History of Russia – India – China (RIC) Strategic Alliance:

Opportunities and Challenges in Space Field

Rana Saadat Bukhtiar *27 June, 2013*
School of Social Development and Public Policy
Fudan University, Shanghai, PR China

Abstract
Russia is historically and technologically a world leader in space. It is also a strategic partner for Europe. Since the 1990s, Russia has changed and its partnerships have evolved. This transformation strongly impacts the space field and the country's space cooperation. Russia and Europe have structured and increased their cooperation in the last decade and some Europeans are advocating closer cooperation with Russia and even a joint strategy for the development of their space activities. At the same time, Russia has reinforced its cooperation with the two fastest growing nations, India and China. This paper gives an insight on the growing cooperation between three countries that are also the three fastest growing economies in the Eurasian region as well as in the world.

Introduction

Russia is one of the two main strategic partners for Europe in its space endeavor. Long-standing cooperation has developed between European and Russian partners in various areas, from science to launchers to manned spaceflight. However, in the past years significant changes have been observed in Russia's attitude. Strengthened by a better economic situation, Russia is now reasserting strong ambitions, and its leadership aims to reaffirm the country's position on the international scene. The space sector suffered acutely from the overall crisis the country underwent after the fall of the Soviet Union, but it has again become a priority for the Russian leadership, which is firmly determined to make the most of such a strategic asset. This trend is reflected in the evolution of Russia's international partnerships in the field. One of the most striking features of this evolution is that Russia, which has leaned westward towards

Europe and the United States since the end of the Soviet Union, is diversifying its partnerships and is turning now more and more to the East to Asia-Pacific. Russia has recently intensified relationships with two major countries, China and India, which have accelerated the development of their space activities over the same period. Taken jointly, the three great Eurasian powers have considerable and rising influence in the world. In addition to the development of closer relations with each other, both tendencies are reflected in the space field. This paper examines the overall context of the relations between Russia, India and China and put spotlight on the opportunities and challenges in the space field.

Rising influence of China, India, & Russia

China, India and Russia have formidable human and natural resources together, as well as economic and political weight in the world. Jointly, they represent almost 40% of the global population and will contribute to more than 20% of population growth in the next half century. This last number must be explained though, as the populations of India and China will grow significantly, while Russia's is expected to decrease. They account for more than 25% of the world's GDP and are expected to contribute to more than 40% to global economic growth over the 2006-2020 period. Russia, India and China have achieved impressive growth rates over the past years. Even if they are obviously starting from different levels, while Europe and the US are expected to attain an average real GDP growth rate of less than 2.5% and less than 3%, respectively, over the 2006-2020 period, Russia is estimated to post a rate of 3.3%, India 5.9% and China 6%.

In addition, the three countries are nuclear powers and Russia and China are permanent members of the UN Security Council. However, India has been striving for a long time to gain permanent membership of the UN Security Council. All three countries are member of the BRICS cooperation.

Gaining reputation in the space field

The three countries' space activities are gaining importance, reflecting expanding economies and a growing - or reaffirmed - interest in space from their decision-makers, who are aware that space is a strategic asset. Russia has remained a major space power and is gradually recovering after more than a decade of severe crisis. India and China are the fastest growing space-faring nations, both in terms of budgets and activities.

In terms of civil space expenditures, India ranks 8th in civil space budgets with some 600 million Euros in 2007, Russia 6th with about 900 million Euros and, depending on the estimates, China between 2nd and 4th place with a budget of 1 to 2 billion Euros. However, these figures at current prices do not reflect the significant difference in purchasing power to the other countries of these top eight rankings, i.e., the USA, Japan, France, Germany and Italy. Moreover, the Chinese, Indian and Russian budgets are significantly increasing. The Indian budget has risen by 20% in real terms from 2007/2008 to 2008/2009 in comparison to the rather stable budgets of Western countries. In terms of launch activities, Russia, India and China together accounted for 54% of the launches and 57% of the satellite launched in 2007. They also jointly accounted for 38% of the commercial launches in 2007 when India performed its first commercial launch.

The Indian and Chinese space programs are developing fast. The volume and spectrum of their space activities have significantly increased over the past few years and this tendency is likely to be maintained in the coming decade given their ambitious plans. In 2005, China became the third country to put a man into space. The Indian program now includes exploration and manned spaceflight as well as high-resolution Earth Observation (EO) satellites and a satellite navigation system.

Besides raising their budgets and activities, China and India have increased the reliability of their systems, as it is exemplified by the increasing successful launch rates. The development of the three countries' space programs means more potential opportunities for cooperation with

foreign partners in some areas. In particular, international cooperation could be necessary for them to overcome some technological barriers.

