



Persian Gulf



Key Points

▪ Physical Geography:

- An arm of the Arabian Sea; between the southwestern Iran and the Arabian Peninsula.
- **Bordering Countries:** Iraq, Kuwait, Saudi Arabia, Bahrain, Qatar, United Arab Emirates, Oman (Musandam enclave) and Iran.
- Connected to the **Gulf of Oman** in the east **by the Strait of Hormuz**.
 - The Strait of Hormuz is situated between Qeshm Island and the Iranian coast in the north and the Musandam Peninsula of the Arabian Peninsula in the south.

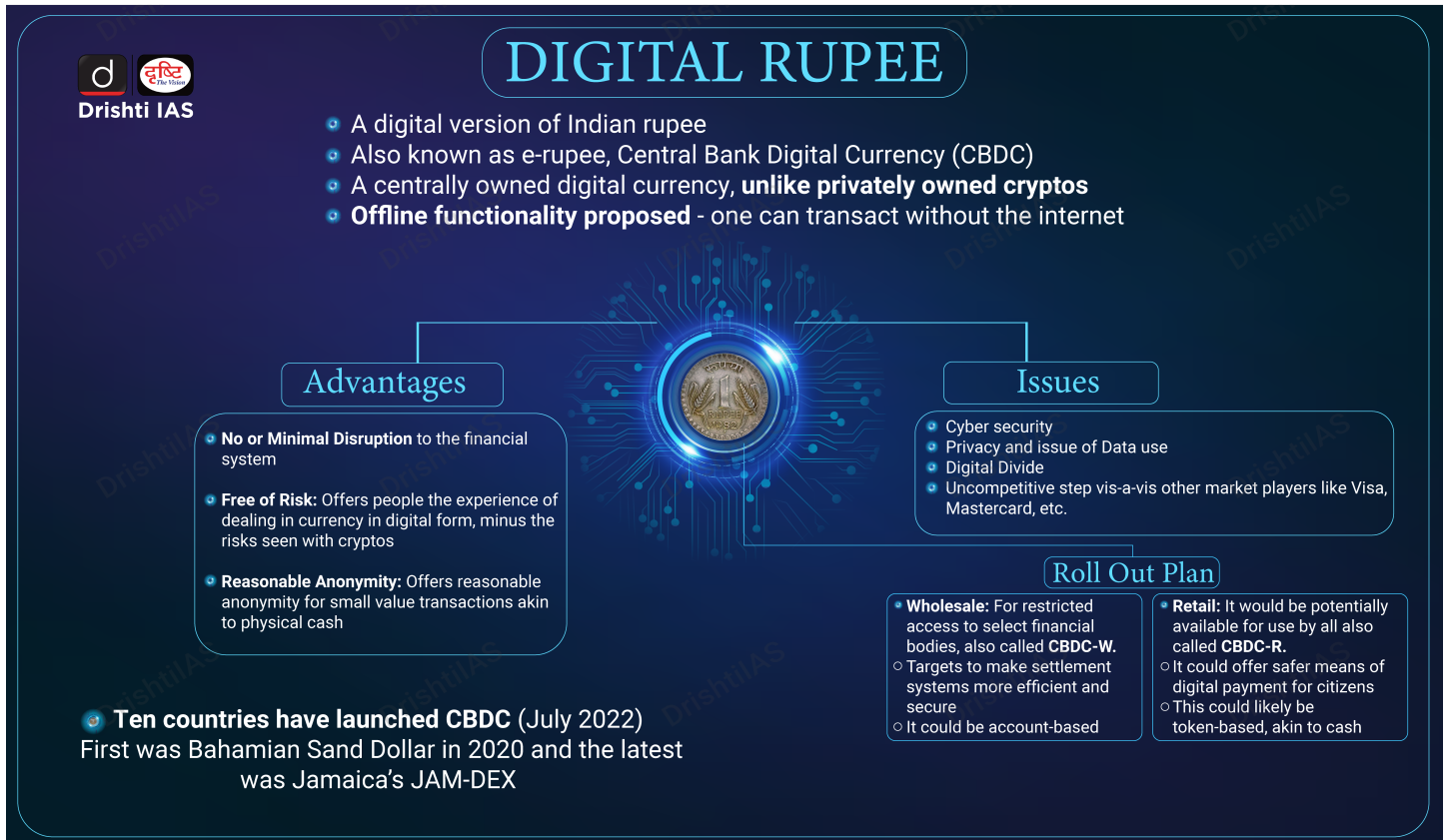
▪ Strategic Importance:

- Persian Gulf countries are major producers of crude oil and natural gas.
- Iran, Iraq, Kuwait, United Arab Emirates (UAE) and Saudi Arabia are members of [OPEC \(Organization of the Petroleum Exporting Countries\)](#).
- United Arab Emirates (UAE), Bahrain, Saudi Arabia, Oman, Qatar, Kuwait are members of the [Gulf Cooperation Council \(GCC\)](#).

▪ Recent Related Events:

- [Chabahar Port](#)

Digital Rupee



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Proposed Digital Rupee

For Prelims: Reserve Bank of India (RBI), e-rupee, Central Bank Digital Currency (CBDC), virtual currency, Digital Payments.

