

**ENERGY**

**Understanding Stability in Power Supply in 2024**

India's solar energy price reduction needs other reforms from the government to enhance India's solar capacity.

**About Japanese Investment in Solar Energy:**

In 2015, Japan's SoftBank Group announced the intention to invest \$20 billion in India in solar projects through SB Energy (SBE). It seemed ideal for India. With abundant sunshine and a big potential market, the logic for large solar projects was always compelling.

Further, India had about 4 GW of rural and rooftop projects. But this rooftop electricity is priced 50 per cent higher than power from coal.

**Solar Power Cost Trajectory in India:**

The Indian government has raised the solar target for 2022 from 20 GW to 100 GW. Prices fell since 2015. This is due to cheap solar modules from China, and increasing competition. All this led to the cost of Solar power became half that of coal. This means **solar energy is a slower-payback infrastructure.**

**Challenges in Solar Energy:**

- The preponderance of coal will continue because the current annual tendering capacity is 6-8 GW. This means higher costs and carbon footprint until the government is able to accommodate larger-scale investor interest.
- India's markets in electricity are roiled by **low and unstable prices and uneven service quality.** To bring out order and stability to electricity markets, India needs investors with significant capital willing to invest.

**How to Improve India's Solar Energy?**

- India needs investors like SoftBank, with the capacity and willingness to invest in slower-payback infrastructure. So, India needs to **nurture serious investors** willing to invest in electricity and other infrastructure.
- India has to develop **integrated, stable services** at reasonable prices. That might not necessarily be the least cost in the interests of efficacy. This is what India need to drive the economy in a sustained manner, to provide its foundation and fuel with its growth.
- Government **policies and regulations** need to be **configured towards overarching objectives** that are aligned or at least not contradictory.
  - Various streams **within and across sectors must be integrated** to converge towards objectives. Such as fuel sources and electricity generation
  - But, this will require **Central and state governments to evolve integrated plans and develop interdepartmental coordination** processes to steer the energy sector.
- A prerequisite to energy security is **resolving the financial problems of state distribution companies**, including payment discipline.

**INDIAN POLITY AND GOVERNANCE**

**Hike in MGNREGA Wages**

The Union government recently notified the revised wages under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS).

- **MGNREGA Rate in Uttar Pradesh:** The hike ranged from Rs.7 in Uttar Pradesh (2023-Rs.230 – to 2024 rate of Rs.237)
- **MGNREGA Rate in Goa:** Rs.34 hike in Goa (2023 wages Rs.322 to 2024 wages Rs.356)
- **Highest and Lowest Wage Rate:** Haryana continues to offer the best wages at Rs.374 per day, Uttar Pradesh at Rs.237 has one of the lowest wages

**About Wage Rates for MGNREGS workers:**

- **Section 6 of the MGNREGA, 2005:** The Ministry of Rural Development establishes state-specific salary rates for MGNREGS workers under sub-section (1) of Section 6 of the MGNREGA, 2005.
- **Fixing of Wage Rates:** Wage rates are set in response to changes in the CPI-AL (Consumer Price Index-Agriculture Labourer), which measures inflation in rural areas.
  - The Labour Bureau publishes the CPI-(AL), which has 2010-11 as its base year.

- **Determination of MGNREGA Wage rates:** MGNREGA wages are decided based on the amount of work accomplished, using a piece-rate method.
- **Payment basis:** The real payment is based on the worker's productivity, which is calculated using each state's particular Schedule of Rates.
- **Variation in Payments across states:** These rates vary by state and serve as the foundation for computing pay for MGNREGA participants.

**About Mahatma Gandhi National Rural Employment Guarantee Act**

- **Introduced Year:** 2005.
- **Nodal ministry:** Ministry of Rural Development (MRD).
- **Mandate:** To Provide at least 100 days of guaranteed employment each fiscal year to every rural household whose adult members agree to **conduct unskilled manual labour at the statutory minimum wage.**

**PRELIM FACTS**

**1. Odisha to implement PM SHRI School Scheme in collaboration with education ministry**

- In a significant initiative to enhance the education sector in the state, the odisha government plans to sign a memorandum of understanding (mou) with the ministry of education, government of india, to execute the PM SHRI schools scheme.
- The signing of the MoU is scheduled to take place before the start of the academic year 2024-25.
- Aligned with the National Education Policy 2020 (NEP 2020), the PM SHRI scheme seeks to establish more than 14,500 model schools throughout India. The PM SHRI School initiative, a centrally sponsored scheme by the Government of India, endeavors to set up over 14,500 PM SHRI Schools nationwide, including those overseen by the Central Government, State/UT Governments, local bodies, KVS, and NVS.
- The objective of these schools is to create an inclusive learning environment where every student feels valued and supported, thereby nurturing a culture of engaged citizenship in accordance with the National Education Policy 2020.
- Expected to directly benefit more than 20 lakh students, the scheme aims to improve the quality of school education and drive policy formulation and implementation. Over a five-year period, spanning from 2022-23 to 2026-27, the initiative aims not only to benefit immediate recipients but also to serve as a model for enhancing educational standards across the country.

