

## DAILY CURRENT AFFAIRS (DCA)

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## HARVEST FESTIVALS ACROSS INDIA

### Context:

- The Prime Minister greeted people on the occasion of Makar Sankranti and harvest festivals celebrated in different regions of the country with different names.

### About

- Harvest festivals mark the **beginning of festivities every year in India** and can be seen in different States of India.
- These festivals are celebrated at different times of the year due to different climates and cropping patterns, and are a **moment to celebrate the food that has been cultivated**.
  - India being an agrarian economy, with the majority of its population dependent on agriculture owes their growth and prosperity to Mother Earth and nature.
- These festivals commemorate the **cycle of life and death** and also indicate the end of the agricultural cycle and the beginning of the end of the year.

### Makar Sankranti



- It marks the end of an unfavourable phase and the beginning of a holy phase.
- It is celebrated in Maharashtra, Gujarat, Uttar Pradesh, Tamil Nadu, Haryana, Himachal, West Bengal, Punjab, Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Telangana, and Puducherry.
  - Kumbh Mela is one of the key attractions during this festival.

### Pongal

- It is primarily celebrated in Tamil Nadu, and is one of the most popular harvest festivals of South India.
- It marks the **beginning of Uttarayan (sun's journey northwards i.e. sun's transit to the Capricorn)**.
  - The literal meaning of Pongal is 'spilling over', and it is so called because of the tradition of boiling rice in a pot until it starts to spill.
  - Jallikattu**, a bull taming sport, is widely celebrated in the **state of Tamil Nadu as part of Pongal celebrations**.

### Baisakhi

- It signifies the end of the harvest season in India marking a time of prosperity for the farmers.
- It is celebrated as the new year by the Hindu community.

### Lohri

- It is a celebration of the commencement of the harvest season.
- Mainly celebrated in Punjab and other parts of North India by Sikh and Hindu communities.

### Other festivities include

- Ellu Birodhu** in Karnataka; **Hangrai** in Tripura; **Poush Sangkranti** in West Bengal; **Pusna** in West Bengal, Assam, and Meghalaya; **Shishur Saenkraat** in Kashmir Valley; **Tusu** in West Bengal, Jharkhand, Odisha; and **Uttarayan** in Gujarat; **Ugadi** in Andhra Pradesh, Karnataka & Telangana; **Nuakhai** in Odisha; **Onam** in Kerala; **Gudi Padwa** in Maharashtra, Karnataka & Andhra Pradesh, **Khichdi** in Eastern Uttar Pradesh and **Magh Bihu or Bhogali Bihu** in Assam.

### Significance of these festivals

- Harvest festivals signify **cultural, social, and religious aspects**.
- The festival is celebrated to mark the beginning of the harvesting season in the country and is **probably the only one that is celebrated in every region of India**, on the same day, but in different manners and names.
- Sun's northward Movement:** It is associated with the sun's northward journey.

Source: *IE*

## AGREEMENT SIGNED ON DEVELOPMENT OF CHABAHAH PORT

### In Context

- **India and Iran** signed an agreement on the further development of the **Chabahar Port**.

### Chabahar Port

- Iran's Chabahar port is located on the **Gulf of Oman** and is the **only oceanic port of the country**.
- It is situated in the **city of Chabahar** in **Sistan and Baluchestan Province**.
- Chabahar has two ports; **Shahid Kalantari and Shahid Beheshti**.
  - ♦ The former is an old port with limited water front to accommodate feeder vessels.
  - ♦ The Shahid Beheshti Port is being developed in four phases. On completion of all 4 phases, port capacity will 82 million tons per year.
- The port gives access to the **energy-rich Persian Gulf nations'** southern coast and India can bypass Pakistan with the Chabahar port becoming functional.



### Significance of Chabahar Port for India

- **Geopolitical Significance:** Chabahar Port is strategically located at the crossroads of South Asia, Central Asia, and the Middle East. It provides India with direct sea access to Afghanistan and Central Asia, bypassing Pakistan.
  - ♦ India can bypass Pakistan in transporting goods to Afghanistan.
- **Gateway to INSTC:** Chabahar port will boost India's access to Iran, the key gateway to the **International North-South Transport Corridor (INSTC)** that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.

- **Countering China:** Chabahar port will be beneficial to India in countering Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port.
  - ♦ Gwadar port is less than 400 km from Chabahar by road and 100 km by sea.
- **Trade Benefit:** With Chabahar port becoming functional, there will be a significant boost in the import of iron ore, sugar and rice to India.
  - ♦ The import cost of oil to India will also see a considerable decline.

