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## News Analysis (01 Sep, 2020)

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### GDP Contracted by 23.9% in First Quarter

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#### Why in News

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According to the recent **National Statistical Office (NSO)** data, India's **Gross Domestic Product (GDP)** growth contracted by **23.9%** in the first (April-June) quarter of 2020 compared to the same period (April-June) in 2019.

- It is the sharpest contraction since India started reporting quarterly data in 1996.
- **Gross Value Added (GVA)** growth rate also **declined by 22.8%** in the first quarter of this financial year.
  - GDP is a **measure of economic activity** in a country. It is the **total value** of a country's annual output of goods and services. It gives the **economic output from the consumers' side**.
  - **GVA** is the sum of a country's GDP and net of subsidies and taxes in the economy.

#### Key Points

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##### Sector Wise Data:

- **Construction, manufacturing, trade, hotels and other services and mining** were the worst-hit sectors, recording contractions of 50.3%, 39.3%, 47.0% and 23% respectively.

This reflects the unprecedented suspension of economic activity in the first quarter of this fiscal due to the **pandemic** and the series of lockdowns.
- Only the **agriculture sector** showed a **positive growth** at 3.4%.

## QUARTERLY ESTIMATES OF GVA

### INDUSTRY

### CHANGE OVER PREVIOUS YEAR

	CHANGE OVER PREVIOUS YEAR	
	April-June 2019-20	April-June 2020-21
Agriculture, forestry & fishing	3.0%	3.4%
Manufacturing	3.0%	-39.3%
Construction	5.2%	-50.3%
Trade, hotels, transport, communication & services related to broadcasting	3.5%	-47.0%
Public administration, defence & other services	7.7%	-10.3%
Gross Value Added (GVA)	4.8%	-22.8%
Gross Domestic Product (GDP)	5.2%	-23.9%

### Factors of GDP Contraction:

In any economy, the **GDP growth is generated from one of the four engines** of growth. i.e. **private consumption, demand generated by private sector businesses, demand generated by government and exports.**

- **Private consumption** has fallen by 27%. It is the biggest engine that drives the Indian economy.
- **Investment by private sector businesses** have fallen by 47%. It is the second biggest engine.
- **The net export demand** has turned positive in this first quarter because India's imports have crashed more than its exports.

While on paper, this provides a boost to overall GDP, it also points to an economy where economic activity has plummeted.

- The **government's expenditure went up by 16%** but this was nowhere near enough to compensate for the loss of demand in other sectors (engines) of the economy.

## ENGINES OF GROWTH FALTER

Sources of total demand /engines of growth	Q1 FY20 (Rs crore)	Q1 FY21 (Rs crore)	Difference (Rs crore)	% change (year on year)
Expenditure by individual consumers [C]	19,92,967	14,61,164	-5,31,803	-27
Expenditure/Investment by private businesses [I]	11,32,195	5,99,192	-5,33,003	-47
Expenditure by Govt [G]	4,18,249	4,86,636	68,387	16
Net demand from exports minus imports	-1,17,242	75,675	1,92,917	165
Total (including discrepancies)	35,35,267	26,89,556	-8,45,711	-23.9

### Implications:

- **On Jobs:** The sectors which have contracted (e.g. construction, manufacturing etc.) are the sectors that create the maximum new jobs in the country.  
Therefore, in a scenario where each of these sectors are contracting, would lead to more and more people either losing jobs (decline in employment) or failing to get one (rise in unemployment).
- **On Informal Sector:** The real extent of the economic crisis is expected to be deeper given that the **small-scale sector and informal sector** is more affected than the organised sector, but is **not reflected in the quarterly GDP** numbers.  
In the informal sector, factory output figures are used to extrapolate the trends in the growth.
- **On Banks:** The looming defaults in the banking sector after the moratorium ends will add to the banking sector woes, impacting bank's lending.  
Also, there are **worries regarding household debt**, with incomes stagnating, salary cuts and job losses.
- **On Economy:** With GDP contracting by more than what most observers expected, it is now believed that the full-year GDP could also worsen.  
A fairly conservative estimate would be a contraction of 7% for the full financial year.

