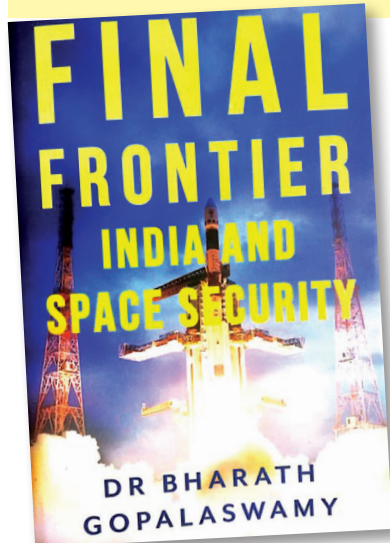


Space Assets and National Security



Title
Final Frontier: India and Space Security

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THE space race of the 1950s culminated in making space assets a crucial part of the defence system of most countries. Space is being used for civilian as well as military programmes and the two are intertwined. Attempts of nations to secure strategic hegemony over the adversaries are often a cause of concern. Rules and laws are required to govern space activities. Codes of conduct, treaties and laws have been evolved. Gopala Swamy's book offers an in-depth analysis of the present space scenario with special emphasis on India.

The book starts with PM Nehru giving a go-ahead for India's space programme, soon after the launch of the first Russian satellite *Sputnik* in 1957, with Vikram Sarabhai at the helm. The Indian National Committee for Space Research (which was later to transform into the ISRO), Department of Space and Space Commission followed. India tested its first sounding rocket, an American one, in 1963. Our scientists took only two years to manufacture a similar indigenous rocket.

During the cold war era, as a leader of the non-aligned movement India nurtured its space programme with help from both US and USSR. 1975 saw the launch of our first satellite with Soviet help and Satellite Instructional Television Experiment with American help. India embarked on its Remote Sensing Programme, Launch vehicle project and prestigious INSAT series in 1979, 1980 and 1983 respectively.

Starting with the 40 kg payload and 400 km intended height Satellite Launch Vehicle (SLV), ISRO developed its sophisticated powerful long-range variants like ASLV & PSLV. GSLV is the latest among these. It can station a 5000 kg payload in Low Earth orbit and 2500 kg payload in geosynchronous orbit.

Dr Abdul Kalam, the project director of launch vehicles, conceived and led India's integrated guided missile programme. It was completed in 2008 with missiles of various kinds and ranges, developed and inducted in our armed forces. Later, Chandrayaan-1 (2008), Mangalyaan (2013) and Chandrayaan-2 (2019) made India a space power to reckon with.

Gopala Swamy's narrative underlines that integration of space into military operations and security affairs became part of our space roadmap slowly over the years. The paradigmatic shift from exclusive focus on civilian use to fulfilling security needs was dictated by regional and global threats. The Indo-Pak war (1971), Kargil imbroglio (1999), Chinese Anti Satellite Test (2007), terrorist attack on Mumbai (2008) and the overall world scenario justify this formulation.

India was dependent on foreign sources for space based positioning, navigation and timing data prior to the Kargil war. US denial and partial or late access to vital data from USSR or other sources created problems for the security forces during this war. This made India realise the need for an indigenous positioning network. Navic and GAGAN were the hard lessons of this episode. Similarly, ASAT test of China prodded India to develop this capability and it was achieved in 2019. ISRO's launch vehicles, control facilities, expertise and excellent track record have encouraged it to take up commercial launching in a big way.

The book brings out that there is consensus on peaceful use of space but lack of honesty of purpose and mutual trust among nations. There is conflict of interest, suspicion and scramble for space hegemony by major space powers. Governance of space activities is a tough job. The UN conducts it through various treaties and agreements. All these aim at keeping space free from weapons of all kinds. International law holds the concerned state responsible for all space activities on its soil, government or private, when it comes to infringement, compensation or punitive action. Legislating National Space Law has thus become necessary to deal with the situation.

India's space programme was largely state owned and therefore need for space legislation was never appreciated. Emergence of private space entrepreneurs and international law calls for enactment of an Indian space law immediately. Geospatial information regulation bill 2016 and Draft space activities bill 2017 have been designed for this. Dr Bharath points out that these need thorough revision to make them more effective and comprehensive. India can look to other space faring nations for new ideas in this respect.

The book is an instructive and informative read for the layman in general and space buffs as well as policymakers in particular.

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