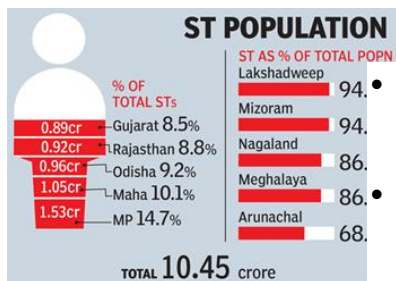


### INTEGRATING TRIBAL KNOWLEDGE SYSTEMS IS KEY TO MAKING INDIA A 'KNOWLEDGE SUPERPOWER', SAYS PRESIDENT DROUPADI MURMU

#### In News:

- President Droupadi Murmu addressed a National Workshop on 'Janjatiya Anusandhan – Asmita, Astitva evam Vikas', held at the Rashtrapati Bhavan.

#### Scheduled Tribes in India:



- According to the 2011 Census, the Scheduled Tribes account for 104 million representing **8.6% of the country's population**.
- These Scheduled Tribes are spread throughout the country largely in forest and hilly regions.
- The essential characteristics of these communities are:
  - Primitive Traits; Geographical isolation; Distinct culture; Shy of contact with community at large; Economically backwards.
- Government of India set up **Ministry of Tribal Affairs** in 1999 after the bifurcation of Ministry of Social Justice and Empowerment.
- As in the case of the Scheduled Castes, the Plan objective of empowering the tribals is being achieved through a three-pronged strategy of:
  - Social empowerment,
  - Economic empowerment &
  - Social justice

#### What are the constitutional provisions for tribals in the country?

- Basic safeguards provided in the Constitution:
  - Educational & Cultural safeguards:
    - Art. 15(4):** Special provisions for advancement of other backward classes (it includes STs);
    - Art. 29:** Protection of Interests of Minorities (it includes STs);

- **Art. 46:** The State shall promote, with special care, the educational and economic interests of the weaker sections of the people, and in particular, of the Scheduled Castes, and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation;
- **Art. 350:** Right to conserve distinct Language, Script or Culture;
- **Art. 350:** Instruction in Mother Tongue.
- Social safeguards:
  - **Art. 23:** Prohibition of traffic in human beings and beggar and other similar form of forced labour;
  - **Art. 24:** Forbidding Child Labour.
- Economic safeguards:
  - **Art.244:** Provisions of Fifth Schedule shall apply to the administration & control of the Scheduled Areas and Scheduled Tribes in any State other than the states of Assam, Meghalaya, Mizoram and Tripura which are covered under Sixth Schedule;
  - **Art. 275:** Grants in-Aid to specified States (STs&SAs) covered under Fifth and Sixth Schedules of the Constitution.
- Political safeguards:
  - **Art. 330:** Reservation of seats for STs in Lok Sabha;
  - **Art. 337:** Reservation of seats for STs in State Legislatures;
  - **Art. 334:** 10 years period for reservation (Amended several times to extend the period.);
  - **Art. 243:** Reservation of seats in Panchayats;
  - **Art. 371:** Special provisions in respect of NE States and Sikkim.

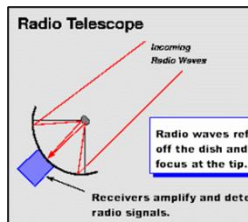
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## [SARAS 3 TELESCOPE THROWS LIGHT ON THE NATURE OF EARLY STARS AND GALAXIES](#)

### **In News:**

- SARAS 3, a radio telescope designed and built at the Raman Research Institute (RRI), Bengaluru, has revealed information about the origins of the Universe's first stars and galaxies.

