

India's Option in Space : Militarisation, Weaponisation or Weapons Free Space

Wing Commander RK Singh*

Introduction

Asia is the continent where the "Balance of Power" is shifting in 21st century, slowly but steadily. The era of Mackinder's Heartland Theory,¹ which ensconced "The Geographical Pivot of History" is over, as is evident from the economic meltdown in Europe. The economic recession hit the world in general and Europe in particular, but the two emerging Asian powers, i.e., China and India continue to defy recession and infact, have been registering economic growth. This has resulted in a major shift in the world politics, wherein the Asian powers are being engaged in world politics purely on the strength of their economic power. This has marked a major shift in geo-politics, leading to creation of a New World Order, based on the economic power. China has indeed emerged as a new power centre in the new Economic Order, closely followed by India. The GDP of both these countries is on the rise, and thus the resultant consolidation of Military Power through Economic Power. Thereafter, it is natural for both these Asian countries to project their power (economic, technical and military) to further consolidate the Balance of Power in the New World Order.

The technological prowess of both these Asian powers has manifested remarkably in the area of space technologies, which have been the central pivot around which the economies of these two Asian powers have registered remarkable growth in the 21st century, despite economic recession worldwide. Be it usage of cell phones, internet, navigation (land , sea and air), telemedicine, disaster management, ATM machines, distant education, met forecasts, and many more such technology driven services, all are so heavily dependent upon satellite based technologies. Hence, there is a renewed commitment for both India and China to continuously explore new ways to exploit space technologies.

*Wing Commander RK Singh is a Research Fellow at Centre of Strategic Studies and Simulation, United Service Institution of India.

Indian Exploits of Space

From modest beginning of firing of rockets from Thumba Equatorial Rocket Launching Station in 1963 in Thiruvananthapuram, for collection of meteorological data to launching of indigenous RISAT-I on 26 Apr 2012, India has come a long way in satellite manufacturing and rocket launching. Today, India boasts of successful launch vehicles like PSLV for LEO and MEO satellites and very soon GSLV-III for GEO satellites. The success and reliability coupled with lowest launch cost in the world market has put India in the most sought after position for commercial launch of satellites. Be it the US, the most advanced space faring nation or the third tier space operating nations like Israel, South Korea and others, there is a huge market for satellite launch. India, with its successful launch capability and a proven track record of PSLV has started reaping the benefits of space commerce in the satellite launch segment.

Today India stands in league with most advance space faring nations of the world like the US, Russia and China. It is a matter of pride for the country that today its launch capability finds trust in international market and countries are lining up to avail the satellite launch facilities. As regards satellites, India boasts of having the best and the largest number of remote sensing satellites in orbit. Besides, the country has done wonders in the communication, weather and navigational satellites. The second decade of the 21st century also saw the advent of spy satellite in form of RISAT – I on an Indian rocket PSLV- C19. But for the international sanctions, India would have been in the forefront of space exploitation at par with the US, Russia and China.

Moving ahead with élan, India launched a road map for space activities and finalised a blue print in the form of Vision 2020 for space. This document has outlined many ambitious space projects for ISRO, which when achieved will put India into the elite group of space faring nations. This will also enable India to utilise space in the best possible way for not only trade and commerce, but also for strategic and tactical planning.

Military Leaning of Indian Space Programme

“Operation Desert Storm” for the first time saw extensive use of space based assets by the US forces to launch a blitzkrieg against

Iraqi forces and win a short and swift war, with bare minimum loss of life. Because of extensive use of space based assets during this operation by the US forces, this war has also been described as the "First Space War".²

Attributing much of the success in Kosovo success to the U.S.- led coalition's use of space-based assets, Sqn Ldr KK Nair, an IAF officer who specialises in space studies writes:

"While Kargil was characterized by lack of information in all aspects ranging from intelligence on enemy locations to targeting information, weather inputs, etc., Kosovo was characterized by a surfeit of space-based military information for the coalition forces which paved the way for nuanced application of military power and consequently decisive success in battle".³

Learning from the experiences of Kargil War and appreciating the exploits of space technology by the US and NATO forces in Iraq/Kosovo, the Indian scientific community and the defence establishment embarked upon a path to consolidate the existing space technologies in line with the US and European nations and have started incorporating the same towards fine tuning their tactical and strategic plans. The Indian space programme which was dedicated all these years for social and development causes saw a new utilisation for armed forces. This beginning of satellite usage by Indian Armed Forces towards military application is the starting point of the military leanings of Indian Space Programme.