### Brief on India and Iran Relations

- **Political Relations:** India and Iran signed a **friendship treaty in 1950**. The two countries have in place several Bilateral Consultative Mechanisms at various levels including the Joint Committee Meeting (JCM), Foreign Office
- Consultations (FOC), Security Consultations at the level of National Security Advisers.
  - ♦ India and Iran also have Joint Working Groups to facilitate cooperation in various important sectors.
- **Economic Relations:** India-Iran bilateral trade during the FY 2022-23 was **\$2.33 billion, registering a growth of 21.76%**.
  - ♦ India and Iran have also been trying to diversify their **channels of payment** to increase bilateral trade.
- **Energy Cooperation:** India has consistently been among the **top importers of Iranian oil**, although this relationship has faced challenges due to international sanctions on Iran.
- **Regional Stability:** India and Iran share concerns and interests in the stability of the region, especially in the context of Afghanistan.
  - ♦ The two nations have collaborated on various initiatives to address common security challenges.

### Areas of Concerns

- **International Sanctions:** Iran has faced international sanctions, particularly in relation to its nuclear program.
  - ♦ These sanctions have affected economic relations between India and Iran, especially in the energy sector.
  - ♦ India's ability to import oil from Iran has been impacted, leading to uncertainties in their energy cooperation.

- **Geopolitical Challenges:** The geopolitical landscape in the Middle East and South Asia has been complex, and both countries need to navigate carefully to balance their regional interests.
- **Security Concerns:** The security situation in the region, including the volatile conditions in Afghanistan, has implications for both India and Iran.
  - ♦ Their cooperation on regional security issues is essential, but differences in strategic perspectives can pose challenges.
- **Chabahar Port Development:** While the development of the Chabahar Port is a significant project, progress has been slower than anticipated.
- **Impact of External Players:** Both India and Iran have relationships with external players that may not align with each other's interests.
  - ♦ The influence of external powers in the region can complicate their bilateral dynamics and create challenges for mutual cooperation.
- **Nuclear Deal Uncertainties:** The uncertainties surrounding the Iran nuclear deal (JCPOA) and the potential for changes in the international approach toward Iran's nuclear program can impact the diplomatic and economic relations between India and Iran.

### Way Ahead

- Although India has followed a balancing act in the Middle East, the evolving geopolitical realignments could pose newer challenges for India to deepen its cooperation with Iran amid escalating tension between Iran and the West.
- The relationship faces challenges due to geopolitical dynamics, including the influence of other regional players.
- However, both countries continue to explore opportunities for collaboration and economic partnership.

Source: *IE*

## INDIA AND SAUDI ARABIA

### Context:

- India and Saudi Arabia have decided to set up a **Joint Committee on Defence Cooperation** to give a boost to the defence ties.

### Joint Committee on Defence Cooperation:

- It aims to evolve plans for cooperation in numerous areas including:
  - ♦ High level visits, including political, official, ship visits and conducting Passage Exercises during such visits.
  - ♦ Exploring the possibility of **signing an MoU on cooperation in hydrography**;
  - ♦ Increasing participation in defence training programmes, by signing of an **MoU on Defence Cooperation**.
- Both countries discussed ways to enhance navy-to-navy cooperation, joint training and opportunities for joint ventures in defence production on issues of mutual strategic interests and bilateral defence cooperation.
- The two sides agreed that all issues need to be settled through peaceful dialogue, after reviewing the **security situation in the Gulf Region**.

### India-Saudi Arabia Relations:

- Establishment of **diplomatic relations in 1947**, and it was strengthened by the signing of **Delhi Declaration in 2006** and elevated to a strategic partnership by signing of **Riyadh Declaration in 2010**.



- The Prime Minister of India's visit to Riyadh in 2016 captured the spirit of **enhanced cooperation in the political, economic, security, and defence realms**.

- ♦ King Salman conferred the **King Abdulaziz Sash** (the Kingdom's highest civilian honour) to India's Prime Minister, indicating the importance of Saudi Arabia-India relations.