### Possible Solution

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- As the incomes of individuals fall sharply, they reduce consumption. When consumption falls sharply, businesses stop investing. Since both of these are voluntary decisions, there is no way to force people to spend more and/or coerce businesses to invest more.  
The same logic holds for exports and imports as well.
- Therefore under these circumstances, there is **only one engine that can boost GDP, that is the government.**
  - Only when the government spends more — either by building roads and bridges and paying salaries or by directly handing out money — can the economy revive in the short to medium term.
  - If the government does not spend adequately enough then **the economy will take a long time to recover.**
- The Indian Government can also adopt the measures suggested by **McKinsey Global Institute** in which an additional 3.5 % of the GDP can be raised by the government. This includes:
  - **Global Shift:** Global trends such as digitization and automation, shifting supply chains, urbanization, rising incomes and demographic shifts, and a greater focus on sustainability, health, and safety can become the hallmarks of the post pandemic economy.
  - **Higher Productivity through Privatisation:** Privatisation of 30 or so of the largest state-owned enterprises to potentially double their productivity.
  - Government also had a focus on privatisation under the **Atmanirbhar Bharat Package.**
  - **Improvement in Infrastructure:** India needs to unlock supply in land markets to reduce land costs by 20-25%, enable efficient power distribution to reduce commercial and industrial tariffs by 20-25%; and improve the ease and reduce the cost of doing business.
  - **Efficient Financing:** Streamlining fiscal resources can deliver USD 2.4 trillion in investment while boosting entrepreneurship by lowering the cost of capital for enterprises by about 3.5 percentage points.
  - **Bad Bank:** Creation of a '**bad bank**' can take care of the inoperative assets.

**Source: IE**

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## **Core Sector Contracted by 9.6%**

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### **Why in News**

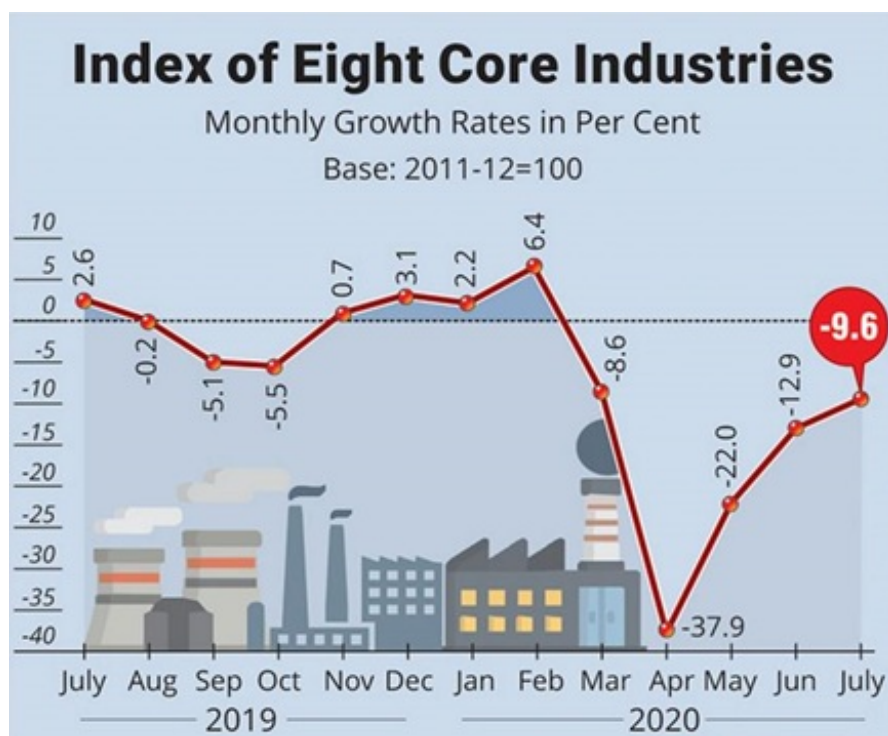
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The output of eight core infrastructure sectors dropped by 9.6% in July 2020. It has been a continued contraction for the past five months.