**2. Meme coins**

Recently, meme coins have gained significant popularity in the digital currency space.

**About Meme Coins**

*Meme coins are digital currencies created as a form of satire or humorous tribute to the internet culture. They are also known as 'memetic tokens' or 'community coins'.*

**Features:**

- Meme coins have branding and names inspired by internet memes, jokes, or phenomena. They are humorous and designed for virality, often featuring quirky logos to appeal to the widespread online community.
- The nature of these coins are highly volatile as they are driven by the current buzz surrounding the token.
- They typically have a massive or uncapped supply, leading to very low values per token.
- These coins leverage blockchain technology, often utilising smart contracts on platforms like Ethereum and Solana.
- It is easy to create a meme coin as compared to traditional cryptocurrencies. Virtually anyone can launch a meme coin with minimal technical expertise and resources.

Some of the famous meme coins are Dogecoin, Shiba inu, Retik Finance.

**Risks associated with meme coins:**

- The prices of meme coins can experience rapid fluctuations, making them risky investments.
- These coins are primarily driven by speculation and community engagement, lacking fundamental value or unique use cases.

### **3. 900-year-old Chalukyan inscription**

A 900-year-old Kannada inscription from the Kalyana Chalukya dynasty has been found at Gangapuram, a temple town, in Telangana.

About Chalukya Dynasty

1. The Chalukya dynasty ruled large parts of southern and central India between the 6th and 12th centuries. During this period, they ruled as three related yet individual dynasties:

i) Badami Chalukyas: The earliest Chalukyas, with their capital at Badami (Vatapi) in Karnataka. They rose to prominence during the reign of Pulakeshin II and began to assert their independence after the decline of the Kadamba kingdom of Banavasi.

ii) Eastern Chalukyas: They emerged in the eastern Deccan after the death of Pulakeshin II. Their capital was Vengi, and they ruled until about the 11th century.

iii) Western Chalukyas: They were the descendants of the Badami Chalukyas. They emerged in the late 10th century and ruled from Kalyani (modern-day Basavakalyan).

About Kalyani Chalukyas

1. Dynasty and Capital:

a) The Chalukyas of Kalyani belong primarily to a Kannadiga dynasty, also known as western chalukyas. They were known after their capital city, Kalyani, which is present in the modern-day Bidar district of Karnataka.

2. Establishment and Expansion:

a) The empire was established by Tailapa II.

b) During their 300-year rule in the western Deccan and southern part of the Indian peninsula, the Chalukyas of Kalyani expanded and reached the zenith of power.

3. The most successful period of the later Chalukya rulers in Karnataka's history is often referred to as the 'Chalukya Vikrama era'.

4. Vikramaditya VI (1076-1126 CE) played a crucial role during this time. He controlled feudatories in the northern region, including Kadamba Jayakesi II of Goa, Silhara Bhoja, and the Yadava King.

6. Decline:

a) After Vikramaditya VI's death, consistent confrontations with the Chola dynasty led to the decline of the Western Chalukya empire.

7. Art and architecture:

a) The Chalukyas contributed significantly to the development of Kannada and Telugu literature.

b) Their architecture, known as the 'Gadag style', bridged the gap between the Badami Chalukya architecture of the 8th century and the Hoysala architecture of the 13th century.

c) The Western Chalukyas minted punch-marked gold coins called pagodas with Kannada legends.

d) Temples built during their rule are abundant in detailed carvings and ornate sculptures, featuring themes like kirtimukha makaras, and mithuna (erotic) figures.

### **4. Unemployment among youth highest in Odisha: ILO report**

Despite several interventions by government, Odisha continues to post a poor employment outcome. A majority of Odisha's youth is neither into employment, education nor training and the rate of unemployment among educated youth is highest in the state.

**This was revealed in the India Employment Report-2024, released by the International Labour Organisation (ILO) and Institute of Human Development (IHD).**

The IHD and ILO analysed the trends and patterns of the Indian labour market over the past two decades, including the impact of the Covid-19 crisis. They evaluated the employment scenario in 22 major states in five regions of the country including Odisha.

The report flagged concerns about the employment scenario in the state. It stated Odisha ranked the lowest as far as employment outcome is concerned in 2005 and saw no change in the scenario in 2022.

Gender-wise, the male employment condition index in Odisha was 22 (rank among 22 states) in 2005 as well as 2022. Likewise, for the female index, the rank was 22 in 2005 and improved slightly to 21 in 2022.