## About Radio telescope:



- Optical telescopes collect visible light, bring it to a focus, amplify it and make it available for analysis by various instruments.
- Similarly, radio telescopes **collect weak radio light waves** (usually referred to by its frequency), bring it to a focus, amplify it and make it available for analysis.
- Radio telescopes are used to study naturally occurring radio light from stars, galaxies, black holes and other astronomical objects.
- They can also be used to transmit and reflect radio light off of planetary bodies in our solar system.
  - Naturally occurring radio waves are extremely weak by the time they reach earth from space.
  - Therefore, detecting the signal even using the most powerful existing radio telescopes, has remained a challenge for astronomers.
- These specially-designed telescopes observe the longest wavelengths of light, ranging from 1 millimeter to over 10 meters long (visible light waves only a few hundred nanometers long).

## About Shaped Antenna measurement of the background Radio Spectrum 3 (SARAS) telescope:

- **Experiment and science:**
  - SARAS is a niche high-risk high-gain experimental effort to design, build and deploy in India a precision radio telescope.
  - The **CMB Distortion Laboratory at RRI** has pioneered the development of state-of-the-art radio telescopes which are designed to detect signals of high wavelength and low frequency.
- **Latest unique deployment over water:**
  - In 2020, the radio telescope was deployed in lakes in Northern Karnataka, on Dandiganahalli Lake and Sharavati backwaters by the RRI.
  - This intelligent design substantially enhanced telescope performance and had never been conceived of in the world.

- This helped provide a homogenous medium below the antenna improving sensitivity and reducing confusing radio waves emitted by the very ground beneath radio telescopes.
  - **Significance of SARAS 3 telescope:** It is indeed the first experiment to reach the required sensitivity and cross-verify the claim of the signal detection.
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## SC: COLLEGIUM SYSTEM LAW OF THE LAND, GOVT HAS TO FOLLOW IT

### In News:

- Recently, the Supreme Court made it clear that the collegium system for appointment of judges is the law of the land and the Centre would have to follow it till it is replaced or changed.
- It observed that the bitter failure of the National Judicial Appointments Commission (NJAC) cannot give reasons to the government to take on the judiciary by delaying Collegium recommendations.

### Collegium System

- The current collegium system has evolved over a period of time through the judicial pronouncements. These cases have been mentioned as below:
  - **First Judges Case (1982)**
    - SC held that consultation does not mean concurrence
    - Gave Primacy to Executive.
  - **Second Judges Case (1993)**
    - Court reversed its earlier ruling by changing the meaning of consultation to concurrence.
    - Advice tendered by CJI is binding.
    - CJI would take into account the views of two of his senior most colleagues.
  - **Third Judges Case (1998)**
    - Court gave primacy to the opinion of CJI in the matter of appointment of Judges
    - However, Chief Justice must consult four senior most judges of SC.
    - Opinion of all members of the collegium should be in writing.
    - If the majority of the collegium is against the appointment of a particular person that person shall **not be appointed**.

## **National Judicial Appointments Commission (NJAC)**

- The NJAC Act, 2014 was enacted to regulate the procedure to be followed for recommending names for appointment as Chief Justice of India and other judges of Supreme Court and Chief Justices and judges of High Courts and for their transfers.
- The commission was established by the 99th Constitutional Amendment Act, 2014.
- The Act proposed that the members of NJAC would be composed of members from the legislative, judicial, and civil society.
- However, in October 2015, Supreme Court struck down as unconstitutional an amendment to the Constitution establishing the NJAC.
  - The five-judge bench struck down the NJAC Act along with the 99th Constitutional Amendment Act in a 4:1 ratio.

## **Rational Behind Bringing NJAC:**

- The NJAC amended the Constitution, so the second judges case that created the collegium is irrelevant because the Constitution is now different from what it was back then.
- The NJAC is good for democracy (which is also a basic feature of the Constitution) and requires that no organ of the state, including the judiciary, enjoys absolute freedom.
- Judicial appointments “must be seen both in the context of independence of the judiciary as also the need for checks and balances on it”.
- The NJAC Act involves a smooth and transparent process for the appointment of judges.
  - Collegium system’s opaqueness was blatantly expressed as the proceedings of the collegium are inaccessible to the public and, therefore, it lacks transparency.
- The executives with administrative machinery are seen as capable of making enormous and valuable contributions to the selection process.