## Key Points

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- **Reasons:** The contraction is due to a decline mostly in the production of steel, refinery products, and cement.
  - In general, the weak demand and over-supply along with global and domestic disruptions due to Covid-19 are hampering the mobilization of economic resources.
  - In July, local demand growth has slowed because of high fuel prices, renewed lockdown in parts of the country, and as monsoon rains hit transport, industrial and construction activity.
- **Scenario:**
  - The production of eight core sectors had expanded by 2.6% in July 2019.
  - Barring Fertiliser (grew by 6.9%), all seven sectors — coal, crude oil, natural gas, refinery products, steel, cement and electricity — recorded negative growth in July.
  - The output of steel saw the highest decline (16.5%). It was followed by refinery products (13.9%).
  - The minimum contraction in the output is in the electricity sector with 2.3%.



## Core Sector Industries

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- The **eight core sector industries** include coal, crude oil, natural gas, refinery products, fertiliser, steel, cement, and electricity
- These comprise **40.27%** of the weight of items included in the Index of Industrial Production (IIP).

- The eight core Industries in decreasing order of their weightage: **Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.**

<b>Industry</b>	<b>Weight (In percentage)</b>
Petroleum & Refinery production	28.04
Electricity generation	19.85
Steel production	17.92
Coal production	10.33
Crude Oil production	8.98
Natural Gas production	6.88
Cement production	5.37
Fertilizers production	2.63

### **Index of Industrial Production**

- The Index of Industrial Production (IIP) is an indicator that measures the changes in the volume of production of industrial products during a given period.
- It is compiled and published monthly by the **National Statistical Office (NSO)**, Ministry of Statistics and Programme Implementation.
- IIP is a composite indicator that measures the growth rate of industry groups classified under:
  - **Broad sectors**, namely, Mining, Manufacturing, and Electricity.
  - **Use-based sectors**, namely Basic Goods, Capital Goods, and Intermediate Goods.
- **Base Year** for IIP is **2011-2012**.
- **Significance of IIP:**
  - It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.
  - IIP remains extremely relevant for the calculation of the quarterly and advance GDP estimates.

### **Source IE**

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## **Special Open Market Operations by RBI**

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## Why in News

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Recently, the **Reserve Bank of India (RBI)** has announced several measures to ensure orderly market conditions and smooth financial conditions.

These measures include two more tranches of **special Open Market Operations (OMOs)** in bonds and a **hike in the Held-To-Maturity (HTM) limit** under the **Statutory Liquidity Ratio (SLR)** for banks.

## Key Points

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- The move has been termed as **‘Operation Twist’**.  
Operation Twist is the name given to a **USA Federal Reserve monetary policy** operation, which involves the purchase and sale of government securities to boost the economy by bringing down long-term interest rates. It is now being used for **similar measures taken by RBI** in Indian context as well.
- **OMOs:** RBI will conduct **additional special open market operations** for an aggregate amount of Rs. 20,000 crore.  
RBI conducted **OMOs in March** as well.

## Open Market Operations

- Open Market Operations is the **simultaneous sale and purchase of government securities and treasury bills by RBI**.
- The objective of OMO is to **regulate the money supply** in the economy.
- RBI carries out the OMO **through commercial banks** and does not directly deal with the public.
- OMO is one of the **quantitative tools** that RBI uses to **smoothen the liquidity** conditions through the year and minimise its impact on the interest rate and inflation rate levels.