For Mains: Significance of e-rupee & virtual currencies.

Why in News?

The [Reserve Bank of India \(RBI\)](#) will soon commence limited pilot launches of **e-rupee (e`)**, or Central Bank Digital Currency ([CBDC](#)) or [digital rupee](#), for specific use cases.

- It has hinted at two broad categories for the use of e-rupee — retail and wholesale — for various

transactions.

What is e-rupee?

- **Definition:** RBI defines the CBDC as the **digital form of currency notes issued by a central bank**. It is a sovereign or entirely independent currency issued by the central bank (in this case, RBI), in accordance with the country's monetary policy.
- **Legal Tender:** Once officially issued, **CBDC will be considered as a medium of payment and legal tender by all three parties** - citizens, government bodies, and enterprises. Being government-recognised, it can be freely converted to any commercial bank's money or notes.
 - RBI is **not in favour of e-rupee with interest**. Because people might withdraw money from banks and convert it to digital rupee - causing banks to fail.
- **Difference with Cryptocurrencies:** The underlying technology of [cryptocurrency \(distributed ledger\)](#) can underpin parts of the digital rupee system, but the RBI has not decided on this, yet. However, **cryptocurrencies like bitcoin or ethereum are 'private' in nature. Digital rupee on the other hand, will be issued and controlled by the RBI.**
- **Global Scenario:** As of July 2022, 105 countries were exploring CBDC. **Ten countries have launched CBDC**, the first of which was the Bahamian Sand Dollar in 2020 and the latest was Jamaica's JAM-DEX.

What is RBI's Plan for CBDC?

- **Types of CBDC:** On the basis of **usage and the functions** performed by the digital rupee and considering the different levels of **accessibility, CBDC can be demarcated into two broad categories — general purpose (retail) (CBDC-R) and wholesale (CBDC-W).**
 - **Retail CBDC** is an **electronic version of cash primarily meant for retail transactions**. It will be used by all — private sector, non-financial consumers and businesses. However, the **RBI has not explained how e-rupee can be used in merchant transactions in the retail trade.**
 - **Wholesale CBDC** is designed **for restricted access to select financial institutions**. It has the potential to transform the settlement systems for financial transactions undertaken by banks into government securities ([G-Sec](#)) segment, inter-bank market and capital market more efficiently and securely in terms of operational costs, use of collateral and liquidity management.
- **Structure:**
 - **A token based CBDC would be a bearer instrument like banknotes**, the person receiving a token will verify that his ownership of the token is genuine. A token-based CBDC is viewed as a preferred mode for CBDC-R as it would be closer to physical cash.
 - **An account-based system** would require **maintenance of records of balances and transactions of all holders of the CBDC and indicate the ownership of the monetary balances**. In this case, an intermediary will verify the identity of an account holder. This system can be considered for CBDC-W.
- **Available in online and offline mode:** The offline functionality as an option will allow **CBDC to be transacted without the internet** and thus enable access in regions with poor or no internet connectivity.
 - However, the RBI feels in the offline mode, **the risk of 'double-spending' will exist** because it will be technically possible to use a CBDC unit more than once without updating the common ledger of CBDC.
- **Model for Issuance:**
 - **In the direct model, the central bank will be responsible for managing all aspects of the digital rupee system** such as issuance, account-keeping and transaction verification.
 - **An indirect model** would be **one where the central bank and other intermediaries (banks and any other service providers), each play their respective role**. The central bank will issue CBDC to consumers indirectly through intermediaries and any claim by consumers will be managed by the intermediary.

What are the advantages of e-rupee?

- **Reduction in operational costs** involved in physical cash management, fostering **financial inclusion**, bringing resilience, efficiency and **innovation in the payments system**.
- Provide the public with uses that any private virtual currencies can provide, without the associated risks.

What are the issues related to CBDC in India?

- **Cyber Security:** CBDC ecosystems **may be at a similar risk of cyber-attacks that the current payment systems are exposed to**.
- **Privacy issue:** The CBDC is expected to generate huge sets of data in real time. Privacy of the Data, concerns related to its anonymity and its effective use will be a challenge.
- **Digital divide and financial illiteracy:** The [NFHS-5](#) also provides data segregation based on the rural-urban divide. **Only 48.7% of rural males and 24.6% of the rural females have ever used the internet**. So, CBDC may wide gender-based hurdle in financial inclusion along with digital divide.

Way Forward

- **Technical clarity** must be ensured to decide on the underlying technologies that can be trusted to be safe and stable.
- To make CBDC a successful initiative and movement, RBI must address the demand side infrastructure and knowledge gap to increase its acceptance in rural areas for wide base.
- The RBI must proceed cautiously, remaining mindful of the various issues, the design considerations and the implications surrounding the introduction of the digital currency.

