

## IMF's Working Paper on India's Structural Transformation

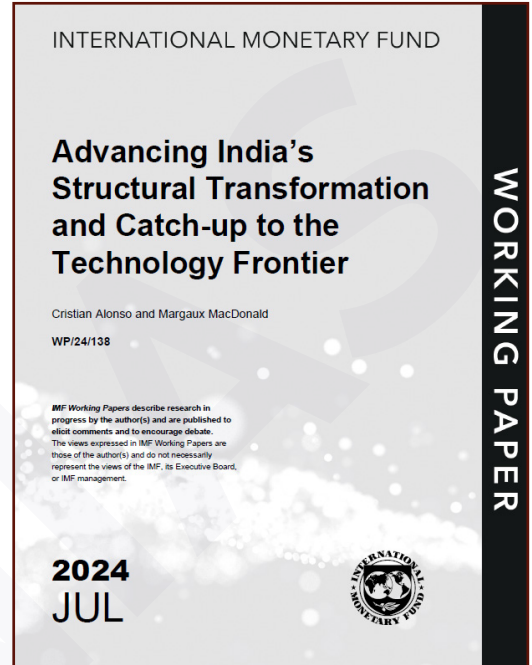
IMF released a Working Paper titled '**Advancing India's Structural Transformation and Catch-up to the Technology Frontier**' which takes stock of India's growth and suggests structural reforms that can help accelerate growth in India.

### Key highlights of the Paper

- **Sectoral imbalances:** Role of agriculture in terms of aggregate output has declined in India from over 40% in 1980 to 15% in 2019 still accounting for 42% of employment due to factors like strict labor market regulations.
- **Uneven tech-adoption by industries:** Services outperformed manufacturing in catch-up to technological frontier with computer programming, other IT services, and jewellery manufacturing being string performers.
- **Future estimates:** India needs to create at least between 143-324 million jobs for its growing population by 2050.
  - ⊖ Even a relatively **small shift of employment away from agriculture** and into construction, services, or manufacturing can boost GDP growth by 0.2-0.5%.

### Key Recommendations

- **Advance labor market reforms:** Center to work with States to **enhance labor market flexibility** while still providing adequate protection for workers.
- **Foster trade integration:** Remove tariff and non-tariff import and export restrictions to **subject Indian producers to healthy competition** and provide for **better allocation of resources**.
- **Strengthen social safety net:** To facilitate **migration of workers from rural to urban areas and aid in structural transformation** of the economy.



## India's Scientific Deep Drilling at Koyna-Warna Region in Maharashtra

Borehole Geophysics Research Laboratory (BGRL), a **specialised institute under the Ministry of Earth Sciences** is mandated to execute India's sole Scientific Deep Drilling (SDD) programme.

- SDD is the enterprise of strategically digging boreholes to **observe and analyse deeper parts of the Earth's crust**.

### About Scientific Drilling at Koyna

- **Objective:** Strategically drill the Earth's crust to a **depth of 7 km** and conduct scientific observations.

### Reason for choosing Koyna

- ⊕ **Recurrent earthquakes** since the impounding of Koyna Dam (Shivaji Sagar Lake) in 1962.
- ⊕ Most outstanding example of **Reservoir Triggered Seismicity (RTS)** located close to India's west coast.

- **Technique used at Koyna:** Hybrid of mud rotary drilling and percussion drilling (air hammering)

- ⊕ **Rotary drilling:** It uses a steel rod to cut rocks which generates heat. Cooling liquid or drilling mud cools the tools and removes debris from the borehole.

- ⊕ **Air hammering:** It pushes highly compressed air through the drilling rod to deepen the borehole and flush the cuttings out.

### Associated Challenges

- **Labour and Capital-Intensive** and requires meticulous planning and drilling acumen.
- **Load on hook keeps increasing** as the borehole gets deeper.
- **Nature of Earth's Interior** (hot, dark, high-pressure region) hinders long and continuous operations.

### Significance of Scientific Drilling at Koyna

- Opportunity and access to **study earthquakes**.
- Expand understanding of **planet's history, active fault zones, rock types, energy sources, life forms etc.**
- Provide insight into **Deccan volcanism and Mass Extinction**
- **Geothermal potential** of West Coast Belt
- Development of a **Model for Reservoir Triggered Seismicity mechanism**

## World Population Prospects 2024

Recently, **United Nations Department of Economic and Social Affairs** (UN-DESA) released the World Population Prospects Report which provides population trends for countries across the globe.

