

ECONOMY**Renewable Power Generation Costs in 2020: IRENA**

Recently, the International Renewable Energy Agency (IRENA) released the 'Renewable Power Generation Costs in 2020' report. Levelized cost of electricity trends by technology, 2010 and 2020

Key Points**Replacing Coal with Renewables:**

- 810 gigawatts (GW) capacity of the world's existing coal-fired plants i.e. 38% of the total global energy capacity now have higher operating costs than new utility-scale photovoltaics and onshore wind energy. The cost range for generation of fossil fuel-fired power in G20 countries is estimated to be between USD 0.055 per kilowatt-hour (kWh) and USD 0.148/kWh.
- Replacing this expensive coal power with renewables will save operators USD 32 billion a year and reduce annual carbon dioxide emissions by around three billion tonnes. Renewable capacities added in 2019 would have saved emerging and developing nations USD 6 billion per annum compared to the same capabilities from conventional sources.

Growth of Renewables in 2020:

- The year 2020 was a record year for renewables deployment despite the Covid-19-pandemic, with 261 GW installed. The addition was almost 50% higher than that made in 2019 and represented 82% of the global new power capacity.
- Around 162 GW or 62% of total renewable power capacity added last year had lower costs than the cheapest new fossil fuel option.

Supplies from Sources Added in 2020: Geothermal > Photovoltaics (PV) > Wind power > Hydropower > Bioenergy > Concentrating solar power.

Reasons for Growth : Between 2000 and 2020, renewables capacity grew more than three times, increasing by 754 GW to 2,799 GW. The growth was occasioned by advancements in technologies, consistent fall in component costs, cost-competitive supply distribution channels, learning by using and commercial-scale availability.

Reducing Cost of Renewables : In about 10 years (2010-2020), the cost of power produced from commercial solar PVs fell by 85%, CSP 68%, onshore wind 68% and offshore wind 48%. The outlook till 2022 sees global renewable power costs falling further.

Indian Initiatives for Renewable Energy:

1. Hydrogen Energy Mission.
2. Jawaharlal Nehru National Solar Mission (JNNSM).
3. International Solar Alliance.
4. PM- KUSUM.
5. National Wind-Solar Hybrid Policy.
6. Rooftop Solar Scheme.

International Renewable Energy Agency**About:**

1. It is an intergovernmental organisation, it was officially founded in Bonn, Germany, in January 2009.
2. Currently it has 164 members, India is the 77th Founding Member of IRENA.
3. It has its headquarters in Abu Dhabi, United Arab Emirates.

Major Functions:

- It supports countries in their transition to a sustainable energy future, and serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.
- It promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

Way Forward

Renewables in all intent and purposes are the most affordable energy sources. Countries should consider deploying these at scale to achieve the Paris Agreement targets and shield their

economies from external shocks from fossil fuel markets. Right policy incentives and financial incentives to de-risk the sector as well as political support is the need of the hour as most countries have already signaled their commitments towards deploying renewables.

2. Gujarat International Maritime Arbitration Centre (GIMAC)

Recently, a Memorandum of Understanding (MoU) was signed between the Gujarat Maritime University and International Financial Services Centres Authority in GIFT (Gujarat International Finance Tec-City) City. The objective of the MoU is to jointly support the establishment of the Gujarat International Maritime Arbitration Centre (GIMAC).

Key Points

About GIMAC:

- This will be the first centre of its kind in the country that will manage arbitration and mediation proceedings with disputes related to the maritime and shipping sector.
- The GIMAC will be part of a maritime cluster that the Gujarat Maritime Board (GMB) is setting up in GIFT City at Gandhinagar.

Need:

- India's Focus on Arbitration: Recently, the Arbitration and Conciliation (Amendment) Act, 2021 was notified, considered as the landmark step towards making India as the hub of International Commercial Arbitration. Arbitration is a kind of dispute resolution method where the disputes arising between the parties are resolved by the arbitrators appointed by them instead of state's legal bodies.
- There are over 35 arbitral institutions in India, however, none focus exclusively on the disputes related to the maritime sector. With the state continuing to witness a rapid extension in maritime activities and inching closer to becoming a global maritime hub with the implementation of Gujarat Maritime Cluster project, a strong growing and recurring demand is being generated for a specialized facility for maritime arbitration services.
- The idea is to create a world-class arbitration centre focused on maritime and shipping disputes that can help resolve commercial and financial conflicts between entities having operations in India. The arbitration involving Indian players is now heard at the Singapore Arbitration Centre. Globally, London is the preferred centre for arbitration for the maritime and shipping sector.