Developing China – India – Russia Triangular Relations

Russia, which tended to lean westward, is balancing its foreign policy by looking more towards Asia. Moscow's priorities in Asia include national security concerns, the development of trade and Russia's economic and political influence in the region. The relations between Russia and the two great rising Asian powers have become firmer in the past decade, but these are still of very different natures. Russia wants to strengthen its relations with both India and China in order to develop a counterbalance to US hegemony. At the same time Russia shares concerns with India about China's rise.

Strategic cooperation between Russia and its two Asian partners takes place in mainly two fields:

1) Energy

2) Defence

Russia is a major energy provider to India and China which needs are growing quickly in order to sustain development. Russia is providing large quantities of oil and gas to India and China and is building nuclear plants in India. Russia is also a major arms and defence equipment provider to India and China. Together India and China have been the two main Russian arms importers, together accounting for 60% of Russia's arms exports in 1997. In 2007, Russia still exports about 50% of its arms to India and China, but China's share has increased while India's has decreased. In 2007, India still imported almost 70% of its arms from Russia and China more than 90%. Today, more than 66% of the Indian and Chinese military equipment are of Russian origins. When the Soviet Union collapsed, Moscow starting looking for markets to sustain the massive Soviet military-industrial complex and turned to China and India for

economic and national security reasons, at a time when American sanctions prevented arms sales to India and China.

Sino-Russian Cooperation in broader context

The complicated relations between Russia and China were resumed after cold war and have progressively normalized. In 1991, the two countries started addressing their border dispute by signing the Sino-Russian Border Agreement. Their relations gradually evolved from a constructive partnership to a strategic partnership in 1996. However, the actual definition of such partnerships has remained vague and its scope is limited. Their improved relations have led to the creation of the Shanghai Cooperation Organization (SCO) in 1996 and to the signature of a "Treaty of Good Neighborliness, Friendship and Cooperation" in July 2001. In August 2005, they held their first joint military exercises in the Yellow Sea.

In the past few years, both countries have focused on realistic grounds for cooperation. The trade between Russia and China has considerably grown in the last decade and this trend has accelerated in the past years. Their foreign trade turnover expanded fivefold from 1995 until 2005 and by twofold between 2005 and 2007. Today, China is the third trade partner of Russia and Russia is the 6th trade partner of China.[1]

The trade balance is in favor of China, which exports 60% more to Russia in value than Russia exports to China. Russia exports mainly natural resources and arms to China.

In the defence field, however, Russia remains very cautious as it perceives China to be a potential threat. As a consequence, Russia tries to keep a technological lead despite China's demand for more advanced technology transfers.

The two countries have similar views on the need for a multi-polar world and share concerns over NATO's eastward expansion, the US pre-emptive

[1] Federal Statistic Service of the Russian Federation and Department of General Economic Affairs of the Ministry of Commerce of the People's Republic of China

strike strategy and the possible deployment of the US missile defence system in Asia. In this context, cooperation can enhance the international standing of both countries. China's cooperation with Russia today is driven mainly both by its willingness to become integrated politically and economically at the international level and by the sanctions it experiences with American policies, for instance, on arms sales or on launch services. On the other hand, Russia wants to develop cooperation with China further, because of great economic opportunities of the Chinese market with today's limited competition and as a way to mitigate the influence of the US in the region.

Nevertheless, as mentioned above, Russia remains careful in its relations with China, as it perceives in it a real threat to its economic and political interests. Another issue of concern for Russia is its sparsely-populated, resource-rich region in the Far-East, where Moscow has lost a great deal of control and the Chinese influence is growing and could challenge this control[1].

China's Space Program

China started its missile program with the help of the Soviet Union in the 1950s and launched its first DF-1 missile in 1960. In 1970, China became the 5th country to put a satellite into orbit. Since then, China has developed its own launchers, in particular, the Long March series, which has yielded more than a dozen versions thus far.

Between 1970 and 2007, China has launched 104 Long March, with no launcher failure since August 1996 except from a partial failure in August 1997. This represents 62 successive successful launches between August 1996 and December 2007.[2] China is also working on new launchers, especially on the small launch vehicle.

[1] Bajpai, Kanti. "Confidence Building between India, China and Russia". India, China, Russia – Intricacies of an Asian Triangle

[2] Isakowitz, Steven J. et al. International Reference Guide to Space Launch Systems. 4th Edition. Reston, VA: AIAA (2004)

The US has had a tremendous impact on Chinese commercial launch services. The US basically prevented China from launching foreign satellites and has not granted any export license that would allow satellites carrying US components to be launched from China. The only exceptions were ITAR-free satellites built by Thales Alenia Space.