### Current Scenario:

- India's relations with Saudi Arabia have witnessed unprecedented growth in recent years, marked by a remarkable rise in trade and other investments.
- **Trade:** India's foreign trade with Saudi Arabia reached an all-time high of **\$52.75 billion** in FY23.
  - ♦ India received **\$3.22 billion in FDI** from Saudi Arabia between April 2000 and June 2023.
  - ♦ India sources crude petroleum, petroleum products, fertilisers, raw plastic, organic and inorganic chemicals from Saudi Arabia.
- **Energy Security:** Saudi Arabia contributes to India's energy security as India is highly dependent on imports for its energy needs, importing 87% of oil consumed, and the Middle East accounts for over 60% of India's crude oil imports.
- **Food Security:** India complements Saudi countries in their food security as Saudi Arabia is largely import-dependent for its food needs and manufactured goods, including textiles.
- **Strategic Partnership Council (SPC):** India is the fourth country after the UK, France, and China to partner with Saudi Arabia to establish the India-Saudi Arabia Strategic Partnership Council (SPC) in 2019.
  - ♦ This aims to take forward mutual collaborations on the economy, investments, as well as social, political, and security matters.
- **Defence Cooperation:** India and Saudi Arabia have a Joint Committee on Defence Cooperation (JCDC) that meets regularly.
  - ♦ Indian Navy cooperates with Royal Saudi Naval Force through various initiatives, which include operational interactions such as **bilateral naval exercise Al Mohed Al Hindi**, training and other maritime avenues.
  - ♦ Indian Navy ships have been regularly undertaking port calls at various ports of Saudi Arabia.
  - ♦ **Various Exercise:** The Indian Navy has also been interacting with the Royal Saudi Naval Force in various multilateral fora – **Ex Milan, Indian Ocean Naval Symposium, Combined Maritime Forces and Djibouti Code of Conduct - Jeddah Amendment (DCoC-JA)**.

**Regional Stability:** Both countries agreed to work together for **peace, security and stability of the region**, as Iranian-backed **Houthi militants** in Yemen stepped up attacks on vessels and disrupted maritime traffic in the [Red Sea](#).

**Indian Ocean Naval Symposium (IONS):** The navies of the two countries could explore practical cooperation in the **fight against piracy** and an active role of the Royal Saudi Navy in the IONS.

### Challenges

- **Energy Dependence:** The core element of their relationship continues to revolve around energy, particularly Saudi Arabia's export of crude oil.
  - ♦ India is highly dependent on imports for its energy needs, importing 87% of oil consumed, and the Middle East accounts for over 60% of India's crude oil imports.
- **Saudi Arabia's Aid to Pakistan:** While engaging with India, Saudi Arabia's aid to Pakistan raises concerns.
- **Economic Shifts, Political Transitions, and Geopolitical Dynamics:** These factors have tested their relationship. However, the underlying respect, shared interests, and commitment to mutual growth have allowed their ties to remain resilient.
- **Role of China:** The country is also engaged with China, moving towards rapprochement with Iran and Israel, and is also now consolidating the Saudi partnership with the US, India, and Europe.
  - ♦ Many have thus already described this engagement as a power shift, with China emerging as a significant player in the Middle East.
  - ♦ Increasing Chinese influence in the Middle East may indirectly help Pakistan, both economically and strategically.

### Conclusion and Way Forward

- Despite the challenges, both nations have recognized the importance of adapting their partnership to address modern challenges. They have established the **India-Saudi Arabia Strategic Partnership Council (SPC)** in 2019 to take forward mutual collaborations on the economy, investments, as well as social, political, and security matters.
- India needs to patiently assess if **China's growing involvement** in the Gulf is detrimental to its long-term security interests and the regional balance of power.

- ♦ The **I2U2 partnership** between India, Israel, the UAE, and the US has already put India on the region's alliance canvas.
- At the same time, recent developments also provide a window of opportunity for India to embed itself as a significant player in the Middle East.

Source: **TH**

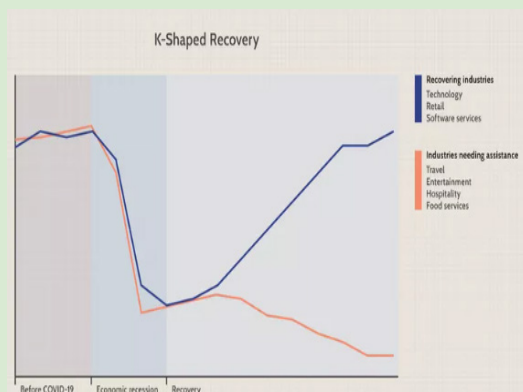
## INDIA'S K-SHAPED RECOVERY DEBATE

### In News

- According to a study by the State Bank of India, the ongoing debate **about a K-shaped recovery** of the domestic economy post-pandemic seems flawed and biased.

#### K-shaped recovery

- It is a post-recession scenario in which one section of the economy begins to recover while another segment continues to struggle.
- The concept of a K-shaped recovery first emerged in 2020 during the COVID-19 pandemic.
  - ♦ The COVID-19 pandemic recovery has been fractured and uneven. Millions of people remain unemployed, while the wealthiest have grown their fortunes.
- The portion of the population that recovers quickly is represented by **the upper part of the K**, while the lower part represents those groups that recover more slowly. In some cases, it could be that different industries recover at different speeds.