Quantitative tools control the extent of money supply by changing the Cash Reserve Ratio (CRR), or bank rate or open market operations. Qualitative tools include persuasion by the Central bank in order to make commercial banks discourage or encourage lending which is done through moral suasion, margin requirement, etc.

- **Term Repo Operations:** RBI will also conduct **term repo operations** for an aggregate amount of Rs. 1,00,000 crore at the **prevailing** repo rate in the middle of September **to ease liquidity pressures on the market.**
  - In order to reduce the cost of funds, banks that had availed of funds under **Long-Term Repo Operations** (LTROs) may exercise an option of reversing these transactions before maturity.
    - LTRO is a tool that lets banks borrow one to three-year funds from the RBI at the repo rate, by providing government securities with similar or higher tenure as collateral.
  - Thus, the banks may reduce their interest liability by returning funds taken at the repo rate prevailing at that time (5.15%) and **availing funds at the current repo rate of 4%.**
- **Increase in HTM limit:** RBI raised the limit on bonds held-to-maturity (HTM) to 22% from 19.5% of Net Demand and Time Liabilities (NDTL). This means banks will have room to buy more bonds without bothering about short-term fluctuations in yields.
  - HTM securities are the debt securities acquired with the intent to keep it until **maturity.**

## Key Terms

- **Repo Rate:** It is the rate at which RBI lends money to **commercial banks.**
- **Government Securities (G-Sec):** It is a tradable instrument issued by the central government or state governments.
  - Short term G-secs (with original maturities of less than one year) are called **Treasury Bills.** Long term G-secs (with original maturities of more than one year) or long term are called **Government Bonds or Dated Securities.**
  - Treasury Bills are not issued by State Governments while Government Bonds or Dated securities are issues both by State and Central Governments.
- **Net Demand and Time Liabilities (NDTL):** It is the difference between the sum of demand and time liabilities (deposits) of a bank (with the public or the other bank) and the deposits in the form of assets held by the other banks.

## Way Forward

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- The steps by RBI will definitely ensure **orderly functioning of the financial market**, as the market is facing a setback due to the global financial crisis amidst **Covid-19 pandemic.**



- The six- month **moratorium on repayment of debt** announced by RBI beginning 1<sup>st</sup> March, 2020 to help businesses and individuals tide over the financial problems on account of disruption in normal business activities ended on 31<sup>st</sup> August 2020.
  - This may adversely affect the small businesses that are facing financial issues due to Covid-19 pandemic and **lockdown**.
  - Recently, RBI announced use of **Dynamic Stochastic General Equilibrium (DSGE) model** to provide an **assessment of the likely impact of Covid-19** and the **subsequent lockdown** on the Indian economy.
- Coupled with the **recently announced GDP contraction by 23.9%**, the end of six-month moratorium will adversely impact the market. Tackling the financial health of the country hit by **Non Performing Assets** (NPAs), **bank frauds** and **economic setbacks by Covid-19**, as mentioned in the **Annual report of RBI**, will need a whole set of monetary reforms. Conducting market operations as required through a variety of instruments is one of them.

**Source: IE**

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## **Reservation to In-service Doctors in PG: SC**

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### **Why in News**

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Recently, the **Supreme Court** has allowed **states to grant the benefit of reservation of seats** to in-service doctors in the **National Eligibility cum Entrance Test** (NEET) postgraduate degree courses.

The five-judge Constitution Bench of the apex court also held that the **Medical Council of India** (MCI) has **no power to provide or not provide reservation** for in-service doctors in admission to PG courses.

MCI is a **creation of a statute under Entry 66 of List-I of the Constitution** and its role is to **coordinate and determine the standards of medical education**.

**Entry 66 of List-I:** Coordination and determination of standards in institutions for higher education or research and scientific and technical institutions.

### **Key Points**

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- The Bench held that **MCI regulations barring such reservations are unconstitutional and arbitrary** and that the state legislature has the authority to provide reservation for in-service doctors.