The launch of RISAT satellites was a step in the military exploitation of space technology. IBN Live reported on Apr 20, 2009, after the launch of RISAT-2 "The Indian Space Research Organisation successfully launched a revolutionary spy satellite that will help security agencies monitor the hundreds of mountain valleys that connect India with Pakistan and terrorist hideouts in Afghanistan further north. RISAT will enable India to keep a watch on terror camps, military installations across boundaries, missile sites and similar targets of strategic/tactical interests. But unlike previous remote sensing satellites, RISAT is the first with synthetic aperture radar (SAR), which gives it a day-night, all-weather snooping capability".⁴ Though, RISAT-2 was designed by the Israeli Aerospace Industries, RISAT-I (with perceived military role) having 24X7 all-weather capability was launched on 26 Apr 2012

with totally indigenous effort. Thus, India proved its technological prowess in space technology with the launch of its indigenous RISAT – I satellite atop PSLV - C19 launcher. Mr N Gopal Raj stated in "The Hindu" after the launch "The RISAT-1's radar will be able to see through clouds and work in darkness, conditions that hamper optical satellites." ⁵ Infact Indian news channel aptly highlighted the RISAT- I as "RISAT-1 has day and night viewing capacity and will not be blinded by cloud cover. It will orbit the earth 14 times a day. It gives India the ability of continuous surveillance."⁶

Thus it is visibly clear that India is slowly and steadily moving ahead towards militarisation of space. Few of the planned military exploits of Indian space assets are as follows

(a) **Dedicated Naval Communication Satellite** for secure and dedicated communication network for Indian Navy, which is planned to be launched in 2012-13" ⁷ This dedicated communication satellites for Indian Navy will be providing real time data from multiple sites. This project entails inter-connection of weapons on board all its warships. In the first phase, 20 warships have been selected and work has already begun. ⁸ This is aimed at achieving awareness of the maritime domain and network-centric operations.

(b) **GAGAN (GPS Aided Geo Augmented Navigation).** An indigenous navigation constellation is being developed for navigational use by Airport Authority of India (AAI) for safe operation of aircrafts in the Indian region (the Indian sub-continent and the Indian Ocean) and Air Surveillance / Air Defence control over Indian skies. This will be a part of the Satellite-Based Communications, Navigation and Surveillance (CNS)/Air Traffic Management (ATM).

(c) **All Weather ISR Capability through RISAT-I and RISAT-2** To assist Armed Forces in assessing battle field scenario and operational planning. This will bring our Armed Forces closer to net centric warfare.

(d) **Dedicated Encrypted Communication.** A facility for secure defence communication.

(e) **Weather Forecast for Tactical Missions** To provide real time satellite imageries for planning operations, which can be readily made available to the operators in the field.

Fear of Sino - Indian Competition in Space and Possible Confrontation

According to Zhang Jianheng, deputy general manager of the China Aerospace Science and Technology Corp (CASC), "China launched 19 satellites, an orbiter Tiangong-1 and Shenzhou-8 spacecraft with 19 Long March rockets last year, a record high for China's space programme in launch numbers." China has surpassed the US, which completed 18 launches in 2011, to become the world's number 2 in terms of launch numbers following Russia's 36 launches. He further, added "in 2012, China has planned 30 satellite launches with 21 rockets." ⁹

Compared to China, the Indian space programme is no where close, hence there is no Indian competition to the Chinese achievements in space. With China having tested ASAT weapons and also having achieved the distinction of manned space flight and spacewalk followed with launching of its dedicated spaceship "Tiangong-I " and unmanned docking of same with Shenzhou-8 spacecraft, India by no means is a match to Chinese space capabilities.