### Key Findings of the SBI's study

- **Income inequality decreasing:** The gap between different income levels, measured by the **Gini coefficient** of taxable income, decreased notably from **0.472 to 0.402** from **FY14 to FY22** respectively.

- ♦ The Gini coefficient, also known as the Gini index or Gini ratio, is a measure of **economic inequality in a population**.
- **Business growth:** It highlighted the visible change in the **income pattern of MSMEs (micro, small and medium enterprises)** as the formalisation drive brings more entities into the net.
  - ♦ Around 19.5 percent of majorly micro-sized firms have been able to shift their income upwards.
  - ♦ MSME units are getting bigger and getting integrated into larger value chains with initiatives like PLI.
- **Rise in individual's weighted mean income:** The study shows the individual's weighted mean income has risen from 3.1 lakhs to 11.6 lakhs during FY14-FY21.
  - ♦ The **weighted mean** income represents a more **nuanced and granular barometer of increase in income** within specific income brackets and their contribution to the overall increase.
- **Rising female labour force:** SBI quoted PLFS (Periodic Labour Force Survey) data which shows female labour force participation has risen from 23.3 in 2017-18 to 37 in 2022-23, marking an increase of 13.7.
  - ♦ There has been an increase in the share of agriculture as an occupation among females at all India level. Meanwhile, it has declined for the males.
- **Post-pandemic consumption trends:** the bottom of the pyramid consumption share has increased.
  - ♦ The consumption of people spent below \$3.65, or 303, per day has increased by nearly 8.2 lakh crore.
  - ♦ Nearly half of India's consumption will be carried out by the lower-income segment, comprising 90% of the population, by the end of the next decade.

### Economists view

- Growth in any economy always tends to be **K-shaped** where some sectors are **moving up and down**.
- Seldom do all sectors of the economy all move in the upward direction and when it happens, it is more when the growth is at a continuously elevated rate of over 8% per annum

- If we look at the Indian economy there are several sectors moving in the upward direction especially those related to infrastructure like steel, cement, machinery.
- However, **consumer-oriented industries are still lagging as per H1** (first half) performance of companies and similarly the agricultural sector has witnessed a setback due to the monsoon being less than normal.

### Highlights of Economic Survey - 2022-23 in this context

- The Indian economy underwent wide-ranging structural and governance reforms that strengthened the economy's fundamentals by enhancing its overall efficiency during 2014-2022.
- India's economic growth in FY23 has been principally led by private consumption and capital formation.
- It has helped generate employment as seen in the declining urban unemployment rate and in the faster net registration in the Employee Provident Fund.
- Still, private capex soon needs to take up the leadership role to put job creation on a fast track.
- Schemes like PM-Kisan and PM Garib Kalyan Yojana have helped in ensuring food security in the country, and their impact was also endorsed by the United Nations Development Programme (UNDP).
- The results of the National Family Health Survey (NFHS) also show improvement in rural welfare indicators from FY16 to FY20, covering aspects like gender, fertility rate, household amenities, and women empowerment

#### Other types of economic recovery

- Economic recoveries can take a variety of forms, most of which are determined by the rate at which they occur.
  - ♦ **V-Shaped:** A V-shaped recovery is a rapid and sudden improvement in an economy that follows a rapid and severe fall.
    - This usually happens following a one-time shock to the economy.
  - ♦ **U-Shaped:** The economic damage from a U-shaped recovery lasts for a longer amount of time before returning to the baseline level of growth.

- The economy recovers, but the harm at the bottom persists for some time.
- ♦ **L-shaped:** The most gloomy scenario is an L-shaped recovery.
  - In this form, the economy rebounds to some extent from a sharp dip, but growth never returns to pre-crisis levels for years, if at all. Following this is a period of economic stagnation.
- ♦ **W-shaped:** This is a situation in which the economy experiences a rapid collapse, followed by a small and temporary recovery, and then another decline. It is sometimes referred to as a double-dip recession.

Source: *LM*

## ARTIFICIAL INTELLIGENCE AND JOB LOSS

### Context:

- **AI will affect 40% of jobs** and probably **worsen inequality**, according to the head of the International Monetary Fund (IMF).

### Analysis by the IMF

- **About 60% of jobs in advanced economies such as the US and UK are exposed to AI** and half of these jobs may be negatively affected.
  - ♦ AI's ability to affect highly skilled jobs means that **advanced economies face greater risks** from the technology.