It held that a State has the legislative competence and authority to provide for a separate source of entry for in-service candidates seeking admission to postgraduate degree/diploma courses in the exercise of powers under **Entry 25 of List-III**.

- **Entry 25 of List-III:** Education, including technical education, medical education and universities, subject to the provisions of entries 63, 64, 65 and 66 of List I; vocational and technical training of labour.
  - The Constitution provides for a **three-fold distribution of legislative subjects between the Union and the states**, which are **List-I** (the Union List), **List-II** (the State List) and **List-III** (the Concurrent List), described in the **seventh schedule**.
- It has asked **states to formulate a scheme for rural/remote service by in-service doctors** after completing PG degree and the **doctors must sign a bond for five years in service in such areas**.
  - **Background:**
    - Doctors from Kerala, Maharashtra, and Haryana **filed a petition challenging the validity of the Postgraduate Medical Education Regulations 2000**, framed by the MCI.
      - 50% seats in PG diploma courses are reserved for medical officers in the government service but the MCI regulations barred it in PG degree courses.
      - All the admission to PG degree courses are conducted through the NEET and 50% seats are filled through all India quota and the remaining 50% from state quota.
    - Doctors held that **granting reservation benefits would encourage** those working in government hospitals and rural areas.

The in-service candidates, due to their work, hardly find time to study and it becomes tough for them to compete with the general merit candidates.
    - The **Central government and the MCI opposed the plea** contending that granting reservations or a separate source of entry for in-service candidates would **directly impinge on the authority of MCI** and its regulations.

**Source: TH**

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**Rashtriya Khel Protsahan Puruskar 2020**

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**Why in News**

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**Air Force Sports Control Board** was conferred with '**Rashtriya Khel Protsahan Puruskar 2020**' for the outstanding contribution in helping sportspersons to excel in their respective disciplines and implement robust sports welfare measures.

## Key Points

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- **Rashtriya Khel Protsahan Puruskar:**
  - The Rashtriya Khel Protsahan Puruskar scheme was introduced by the government in **2009** to encourage involvement of corporates and sports promotion boards in the development of sports in the country.
  - The **Union Ministry of Youth Affairs & Sports** has revised the Scheme of Rashtriya Khel Protsahan Puruskar in the year **2015**.
  - According to the revised plan, this award is given in the following four categories:
    - Identification and nurturing of budding/young talent.
    - Encouragement of sports through Corporate Social Responsibility (CSR).
    - Employment of sportspersons and sports welfare measures.
    - Sports for Development.
- **Sports Development in Armed Forces:**
  - **Air Force Sports Control Board**

Air Force Sports Control Board (AFSCB) is the **apex body** for the **planning and conduct of sports activities within the Indian Air Force and at the Inter-Services level**.
  - **Army Sports Institute:** Army Sports Institute, Pune was raised as part of the Indian Army's "**Mission Olympics**" programme in 2001.
    - **Aim:** To train the vast reservoir of talent in the Army with an ultimate aim of winning medals at the Olympics in selected seven disciplines including Archery, Athletics, Boxing, Diving, Fencing, Weightlifting and Wrestling.
    - The institute draws its sportsmen from the Army as well as from young raw and proven talent in '**Boys Sports Companies**' (8-14 years age).
    - **In the last three years**, the sportsmen trained at ASI have won 450 International and 1118 National medals.

## Government Initiatives for Sports Development

- **The Khelo India Scheme** aims to encourage sports all over the country, thus allowing the population to harness the power of sports through its cross-cutting influence, namely holistic development of children & youth, community development, social integration, gender equality, healthy lifestyle, national pride and economic opportunities related to sports development.

- The **National Sports Development Fund** helps sportspersons excel by providing them opportunities to train under coaches of international repute with technical, scientific and psychological support and giving them exposure to international competitions.
- **The National Sports Talent Contest (NSTC) Scheme** is being implemented to scout sports talent in the age group of 8-14 years from schools and nurture them into future medal hopes by providing scientific training.
- **Sports Authority of India Training Centres Scheme (STC) - for Junior level trainees:** The main objective was to make it possible for the Central Government and State Governments to work together for sports development efforts, through the integration of various Schemes.