Benefits:

1. Facilitate faster dispute resolution.
2. Enhance the attractiveness of GIFT Special Economic Zone (SEZ) among the International Maritime Community.
3. Increase the ease of doing business.
4. Reduce burden on courts.

Gujarat Maritime Cluster:

- It is conceived as a dedicated ecosystem of Ports, Maritime Shipping and Logistics services providers.
- It will host an array of maritime, shipping industry players and service providers, along with relevant Government regulatory agencies, in GIFT City, Gandhinagar – India's first International Financial Services Centre (IFSC). The International Financial Services Centres Authority (IFSCA) is a unified authority for the development and regulation of financial products, financial services and financial institutions in the IFSC in India.
- It will be a one stop solution for all maritime services while attaining economic growth, employment generation and industry – academia confluence in the region.

HISTORY

Sant Kabir Das Jayanti

Recently, Sant Kabir Das Jayanti was observed on 24th June, 2021 to mark the birth anniversary of Sant Kabirdas. Kabirdas Jayanti is celebrated on the Jyeshtha Purnima tithi, as per the Hindu lunar calendar.

Key Points

About:

- Sant Kabir Das was born in the city of Varanasi, Uttar Pradesh. He was a 15th century mystic poet, saint and social reformer and a proponent of the Bhakti Movement. Kabir's legacy is still going on through a sect known as Panth of Kabir, a religious community that considers him as the founder.
- Teacher: His early life was in a Muslim family, but he was strongly influenced by his teacher, the Hindu bhakti leader Ramananda.
- Literature: Kabir Das' writings had a great influence on the Bhakti movement and includes titles like Kabir Granthawali, Anurag Sagar, Bijak, and Sakhi Granth.
 1. His verses are found in Sikhism's scripture Guru Granth Sahib.
 2. The major part of his work was collected by the fifth Sikh guru, Guru Arjan Dev.
 3. He was best known for his two-line couplets, known as 'Kabir Ke Dohe'.
- Language: Kabir's works were written in the Hindi language which was easy to comprehend. He used to write in couplets to enlighten people.

Bhakti Movement:

- **Beginning:** The movement probably began in the Tamil region around the 6th and 7th century AD and achieved a great deal of popularity through the poems of the Alvars (devotees of Vishnu) and Nayanars (devotees of Shiva), the Vaishnavite and Shaivite poets.
 1. The Alvars and Nayanars travelled from place to place singing hymns in Tamil in praise of their gods.
 2. The Nalayira Divyaprabandham is a composition by the Alvars. It is frequently described as the Tamil Veda.
- **Classification:** At a different level, historians of religion often classify bhakti traditions into two broad categories: saguna (with attributes) and nirguna (without attributes).
 1. The saguna included traditions that focused on the worship of specific deities such as Shiva, Vishnu and his avatars (incarnations) and forms of the goddess or Devi, all often conceptualised in anthropomorphic forms.
 2. Nirguna bhakti on the other hand was worship of an abstract form of god.
- **Social Order:**
 1. This movement was responsible for many rites and rituals associated with the worship of God by Hindus, Muslims and Sikhs of Indian subcontinent. For example, Kirtan at a Hindu Temple, Qawaali at a Dargah (by Muslims), and singing of Gurbani at a Gurdwara.
 2. They were often opposed to the establishment and all authoritarian monastic order.
 3. They also strongly criticized all sectarian zealotry and caste discrimination in society.
 4. Hailing from both high and low castes, these poets created a formidable body of literature that firmly established itself in the popular narratives.
 5. All of them claimed relevance for religion in social life, in the sphere of real human aspirations and social relationships.
 6. Bhakti poets emphasized surrender to god.
 7. The movement's major achievement was its abolition of idol worship.
- **Role of Women:**
 1. Andal was a woman Alvar and she saw herself as the beloved of Vishnu.
 2. Karaikkal Ammaiyar was a devotee of Shiva and she adopted the path of extreme asceticism in order to attain her goal. Her compositions were preserved within the Nayanar tradition.
- **Important Personalities:**
 1. **Kannada Region:** In this region, the movement began by Basavanna (1105-68) in the 12th century.
 2. **Maharashtra:** The Bhakti movement began in the late 13th century. Its proponents were known as the Varkaris. Among its most popular figures were Jnanadev (1275- 96), Namdev (1270-50) and Tukaram (1608-50).
 3. **Assam:** Srimanta Sankardeva (a Vaishnava saint born in 1449 AD in Nagaon district of Assam. He started the neo-Vaishnavite movement).
 4. **Bengal:** Chaitanya was a renowned saint and reformer of Bengal who popularised the Krishna cult.