#### Do you know?

- The **OECD report in 2023** said the **occupations at highest risk from AI-driven automation were highly skilled jobs** and represented about **27% of employment across its 38 member countries**, which include the UK, Japan, Germany, the US, Australia and Canada.
- **Highly skilled occupations** such as medicine, law and finance 'may be at risk of automation from AI'.
- The technology **will also help to enhance some humans' productivity** as AI improves their performance.
- **The safest highly exposed jobs are those with a "high complementarity" to AI**, meaning the technology will assist their work rather than displace it entirely.

- ♦ This includes roles with a high degree of responsibility and interacting with people – such as **surgeons, lawyers and judges**.
- **High-exposure jobs with “low complementarity” – meaning the potential for being displaced by AI.**
  - ♦ This includes **telemarketing, or cold-calling people** to offer goods or services.
  - ♦ AI applications may execute key tasks currently performed by humans, which could **lower labour demand, leading to lower wages and reduced hiring**.
- Low-exposure occupations include **dish washers and performers**.
- **AI jobs exposure is 40% in emerging market economies** – defined by the IMF as states including **China, Brazil and India** – and **26% for low-income countries**, with an overall total of just under 40%, according to the IMF.
- In most scenarios **AI would probably worsen overall inequality** across the global economy and could stoke social tensions without political intervention.
  - ♦ The IMF analysis shows that **higher-wage earners whose jobs have high complementarity with AI can expect an increase in their income**, leading to an increase in inequality.

### AI Driven Other Positive Side

- **Job creation:** AI also creates new opportunities in fields like AI development, data analysis, and cybersecurity.
- **Increased productivity:** AI can boost productivity and efficiency in various sectors, potentially leading to economic growth and job creation in different areas.
- **Reskilling and adaptation:** With proper training and support, workers whose jobs are affected by AI can re-skill and adapt to new roles in demand.
- The **net effect of AI on employment remains uncertain**. Some predict job losses due to automation, while others suggest AI will create more jobs than it displaces.
  - ♦ The actual impact will likely vary depending on a range of factors like the rate of **technological advancement, government policies, and the adaptability** of workers.

### Measures

- **Investing in education and training:** Equipping workers with the skills needed for the AI-driven economy is crucial.
- **Social safety nets:** It is crucial for countries to establish comprehensive social safety nets like **unemployment benefits and offer retraining programmes** for vulnerable workers.
  - ♦ In doing so, we can make the **AI transition more inclusive, protecting livelihoods and curbing inequality**.
- **Regulation and ethical considerations:** Implementing responsible AI development and ensuring fair distribution of the benefits of AI are important considerations.
- **AI property rights:** Countries' choices regarding the **definition of AI property rights**, as well as **redistributive and other fiscal policies**, will ultimately shape its impact on income and wealth distribution.
- **Mid-career transitions:** AI could help with mid-career transitions as this is the age where expertise is at fingertips. So anyone can become an expert as an AI assistant is there to help.

### Way Ahead:

- The relationship between AI and job loss is complex and multifaceted. While **AI poses potential risks of job displacement, it also offers opportunities** for new jobs and economic growth.
- **The key is to manage the transition effectively** through reskilling, social safety nets, and responsible AI development.
- By **acknowledging the challenges and proactively preparing for the future**, we can ensure that AI benefits everyone and contributes to a more equitable and prosperous future.

Source: *TH*

## MULTIDIMENSIONAL POVERTY IN INDIA SINCE 2005-06

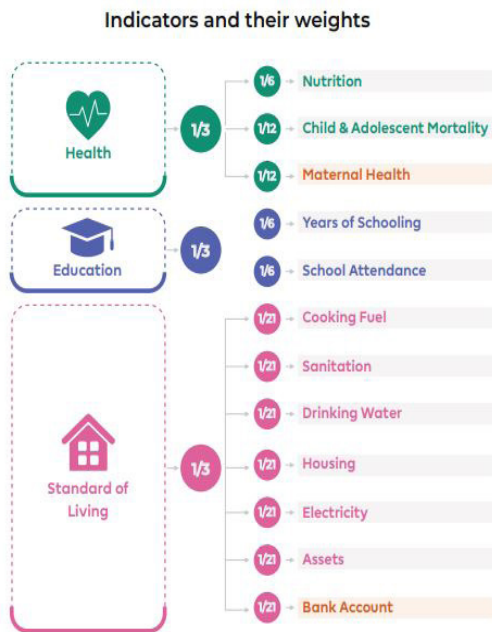
### In Context

- NITI Aayog has released its discussion paper '**Multidimensional Poverty in India since 2005-06**'.