**The Sports Authority of India (SAI)** is the apex national sports body of India, established in 1982 by the Ministry of Youth Affairs & Sports of Government of India for the development of sport in India.
- **Special Area Games (SAG) Scheme:** It aims at scouting natural talent for modern competitive sports and games from inaccessible tribal, rural and coastal areas of the country and nurturing them scientifically for achieving excellence in sports.

**Source- PIB**

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## **Inscription from Renati Chola Era**

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### **Why in News**

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A rare inscription dating back to the Renati Chola era has been unearthed in a remote village of Kadapa district of Andhra Pradesh.

### **Key Points**

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- The inscription was found engraved on a dolomite slab and shale, which are part of a fragmentary pillar excavated from a farmer's field.
  - **Dolomite** is a sedimentary carbonate rock composed mostly of calcium magnesium carbonate.
  - **Shale** or mudstone is a fine-grained sedimentary rock that forms from the compaction of silt and clay-size mineral particles.
- The inscription was written in **archaic Telugu**. It was assigned to the **8<sup>th</sup> Century AD**, when the region was under the rule of **Chola Maharaja of Renadu**.
- **Text:** The inscription seems to throw light on the **record of a gift of six Marttus** (a measuring unit) of land to a *Brahmin* Priest. Some lines are indicative of the **priority given to morality in those days**.

- In July 2020, the **Archaeological Survey of India** (ASI) had found the exact location of Renati Cholas' capital in Kadapa district of Andhra Pradesh.  
ASI deciphered two inscriptions of Renati Cholas belonging to the 7<sup>th</sup> century. The first inscription speaks of their capital **Erikal** in **Kamalapuram region in Kadapa**, while the other speaks about the **battle of Renati Cholas and Banas**.
- **Renati Cholas:**
  - The Telugu Cholas of Renadu (also called as Renati Cholas) ruled over Renadu region, the present day **Kadapa district**.
  - The earliest of this family was **Nandivarman (500 AD)**.
  - Renandu Cholas were the **feudatories of the Chola dynasty**.
  - These kings claimed that they belonged to Karikala **Chola's dynasty**.
  - They are said to be the **first kingdom to use Telugu in administration and inscriptions**, instead of Sanskrit.

## Chola Dynasty

- The Cholas controlled the central and northern parts of Tamil Nadu from around the 8<sup>th</sup>-12<sup>th</sup> century AD.
- Their core area of the rule was the Kaveri delta, later known as Cholamandalam. Their capital was **Uraiyur** (near Tiruchirapalli town) and Puhar or Kaveripattinam was an alternative royal residence and chief port town.
- **Tiger** was their **emblem**.
- The Cholas also maintained an **efficient navy**.
- **King Karikala** was a famous king of the **Sangam** Cholas.
  - Many **Sangam** poems mention the **Battle of Venni where he defeated the confederacy of Cheras, Pandys and eleven minor chieftains**.
  - Trade and commerce flourished during his reign.
  - He founded the **port city of Puhar (identical with Kaveripattinam)** and constructed 160 km of an embankment along the Kaveri River.
- Recently, the Department of Science and Technology (DST) has launched '**Project Digital Poompuhar**' to recreate the **Chola Dynasty port city (Poompuhar)** in Tamil Nadu.
- Recently, the consecration (Kumbhabhishekam) ceremony was held at the **Brihadisvara Temple** after 23 years in Thanjavur, Tamil Nadu. The temple was built by Chola emperor **Raja Raja Chola I** (985-1014 AD) between 1003 AD and 1010 AD.