China has three main launching sites in Jiuquan (Gansu province), Xichang (Sichuan province) and Taiyuan (Shanxi province). A fourth and southern-most launch site to be built in Wenchang (Hainan province).

China has successfully developed and launched around one hundred civil satellites in the following main series:

1. *Recoverable Remote Sensing Satellites*
2. *Telecommunications Satellites*
3. *Meteorological Satellites*
4. *Scientific Satellites*
5. *Earth Resources Satellites*
6. *Oceanographic Satellites*
7. *Navigation Satellites*

China has a manned spaceflight program and was the third country to launch a man on the Shenzhou spacecraft in October 2003. It also has an exploration program, including its first mission to the Moon, launched in 2007. China's space activities are characterized by the variety of stakeholders and their limited and uncertain coordination, which also impacts its cooperation in the field.

China has ruthless plans for the future development of its space activities, which in the medium-term include the development of a new launcher, a high-resolution EO system and a satellite telecommunications system, and the completion of its Compass navigation system. China will also continue investing in manned spaceflight with EVA operations and research on space laboratories, and it will pursue its Moon and Mars exploration effort. Lastly, China is developing its military space activities, and even if its achievements are limited thus far, they have caught grave attention by the other world powers, particularly USA.

The rationales for China's space activities are economic, scientific, technological and social dimensions of space. Space is also associated with national status and address national security concerns. China applies its policy autonomy and self reliance to its space activities, but wants to actively engage in international cooperation.[1] Such cooperation is driven by its technological needs and financial issues. China cooperates with Russia and Europe: with ESA on Double Star for magnetosphere research and Dragon Earth Observation application program; with the EC on Galileo. The main purpose is to develop the spectrum of its activities and learn. China also created the Asia-Pacific Space Cooperation Organization (APSCO) and cooperates with its members. Lastly, China also cooperates with developing countries under its leadership for commercial and strategic reasons, as it does with Brazil on the remote-sensing satellites program.

Sino-Russian Cooperation in space Field

Sino-Russian cooperation has been central to the development of China's space program. Cooperation between the Soviet Union and China started in the 1950s, at a very early stage of the space age. The Soviet Union delivered missiles and technical documents to the Chinese from 1956 on. It allowed China to develop its own version of the R-2 missile, the DF-1 whose maiden flight took place in November 1960. After the Sino-Soviet split in August 1960, cooperation was suspended until the early 1990s.

It was restored on the collapse of the Soviet Union. At the time, China needed technology to sustain its progress and had gained self-confidence in its capabilities.[2] Since then, cooperation has taken place in the field of manned spaceflight which led to the 2005 first flight. But the relations in this field were mainly of a buyer-seller nature. It is remarkable to note that the Chinese received training at Star City to become or train taikonauts.

[1] The People's Republic of China's Space Activities, Beijing: Information Office of the State Council of the People's Republic of China

[2] Handberg, Roger, and Zhen Li. Chinese Space Policy: A Study in Domestic and International Politics. Oxford: Routledge, 2007

Further cooperation might take place in manned spaceflight but still on a similar type of approach.

A joint sub-committee on space cooperation of the committee for the regular meeting between the Chinese and Russian Prime Ministers was established in 2000 and has met regularly ever since. Within the framework of this sub-committee, two multiannual cooperation agreements were adopted, a first five-year one from 2001 until 2006 and a second ten-year one running from 2007 until 2016. From 2005 on, plans for cooperation on Moon and Mars missions were announced. In the field of science, cooperation evolves and shows a tendency towards joint missions, a qualitative evolution compared to cooperation in the field of manned spaceflight and launchers.

In addition, Roscosmos opened a representation office in Beijing in April 2008 and the CNSA is setting up an office in Moscow. The main field of future cooperation is exploration, whether of Moon and Mars or of the deep space. Moreover, Russia and China have taken a common position on the non-weaponization of space, and after a first joint proposal in 2002, they jointly submitted a draft Treaty on the Prevention of the Placement of Weapons in Outer Space to the Conference on Disarmament in Geneva in February 2008.[1] This action is an example of how Russia and China work together to promote their international positions and to oppose the US.

So far, both countries remain unwilling to talk openly about their cooperation, which is likely to remain limited especially as Russia want to keep its technological lead with respect to China. Russian concerns with China are highlighted by the prominent example of Igor Reshetin's prosecution for transferring classified space-related information to China.[2] Today, all cooperation activities with China go through a special internal procedure in order to be approved by different authorities.