5. **Northern India:** From the 13th to the 17th centuries, a large number of poets flourished who were all Bhakti figures of considerable importance. While Kabir, Ravi Dass and Guru Nanak spoke of the formless god (nirgun bhakti), Meerabai (1498-1546) from Rajasthan composed and sung devotional verses in praise of Krishna. Surdas, Narasimha Mehta and Tulsidas also made priceless contributions to the canon of Bhakti literature and enhanced its glorious legacy.

TIMELINE	
SOME MAJOR RELIGIOUS TEACHERS IN THE SUBCONTINENT	
c. 500-800 CE	Appar, Sambandar, Sundaramurti in Tamil Nadu
c. 800-900	Nammalvar, Manikkavachakar, Andal, Tondaradippodi in Tamil Nadu
c.1000-1100	Al Hujwiri, Data Ganj Bakhsh in the Punjab; Ramanujacharya in Tamil Nadu
c.1100-1200	Basavanna in Karnataka
c.1200-1300	Jnanadeva, Muktabai in Maharashtra; Khwaja Muinuddin Chishti in Rajasthan; Bahauddin Zakariyya and Fariduddin Ganj-i Shakar in the Punjab; Qutbuddin Bakhtiyar Kaki in Delhi
c.1300-1400	Lal Ded in Kashmir; Lal Shahbaz Qalandar in Sind; Nizamuddin Auliya in Delhi; Ramananda in Uttar Pradesh; Chokhamela in Maharashtra; Sharafuddin Yahya Maneri in Bihar
c.1400-1500	Kabir, Raidas, Surdas in Uttar Pradesh; Baba Guru Nanak in the Punjab; Vallabhacharya in Gujarat; Abdullah Shattari in Gwalior; Muhammad Shah Alam in Gujarat; Mir Sayyid Muhammad Gesu Daraz in Gulbarga, Shankaradeva in Assam; Tukaram in Maharashtra
c.1500-1600	Sri Chaitanya in Bengal; Mirabai in Rajasthan; Shaikh Abdul Quddus Gangohi, Malik Muhammad Jaisi, Tulsidas in Uttar Pradesh
c.1600-1700	Shaikh Ahmad Sirhindi in Haryana; Miyan Mir in the Punjab

Note: These time frames indicate the approximate period during which these teachers lived.

SCIENCE & TECHNOLOGY

Covid-19 Delta Plus Variant

Recently, the Union Ministry of Health and Family Welfare (MoHFW), has warned people against the new Covid-19 strain 'Delta Plus' (DP). There is fear that this new variant may spark the third wave of Covid-19.

Key Points

About:

- Delta plus (B.1.617.2.1/(AY.1) is a new variant of the SARS-CoV-2 coronavirus formed due to a mutation in the Delta strain of the virus (B.1.617.2 variant). It is technically the next generation of SARS-COV-2.
- This mutant of Delta was first detected in Europe in March 2021. The Delta variant that was first detected in India (in February 2021) eventually became a huge problem for the whole world. However, the Delta Plus variant, at present, is limited to smaller areas in the country.
- It is resistant to monoclonal antibodies cocktail. Since it's a new variant, its severity is still unknown.
- People reported symptoms like headaches, sore throats, runny noses, and fever.
- The World Health Organisation (WHO) is tracking this variant as part of the Delta variant, it is doing so for other Variants of Concern with additional mutations.

Transmissibility:

- It has acquired the spike protein mutation called K417N which is also found in the Beta variant first identified in South Africa. The spike protein is used by SARS-CoV-2, the virus which causes Covid-19, to enter the host cells.

- Some scientists fear that the mutation combined with other existing features of the Delta variant could make it more transmissible.

Major Concerns:

- Multiple studies are ongoing in India and globally to test the effectiveness of vaccines against the Delta plus Covid-19 mutation.
- India's health ministry warned that regions where it has been found "may need to enhance their public health response by focusing on surveillance, enhanced testing, quick contact-tracing, and priority vaccination."
- There are worries Delta Plus would inflict another wave of infections on India after it emerged from the world's worst surge in cases only recently. Just over 4% of Indians are fully vaccinated and about 18% have received one dose so far.