**Source: TH**

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## Assam Firm on NRC Re-verification

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## Why in News

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The Assam government remains firm on its demand of **10-20% re-verification of the nationality claims** made by some of the people included in the **final National Register of Citizens** (NRC), published in 2019.

- The state government's plea for the re-verification is **lying pending in Supreme Court** (SC) for more than a year and the apex court is yet to stamp its approval on it.
- The NRC 2019 is yet to be approved by the **Registrar General of India**.

## National Register of Citizens

- NRC is a **register prepared** in respect of each village, showing the houses or holdings in a serial order and indicating against each house or holding the number and names of persons staying therein.
- The register was **first prepared after the 1951 Census of India** and since then it has **not been updated until recently**.

It has been **updated in Assam only for now** and the government **plans to update it nationally** as well.

- **Purpose:** To separate “illegal” immigrants from “legitimate” residents.
- **Nodal Agency:** Registrar General and Census Commissioner India.

## Key Points

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- **Background:**
  - In **2018**, the SC **mentioned the prospect of sample re-verification** in an order, saying that it could consider re-verifying 10% of the names included in the NRC.
  - In **July 2019**, the state government gave an affidavit in the SC seeking a **re-verification of 20% included names in the districts bordering Bangladesh and 10% in the rest of the districts**.
  - However, it was **dismissed** after the erstwhile coordinator of the NRC submitted that **re-verification was already done**.

- **Current Scenario:**

- The state government of Assam has **provided the latest data regarding ‘foreigner’ detection** in the state.
  - 1,36,149 people have been declared ‘foreigners’ by the state’s 100 functioning **Foreigners’ Tribunals**, whereas only 227 ‘foreigners’ have been deported from 13<sup>th</sup> March 2013 to 31<sup>st</sup> July 2020.
  - A total of 425 people are currently lodged in the six detention centres in the state.
- There is a **need for re-verification because people of Assam want a correct NRC.**
- Also, there has been a **delay in issuing the rejection slips** to the over 19 lakh excluded people so that they can move court to claim nationality.
  - Officials have cited the **Covid-19 pandemic** and the **floods in the state** as reasons for the delay.
  - The rejection slips would carry the **reason of rejection**, which **would differ from person to person and based on the reason they would be able to challenge their exclusion** in the Foreigners’ Tribunals.

Every individual, whose name does not figure in the final NRC, can represent his/her case in front of the Foreigners Tribunals.

**Source: IE**

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## **African Baobab Tree**

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### **Why in News**

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A recent study published in the journal Scientific Reports has found that the **tree 'African Baobab' has 168 chromosomes.** Previous studies estimated that the tree has between 96 and 166 chromosomes.

The study will be **useful in genetic conservation efforts.**



## Key Points

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- **Type of Trees:** Baobabs are **deciduous trees** ranging in **height from 5 to 20 meters**.

Deciduous forest is a vegetation composed primarily of broad-leaved trees that **shed all their leaves during one season**.
- **Found in:** The **African baobab (*Adansonia digitata*)** is one of the **nine species of baobab** and is **native to mainland Africa**. They are also found in **African Savannah**.
  - The African savanna ecosystem is a **tropical grassland** with **warm temperatures year-round** and with its highest seasonal rainfall in the summer.
  - It is characterized by grasses and small or dispersed trees that **do not form a closed canopy**, allowing sunlight to reach the ground.
- **Oldest Known Angiosperm Tree: Carbon-14 dating** places the age of a specimen of African baobab in Namibia at about **1,275 years**.
- **Tree of Life:** As African baobab is a succulent, which means that during the rainy season it absorbs and stores water in its vast trunk, enabling it to produce a nutrient-dense fruit in the dry season when all around is dry and arid.
- **Uses:** Baobab trees can live for more than a thousand years and provide food, livestock fodder, medicinal compounds, and raw materials.
- **Threat:** Since 2005, 9 of the 13 oldest African baobab specimens and 5 of the 6 largest trees have died or suffered the collapse and death of their largest or oldest stems, that may have been caused by the **effects of climate change**.



