



Outer Space Geopolitics

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This editorial is based on **India and the geopolitics of the moon and The growing strategic importance of outer space** which were published in The Indian Express. It talks about outer space geopolitics and the way forward for India.

In opening new pathways for outer space cooperation with the US and Quad partners—Australia and Japan. India has engaged itself more productively with a rapidly evolving domain that is seeing more commerce and contestation.

India's new strategic interest in outer space is based on a recognition of two important trends. One is the centrality of emerging technologies in shaping the 21st-century global order. The other is about the urgency of writing new rules for the road to peace and stability in outer space.

Geostrategy of Outer Space

- The US has traditionally dominated outer space in the commercial domain. Its military competition with Russia set the norms in the security field.
China's emergence as a major space power — in both civilian and military — is reshaping astropolitics.
- The dramatic expansion of Chinese space capabilities and China's ambition to dominate outer space have lent a new urgency for democratic powers to come together to secure their national interests as well as promote sustainable order in the skies above.

Significance For India

- Space is emerging as a potential **fourth arm of the country's defence setup**.
- With the US, Russia and China already in pursuit of becoming a Space power, India will need to equip itself appropriately to meet emerging security challenges.

- Space power has the ability to use space while denying reliable use to any foe.
 - India already has a significant ability to use space. But its ability to deny space use to an adversary is, understandably, negligible.
 - When it comes to satellites, India has a handful of military satellites in operation, compared to over 40 civilian ones. Our first dedicated military satellite was launched only in 2013.
- However, India has made some progress in pursuit of becoming a space power.
 - Recently conducted Mission Shakti has demonstrated India's capability to target enemy satellites.
 - Newly instituted **DSA (defence space agency)** will be supported by a defence space research organization (DSRO) that has the mandate to create weapons to “degrade, disrupt, destroy or deceive an adversary’s space capability”.

Issues Associated With Outer Space Geopolitics

- **Weaponisation of Space:** The militarisation and weaponisation of space are fundamentally at odds with constructive commercial and scientific projects. The war in space would destroy the intrinsic trust and cooperation necessary to maintain the systems deployed in space for peaceful purposes.

Despite these facts, the development projects for militarisation and weaponisation of outer space have been on the increase with the aim of one country.
- **Issue of Space Debris:** A satellite that is destroyed by a missile disintegrates into small pieces, and adds to the space debris. The free floating space debris is a potential hazard for operational satellites and colliding with them can leave the satellites dysfunctional.

With countries launching more and more satellites, each one of them being a strategic or commercial asset, avoiding collisions could become a challenge in the future.
- **Quest For Space Mining:** This quest for space mining will trigger a new era of conflict and cooperation and lead to a new space race.

According to the US Chamber of Commerce, the commercial space industry is estimated to be USD 1.5 trillion industry by 2040.
- **Moon Rush:** After the discovery of water on the moon and “**Peaks of Eternal Light**”, the **moon rush** on the earth aimed at the lunar south pole, has become a new phenomenon. For example:
 - China’s Chang’e 4 soft-landed in the Von Karman crater on the dark side of the south polar region.
 - The US lunar programme now aims to put man back on the moon in the next decade.
 - NASA’s focus is on the south pole and if it succeeds, it will be the first manned crew to arrive at the south pole.
 - Jeff Bezos (owner of Amazon) unveiled the Blue Moon project that seeks to land men and women on the moon in the next few years.

- **Space Situational Awareness (SSA)** involves monitoring the movement of all objects — natural (meteors) and man-made (satellites) — and tracking space weather.
Today, space is integral to our lives and disruption of space-based communications and earth observation will have serious consequences.

Space Situational Awareness (SSA)

There are tens of thousands of objects in Earth orbit that pose a potential threat to satellites and launches. Space Situational Awareness (SSA) refers to keeping track of objects in orbit and predicting where they will be at any given time.

Potential For India's Outer Space Destiny

- India, which has developed significant space capabilities over the decades, is a deeply invested party. The US recognises that it can't unilaterally define the space order anymore and is looking for partners.
The India-US joint statement issued in Washington highlighted plans to finalise, “a Space Situational Awareness Memorandum of Understanding that will help in sharing of data and services towards ensuring the long-term sustainability of outer space activities by the end of the year”.
- **International cooperation on space situational awareness** is similar to the agreements on maritime domain awareness — that facilitate sharing of information on a range of ocean metrics.
- The new space working group set up by the **Quad** will identify new collaboration opportunities and share satellite data for peaceful purposes such as monitoring climate change, disaster response and preparedness, sustainable uses of oceans and marine resources, and on responding to challenges in shared domains.
The Quad leaders also promised to “consult on rules, norms, guidelines and principles for ensuring the sustainable use of outer space.”

Way Forward

- **Collaboration of Public and Private Institution:** India needs to structurally separate the regulatory, commercial and scientific research elements of the space programme.
 - Funding on Space Research and development must be enlarged and ISRO & private research institutions should be encouraged to work in tandem.
 - There is a need to establish an independent regulator that governs both ISRO and new space operators on a level playing field.

- **Need For a Strong Regulatory Framework:** Delhi must also legislate a strong regulatory framework to promote India's space activity and protect its international interests.

India should take a hard look at the emerging challenges to the current space order, review some of its past political assumptions about the nature of outer space and contribute to the development of new global norms that will strengthen the essence of the Outer Space Treaty.

- In order to effectively defend our space assets, India must have **reliable and accurate capabilities to track space objects**, from debris and spacecraft to celestial bodies.
Since accurate tracking forms the basis of almost every conceivable action in space, therefore, this crucial capability must be developed indigenously.
- For space defence to be effective, **India must acquire a minimum, credible capacity** across the various types of space weapons, physical, electronic and cyber.

Conclusion

The scale of the challenges and opportunities in outer space, however, demand more urgent and sweeping reform. That can only be mandated by the highest political level. Back in 2015, the Prime Minister's speech on the Indian Ocean focused national attention on maritime affairs. India could do with a similar intervention on outer space today.

Drishti Mains Question

Outer space is emerging as a potential fourth arm of any country's defence setup. Discuss.