### Key Findings of the Report

#### Global

- **Population peak:** World's population is projected to peak around **10.3 billion people in mid-2080s**, up from **8.2 billion in 2024**.
- **Fertility rate:** Currently, fertility rate stands at **2.25 live births per woman**, down from **3.31 births in 1990**.
- **Life expectancy:** **Life expectancy at birth reached 73.3 years in 2024**, an increase of **8.4 years since 1995**.
- **Early pregnancies:** In 2024, 4.7 million babies, or about 3.5 per cent of the total worldwide, were born to mothers under age 18.

#### India

- India's population is **expected to reach its peak in early 2060s** and is expected to remain the **world's largest throughout century**.

#### Main drivers of population increase

- **Population momentum:** Growth in number of women of reproductive age even when the number of births per woman falls to below the replacement level (2.1).
- **Other drivers:** Higher fertility rates in some countries/ regions; increase in life-expectancy, etc.

### UNDESA(United Nations Department of Economic and Social Affairs)



- **Genesis:** Rooted in the **United Nations Charter**.
- **Headquarter:** **New York (US)**
- Works closely with governments and stakeholders **to help countries meet their economic, social, and environmental goals**.
- It is the **development pillar of the UN Secretariat**.
- **Important Reports:** World Economic Situation and Prospects, Financing for Sustainable Development, etc.

## Security Agencies seize Pak-bound banned Chemicals

Indian Security agencies have seized the **consignment consisting of internationally banned chemical - Ortho-Chloro Benzylidene Malononitrile** - used for tear gas and riot control agents at a port in Tamil Nadu.

- Consignment was seized under provisions of the **Customs Act, 1962** and the **Weapons of Mass Destruction and Delivery Systems (Prohibition of Unlawful Activities) Act, 2005**.
- The chemical is also **listed in India's export control list 'SCOMET' as a controlled substance whose export shall be permitted only against an export authorization**.

#### About SCOMET List

- SCOMET (Special Chemicals, Organisms, Materials, Equipment and Technologies) list is **National Export Control List of dual use items, munitions and nuclear related items**, including software and technology.
  - ⊖ **Dual use items** are goods and technologies that can have **both civilian and military applications**. Dual-use items have been named as **SCOMET** under **Foreign Trade Policy, 2023**.
- **Export** of dual-use items and technologies is **either prohibited or is permitted under a license**.
- **SCOMET List is notified** under **Indian Trade Clarification based on Harmonized System [ITC (HS)] Classification**.
  - ⊖ **ITC (HS)** was adopted for import-export operations.
- SCOMET control list is **aligned to control lists of all multilateral export control regimes and conventions**.

#### Multilateral Export Control Regimes

- **Wassenaar Arrangement (1996):** For conventional arms and dual-use goods and technologies.
- **Nuclear Suppliers Group (NSG) (1974):** For transfers of civilian nuclear material and nuclear-related equipment and technology.
- **Missile Technology Control Regime (MTCR) (1987):** To limit the spread of ballistic missiles and other unmanned delivery systems.
- **Australia Group (1985):** For Chemical and Biological weapons.

**Note:** Except NSG, India is a member of all the above control regimes.

## Vizhinjam International Seaport in Kerala welcomes its first container vessel

Vizhinjam Seaport (Thiruvananthapuram), India's first **Deepwater Container Transshipment Port**, is an ambitious project of Kerala government.

- The port is being currently developed in **landlord model** with a Public Private Partnership component on a **Design, Build, Finance, Operate and Transfer ("DBFOT")** basis.
  - ⊖ Under **landlord model**, **port authority acts as regulatory body** and as landlord, while **port operations** (especially cargo handling) are carried out by private companies (Adani Vizhinjam Port Pvt Ltd in this case).

### Transshipment Hub

- Transshipment hubs are ports that have **connections to originating and destination ports** and are used as intermediate port for cargo transfer.
- Nearly **75% of India's Transshipment cargo** is handled at **ports outside India**.
  - ⊖ The Ports of **Colombo, Singapore, and Klang** handle more than 85% of this cargo.