[Infographics](#)

UPSC Civil Services Examination Previous Year Question

Mains

Q. What is Cryptocurrency? How does it affect global society? Has it been affecting Indian society also?

Source: [IE](#)

Climate Tipping Points

For Prelims: Climate Tipping Points, Greenland Ice, Coral Reef, Amazon Forest

For Mains: Government Policies & Interventions, Environmental Pollution & Degradation

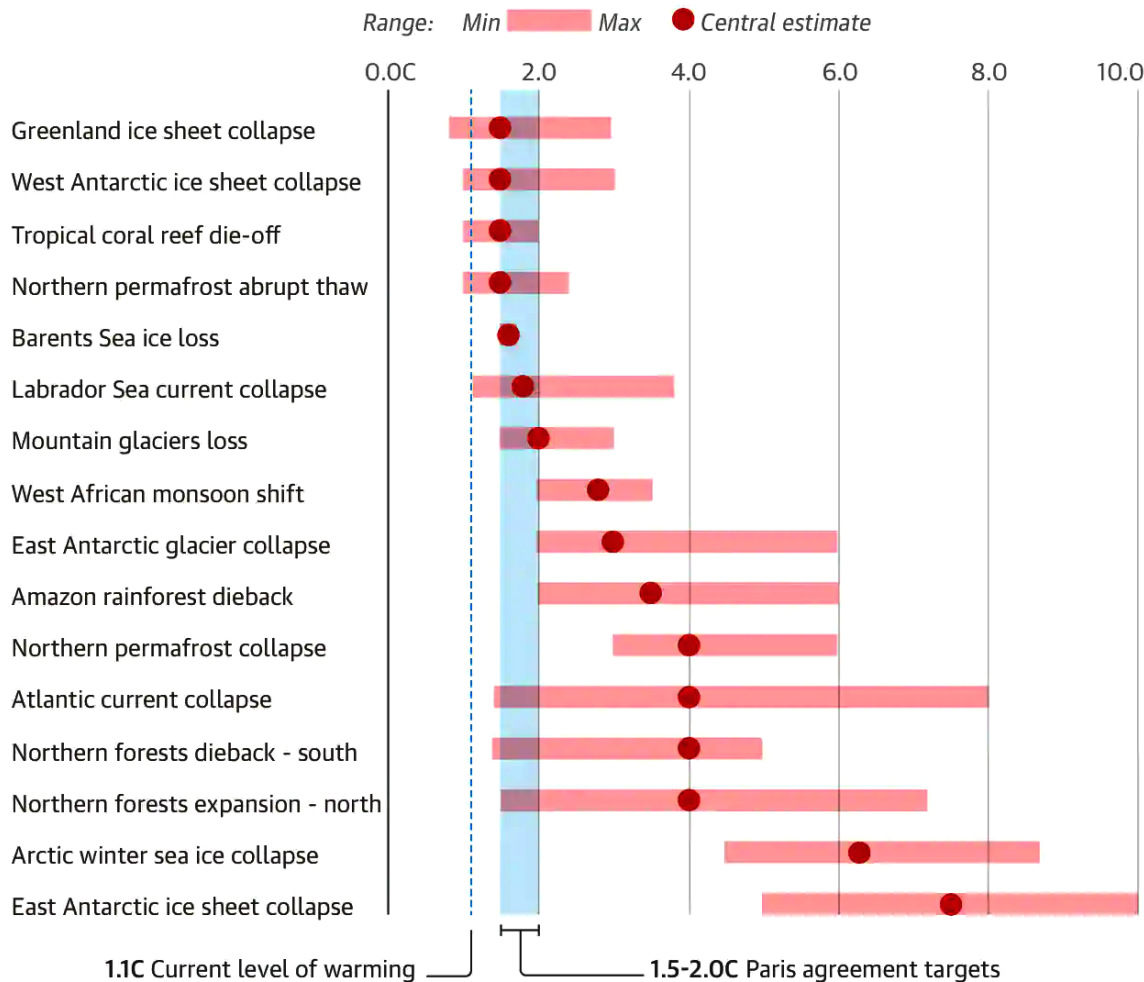
Why in News?

According to a major study, the climate crisis has driven the world to the brink of multiple “disastrous” tipping points.

- Climate Tipping Points or CTPs are **markers of a larger climate system** which when triggered beyond a threshold, perpetuates warming on its own.

The risk of climate tipping points is rising rapidly as the world heats up

Estimated range of global heating needed to pass tipping point temperature



What are the New Findings of the Study?

- According to the Study, five dangerous tipping points may already have been passed due to the 1.1° C of global heating caused by humanity to date.
 - These include the collapse of [Greenland's ice cap](#), eventually producing a huge [sea level rise](#), the collapse of a key current in the north Atlantic, disrupting rain upon which billions of people depend for food, and an abrupt melting of carbon-rich [permafrost](#).
- At 1.5° C, **five tipping points become possible**, including changes to vast northern forests and the loss of almost all mountain glaciers, the die-off of tropical [coral reefs](#) and changes to the west African monsoon.
- In total, the researchers found evidence for 16 tipping points, with the final six requiring global heating of at least 2° C to be triggered.
 - The tipping points would take effect on timescales varying from a few years to centuries.
- At more than 2° C, the **nine global tipping points identified** are the collapse of Greenland, West Antarctic, and two parts of the east Antarctic ice sheets, the partial and total collapse of [Atlantic Meridional Overturning Circulation \(AMOC\)](#), Amazon dieback, permafrost collapse and winter sea ice loss in the Arctic.
- Other potential tipping points still being studied include the loss of ocean oxygen and major shifts

in the Indian summer monsoon.