## Angiosperms

- Angiosperms are a taxonomic class of plants in which the **mature seed is surrounded by the ovule (e.g. apple)**. This group is often referred to as **hardwoods**.
- Angiosperms are trees that have broad leaves that usually change color and die every autumn. Oaks, maples and dogwoods are examples of deciduous trees. Some angiosperms that hold their leaves include rhododendron, live oak, and sweetbay magnolia.
- **Gymnosperms** are a taxonomic class that includes plants whose seeds are not enclosed in an ovule (like a pine cone). Gymnosperm means '**naked seed**'. This group is often referred to as **softwoods**.
- Gymnosperms usually have needles that stay green throughout the year. Examples are pines, cedars, spruces and firs. Some gymnosperms do drop their leaves - ginkgo, dawn redwood, and bald cypress, etc.

## Carbon-14 Dating

- Also called **radiocarbon dating**, it is a **method of age determination** that depends upon the **decay to nitrogen of radiocarbon** (Carbon-14).
- Carbon-14 is continually formed in nature by the interaction of neutrons with nitrogen-14 in the Earth's atmosphere.  
The neutrons required for this reaction are produced by cosmic rays interacting with the atmosphere.

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## Onam Festival

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### Why in News

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Recently, the **festival Onam** was celebrated across Kerala.

### Key Points

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- **The Festival:** Onam is a **major harvest festival in Kerala** and is celebrated to **honour the home-coming of Asura king Mahabali** who brought about peace and prosperity in Kerala.
- **Time:** It is one of the **three major festivals of Kerala**, celebrated during the month of **Chingam**, the first month in the **Malayalam calendar, Kollavarsham**.
  - The other two major festivals of the state are **Vishu** and **Thiruvathira**.
  - The **10-day harvest festival** begins on **Atham (first day of Onam)** and concludes on **Thiruvonam (last day)**.

- **Celebration:** Onam is celebrated by making **Pookkalam** (the flower rangolis). Other rituals are also performed which includes-**Vallam Kali** (the boat races), **Pulikali** (the tiger dances), **Kummattikali** (mask dances), **Onathallu** (martial arts), among others.

The main attraction is the traditional **Onam sadhya** (grand feast).

- **God vs Demon Story:**

- Battles between demons and gods are familiar to people everywhere. Gods emerging victorious over evil is an inseparable part of these battles.
- In India, too, these victories are celebrated in different parts of the country over the years. E.g. **Rama is good, Ravana is evil. Durga is good, Mahishasur is evil.**
- However, an exception to this has been the battle **between Mahabali (Asura or demon) and Vamana (avatar of Vishnu)**, where Mahabali is revered as the **unchallenged King of Malayalis.**

There are a few isolated places in India where demons are worshiped. E.g. There are some areas in Bihar and Bengal where **Mahishasur is king of Asur tribes.**

- Historians see these fights between god and demon in the context of fights between brahmins and non-brahmins and tribals in the past.

## **Asur Tribe**

- Asur is among the 9 **Particularly Vulnerable Tribal Groups** found in **Jharkhand** and are **Austro-Asiatic in origin.**

- Besides Jharkhand, members of the tribe live in pockets of **Bihar, West Bengal** and a few other states.
- The 2011 Census put the **number of Asur** at 22,459 in Jharkhand and 4,129 in Bihar.

- The Asurs **claim to be descendants of Mahishasur**, the buffalo-demon **whom Goddess Durga** kills after a spirited fight lasting nine nights.

It's this mythology in mainstream Hinduism that's celebrated in the form of the nine-day-long **Durga Puja**, but observed as '**Mahishasur Dasain**' among the Asurs, who hold a period of mourning during which they largely stay indoors.

- They celebrate festivals like **Sarhul, Karma, Dhanbuni, Kadelta, Rajj karma, Dasahara Karam.**

**Source: PIB**

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