However, there is a competition between India and China in the field of commercial launch of satellites. Both the countries have fairly successful launch vehicles. The Chinese Long March and Indian PSLV are the workhorses for commercial launch of satellites. Since the launch cost offered by them is much cheaper for the other space faring nations, there is a competition building up between the two in order to consolidate the commercial launch market, which is a very lucrative business and of late is turning to be a potent tool for diplomacy directed towards the space "have not's". However, this is not likely to conflagrate into a space confrontation between the two Asian neighbours operating in space.

Indian Vulnerabilities

The geographical location of India and the region's geo-politics necessitates the Indian establishment to analyse the existing threat perception in the realm of space and accordingly device ways and means necessary to negate the threat and ensure the fulfilment of national objectives. Restricting the scope of threat in this paper to space assets only, it will be prudent to club the Indian vulnerabilities in two basic categories

- (a) Against Chinese ASAT Threat
- (b) Against missile attack emanating from China or Pakistan

Against Chinese ASAT

Amidst hundreds of space activities going on relentlessly, one specific incident on 11 Jan 2007 in space, which took the world by surprise, was the shooting down of an ageing defunct weather satellite. This was China's first successful direct ascent anti-satellite (ASAT) weapons test, launching a ballistic missile armed with a Kinetic Kill Energy vehicle to destroy the one of its own defunct Fengyun-1C weather satellite at about 530 miles up in low earth orbit (LEO) in space. This unannounced testing of an ASAT was of specific relevance to the Indian space community and the defence establishment, as the Indian satellites, which have become the mainstay of economic resurgence, were never so vulnerable to the Chinese ASAT.

This one incident was a game changer in the strategic planning of India. It compelled a new philosophy in Indian thinking about management of space assets. The incident compelled the Indian space scientist and strategists to prepare for

- (a) The security of defenceless satellites which are so vulnerable in their orbits.
- (b) Evolve ways and means to safeguard the satellites in orbit.
- (c) Develop an Indian ASAT in response to the Chinese ASAT threat.

The palpable fear of competition and confrontation with China compels the Indian policy makers to rethink about their space programme meant only for peaceful and social causes for the civilian populace of the Country. Instead, the available space based technologies are being incorporated towards militarisation of Indian Space Programme and to certain extent towards weaponisation as well. Now that the Chinese have already carried out the ASAT test, the Indian response to it should be a natural choice, especially when the Country is getting more and more dependent on satellites for the economic development. If India needs to secure its space assets from Chinese threat, the Indian ASAT programme is the only option to create a deterrent for Chinese, in the form of a

counter weapon. Though this is likely to push India and China to a possible "Space Race" towards weaponisation, but that is almost inevitable.

Against Missile Attack from China or Pakistan

The present political and existing strategic challenges have forced India to prepare against "two pronged threat", both from Pakistan in West to China in the East. Both these countries pose a threat to Indian security by having placed a plethora of missiles already aimed at various strategic assets in India. It needs to be analysed that the time factor in respect of missile attack from Pakistan or China could be 3 to 10 minutes for SRBMs to IRBMs. This means that there would be very little time to detect such launches, track the missile in its trajectory and extrapolate the intended target, pass the inputs to the "anti-missile battery system" and the targeted population; and finally the launch of ABM and take missile raid precautions. Such capabilities can be provided by incorporating satellite based technologies. The development of limited BMD system by DRDO is a step in the right direction for comprehensive missile defence of India's strategic assets.