Way Forward

- The assessment provides strong scientific evidence for urgent action to mitigate climate change.
- Currently the world is heading toward ~2 to 3°C of global warming, at best, if all net-zero pledges and nationally determined contributions are implemented it could reach just below 2°C.
 - This would lower tipping point risks somewhat but would still be dangerous as it could trigger multiple climate tipping points.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Assess the impact of global warming on the coral life system with examples. (2019)

[Source: DTE](#)

Nord Stream Pipeline

For Prelims: Baltic Sea and its surrounding countries, Russia-Ukraine Crisis.

For Mains: Nord Stream Pipeline.

Why in News?

Recently, leaks were found in the pipelines comprising the [Nord Stream pipelines \(Nord Stream 1 and Nord Stream 2\)](#) located near Denmark and Sweden.

- The leaks happened just before the ceremonial launch of the **Baltic Pipe carrying gas from Norway to Poland, which** is an effort by Poland to **decrease its dependence on Russia for energy.**

What are the Nord Stream Pipelines?

- Nord Stream consists of two pipelines, **which have two lines each.**
 - Nord Stream 1 is a 1,224 km underwater gas pipeline running from Vyborg in northwest Russia to Lubmin in northeastern Germany via the Baltic Sea. It was completed in 2011.
 - **Nord Stream 2** which runs from Ust-Luga in Leningrad to Lubmin was completed in September 2021 and has the capacity to handle 55 billion cubic meters of gas per year once it becomes operational.
- The twin pipelines together can transport a combined total of 110 billion cubic metres (bcm) of gas a year to Europe for at least 50 years.
- The Nord Stream crosses the [Exclusive Economic Zones \(EEZs\)](#) of several countries including Russia, Finland, Sweden, Denmark and Germany, and the territorial waters of Russia, Denmark, and Germany.
- In Germany, the pipeline connects to the OPAL (Baltic Sea Pipeline) and NEL (North European Pipeline) which further connects to the European grid.



How War Impacted Nord Stream Supply?

- Russia had already decreased the supply of gas to Europe after the European Union imposed sanctions on Moscow for invading Ukraine.
- Flows via Nord Stream 1 were reduced to 20% of its capacity in July 2022.
- In August 2022, Russia further plugged the **supply and stopped Nord Stream 1 completely**, citing maintenance. Gazprom had reasoned that an oil leak in a turbine on the Nord Stream 1 pipeline was behind the closure.
- The Nord Stream 2, despite being completed, could not **become operational after Germany pulled out of the project after Russia invaded Ukraine**.
- The stream was supposed to double **Russia's energy export to Europe to 110 billion** cubic meters.
- The short supply of the gas pipeline resulted in a **sudden hike in energy prices in Europe**. With the shutting down of the Nord Stream pipeline, **Europe faces a tough time ahead with winter approaching**.

What is its Significance of Nord Stream for Europe and Russia?

- **Europe:**
 - Europe requires more than **100 billion cubic metres (bcm) of natural gas** each year and around 40% of its gas comes from Russia.

- Over the last few years, Europe has become more dependent on gas imports because of a decrease in domestic gas production. Reducing dependence on Russian gas is difficult as there are no easy replacements.
- Many **European businesses have large investments in Nord Stream 2** and there is pressure on governments from these businesses. Finally, a reduction in gas from Russia would increase already high gas prices and that would not be popular domestically.
- **Russia:**
 - As for Russia, which has the largest natural gas reserves in the world, around **40% of its budget comes from sales** of gas and oil.
 - Nord Stream 2 is important because **it eliminates the risks related with sending gas through transit countries**, cuts operating costs by doing away with transit fees and gives direct access to its most important European customer, Germany.
 - It increases **Europe's dependence on Russia** while giving it a reliable customer.

[Source: IE](#)

Uniform Safety Standards for EVs

For Prelims: Electric Vehicles (EVs), Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles Scheme-II (FAME-II), PLI schemes automobile, automotive components and Advanced Chemistry Cell (ACC), Lithium-ion batteries.

For Mains: Electric Vehicles Manufacturing and Adoption - challenges and opportunities, EVs and Global Goals of Net Zero Emission.

Why in News?

To establish **uniform safety standards for [electric vehicles \(EVs\)](#)**, India will begin its first ever testing of EVs from April 1, 2023.

- This comes amid concerns over **multiple instances of fires in electric two-wheelers** and four-wheelers in recent months.

What are the Key Points about EV Testing?