The employment condition index is based on seven labour market outcome indicators

1. percentage of workers employed in regular formal work
2. percentage of casual labourers

3. percentage of self-employed workers below the poverty line
4. work participation rate
5. average monthly earnings of casual labourers
6. unemployment rate of secondary and above-educated youth
7. youth not in employment and education or training

When it comes to the workforce participation rate (15 years and above), the percentage declined from 54.8 in 2005 to 46.23 in 2022. While close to 41.6 pc youth in the state are not into employment, education or training, the unemployment rate among educated youths rose from 35.93 pc in 2022. While the state is witnessing rise in youth population, it is not able to generate enough jobs for them, the report pointed out.

### **5. Preventive detention**

- The Supreme Court emphasized the need to prevent the arbitrary use of preventive detention powers, overturning a Telangana High Court decision.
- It clarified that preventive detention is meant to avert future harm, not as a form of punishment, and should be based on careful consideration of facts.
- The court highlighted that preventive detention is a severe measure and should not be invoked routinely or arbitrarily by authorities.
- The Supreme Court also underscored that the grounds for detention must be clearly stated, and the decision should be based on a thorough examination of relevant facts.

About Preventive Detention:

- Preventive detention entails the detention of an individual without a trial or conviction by a court, aiming to prevent future offences rather than punish past ones.
- Governments enact preventive detention laws to ensure public safety and maintain social order.
- In India, Article 22 of the Constitution provides safeguards for individuals detained under such laws.
- It limits the duration of preventive detention to three months unless an Advisory Board approves an extension.
- The detainee has the right to know the grounds of detention and make representations against it.
- Parliament has exclusive power to enact preventive detention laws for defence, foreign affairs, or national security reasons, while both Parliament and State Legislatures can enact laws for maintaining public order or essential services.
- Various laws in India, such as the National Security Act (NSA) and the Unlawful Activities (Prevention) Act (UAPA), allow for preventive detention for up to 12 months without formal charges, with periodic review by an advisory board.

### **ANSWER WRITING**

**Q. Discuss the consequences of climate change on the food security in tropical countries.**

Answer: Climate change, marked by enduring alterations in temperature, precipitation, and weather patterns, has resulted in a significant average temperature rise of 0.08 degrees Celsius per decade since 1880, as documented in NOAA's 2021 Annual Climate Report. These transformations have profound implications for food security.

**Negative Consequences of Climate Change on the Food security in tropical countries:**

- **Change in Temperature:** In tropical regions, additional warming compounds heat stress on crops, further reducing productivity and jeopardizing food security. **For instance, the wheat crop in India was significantly impacted by the heat stress caused by an unprecedented temperature surge that began in mid-March 2022.**
- **Alteration in Precipitation Patterns:** Climate change disrupts rainfall patterns, causing prolonged droughts or intense rainfall, which can result in crop failures, water scarcity, and food shortages in tropical countries. **It has been predicted that every 1 degree Celsius rise in temperature will cause 10 percent heavier rainfall extremes in tropical regions.**
- **Effects on Soil Quality:** Changes in temperature and precipitation affect soil quality and fertility, reducing agricultural productivity and making it challenging to produce sufficient food for growing populations.



- **Changing Weather Patterns:** Climate change amplifies extreme weather events in tropical countries, causing severe damage to crops and disrupting food distribution. **As an illustration, India experienced a total loss of 5.04 million hectares of crop area due to cyclonic storms, landslides, flash floods, regular floods, and cloudbursts up until November 25, 2021.**
- **Crop Vulnerability and Pests:** Climate change increases the susceptibility of crops to pests and diseases, endangering food security by reducing crop yields. **For instance, since the beginning of January 2020, vast groups of desert locusts have inflicted harm on over 200,000 hectares of farmland in Ethiopia.**
- **Shifts in Growing Seasons:** Altered climate conditions can disrupt traditional growing seasons, making it difficult for farmers to predict when to plant and harvest crops. This uncertainty can lead to food shortages and price volatility.
- **Biodiversity Loss:** Climate change worsens biodiversity loss, impacting ecosystems and the availability of wild foods. This directly affects tropical communities, which heavily rely on these resources for sustenance and income, heightening the risk of food insecurity. **For example, the loss of honey bees driven by climate change will lead to a shortage of food crops, including fruits, vegetables, nuts, and oilseeds, as they are crucial pollinators.**
- **Increase in Food Prices:** In tropical nations experiencing rapid population growth, climate change-induced disruptions in agriculture can intensify food insecurity by reducing accessibility and affordability for vulnerable populations. **A rise of 1% in temperature compared to the previous year has been observed to raise food production expenses by approximately 0.5-0.8% within Southeast Asian economies.**
  - **Furthermore, instances of extreme heat events in Thailand and Vietnam in recent years have resulted in price surges of approximately 5-6%.**