Indian officials have indicated that they want to deploy a working missile defense system by 2012. DRDO Director General V K Saraswat commenting on the Indian BMD stated that "the only part that remains to be developed is the interceptor missile."¹⁰ As per Mr Saraswat, there are two phases to India's intended ballistic missile program: the first phase is planned to intercept target missiles with ranges of upto 2,000 kilometers via "exo-atmospheric, endo-atmospheric and high-altitude interceptions," while in the second phase, India will strive to be able to intercept target missiles with ranges of upto 5,000 kilometers, which potentially could give India the ability to intercept intercontinental ballistic missiles."¹¹

Options for India

In the emerging scenario India cannot afford to escape from developing a credible ASAT capability, keeping in view the large fleet of satellites it operates and the belligerent Chinese approach towards India, especially after the ASAT test. Thus to defend its space assets, India has to take two essential steps

- (a) Militarisation of Space.

(b) Weaponisation of Space.

Since both the above activities, militarisation and weaponisation, are technology driven, they require extensive R&D and a long time span for incorporating the same in formulating requisite mechanisms towards safety of Indian space assets. It has to be both, defensive and offensive in nature, thereby according not only protection to our space assets, but also the means to also launch counter offensive operations, if challenged. Only when such a capability is achieved, can India claim its place amongst the space faring nations, with credible and formidable offensive and defensive capabilities to defend its space assets and can thus be instrumental in fostering stability in the region.

Once the efforts towards militarisation and weaponisation are accomplished, which is inevitable, the two Asian space players will have no choice but to start the only available option of negotiations for "weapon free space". However, this move of weapon free space will not be an easy way out in the complex space cobweb woven by different players based on their national strategies. The UN intervention will therefore be inevitable and necessary to manage "weapon free space" for lasting peace on earth. Hence, there is an urgent need for the UN to intervene at this nascent stage of weaponisation of space, so that enormous resources which are likely to be spent towards R&D, can be saved and utilised for developmental activities.

Recommendations

Keeping in view the existing geo-political scenario and the emerging situation across the Asian continent, India therefore needs to undertake the following :-

- (a) Militarisation of space for effective C4ISR, which will strengthen, not only the defence preparedness of the country but will also assist in operational planning.
- (b) Safeguards for space assets by developing requisite defensive counter space technologies.
- (c) Weaponisation of space for offensive space operations to deter adversaries from initiating attack against own space assets.

(d) Dialogue with the UN and other nations to ensure strong lobbying for early formulation of an appropriate treaty for a new regime of "Weapon Free Space".

Endnotes

1. Sir Halford John Mackinder was a British geographer who wrote a paper in 1904 called "The Geographical Pivot of History." Mackinder's paper suggested that the control of Eastern Europe was vital to control of the world. He formulated his hypothesis as:
Who rules East Europe commands the Heartland
Who rules the Heartland commands the World-Island
Who rules the World-Island commands the world
2. Sqn Ldr KK Nair in "Space: The Frontiers of modern Defence" p 18.
3. ibid p 17.
4. News report by CNN-IBN on Apr 20, 2009 : India Launches Spy Satellite RISAT-2
5. Mr N Gopal Raj in "The Hindu" on Apr 25, 2012 one day before the launch of RISAT-1
6. Pallava Bagla wrote in NDTV internet edition on April 26, 2012 23:11 IST "ISRO successfully launches 'spy satellite' RISAT-1".
7. The Times of India on Apr 30, 2012 "Dedicated satellites for Navy, IAF to be launched soon: Antony".
8. Asian Defence in its website <http://theasiandefence.blogspot.in/2009/10/satellite-to-connect-indian-navy.html> "Satellite to Connect Indian Navy Warships".
9. Indo-Asia News Service Mar 14, 2012 "China to launch 100 satellites during 2011-15" refer website http://www.spacedaily.com/reports/China_to_launch_100_satellites_during_2011_15_999.html.
10. "Missile Defense System Phase 1 to be Ready by 2011-2012: DRDO," by Vivek Raghuvanshi, "India Strives To Field Missile Defense by 2012," Defense News, March 30, 2009.
11. "'India senior to China in missile programme'," Press Trust of India, Feb. 11, 2010.