- **Current Scenario:**
 - As of now, there are **no centralised testing facilities for EVs in India** and manufacturers have their own benchmarks.
 - In June 2022, the first major step towards standardisation of battery technology was taken when the [Bureau of Indian Standards](#) issued **performance norms for lithium-ion battery packs** and traction systems in line with broader ISO norms.
- **Latest Update:**
 - The task for procuring the infrastructure needed to test battery-powered vehicles has been vested in the Pune-based **Automotive Research Association of India (ARAI)**.
 - The Ministry of Heavy Industries has **allocated Rs 44 crore** to ARAI to set up the requisite **infrastructure for testing, certification, and development of electric and hybrid vehicles**.
- **Significance:**
 - The EV testing push compliments the government's redoubled focus on electric vehicles as well as on other forms of alternative fuel with a larger aim to reduce its crude import bill.

- As per the Union Minister of Road Transport and Highways, the **government is targeting to go all-electric** in terms of **new car sales in the country by 2030**.
- Adherence to the uniform standards would **enhance product reliability, performance, and safety**.
 - It would also **make the entry barrier slightly tougher for non-serious players** and ensure that only serious players get into production.

Note

- **Globally**, there is **no single EV standard**. Japan, China and countries in Europe and North America have safety standards that promote different norms in four key areas: **safety, charging connectors, charging topology and charging-related communications**.
 - **India is set to broadly follow the same philosophy** for its testing standards — updating them as technology evolves.

What are Electric Vehicles?

- **About:**
 - An EV **operates on an electric motor** instead of an internal combustion engine and **has a battery instead of a fuel tank**.
 - In general, EVs have **low running costs** as they have fewer moving parts and are also environmentally friendly.
 - In India, the fuel cost for an EV is approximately **80 paisa per kilometer**.
- **Current Scenario of EVs in India:**
 - The **push for Electric Vehicles (EVs)** is driven by the **global climate agenda** established under the [Paris Agreement](#) to reduce carbon emissions in order to limit global warming.
 - As of June 2022, India had **over 1.3 million electric vehicles — 50% of which are three-wheelers**, a bulk of the remaining vehicles being two-wheelers, with four-wheelers making up the rest.
- **India's Initiatives to Support EVs:**
 - Localisation of EV manufacturing through [Faster Adoption and Manufacturing of \(Hybrid &\) Electric Vehicles Scheme-II \(FAME-II\)](#)
 - [PLI schemes for manufacturers in the automobile, automotive components](#) and [Advanced Chemistry Cell \(ACC\)](#) to develop indigenous supply chains for critical EV components.
 - The government also **revised its guidelines for charging infrastructure** by including a revenue-sharing model for use of public land.
 - To boost sales, there also exist **consumer-centric incentives - tax exemptions, subsidies and interest subvention schemes** to trigger a mass demand for EV mobility options.
 - In April 2022, the [NITI Aayog](#) released the [draft battery swapping policy for Electric Vehicles \(EVs\)](#) in the country.
 - The Ministry of Road Transport and Highways recently extended the rollout of **amendments to EV battery testing standards**- Automotive Industry Standards-156 (or AIS-156) and AIS-038 to a staggered two-phased implementation (first from December 1, 2022 and second from March 31, 2023).
 - The **AIS-156** includes motor vehicles in the L category — those with less than four wheels and an electric powertrain.
 - The second amendment — AIS-038 — regulates vehicles with electric power trains for M category (those with four wheels and used to carry passengers) and N category (electric four-wheelers used to carry both goods and passengers).
- **Recent Issues Related to EVs:**
 - There have been **increased instances of electric vehicles catching fire**. The reasons for fire may include:
 - Manufacturing defects
 - External damage

- Faults in the deployment in the battery management system, and
- Faulty charging in some cases
- The Covid-19 pandemic and the [US-China trade war](#) has **disrupted supply chains** thus making the **critical components of EV prohibitively expensive**.
 - Indian manufacturers are also struggling to source [lithium-ion batteries](#).
- The [semiconductor shortage](#) which began at the end of 2021 has still not been resolved completely and has **hindered multiple industries**.
 - A similar challenge can adversely impact India's upcoming EV industry in terms of **high price volatility** and **supply disruptions** of these elements

Way Forward

- **Uniform guidelines and inspection systems** should be laid down **for the entire EV ecosystem** starting from conceptualization to prototype to production and finally end-of-life of the battery.
- Battery is the most important component of an EV, and with consumers concerned about EV safety, uniform production standards — **conformity of production (CoP) in industry parlance — should be laid down**.
- CoP should be implemented to ensure that the same quality is maintained throughout the manufacturing of EV batteries.
 - Further, **self-regulation should be maintained by battery manufacturers** until CoP is implemented.
 - **Each imported cell should be checked individually** and only those that fulfil the norms and quality standards should be used in battery pack manufacturing.

UPSC Civil Services Examination Previous Year Question (PYQ)

Mains

Q. How is efficient and affordable urban mass transport key to the rapid economic development in India? **(2019)**

[Source: IE](#)

India Becomes the World's Largest Producer of Sugar

For Prelims: Sugarcane, Ethanol Blending with Petrol (EBP) Programme, Fair and remunerative price (FRP), Commission for Agricultural Costs and Prices (CACP), Rangarajan committee (2012), Biofuel Policy 2018.

For Mains: Impact of Sugar Production in India's Economy.

Why in News?