### Significance of India as a Transshipment Hub

- **Address the potential revenue losses** for Major ports (**\$200-220 Million**) in transshipment handling and increase port activity.
- Savings of **foreign exchange reserves** and attracting foreign direct investment.
- Development of **related logistics infrastructure** and employment generation.
- Growth of **allied businesses** such as ship repair, warehousing, bunkering etc.

### Other Initiatives taken to develop Transshipment hubs in India

- **Cochin Port Authority (CoPA)** has developed International Container Transshipment Terminal in Cochin.
- **Galathea bay in Great Nicobar Island of Andaman & Nicobar Islands** is identified for development of an International Container Transshipment Port.

## Prime Minister visited Austria to highlight 75 years of diplomatic relations

It was first trip by an Indian Prime Minister to Austria in 41 years, last being in 1983.

- Both countries emphasized on **future-oriented bilateral sustainable economic and technology partnership**.
- Partnership will cover a range of **new initiatives and joint projects**, and business-to-business engagement in green and digital technologies, infrastructure, renewable energy, water management, life sciences, smart cities, mobility and transportation.

### India-Austria Relations

- **Historical Relations:** Diplomatic relations were **established in 1949**.
  - ⊖ PM Nehru supported **Austria's emergence as a neutral and independent country in 1955**.
- **Political and Security Cooperation:** Both countries affirmed their **commitment to a free and open Indo-Pacific region and peaceful resolution of Ukraine conflict**.
- **Economic Relations:**
  - ⊖ **Total bilateral trade** for 2023 was **2.93 USD billion** with Indian exports to Austria valued at USD 1.52 billion.
  - ⊖ To foster innovation and entrepreneurship between countries, **India-Austria Startup Bridge was launched in 2024**.
- **Multilateral Cooperation:**
  - ⊖ Austria expressed interest in **India-Middle East-Europe Corridor (IMEC)**.
  - ⊖ India reiterated its support for **Austria's UNSC candidature** for term 2027-28, while Austria expressed its support for India's candidature for 2028-29.
  - ⊖ India invited Austria to join the **International Solar Alliance**.

## Also in News



### e-Office

Government has decided to **implement e-Office in all attached, subordinate offices, and autonomous bodies**.

#### About e-Office

- A **mission mode project** under National e-Governance Program and is developed by **National Informatics Centre (NIC)**.
- It is a **digital work place solution** built on open architecture making it a standard **reusable product** amenable for replication across the Governments.
- **Key Components:** eFile (File Management System), KMS (Knowledge Management System), WAW (Work from Anywhere) portal, SPARROW (Smart Performance Appraisal Report Recording Online Window).



### Exercise Pitch Black

Indian Air Force (IAF) contingent reached Australia to participate in Exercise Pitch Black 2024.

#### About Exercise Pitch Black 2024

- It is a biennial, multi-national exercise hosted by the **Royal Australian Air Force (RAAF)**.
- It includes **participation by 20 countries**.
- The IAF has previously participated in the **2018 and 2022 editions of this exercise**.
- It provides an opportunity for strengthening the ability to **deploy over large distances, and support integrated operations** in the Indo-Pacific region.



### Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP)

National Commission for Scheduled Castes has sought a report from the Karnataka government over reported diversion of funds from SCSP and TSP.

#### About SCSP and TSP

- **Strategy of TSP has been in force since 1974**, to ensure adequate flow of plan resources for the development of Scheduled Tribes.
- **Strategy of SCSP** (earlier known as the Special Component Plan for Scheduled Castes) **has been in force since 1979-80**, to ensure proportionate flow of plan resources for development of Scheduled Castes (SCs).
- Budget provided under SCSP and TSP are **non-divertible and non-lapsable** with clear objective of bridging the gap in socio-economic development of SCs and STs.



### IFSC

RBI expanded the scope of remittances to International Financial Services Centres (IFSCs) under the Liberalised Remittance Scheme (LRS).

