Karnataka, Telangana, Himachal Pradesh and Kerala** are planning to challenge the amendment in the Supreme Court, arguing that it weakens **State fiscal powers and federalism**.
- **Jharkhand** has warned that losing **mineral-tax revenue** could affect its **social-security schemes**.
 - ◆ **Madhya Pradesh, Rajasthan and Chhattisgarh** have not yet challenged the amendment.
- The varied responses show that **mineral dependence and political alignment** influence

how strongly States respond to perceived erosion of fiscal autonomy.

- India's **fiscal federalism is asymmetric**: the Centre has greater taxation powers, while States have major expenditure responsibilities and also depend on central transfers and approval for certain borrowings.

Implications

- The amendment could reduce the **fiscal autonomy** of mineral-rich States and affect their ability to finance welfare and development programmes.
- It may intensify **Centre-State tensions** over legislative jurisdiction and distribution of financial resources.
- The issue highlights the continuing challenge of balancing **national economic interests** with **State fiscal rights**.
- Different State responses show that **economic dependence and political alignment** can shape federal disputes.
- The amendment adds another important **fault line in India's fiscal federalism**, alongside disputes over GST compensation, Finance Commission terms and borrowing powers.

Way Forward

- Maintain a balance between **national mineral policy** and the **fiscal autonomy of States**.
- Ensure that any restrictions on State taxation are consistent with the **constitutional division of powers**.
- Strengthen **Centre-State consultation** before making changes affecting State revenues.
- Provide transparent mechanisms to address concerns of **mineral-rich States** facing revenue losses.
- Strengthen institutions such as the **Finance Commission** to address wider issues of fiscal imbalance and cooperative federalism.

Mains Question

The Mines and Minerals (Development and Regulation) Amendment Act, 2026 has renewed debates over fiscal federalism in India. Discuss how India can balance the Centre's regulatory interests with the fiscal autonomy of States. (250 words)



KEYWORDS

Optogenetics

- The **2026 Nobel Prize in Physiology or Medicine** was jointly awarded to **Karl Deisseroth, Peter Hegemann and Georg Nagel** for discovering and developing the technique of **optogenetics**.
- It is an advanced biological technique that combines **optics (light)** and **genetics** to selectively control and monitor the **electrical activity of specific cells**, mainly **neurons**, in living animals.
- The process uses genes from **single-celled microbes such as algae**, which naturally produce **light-sensitive proteins called opsins**, such as **channelrhodopsins**, and inserts them into target animal cells.
- When researchers shine specific **wavelengths of light**, such as blue light, through thin **optical fibres**, these opsin proteins act as microscopic switches, turning neuronal activity **on or off (activate or inhibit) within milliseconds**.
- Unlike traditional drugs or electrical stimulation that may affect **broader areas of the brain**, optogenetics provides **cell-by-cell precision**.
- This has made it a powerful tool for **mapping brain circuits** and studying potential treatments for conditions such as **Parkinson's disease, depression and blindness**.

Places in News

Ellora Caves



- The **Ellora Caves** recently appeared in the news when wildlife conservationists cited their **inviolable status** to argue against destructive mining in protected forests, and they were also featured in archival news recalling the 1976 **"Operation Aurangabad"** initiative that placed the **Ajanta-Ellora complex on the global tourism map**.
- It is a **UNESCO World Heritage Site** comprising **34 rock-cut caves** excavated out of the vertical face of the **Charanandri Hills** in the Sahyadri range of Maharashtra.
- The site is a unique symbol of **ancient Indian religious tolerance**, featuring **Buddhist (Caves 1-12), Hindu (Caves 13-29), and Jain (Caves 30-34)** monuments built sequentially between the **6th and 12th centuries CE**.
- Its most famous monument is **Cave 16, the Great Kailasa Temple dedicated to Lord Shiva**, which is the **world's largest monolithic structure**, famously carved **top-down from a single piece of solid basalt rock**.
- The caves were constructed under the patronage of multiple empires, with the **Rashtrakuta dynasty (notably King Krishna I)** commissioning major structures like the **Kailasa Temple**, and the **Yadava dynasty** heavily patronizing the **later Jain excavations**.

Ajanta Caves



- **Ajanta Caves** are a **UNESCO World Heritage Site** comprising **30 rock-cut Buddhist cave monuments** carved into a horseshoe-shaped gorge along the **Waghur River** in Maharashtra's **Sahyadri ranges**.
- The caves were developed in **two major phases**, around the **2nd century BCE** and **5th century CE**, and represent both **Hinayana and Mahayana traditions of Buddhism**.
- The complex contains **Chaityas** (prayer halls with stupas) and **Viharas** (monasteries), reflecting the architectural and religious development of **Buddhist cave traditions**.
- The caves are famous for their ancient **murals**, mainly depicting the **life of Gautama Buddha and Jataka tales**. The paintings largely use the **tempera or fresco-secco technique**, in which paint is applied on a **dry plaster surface**.
- The caves received major patronage from the **Vakataka dynasty**, particularly under **King Harishena**, before being abandoned and gradually covered by vegetation.
- They were rediscovered in **1819** by **British cavalry officer John Smith** during a tiger hunt.

Siberia

- **Siberia** is a vast region of **northern Asia**, mainly part of **Russia**.
- It extends from the **Ural Mountains in the west to the Pacific Ocean in the east**.

- It is bounded by the **Arctic Ocean to the north** and extends southward to **Kazakhstan, Mongolia and China**.
- Siberia covers about **13.5 million sq. km**, making it **larger than Canada**.
- The region is rich in **natural resources**, including **oil, natural gas and minerals**.
- Siberia has a mainly **subarctic climate**, with long, severe winters and short summers; it is also home to **Lake Baikal**, the world's deepest freshwater lake.
- Siberia was in the news after a worker at an anti-plague institute died of **pneumonia of unknown origin**, raising concerns about a possible pneumonic plague infection.



Valmiki Tiger Reserve



- **Valmiki Tiger Reserve (VTR)** is the **only tiger reserve in Bihar**, located in **West Champaran district**.
- It forms the **easternmost limit of the Himalayan Terai forests in India**.



- The reserve lies in the **Gangetic Plains biogeographic zone** and includes both **Bhabar and Terai tracts**.
- VTR comprises the **Valmiki National Park and Valmiki Wildlife Sanctuary**.
- It covers about **901.07 sq. km**, accounting for around **17.4% of West Champaran district's geographical area**.
- It is bordered by **Nepal to the north** and **Uttar Pradesh to the west**.
- VTR was constituted as the **18th tiger reserve under Project Tiger on 11 March 1994**.

Species In News

Southern Right Whale

- The **Southern right whale (*Eubalaena australis*)** is found across the **Southern Hemisphere**.
- It has a **stocky black body**, often with **white patches** on the belly and chin, and a large head covered with **callosities**.
 - ◆ Callosities are raised, **thick patches of hardened skin found on the heads of right whales**.
- It **lacks a dorsal fin** and has broad, paddle-shaped flippers.
- It occurs mainly between about **20°S and 65°S**, migrating between **high-latitude feeding grounds in summer** and **low-latitude breeding grounds in winter**.
- Major populations occur around **South America, South Africa, Australia and New Zealand**.
- **IUCN Red List status: Least Concern (LC)**.
- Southern right whales were in the news after unusually high numbers of calves died along Argentina's coast, possibly due to bacterial infections.



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