Recently, India has emerged as the **world's largest producer and consumer of sugar** and the **world's 2nd largest exporter**, due to the record production of more than 5000 Lakh Metric Tons (LMT) of

sugarcane.

What are the Reasons for Good Production of Sugar?

- **Impressive Sugar Season (Sep-Oct):** All records of sugarcane production, sugar production, sugar exports, cane procured, cane dues paid and ethanol production was made during the season.
- **High exports:** The exports were the highest at about 109.8 LMT without any financial assistance and earned foreign currency of about Rs. 40,000 crores.
- **Indian Government Policy Initiatives:** Timely government initiatives in the last 5 years have taken them out of financial distress in 2018-19 to the stage of self-sufficiency in 2021-22.
 - **Encouraging Ethanol Production:** The Government has encouraged sugar mills to divert sugar to [ethanol](#) and also export surplus sugar so that mills may have better financial conditions to continue their operations.
 - **Ethanol Blending with Petrol (EBP) Programme:** The National Policy on Biofuels 2018, provides an indicative target of 20% ethanol blending under the Ethanol Blended Petrol (EBP) Programme by 2025.
 - **Fair and remunerative price (FRP):** The FRP is the minimum price that sugar mills have to pay to sugarcane farmers for procurement of sugarcane. It is determined on the basis of recommendations of the [Commission for Agricultural Costs and Prices \(CACP\)](#) and after consultation with State Governments and other stakeholders.
 - **State Advised Price:** Although the Central government decides the FRP the state governments can also set a State Advised price which a sugar mill has to pay to the farmers.
 - **Rangarajan committee (2012)** was set up to give recommendations on regulation of the sugar industry.
 - **Its recommendations:**
 - Abolition of the quantitative controls on export and import of sugar, these should be replaced by appropriate tariffs.
 - States should also undertake policy reform to allow mills to harness power generated from bagasse.

What is the Present Status of the Sugar Industry in India?

- **About:** Sugar industry is an important agro-based industry that impacts the rural livelihood of about 50 million sugarcane farmers and around 5 lakh workers directly employed in sugar mills.
 - The sugar industry is the second largest agro-based industry in India after cotton.
- **Distribution:** Sugar industry is broadly distributed over **two major areas of production**- Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
 - South India has a **tropical climate** which is suitable for higher sucrose content giving a higher yield per unit area as compared to north India.
- **Geographical Conditions for the Growth of Sugar:**
 - **Temperature:** Between 21-27°C with hot and humid climate.
 - **Rainfall:** Around 75-100 cm.
 - **Soil Type:** Deep rich loamy soil.
 - **Top Sugarcane Producing States:** Maharashtra > Uttar Pradesh > Karnataka
- **Challenges:**
 - **Uncertain Production Output:** Sugarcane has to compete with several other food and cash crops like cotton, oil seeds, rice, etc. This affects the supply of sugarcane to the mills and the **production of sugar also varies from year to year causing fluctuations in prices** leading to losses in times of excess production due to low prices.
 - **Low Yield of Sugarcane:** India's **yield per hectare is extremely low** as compared to some of the major sugarcane producing countries of the world. For example, India's yield is only 64.5 tonnes/hectare as compared to 90 tonnes in Java and 121 tonnes in Hawaii.
 - **Short Crushing Season:** Sugar production is a seasonal industry with a **short crushing season varying normally from 4 to 7 months in a year.**
 - It causes financial loss and seasonal employment for workers and lack of full utilization of sugar mills.

- **Low Sugar Recovery Rate:** The average rate of recovery of sugar from sugarcane in India is less than 10% which is quite low as compared to other major sugar producing countries.
- **High Production Cost:** High cost of sugarcane, inefficient technology, the uneconomic process of production and heavy excise duty result in high cost of manufacturing.
 - Most of the sugar mills in India are of small size with a capacity of 1,000 to 1,500 tonnes per day thus fail to take advantage of economies of scale.

Way Forward

- There is a need to deploy remote sensing technologies to map sugarcane areas. Despite the importance of sugarcane in the water, food and energy sectors in India, there are no reliable sugarcane maps for recent years and in time series.
- Research and development in sugarcane can help address issues like low yield and low sugar recovery rates.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- (a) 1, 2, 5 and 6 only
 (b) 1, 3, 4 and 6 only
 (c) 2, 3, 4 and 5 only
 (d) 1, 2, 3, 4, 5 and 6

Ans: (a)

Exp:

- **The National Policy on Biofuels, 2018, allows production of ethanol from damaged food grains** like wheat, broken rice, etc., which are unfit for human consumption.
- The Policy also allows conversion of surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee.
- The Policy expands the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production. **Hence, 1, 2, 5 and 6 are correct. Therefore, option (a) is the correct answer.**

Source: PIB

Global Artificial Intelligence Summit & Awards

For Prelims: Artificial Intelligence, AICRA, MSME, Make in India.

For Mains: Role of Artificial Intelligence in the Development of India.

Why in News?

The Union Minister of Commerce and Industry addressed the 3rd edition of **Global Artificial Intelligence Summit & Awards (GAISA)**, and articulated that [Artificial Intelligence](#) can help India be a developed nation by 2047.