### About

- The Multidimensional Poverty Index (MPI) is a globally recognized comprehensive measure that captures **poverty in multiple dimensions beyond monetary aspects**.
- It has three equally weighted **dimensions – Health, Education, and Standard of living** – which are represented by **12 indicators**.
- It also adds **two indicators, viz., Maternal Health and Bank Accounts** in line with national priorities.



### What is Poverty?

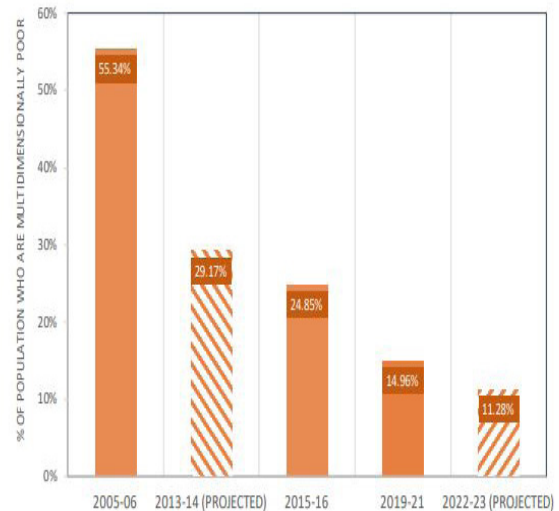
- Poverty is a state or condition in which a person or community **lacks the financial resources and essentials** for a minimum standard of living.
- Poverty-stricken people and families might go without proper housing, clean water, healthy food, and medical attention.
- Poverty is an individual concern as well as a broader social problem.
- Welfare programs are used by governments to help alleviate poverty.
- Poverty is the result of multiple factors, not simply income.

### Findings

- Reduction in Poverty:** India has registered a significant decline in multidimensional poverty from 29.17% in 2013-14 to 11.28% in 2022-23 i.e. a **reduction of 17.89 percentage points**.

- State Wise Decline: Uttar Pradesh** registered the largest decline in the number of poor with 5.94 crore people escaping multidimensional poverty during the last nine years followed by Bihar, Madhya Pradesh and Rajasthan.
- Headcount Ratio:** The pace of decline in poverty headcount ratio using the exponential method was much faster between 2015-16 to 2019-21 (10.66% annual rate of decline) compared to period 2005-06 to 2015-16 (7.69% annual rate of decline).

INDIA: HEADCOUNT RATIO



- Improvement in Indicators:** All 12 indicators of MPI have recorded significant improvement during the entire study period.
- Initiatives covering all dimensions of poverty have led to **24.82 crore individuals escaping multidimensional poverty** in the last 9 years.
  - As a result, **India is likely to achieve its SDG target** of halving multidimensional poverty well before 2030.

### Government Interventions to Reduce MPI

- Poshan Abhiyan and Anaemia Mukh Bharat** have played a crucial role in addressing reach to health facilities, resulting in a substantial reduction in deprivation.
- National Food Security Act (NFSA):** Under it foodgrains are provided to 81.35 crore beneficiaries covering 75% population in rural areas and 50% population in urban areas.
  - Recently, the Government has decided to continue providing free food grains to NFSA beneficiaries under Pradhan Mantri Garib Kalyan Anna Yojana for a period of five years w.e.f. 1st January, 2024.

- **Mission Poshan 2.0 and Saksham Anganwadi** have significantly contributed to fostering a healthier India, impacting millions of lives through key schemes like POSHAN Abhiyaan, Anganwadi Services, and the Scheme for Adolescent Girls.
- **Pradhan Mantri Poshan Shakti Nirman (PM POSHAN):** It is a flagship programme of Government of India, is the largest School feeding Scheme in the world to address the twin problems of improving the nutritional status and school enrolment of children.
- **Pradhan Mantri Surakshit Matritva Abhiyan:** It is aimed at improving maternal health by offering assured, comprehensive, and quality antenatal care to all pregnant women universally on the 9th of each month.
- **PM Ujjwala Yojana:** It has provided clean cooking fuel to an impressive 31 crore individuals, distributing 10 crore LPG connections.
  - ◆ Beyond creating smoke-free kitchens, this initiative has protected numerous women from chronic respiratory disorders.
- **Saubhagya:** It has improved electricity coverage for almost 100% of the population, benefiting an additional 2.86 crore households and rendering kerosene lamps obsolete, thus improving respiratory health and eyesight.
- **Swachh Bharat Mission (SBM) and Jal Jeevan Mission (JJM):** They have led to a nationwide wave of improved sanitation facilities providing 14 crore tap water connections and construction of 11.33 crore IHHL in rural areas.
- **The Pradhan Mantri Jan Dhan Yojana (PMJDY):** It has been a driving force for change, witnessing the opening of over 50 crore bank accounts in recent years.
  - ◆ It has played a central role in bringing a significant section of the population into the formal financial system.
- **The PM Awas Yojana:** It has revolutionized living conditions in both urban and rural areas, facilitating the construction of over 4 crore homes for the underprivileged.