## **Why unconstitutional:**

- The involvement of the legislature in the appointment of judges might lead to the creation of a culture of ‘reciprocity.’

- The future judges appointed under NJAC cannot be expected to be independent-minded.
  - The Union Law Minister is the member of the commission responsible for their appointment.
  - The NJAC Act would compromise the principle of independence of the judiciary guaranteed under the existing collegium system.
  - The basic structure of the Constitution enshrines that the judiciary is solely responsible for the appointment of judges.
  - The NJAC Act provides arbitrary power to legislatives and executives to appoint two eminent personalities into the NJAC body.
  - The applicability of veto power by the two eminent personalities was speculated to be biased.
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## HOW FIFA IS USING SAOT FOR OFFSIDE DECISIONS

### **In News:**

- In the opening match of the FIFA World Cup 2022 between host Qatar and Ecuador, the first goal of the tournament was ruled out for offside within a quick span of time.
- FIFA's brand new **Semi-Automated Offside Technology (SAOT)** was responsible for this quick decision.

### **Offside rule**

- An attacking player is considered to be in an offside position if:
  - any part of their body - except hands and arms - is in the opposing team's half; and
  - there's no opposing player between attacking player and the goalkeeper before the ball is played forward.
- Being in an offside position is not an offence in itself.
- However, the moment the player in the offside position plays the ball or attempts to play the ball, then it will be seen as actively involved in play and that is when the offence occurs.
- When a player is flagged, the only sanction is that the ball is given to your opponents to restart play in the form of a free kick in their own half of the pitch.

## Semi-Automated Offside Technology (SAOT)

- SAOT is a support tool for the video match officials and the on-field officials to help them make faster, more reproducible and more accurate offside decisions.
- FIFA had announced that semi-automated offside technology will be used at the FIFA World Cup 2022 in Qatar starting on 21 November.

## Technologies used in SAOT

- There are two parts to the technology:
  - a sensor inside the match ball (Adidas's Al Rihla) that is held using suspension technology, and
  - existing tracking tools that are part of the VAR system.
- Video Assistant Referee (VAR) technology was first introduced in Russia in 2018.

## Working

- The new technology uses **12 dedicated tracking cameras** mounted underneath the roof of the stadium to track the ball and up to 29 data points of each individual player, 50 times per second, calculating their exact position on the pitch.
- The 29 collected data points include all limbs and extremities that are relevant for making offside calls.
- Al Rihla, adidas' official match ball for Qatar 2022, will provide a further vital element for the detection of tight offside incidents as an inertial measurement unit (IMU) sensor will be placed inside the ball.
  - This sensor, positioned in the centre of the ball, sends ball data to the video operation room 500 times per second, allowing a very precise detection of the kick point.
- By combining the limb- and ball-tracking data and applying artificial intelligence, the new technology provides an automated offside alert to the video match officials.
- Hence, the coming together of the ball sensor and the Hawk-Eye cameras is in effect SAOT, which FIFA says allows for decisions that are highly accurate and quick.

## Other possible uses of SAOT

- Experts believe offside decision-making is just the starting point and the wealth of tracking data will soon be used by coaches for tactical analyses and gauging individual athlete performances.

- The metrics can also be useful for scouting good players.
  - SAOT is expected to aid such statistical thinking and data mining in football.
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## HARIKE WETLAND



Migratory birds from different countries have started arriving at Punjab's Harike wetland.