What is GAISA?

- The third AI Summit has been organized by [AICRA \(All India Council For Robotics & Automation\)](#) and is focusing on the areas of **defence, healthcare, agriculture, smart cities, mobility and education** in partnership with the government.
 - **AICRA** sets up standards in **the robotics & automation and education industry**, helping organizations and professionals to solve difficult technical problems, while enhancing **their leadership and personal career capabilities**.
- GAISA-Global Artificial Intelligence Summit focuses on the **prominence of AI in human lives & business industries**.
- The aim is to develop a roadmap on **how to use the AI ecosystem and startups for the benefit of society**.
- It has set up **multidisciplinary groups** to break down the silos in which different stakeholders have been working and to **find technological solutions for the key sectors of our society**.

What is Artificial Intelligence?

- **About:**
 - It describes the **action of machines accomplishing tasks that have historically required human intelligence**.
 - It includes technologies like **machine learning, pattern recognition, big data, neural networks, self-algorithms** etc.
 - The origin of the concept can be traced back to **Greek mythology, although it is only during modern history** when stored program electronic computers were developed.
 - **Example:** Millions of algorithms and codes are there around humans to understand their commands and perform human-like tasks. Facebook's list of suggested friends for its users, a pop-up page, telling about an upcoming sale of the favourite brand of shoes and clothes, that comes on screen while browsing the internet, are the work of artificial intelligence.
- **Complex Technology:**
 - AI involves **complex things such as feeding a particular data** into the machine and making it react as per the different situations.
 - It is basically about **creating self-learning patterns where the machine can give answers** to the never answered questions like a human would ever do.

How Can AI Help India in the Development Process?

- The [Make in India](#) program when juxtaposed with AI technology, will **enable India to become the factory of the world providing** both equipment and technology to the world.
- In India, there is a huge talent pool available that will **definitely help in exploring newer ways to take AI in every sector** of economic activity.
- The government is using AI to redefine the way it works such as **Unified Logistics Interface**

Platform (ULIP), which is leveraging **AI to improve the entire [logistics ecosystem](#) of the country.**

- Initiatives like [PM GatiShakti](#) National Master Plan, which aims at developing our infrastructure smarter, [Open Network for Digital Commerce \(ONDC\)](#), which aims at democratising E-commerce, GeM which has made a significant impact for government procurement - all these are **leveraging AI to bring efficiency and better delivery of services.**
- With the meaningful contribution by Industry, startups, incubators and academia, India is **going to emerge as the hub of the artificial intelligence revolution** across the world.
- AI can play a crucial role in empowering the lives of farmers, fishermen and the [MSME \(Micro. Small and Medium Enterprises\)](#) sector.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only
(b) 1, 3 and 4 only
(c) 2, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Ans: (b)

Mains

Q. "The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss. (2020)

Source: PIB

Credit Guarantee Scheme for Startups (CGSS)

Why in News?

Recently, the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry has notified the **credit guarantee scheme for [start-ups](#).**

What is the Credit Guarantee Scheme for Startups (CGSS)?

- About:

- The scheme has been **approved for the purpose of providing credit guarantees** to loans extended by Member Institutions (MIs) to finance eligible borrowers being startups.
 - MIs include **financial intermediaries** (banks, financial institutions, [Non-Banking Financial Companies](#)) engaged in lending/investing and conforming to the eligibility criteria approved under the Scheme.
 - This scheme **would help provide the much-needed collateral-free debt** funding to start-ups.
 - The credit guarantee cover under the Scheme would be **transaction based and umbrella based**.
 - The exposure to individual cases would be **capped at Rs. 10 crore per case** or the actual outstanding credit amount, whichever is less.
 - In respect of **transaction-based guarantee cover**, the guarantee cover is obtained by the MIs on a single eligible borrower basis.
 - Transaction based guarantees will promote lending by Banks/ NBFCs to eligible startups.
 - The umbrella-based guarantee cover will provide guarantee to Venture Debt Funds (VDF) registered under Alternative Investment Funds (AIF) regulations of [Securities and Exchange Board of India \(SEBI\)](#) .
- **Aim:**
- To **support startups that are hit hard by the pandemic** and are now going to be impacted further by the rising interest rate scenario when liquidity is unlikely to be easily available to new entrepreneurs.

What is the State of Start-ups in India?

- **About:**
- India has become the **3rd largest start-up ecosystem** in the world after the US and China.
 - India is home to as many as 75,000 Startups.
 - 49% of start-ups are from tier-2 and tier-3 cities.
 - There are currently 105 unicorns, out of which 44 were born in 2021 and 19 in 2022.
 - Startups are also emerging in the fields like IT, [agriculture](#), [aviation](#), [education](#), [energy](#), [health](#) and [space sectors](#).
- **Related Initiatives:**
- National Initiative for Developing and Harnessing Innovations (NIDHI)
 - [Startup India Action Plan \(SIAP\)](#)
 - [Ranking of States on Support to Startup Ecosystems \(RSSSE\)](#)
 - [Fund of Funds for Startups \(FFS\)](#)

[Source: PIB](#)

Burkina Faso Coup

Why in News?