**Positive Consequences of Climate Change on the Food Security in Tropical Regions:**

- **Expansion of Agricultural Land:** Climate change allows for farming in previously unsuitable tropical areas, increasing food production, e.g., **rice cultivation in cooler, elevated regions.**
- **Extended Growing Seasons:** Warmer winters in tropical regions lengthen crop growing periods, benefiting crops **like tomatoes that require longer frost-free seasons.**
- **Increased Crop Diversity:** In response to climate variability, farmers may diversify their crops, incorporating options **like drought-tolerant sorghum**, which not only enhances food security by reducing reliance on a single crop but also broadens dietary options.
- **Boosted Livestock Productivity:** In some cases, higher temperatures can benefit livestock farming by reducing cold stress on animals and potentially improving livestock productivity. This can lead to increased meat, dairy, and other animal product availability.

The consequences of climate change on food security in tropical countries are profound and multifaceted. While climate change poses a significant threat to food security in these regions, it also presents some opportunities for adaptation and innovation. A comprehensive approach, encompassing mitigation, adaptation, and stakeholder collaboration, is essential to ensure a food-secure and sustainable future in tropical regions.

**MCQs**

1. With reference to the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), consider the following statements:
  1. The MGNREGA wage rates are fixed according to changes in the Consumer Price Index-Agriculture Labour (CPI-AL).
  2. The act mandates Gram Sabhas to recommend the works that are to be undertaken and at least 75% of the works must be executed by them too.

Which of the statements given above is/are incorrect?

a) 1 only                      **b) 2 only**  
 c) Both 1 and 2            d) Neither 1 nor 2
2. With reference to “preventive detention”, consider the following statements:
  1. Article 22 of the Indian Constitution grants protection to individuals from detention.
  2. The detention of a person cannot exceed six months unless there is sufficient cause for extended detention.

- Which of the statements given above is/are correct?
- a) **1 only**  
b) 2 only  
c) Both 1 and 2  
d) None
3. Consider the following statements:  
1. Article 43 of the Constitution of India emphasises on fair wages and decent standard of life for the workers.  
2. In Raptakos case (1991), the Supreme Court advocated the concept and the right of living wage.  
Which of the statements given above is/are incorrect?  
a) 1 only                      b) 2 only  
c) Both 1 and 2              d) **None**
4. Consider the following statements:  
1. Hepatitis B is a viral infection that attacks the liver.  
2. Hepatitis B is more infectious than HIV/AIDS.  
3. Hepatitis B, unlike Hepatitis C, does not have a vaccine.  
How many of the statements given above is/are incorrect?  
a) **Only one**                      b) Only two  
c) All three                      d) None
5. With reference to the famous Mohiniyattam, consider the following statements:  
1. Mohiniyattam is a classical dance form from Tamil Nadu.  
2. Mohiniyattam was performed by Devadasis in temples during the rule of the Chera kings.  
3. References of Mohiniyattam can be found in the texts Vyavaharamala and Ghoshayatra.  
Which of the statements given above is/are correct?  
a) 3 only                      b) 1 and 2 only  
c) **2 and 3 only**              d) 1 and 3 only
6. Alternative Investment Funds (AIFs) differ from traditional mutual funds by:  
a) **Investing in a wider range of asset classes**  
b) Having lower fees and operating expenses  
c) Offering higher liquidity to investors  
d) Being subject to stricter regulations
7. Which one of the following best defines net foreign direct investment (FDI)?  
a) Total foreign investment in a country  
b) **Difference between inflows and outflows of foreign direct investment**  
c) Total domestic investment in a country  
d) Difference between imports and exports of goods and services
8. Consider the following statements:  
1. The Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act) 1958 regulates the preservation of monuments and archaeological sites of national importance.  
2. When a monument is delisted from the list of protected sites maintained by the Archaeological Survey of India (ASI), the government obtains the authority to demolish the property and take ownership of the land.  
Which of the statement(s) given above is/are correct?  
a) **1 only**  
b) 2 only  
c) Both 1 and 2  
d) Neither 1 nor 2
9. With reference to the Krishi Integrated Command and Control Centre (K-ICC), which of the following statement(s) is/are correct?  
1. It is a centralized, technology-based solution designed to provide informed decision-making support to India's agricultural sector.  
2. It allows visualisation of Geographic Information Systems (GIS) based soil carbon mapping and soil health card data for a particular district together at one place.  
Select the correct answer using the codes given below:  
a) 1 only  
b) 2 only  
c) **Both 1 and 2**  
d) Neither 1 nor 2
10. Which one of the following oceans borders Somalia to the east?  
a) **Indian Ocean**  
b) Atlantic Ocean  
c) Pacific Ocean  
d) Arctic Ocean