

It is imperative that India's legal framework needs to be modified rigorously to the changing situational complexities of space exploration. Explain. (1)

In 50 years of setting up of ISRO, it has steadily grown up to etch its achievements in world space history, thereby joining the space race. The global competition has covertly manoeuvred the 'development as a goal' prism of India's space research to expand to security, militarisation. While this expansion has been rejoiced, absence of a space regulatory legislations both for domestic and global scale is posing a major threat.

CHALLENGING DIMENSIONS OF SPACE EXPLORATION

1) Expansion of space based activities:-

AI based technology miniaturisation, rocket fuel technology propels increased commercial activity. This can be threat to assets if unchecked. eg: NASA plans to open ISS module for commercial activity that can open up space tourism and space filming

2) Private sector growth in space:-

India plans to offload its private arm ANTRIX to partner with private companies for allowing space launches. While this has been done by US - SpaceX, Japan's - Interstellar technology, this ^{can} has led to colonization, since there is no treaty to regulate private players. eg: SpaceX plan to start tours to moon, mine He3 in moon etc

3) Militarisation of space:-

→ Technological takeover of geopolitical war since Cold war era, has seen spy satellites, AntiSAT missiles in space, despite ban on posting military assets according to outerspace treaty.

→ India's AntiSAT mission is a testimony to secure space assets - satellites.

→ Further, plans to create Space Force by US-like Starwars.

Russia's - Space Defence force potentially can create^{new} space theatre. ②

4) Space based crimes:-

- Legalities of space based crimes have no well defined laws. It continues to be governed by outdated ISS-Intergovernmental Agreement.
- Private sectors like Amazon plans to host array of satellites for internet connectivity, that can push online frauds.
eg: Space crime - Online by NASA astronaut

5) Inadequate treaties:-

- Outer Space Treaty 1967, doesn't define nuclearisation, missile weapons, has no law on private sector.
- Moon Treaty 1987 has not been ratified by any countries, opening celestial objects to reckless mining and occupation.
- Liability agreements have not prevented from China crashing its own space module Tiangong posing threats to other activities.

Space race thus creates an impending need for universal consensus on space laws to use space for peaceful purpose.

- 1) Formalisation of ISS-IGA. India can contribute its IPC provisions to prosecute crimes.
- 2) Redefining national agencies role for space defence
- 3) Ratification of moon treaty and amendment of outer space treaty.
Deterrent in the form of universal sanctions.
- 4) Domestic front, India needs to legislate Space Bill, to have control on space activity.

Technological, commercial competition, geopolitical rivalry has changed global space order. Thus, India must reshape regulation through collaboration with its allies and strategic, diplomatic skills.