Recently, the **President of Burkina Faso, Paul-Henri Damiba announced his resignation following violence** in the volatile West African nation after the military government was overthrown by a group of soldiers in the second coup in around eight months.

- Despite Damiba's promises to improve the security situation in the country, the crisis worsened under his government.
- The West African regional bloc [Economic Community of West African States \(ECOWAS\)](#) suspended Burkina Faso from the organisation, demanding Damiba led Government to hold elections as soon

as possible.



What is the History of Burkina Faso?

- A former French colony, **Burkina Faso has suffered chronic instability** since gaining independence in 1960, including several coups.
- The country's name, meaning "**land of the honest men**", was picked by revolutionary military officer Thomas Sankara who took power in 1983. He was toppled and killed in 1987.
- Since 2015, the **country has been fighting an Islamist insurgency** that spilled over from neighbouring Mali. This has fuelled anger in the military and damaged the once important tourist industry.
- Landlocked Burkina Faso, **one of West Africa's poorest countries** despite being a gold producer, has experienced numerous coups since independence from France in 1960.
- Islamist militants control swathes of Burkina Faso's territory and have forced residents in some areas to abide by their harsh version of Islamic law, while the military's struggle to quell the insurgency has drained scarce national resources.

[Source: TH](#)

Conserving Vultures

Why in News?

According to a recent study, **vultures mostly forage outside Protected Areas (PAs)** and if threats such as poison-laced carcasses are removed from these places, the decline in vulture populations can be stemmed.

What are the Findings of the Report?

▪ About:

- **Vultures avoided areas with high livestock density** when feeding, which suggests that vultures did not use cattle as a main food source and avoided areas with high human habitation.
- The finding of the study regarding cattle not being the main food source of vultures did not hold true for India.
 - The drastic crash in vulture populations in India was due to the use of diclofenac in veterinary treatment, mainly on cattle. So clearly, vultures fed on livestock.

▪ Suggestions for Conservation:

- Understanding their habitat use, and even more importantly their behaviour while in certain habitats, like outside of protected areas, is thus critical for their conservation.
- It is vital to identify and remove threats near nesting and roosting sites, and to provide them with food and water.

What about the Vultures Species in India?

▪ About:

- It is one of the **22 species of large carrion-eating birds** that live predominantly in the tropics and subtropics.
- They act an **important function as nature's garbage collectors** and help to keep the environment clean of waste.
 - Vultures also play a valuable role in keeping wildlife diseases in check.
- **India is home to 9 species of Vulture** namely the Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and the Eurasian Griffon.
 - Most of these 9 species face dangers of extinction.
 - Bearded, Long-billed, Slender-billed, Oriental white-backed are protected in the Schedule-1 of the [Wildlife Protection Act](#) 1972. Rest are protected under 'Schedule IV'.

▪ [International Union for Conservation of Nature \(IUCN\)](#):

Sr. No.	Name of the Vulture Species	IUCN status	Pictorial Representation
1.	Oriental White-backed Vulture (Gyps Bengalensis)	Critically Endangered	
2.	Slender-billed Vulture (Gyps Tenuirostris)	Critically Endangered	
3.	Long-billed Vulture (Gyps Indicus)	Critically Endangered	
4.	Egyptian Vulture (Neophron Percnopterus)	Endangered	
5.	Red-Headed Vulture (Sarcogyps Calvus)	Critically Endangered	
6.	Indian Griffon Vulture (Gyps Fulvus)	Least Concerned	
7.	Himalayan Griffon (Gyps Himalayensis)	Near Threatened	
8.	Cinereous Vulture (Aegypius Monachus)	Near Threatened	
9.	Bearded Vulture or Lammergeier (Gypaetus Barbatus)	Near Threatened	

▪ **Threats:**

- Poisoning from diclofenac that is used as a medicine for livestock.
- Loss of Natural Habitats due to anthropogenic activities.
- Food Dearth and Contaminated Food.
- Electrocution by Power lines.

▪ **Conservation Efforts:**

- Recently, the Ministry for Environment, Forests and Climate Change launched a **Vulture Action Plan 2020-25** for the conservation of vultures in the country.
 - It will ensure minimum use of Diclofenac and prevent the poisoning of the principal food of vultures, the cattle carcasses.
- To study the cause of deaths of vultures in India, a **Vulture Care Centre (VCC) was set up at Pinjore, Haryana in 2001.**
- Later in 2004, the VCC was upgraded to being the first Vulture Conservation and Breeding Centre (VCBC) in India.
 - At present, there are nine Vulture Conservation and Breeding Centres (VCBC) in India, of which three are directly administered by the **Bombay Natural History Society (BNHS).**

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Vultures which used to be very common in Indian countryside some years ago are rarely seen nowadays. This is attributed to (2012)

- (a) the destruction of their nesting sites by new invasive species
- (b) a drug used by cattle owners for treating their diseased cattle
- (c) scarcity of food available to them
- (d) a widespread, persistent and fatal disease among them.

Ans: (b)

[Source: DTE](#)

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