Source: **PIB**

## LIGHT-EMITTING DIODES

### Context

- Light-emitting diodes (LEDs) succeed the incandescent bulbs and fluorescent lamps of

previous centuries as the world's light-source of choice.

### Light-emitting diodes (LED)

- **A diode** is an electronic component which has two points of contact, or terminals, called anode and cathode. A diode's primary purpose is to allow current to flow in only one direction.
- **A light-emitting diode (LED)** is a semiconductor device that emits light when current flows through it.
- **LEDs have applications** in industries, consumer electronics, and household appliances: from smartphones to TV screens, from signboards to 'feeding' plants light in greenhouses, from barcode scanners to monitoring air quality.

### Colors produced by LEDs

- LEDs can produce all three primary colors which are red, green, and blue.
- Different LEDs can be combined on a display board to produce a large variety of colors.

### Advantages of LEDs

- **Long Lifespan:** LED bulbs can last up to 25,000 hours or more, which means less frequent replacements and reduced maintenance costs.
- **Energy Efficiency:** They convert a higher percentage of electrical energy into light, reducing energy waste and lowering electricity bills.
  - ◆ LEDs can produce up to 300 lumen (amount of visible light emitted per second) versus incandescent bulbs' 16 lumen and fluorescent lamps' 70 lumen.
- **Instant Lighting:** LEDs light up instantly without the warm-up time required by some fluorescent lights making it useful in applications where immediate and consistent light is essential, such as in traffic signals or emergency lighting.
- **Environmentally Friendly:** LED bulbs are mercury-free and do not contain other hazardous materials, making them environmentally friendly. They are also recyclable, further reducing their impact on the environment.
- **Durability:** LED bulbs are more rugged and durable than fragile incandescent and fluorescent bulbs. They are resistant to shock, vibrations, and external impacts.

**How does a diode work?**

- A diode contains a p-n junction, an interface where the surface of a p-type material and the surface of an n-type material meet.
- In p-type material primary charge-carriers are holes and in n-type material primary charge-carriers are electrons.
- The electron has negative charge whereas the hole has a positive charge.
- When a suitable voltage is applied across the diode, electrons flow from the n-side to the p-side, implying an electric current flowing from the p-side to the n-side.

**Electroluminescence**

- When an electron meets and occupies a hole, it releases energy into its surroundings.
- If the frequency of this energy is in the visible part of the electromagnetic spectrum, the diode will be seen to emit light. The overall phenomenon is called **electroluminescence**.

Source: **TH****NEWS IN SHORTS****'ONE VEHICLE ONE FASTAG' INITIATIVE****Context:**

- The **National Highway Authority of India (NHAI)** has recently launched the **'One Vehicle One FASTag' Initiative** to enhance national highway experience.

**About 'One Vehicle One FASTag' Initiative**

- **Launched by:** National Highways Authority of India (NHAI)
- **Aim:** To improve the **efficiency of the Electronic Toll Collection (ETC) system** and **provide seamless movement** at the Toll Plazas.
- **Significance:**
  - ♦ **Discourage misuse of FASTags:** This initiative tackles situations where a single FASTag is used on multiple vehicles or **multiple FASTags being issued for a particular vehicle**, causing confusion and delays at toll plazas.
  - ♦ **Enhance transparency and accountability:** Linking one FASTag to one vehicle helps track

transactions and ensures proper revenue collection for toll operators.

- ♦ **Streamline toll operations:** Eliminating confusion and discrepancies smoothens traffic flow and minimizes congestion at toll plazas.

**FASTag**

- FASTag (Faster Automated System Tag) is a **prepaid tag** that uses **Radio-frequency identification (RFID) technology** to enable automatic toll collection at toll plazas on national highways in India.
  - ♦ It is a **cashless, contactless, and secure** method of paying tolls.
- FASTag is issued by various **banks and financial institutions** in India. The FASTag is then needed to link with a bank account, after which one can start using it to pay tolls.
- FASTag offers several advantages over traditional cash or card payments like it is **more convenient, faster, safer** and helps to **reduce traffic congestion** at toll plazas.
- With a **penetration rate of around 98 percent and over 8 crore users**, FASTag has revolutionized the Electronic Toll Collection system in the country.