#### About IFSC

- Gujarat International Finance Tech-city (GIFT) - IFSC is India's maiden IFSC set up under the **Special Economic Zone Act, 2005**
- GIFT, operationalized in 2015, aims to become **India's gateway for inbound and outbound requirements of the international financial services.**
- International Financial Services Centres Authority (IFSCA) has been established as a **statutory authority** under **IFSCA Act, 2019.**
  - ⊖ IFSCA is a unified authority for the development and regulation of financial products, financial services, and financial institutions in IFSC.



### Time Crystal

Scientists successfully create a time crystal made of giant atoms.

#### About Time crystals

- In 2012, Frank Wilczek proposed the concept of time crystals.
  - ⊖ A **crystal** is an arrangement of atoms that **repeats itself in space**, in regular intervals.
  - ⊖ A **time crystal** is a **quantum system** where particles organize into a pattern of motion that **repeats periodically in time.**
- Researchers **used laser light and Rydberg atoms** to demonstrate spontaneous oscillations, achieving a **breakthrough in creating time crystals.**
- It offers new insights and **potential applications in sensors, wireless communication and quantum technology.**



### Quantum Cryptography

Scientists at Raman Research Institute (RRI) have created a new, user-friendly way to generate truly unpredictable random numbers, which is crucial for stronger encryption in quantum communications.

- **RRI** performed a photonic experiment to demonstrate violation of **Leggett Garg Inequalities (LGI).**
  - ⊖ LGI is a set of mathematical expressions that compare the **predictions of quantum mechanics with those of classical physics.**

#### About Quantum Cryptography

- It is a method of encryption that uses naturally occurring properties of quantum mechanics to secure and transmit data.
- It uses **individual photons** (particles of light) **to transmit data over optic fibre.**



### Sarus Crane

Summer census reveals rise in Sarus crane population in Uttar Pradesh.

#### About Sarus Crane

- It is the **tallest flying bird** in the world.
- It has been declared as **State Bird of Uttar Pradesh.**
- **Features**
  - ⊖ **Social creature:** Found mostly in pairs or small groups.
  - ⊖ **Known to mate for life** with a single partner.
- **Distribution:** Indian sub-continent (northern and central India, Terai Nepal and Pakistan), Southeast Asia and Northern Australia.
- **Habitat:** Marshes, floodplains, wetlands, fallow and cultivated lands and paddy fields.
- **Conservation Status:** IUCN (Vulnerable), WPA (Schedule IV).
- **Threats:** Habitat loss and degradation, conversion of land for agriculture, ingestion of pesticides.



### Siang River

Locals in Upper Siang district are protesting against the **Upper Siang Hydropower Project** in Arunachal Pradesh

- **Upper Siang Hydropower Project** is being developed by NHPC on River Siang.

#### About Siang River

- **Origin:** Angsi Glacier in Kailash Ranges near Mansarovar Lake (Tibet).
- **Major tributaries:** Lohit and Dibang.
- It **descends down into the plains of Assam south of Pasighat town**, where it **meets Dihang and Lohit and becomes the Brahmaputra.**



### Chromium Contamination of Groundwater

Kolkata bench of National Green Tribunal ordered Central Ground Water Board to investigate the dangerous levels of Chromium contamination of groundwater in Sukinda Valley (Odisha).

#### About Chromium Contamination

- Chromium is **highly water soluble**, hence labile and leads to widespread contamination from the point of source.
- It exists in **two valence states**
  - ⊖ **Trivalent Chromium [Cr(III)]:** Biologically important element and is needed for glucose and lipid metabolism.
  - ⊖ **Hexavalent Chromium [Cr(VI)]:** Considered toxic due to high carcinogenicity.
- **Maximum permissible contamination of Cr(VI) in drinking water is 50 µg/L. (Indian standard IS 10500).**



### Fund for responding to Loss and Damage

The Board for Loss and Damage Fund decided to call it as **"Fund to respond to Loss and Damage" (FrLD).**

- It was decided that **Philippines** will be the host country for Board of the fund.

#### About FrLD

- It was established in **27<sup>th</sup> session of UNFCCC Conference of the Parties (COP)** in Sharm el-Sheikh (Egypt) in 2022.
- **Purpose:** Fund will help developing countries **compensate** for losses and damages from natural disasters caused by climate change.
- **Loss and damage** refers to the negative consequences that arise from unavoidable risks of climate change, like rising sea levels, prolonged heatwaves, desertification, ocean acidification etc.