Virus Variant

- Variants of a virus have one or more mutations that differentiate it from the other variants that are in circulation. While most mutations are deleterious for the virus, some make it easier for the virus to survive.
- The SARS-CoV-2 (Corona) virus is evolving fast because of the scale at which it has infected people around the world. High levels of circulation mean it is easier for the virus to change as it is able to replicate faster.
- The original pandemic virus (founder variant) was Wu.Hu.1 (Wuhan virus). In a few months, variant D614G emerged and became globally dominant.
- Indian SARS-CoV-2 Consortium on Genomics (INSACOG) is a multi-laboratory, multi-agency, pan-India network to monitor genomic variations in the SARS-CoV-2.
- Global Initiative on Sharing All Influenza Data (GISAID) is a public platform started by the World Health Organization (WHO) in 2008 for countries to share genome sequences. The GISAID Initiative promotes the international sharing of all influenza virus sequences, related clinical and epidemiological data associated with human viruses, and geographical as well as species-specific data associated with avian and other animal viruses.

IMPORTANT FACTS FOR PRELIM

Toycathon 2021

Recently, the Prime Minister of India urged people to be "vocal for local toys", while interacting with the participants at the Toycathon 2021.

Key Points

Ministry:

1. It was a joint initiative by the Ministry of Education, WCD (Women and Child Development) Ministry, Ministry of Micro, Small and Medium Enterprises, Textile Ministry, Ministry of Information and Broadcasting and All India Council for Technical Education.
2. It was launched on 5th January 2021 to crowd-source innovative toys and games ideas.

Aim:

1. To conceptualize innovative toys based on the Indian value system which will inculcate positive behaviour and good value among the children.
2. To promote India as a global toy manufacturing hub (Atmanirbhar Bharat).

Features:

1. **Based on:** Indian culture and ethos, local folklore and heroes, and Indian value systems.
2. **Themes:** Nine themes, including fitness and sport and rediscovering traditional Indian toys.
3. **Participants:** Students, teachers, start-ups and toy experts.
4. **Prize:** Participants can get prizes upto Rs. 50 lakhs.

Significance:

- Toys can play a big role in highlighting India's capabilities, art and culture and society to the world.
- Toycathon can prove to be effective in making India a Production Hub of Toys and hence can be the creation of 'Toyoconomy'.

- Toys can be an excellent medium to further the spirit of 'Ek Bharat, Shreshtha Bharat'.
- It will help reduce imports.

Status of Toy Market:

- Global toy market is worth nearly \$100 billion.
- Of which, India contributes only around \$1.5 billion.
- India imports around 80% of toys from abroad. Which means crores of rupees of the country are going abroad on them.

Way Forward

- Toy industry has its own small-scale industry, artisans comprising rural population, dalits, poor people and tribal population. In order to take the benefits to these segments, we need to be vocal for local toys.
- There is a need for new ideas to be incubated, new start-ups promoted, taking new technology to traditional toy makers and creating new market demand.
- The 75th anniversary of India's Independence is a huge opportunity for the innovators and creators of the toy industry. Many incidents, stories of our freedom fighters and their valour and leadership can be created into gaming concepts.
- There is a need to create interesting and interactive games that 'engage, entertain and educate'.

2.Black Sea

In a recent event, Russia alleged that the British warship had breached its territorial waters in Black Sea which Britain and most of the world say belong to Ukraine. Russia seized and annexed the Crimea peninsula from Ukraine in 2014 and considers areas around its coast to be Russian waters.

Key Points**Geographical Location of Black Sea:**

- The Black Sea, also known as the Euxine Sea, is one of the major water bodies and a famous inland sea of the world.
- This marginal sea of the Atlantic Ocean, located between Eastern Europe and Western Asia.
- It is surrounded by the Pontic, Caucasus, and Crimean Mountains in the south, east and north respectively.
- The Turkish straits system - the Dardanelles, Bosphorus and Marmara Sea - forms a transitional zone between the Mediterranean and the Black Sea.
- The Black Sea is also connected to the Sea of Azov by the Strait of Kerch.
- The bordering countries of Black Sea are: Russia, Ukraine, Georgia, Turkey, Bulgaria and Romania.

Anoxic Water:

- There is a significant absence of oxygen in the water.
- The Black Sea happens to be the largest water body with a meromictic basin, which means the movement of water between the lower and upper layers of the sea is a rare phenomenon to find anywhere in the world.
- The anoxic condition is also caused due to the presence of the process of Eutrophication in the sea.

Anoxic Waters

- Anoxic waters are areas of sea water, fresh water, or groundwater that are depleted of dissolved oxygen and are a more severe condition of hypoxia.
- This condition is generally found in areas that have restricted water exchange.

International Rules of Passage through Sea:

Under international law of the sea (United Nations Convention on the Law of the Sea (UNCLOS) 1982), innocent passage permits a vessel to pass through another state's territorial waters so long as this does not affect its security.