Source: **PIB****WORLD ECONOMIC FORUM****Context:**

- The **WEF Annual Meeting 2024** began in **Davos, Switzerland** amid growing concerns over climate change, conflicts and misinformation.

**WORLD ECONOMIC FORUM (WEF)****About:**

- It is a significant global event that brings together leaders from various sectors to discuss pressing global issues.
  - ♦ It serves as a platform for global leaders to discuss and address pressing issues, fostering a spirit of cooperation and shared responsibility.

**Genesis of WEF:**

- The WEF was founded by German professor Klaus Schwab in 1971, and introduced the concept of **'stakeholder capitalism'**.

- ♦ **Stakeholder Capitalism** is a form of capitalism where companies seek long-term value creation by considering the needs of all their stakeholders and society at large.
- It was originally known as the **European Management Forum**.

### Reports by WEF:

- **Global Gender Gap Report:** It assesses the gender gap in various countries. The gender gap is the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes.
  - ♦ In the 2023 report, India was ranked 127 out of 146 countries.
- **The Global Risks Report:** It explores some of the most severe risks we may face over the next decade, against a backdrop of rapid technological change, economic uncertainty, a warming planet and conflict.
- Other reports include **Global Competitiveness Report (GCR), Travel and Tourism Competitiveness Report, and Global Information Technology Report**.

### India at WEF:

- India's presence at the WEF is significant, with Union ministers, Chief ministers, and numerous officials and CEOs participating.
- The Indian industry's presence at Davos has been conceptualised with the theme of 'Credible India', showcasing India's impressive economic achievements and its future potential as a significant contributor to global growth.

Source: **IE**

## VULTURE RESTAURANT IN JHARKHAND

### Context:

- A '**Vulture Restaurant**' has been established in **Koderma of Jharkhand** to conserve the declining vulture population.

### About the Vulture Restaurant

- It is an undisturbed area where non-toxic, poison-free meat and carcasses are provided for vultures and other scavengers.
- The initiative aims to **address the adverse impact of livestock drugs, particularly diclofenac**, on vultures.

- The **first 'vulture restaurant'** came up in 2015 at **Phansad Wildlife Sanctuary in Raigad, Maharashtra**.
  - ♦ There are four other such restaurants, all in the same state.

### Types of Vultures

- Vultures are one of the 22 species of large carrion-eating birds that live mostly in the tropics and subtropics.
  - ♦ They act as nature's garbage collectors
- Vultures play a valuable role in keeping wildlife diseases in check.
- **India** is home to nine species of Vulture namely the **Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and the Eurasian Griffon**.

### Conservation Status

- **Schedule-1 of the Wildlife Protection Act 1972:** Bearded, Long-billed, Slender-billed, Oriental white-backed.
  - ♦ Rest are protected under 'Schedule IV'.
- **IUCN Red List:**
  - ♦ **Critically Endangered:** Oriental White-backed Vulture, Long-billed Vulture, Slender-billed Vulture and Red-headed Vulture.
  - ♦ **Endangered:** Egyptian Vulture
  - ♦ **Least Concerned:** Eurasian Griffon

### Threats

- **Use of Diclofenac:** A veterinary nonsteroidal anti-inflammatory drug (NSAID) found in the carcass of cattle the vultures feed on. The veterinary use of diclofenac was **banned in 2008**.
- **Pesticides:** The presence of organochlorine pesticide, polychlorinated biphenyls, polycyclic aromatic hydrocarbons and heavy metals were also the major cause of mortality.
- Other threats include lack of nesting trees, electrocution by power lines, and food dearth and contaminated food.

### Conservation Efforts

- The **National Board for Wildlife (NBWL)** has approved an **Action Plan for Vulture Conservation 2020-2025**. It includes:
  - ♦ **Vulture Conservation Centre:** Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu will get a vulture conservation and breeding centre.

- ♦ **Vulture Safe Zone:** Establishment of at least one vulture-safe zone in each state for the conservation of the remnant populations in that state.
- ♦ **Rescue Centres:** Establishment of four rescue centres, in Pinjore (Haryana), Bhopal (Madhya Pradesh), Guwahati (Assam) and Hyderabad (Telangana). There are currently no dedicated rescue centres for treating vultures.
- ♦ **Establishment of Vulture Conservation and Breeding Centres:** there are nine VCB Centres in India, of which three are directly administered by the Bombay Natural History Society (BNHS).
- Involvement of local villagers as '*gidhaad mitra*' for rejuvenation and conservation efforts.

Source: FE

