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News Analysis (13 Dec, 2018)

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## Draft Space Activities Bill, 2017

The Government has invited suggestions from the public or stakeholders regarding the **draft Space Activities Bill, 2017**.

There is an urgent **need for a legal environment** for orderly performance and growth of space sector not only because of the **interest shown by private sector** but also because space activities **need participation from private sector agencies as well**.

### Objective

To promote and regulate the space activities of India by encouraging the **participation of non-governmental/private sector agencies** under the guidance and authorisation of the government through the Department of Space.

### Legal Provisions

- Internationally, the outer space activities are governed by treaties and principles evolved under **UN Committee on Peaceful Uses of Outer Space (UNCOPUOS)**.  
The Committee on the Peaceful Uses of Outer Space (COPUOS) was set up by the **UN General Assembly in 1959** to govern the exploration and use of space for the benefit of all humanity: for peace, security and development.
- India is also a party to the **Outer Space Treaty, 1967**.
- Constitution of India provides for implementation of international treaty obligations, **vide Articles 51 and 253**.
- The "space" as a subject is **not** mentioned in the Union List. However, **Parliament** retains residuary legislative power in respect of "**any matter not enumerated**" in **any of the three lists**.
- Currently, space activities are regulated by policies like **Satellite Communication Policy, 2000** and **Remote Sensing Data Policy, 2011**.

## Background

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- The lack of independent private participation in space is because of **absence of a framework** to provide transparency, timelines on licensing, issuance of authorisation and continuous supervision mechanism (in accordance with the Outer Space Treaty), among others.
- These issues need to be addressed today to provide a **stronger thrust for 'Make in India' as well as FDI in space.**

## Salient Features

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- It will apply to **every citizen of India** and to all sectors engaged in any space activity in India or outside India.
- A **non-transferable licence** shall be provided by the Central Government to any person carrying out commercial space activity.
- The Central Government will maintain a **register of all space objects** (any object launched or intended to be launched around the earth) and formulate the appropriate mechanism for licencing, eligibility criteria, and fees for licence.
- It will provide **professional and technical support** for commercial space activity and regulate the procedures for conduct and operation of space activity.
- It will ensure **safety requirements and supervise the conduct** of every space activity of India and investigate any incident or accident in connection with the operation of a space activity.
- It will **share details** about the pricing of **products created by space activity and technology** with any person or any agency in a prescribed manner.
- If any person undertakes any commercial space activity without authorisation they shall be **punished with imprisonment up to 3 years or fined more than ₹1 crore or both.**
- It also has provisions for the **protection of IPR** created through space activity.

## Way Forward

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- The bill is a welcome step in promoting the space sector but it needs to consider breaking down space and ground activities to frame clearer laws for the conduct of **business, international obligations, national security concerns and protection of IP.**
- In order to enable competitive ecosystem in the space sector there is a need to **consult all stakeholders** and consider **international best practices** in managing the space value chain and inducting them within the Act.

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## China's Rover to Far Side of the Moon

China has launched a lunar probe mission to **the far side of the moon**.

- **Chang'e-4** is the **first probe ever to explore the far side of the moon**. Previous spacecraft have captured the images of the far side of the Moon, but none has landed on it.
- The Chang'e-4 lunar probe mission is named after the moon goddess in Chinese mythology.
- Chang'e-4 includes two main parts: **the main lander and a rover**.

## Landing Site

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The rover will land in the **Von Kármán crater** on the far side of the moon.



Watch Video At:

<https://youtu.be/0tAVdO3ztM>

## Mission Objectives

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- The instruments on the rover and the lander will help in identifying the **composition of rocks and dirt in the far side of the moon**. It will study the **effects of the solar wind** striking the lunar surface.
- Chang'e-4 will also test the **ability of making radio astronomy observations from the far side of the moon**, without the effects of noise and interference from Earth.
- Chang'e-4 will also conduct a biology experiment to see if **plant seeds will germinate and silkworm eggs will hatch** in the moon's low gravity.

## Challenges

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- **Landing**

Unlike the near side of the moon which always faces the earth, and offers many flat areas for rovers to land, **the far side is mountainous and rugged.**

- **Communication**

- The moon is tidally locked to the rotation of the Earth. Thus, the **moon blocks radio signals from our planet to far side of the moon** making it difficult to directly communicate with the probe.
- To overcome this, **China has launched a satellite, called Queqiao**, in May 2018. It is circling high over the far side of the moon, and will relay messages between Earth and the Chang'e-4 lander.

### Far Side of the Moon

There's a part of the moon that we don't see from Earth as the moon always keeps the same side facing towards the earth due to tidal locking.

### Tidal Locking

- Tidal locking is the name given to the situation when an **object's orbital period matches its rotational period.**
- The moon takes 28 days to go around the Earth and 28 days to rotate once around its axis. This results in the same face of the Moon always facing the Earth.\

### China's Lunar Missions

- **Orbital Missions:** Chang'e-1 and Chang'e-2 are orbital mission around the moon. Chang'e-1 was launched in 2007. Chang'e-2 in 2010.
- **Soft Landers/Rovers:** Chang'e-3 and Chang'e-4 are the rover mission on the moon. Chang'e-3 and Chang'e-4 were launched in 2013 and 2018 respectively.
- **Sample Return:** Chang'e-5 robotic spacecraft will land on the moon and then bring rock samples back to Earth for additional study. Expected launch in 2019.

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## Important Facts for Prelims (13th December 2018)

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### Andaman Sea Kraits

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- The two species of **amphibious snakes, yellow-lipped** and the **blue-lipped Andaman sea krait**, have been spotted on tree roots (especially of uprooted *Manilkara littoralis*, a mangrove tree) on the beaches in Andaman.

- Andaman sea Kraits are **colourful** and **banded** sea snakes endemic to Andaman islands.
- Andaman sea kraits which are mostly nocturnal, hunt for their prey in coral reefs. Though they spend a lot of time underwater, they get back to land to digest their prey, lay eggs and even shed their skin.
- Removal of uprooted trees to clear the beach for tourism has negatively impacted the sea kraits.
- Giving legal protection to sandy beaches and implementing the regulation on activities like sand mining and tourism can help conserve neglected Andaman sea Kraits.

## Nile Delta Threatened by Climate Change

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- Northern Egypt's Nile Delta is shrinking due to the warming climate. The shrinking is compounded by **rising seas** and **soil salinization**.
- Deltas with triangular or fan shape are called arcuate (arc-like) deltas. The Nile River forms an arcuate delta as it empties into the Mediterranean Sea (examples of arcuate delta in India are Ganga delta and Indus delta).
- The fertile basin is home to nearly half the country's population.
- The **Nile** is the **longest river** in the world. It originates near the equator and flows nearly 7000 km northward. It provides Egypt with 90% of its water needs.

## Rythu Bandhu Scheme

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- Rythu Bandhu scheme also known as Agriculture Investment Support Scheme, is a welfare program to support farmer's investment for two crops a year by the Government of **Telangana**.
  - The scheme seeks to provide a grant of Rs. 4,000 per acre per farmer each season for the purchase of inputs like seeds, fertilizers, pesticide etc.
  - The scheme is aimed at relieving the farmers from debt burden and not allowing them to fall into the debt trap.
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