DAILY ANSWER WRITING PRACTICE

Qns. Examine the problem of infiltration in India, alongwith with its impact and possible solutions. (250 words)

Ans:

Introduction

India shares 15,106.7 km of international boundary with its neighbors which is long and porous and some boundaries are also disputed. These characteristics of border cause significant and unique problems for India.

Body**Problem of Infiltration in India and its impact**

- **Illegal Migration:** India faces problem of illegal migration from Bangladesh and other neighboring countries. It leads to pressure on resources creating a source of conflict in India. Illegal migration has also created ethnic conflict in north east as local population in many states have been reduced to minority causing sense of insecurity and hence ethnic conflicts.
- **Terrorism :** India has been major victim of cross border terrorism sponsored by Pakistan which is mostly executed through cross border infiltration. Recent attacks in Pathankot, Uri and Pulwama underline the security challenge posed by infiltration.
- **Insurgency and Left Wing Extremism:** Infiltration is being used by external forces to support Insurgency in North east by extending support of arms and ammunition through infiltration. Similarly Left wing Extremist groups also find external support through infiltration.
- **Import of Counterfeit currency and Drugs smuggling:** India faces significant menace of fake currency and drugs smuggling which is routed through borders due to easy cross border infiltration.

Solutions**Comprehensive Integrated Border Management System**

- India should adopt an integrated and holistic solution for tackling problem of Infiltration.
- The proposed CIBMS is touted as a more robust and integrated system that is capable of addressing the gaps in the present system of border security by seamlessly integrating human resources, weapons, and high-tech surveillance equipment.
- **It has three main components:**
 1. new high-tech surveillance devices such as sensors, detectors, cameras, ground-based radar systems, micro-aerostats, lasers as well as existing equipment for round-the-clock surveillance of the international border;
 2. an efficient and dedicated communication network including fibre optic cables and satellite communication for transmitting data gathered by these diverse high-tech surveillance and detection devices; and
 3. a command and control centre to which the data will be transmitted in order to apprise the senior commanders about the happenings on the ground and thus providing a composite picture of the international border
- India has started building strategic roads, advanced landing air strip, new infantry battalion and strike corps and has revamped the border check posts.
- **Building socio-economic Infrastructure:** Border infrastructure is critical as border population is strategic asset to maintain border security. Thus schemes like Border Area Development Plan and Border Infrastructure and Management (BIM) need to be implemented effectively.
- **Use of space technology in Border management :** The Government can promote use of space technology in improving Border Management:- Island development, Border Security, Communication and Navigation, GIS & Operations Planning System and Border Infrastructure Development.

Conclusion

Infiltration is major threat to India's security it needs to be dealt in a holistic manner focusing on both security infrastructure as well as socio-economic infrastructure.

DAILY QUIZ

Q1. Which of the following is/are the key features of the Mahatma Gandhi National Rural Employment Guarantee Act?

1. The State Employment Agency after due verification will issue a Job Card
2. A minimum of 10 job seekers shall apply to sanction a new work under MGNREGA
3. At least one-half beneficiaries shall be women who have registered and requested work under the scheme

Select the correct answer using the code below:

- a. 3 only
- b. 2 and 3 only**
- c. 2 only
- d. 1 and 2 only

Q2. The “Balfour Declaration” is sometimes mentioned in the news in the context of the affairs of

- a. Afghanistan
- b. Palestine**
- c. Columbia
- d. Yemen

Q3. Consider the following statements:

1. Venus is the second planet from the sun.
2. Venus is one of just two planets that rotate from east to west.
3. Recently, SpaceX announced ‘Davinci+’ and ‘Veritas’ mission to Venus.

Which of the given above statements is/are correct?

- a. 1 only
- b. 2 only
- c. 1 and 2 only**
- d. 1, 2 and 3

Q4. Consider the following statements:

1. Agricultural soils release nitrogen oxides into environment.
2. Cattle release ammonia into environment.
3. Poultry industry releases reactive nitrogen compounds into environment.

Which of the statements given above is/are correct?

- a. 1 and 3 only
- b. 2 and 3 only
- c. 2 only
- d. 1, 2 and 3**

Q5. The ‘Atlas Mountains’ are a series of mountain ranges which act as a divide between which of the following regions?

- a. The Mozambique Channel and the Kalahandi desert
- b. The Red Sea and the Libyan desert
- c. The Mediterranean basin and the Sahara desert**
- d. The Gulf of Sudra and the Katanga plateau