- Harike wetland, spread over 86 square kilometers in Tarn Taran, Ferozepur, and Kapurthala districts, serves as a home to rare species of migratory water birds during the winter season.
  - Harike Wetland also known as "**Hari-ke-Pattan**", with the Harike Lake in the deeper part of it, is the largest wetland in northern India.
  - The wetland and the lake were formed by constructing the headworks across the **Sutlej river in 1953**.  
The headworks is located downstream of the **confluence of the Beas and Sutlej rivers** just south of Harike village.
  - It has been designated as one of the **Ramsar sites in India**.
  - Apart from the Harike wetland, migratory water birds also arrive at Keshopur Miani wetland, Nangal wetland, Ropar wetland, Kanjli wetland and Beas river wetland in Punjab.
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## INDIA'S FIRST PRIVATE SPACE VEHICLE LAUNCHPAD

**Agnikul Cosmos sets up India's first private space vehicle launchpad at Sriharikota.**



### **About:**

- The facility, which was designed by Agnikul and executed in support with ISRO and IN-SPACE (Indian National Space Promotion and Authorization Center) has two sections to it:
    - the Agnikul launchpad (ALP) and
    - the Agnikul mission control center (AMCC).
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# CROSS & CLIMB ROHTAK



- All critical systems connecting these two sections, which are 4 km away from each other, are redundant to ensure 100% operationality during countdown.
- The launchpad is specifically built keeping in mind the necessity to support liquid stage controlled launches, while also addressing the need for ISRO's range operations team to monitor key flight safety parameters during launches.
- Additionally, it has the ability to, as necessary, share data and other critical information with ISRO's Mission Control Center.
- Agnikul's first launch, which will be a controlled and guided mission, a vertical launch, using its patented engine will happen from this launchpad.
- The mission will be a technology demonstrator that will mirror Agnikul's orbital launch but at a reduced scale.

## **Agnibaan:**

- Agnibaan is Agnikul's highly customizable, two-stage launch vehicle, capable of taking up to **100 kg payload to orbits around 700 km high** (low Earth orbits) and enables plug-and-play configuration.

## **Agnilet:**

- Agnilet is the world's first single-piece 3-D printed engine fully designed and manufactured in India and was successfully test-fired in early 2021, making Agnikul the first company in the country to test its engines at ISRO.
- Agnibaan and Agnilet will be used in the Agnikul's first launch.

## **Agnikul:**

- It was founded in 2017 by Srinath Ravichandran, Moin SPM and Professor S.R. Chakravarthy from IIT Madras.
- Agnikul is an IIT Madras incubated startup.
- It became the first Indian company to sign an agreement with ISRO in December 2020.
- The agreement signed under the IN-SPACE initiative sanctioned Agnikul access to the Indian space agency's expertise and facilities to build Agnibaan and its launchpads.

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## SHILP GURU AND NATIONAL AWARDS

30 Shilp Guru Awards and 78 National Awards for the year 2017, 2018 and 2019 were presented to master craftsmen.



## About:

### Shilp Guru Awards:

- The Shilp Guru Awards are given to legendary master craftsmen in recognition of excellent craftsmanship, product excellence and the role played by them as gurus in the continuance of crafts to other trainee artisans as a vital part of traditional heritage.

- The Awards were **started in 2002**, to celebrate the Golden Jubilee of the resurgence of Handicrafts in India.
- The Award consists of a gold coin, **2.00 lakhs prize money**, a Tamrapatra, a shawl and a certificate.

### National Awards:

- The National Awards are being **awarded since 1965** for outstanding craftsmanship in different craft categories.
- The main crafts for which the Awards have been given are Metal Engraving, Chikan Hand Embroidery, Khurja Blue Pottery, Mata Ni Pachedi Kalamkari, Bandhani, Tie & Dye ,Hand Block Bagh Print, Warli Art, Stone Dust Painting , Sozni Hand Embroidery, Terracotta, Tanjore Painting, Sholapith, Kantha Hand Embroidery, Palm leaf Engraving, Brass wire inlay on wood, Wood Tarkashi, Madhubani Painting, Gold Leaf Painting , straw craft etc.
- The Award consists of **1.00 lakh prize money**, a Tamrapatra, a Shawl and a certificate.