[1] Lavrov, Serguey V., and Baodong Li. Statements. Plenary Meeting of the Conference on Disarmament. Geneva. 12 Feb.2008

[2] In 2007, the former head of the TsNIIMASH-Export company was charged with the transfer of dual-purpose classified information to China

Russo-Indian Cooperation in broader context

Cooperation between the Soviet Union and India formally started in 1962. For more than 40 years, their relation has been one of mutual trust and confidence and has developed into a strategic partnership in 2000. Their good and stable relations stems from the compatibility of their geopolitical and strategic interests, both at regional and international levels. Russia's strategic interests are consistent with a stronger India, which could offer markets opportunities for its industrial complex and offset the growing power of China. Strengthened relations with India could help Russia increasing its influence in Asia. On the other hand, India recalls that it received from the Soviet Union, and then Russia, extremely valuable political and diplomatic support on vital issues. Russia is crucial in India's diversified international partnerships and sources of energy. India remains interested in Russian military equipment and looks for Russian support to get a permanent seat at the UN Security Council.[1] Still, India wants to keep its independence and its relations with Russia are not exclusive.

Cooperation between Russia and India takes place mainly in the fields of energy and defence. In the energy field, Russia has provided India with nuclear reactors and fuel when India was denied technologies and sanctioned by the West because of its refusal in 1968 to sign the Nuclear Non-Proliferation Treaty (NPT). Russian companies are involved in building a nuclear power plant in Tamil Nadu state in Sothern India. In addition, today India imports 60% to 70% of its oil and gas from Russia and is expected to become the third-largest importer of energy by 2025, with 90% of its supply being imported.[2]

Those needs have therefore become a major driver of India's foreign policy. In Russia, India is investing heavily in the Sakhalin Island oil and gas deposits. In the defence field, the Indo-Russian relations have qualitatively evolved from buyer-seller relations to technology transfers and joint

[1] Cartwright, Jan. "India and Russia: Old Friends, New Friends." CSIS South Asia Monitor 104, 1 Mar. 2007
[2] Haté, Vibhuti. "India's Energy Dilemma." CSIS South Asia Monitor

developments of defence systems and in December 1998, they extended their long-term agreement on military technical cooperation until 2010.

Apart from these two strategic fields, the scope of cooperation remains limited though. The level of trade between Russia and India is still low with a turnover of 5.3 billion dollars in 2007 - to be compared with 40.3 billion dollars between Russia and China or 52 billion dollars between Russia and Germany -, but in 2006 they defined a bilateral trade target together of 10 billion dollars by 2010.[1]

India remains a far more acceptable partner for Russia than China, as it is not perceived as a potential threat and it currently enjoys from a better image on the international scene and appears more advanced technologically. Thus, Russia tends to go further in its cooperation with India in the defence field. Russia has actually played a critical role in the military technology balance between India and China. However, the Russo-Indian relations, unlike the Sino-Russian relations, are likely to be strongly influenced by the evolution of the US-India and US-Russia relations. In recent years, in the aftermath of 9/11, the US has actually moved to strengthen military, economic and diplomatic ties with India after a freeze in their relations following the Indian nuclear tests in 1998. This tendency is illustrated by the visit to India of President G.W. Bush in March 2006 and by the controversial US-India civil nuclear cooperation agreement.

Indian Space Program

The Indian space program started in the 1960s with the establishment of the Thumba Equatorial Sounding Rocket Launching Station (TERLS) by the Indian Committee for Space Research (INCOSPAR). The first sounding rocket was launched from Thumba in November 1963. The first Indian Rohini sounding rocket was launched from there in 1967. In 1969, the India Space Research Organization (ISRO) was created under the Department of Atomic Energy and given the responsibility to conduct the

[1] Federal Statistic Service of the Russian Federation

country's space research. The Department of Space was then created in 1972 to manage all Indian space activities and ISRO was brought under its responsibility. India subsequently developed its own launch vehicles: the SLV-3 first launched in August 1979 and last launched in April 1983; the ASLV first launched in March 1987 and last launched in May 1994; currently in use, the PSLV first launched in September 1993 and the GSLV first launched in April 2001. Since 1999, India has launched on PSLV foreign satellites including satellites from Germany, the Republic of Korea, Belgium, Indonesia, Argentina and Italy.

The first space activities developed in India corresponded to the vision of Dr. Vikram Sarabhai. India was to be second to none in bringing the benefits of space to citizens. India has therefore initially focused on the development of space-based applications that would address its citizens' needs.

India launched its *first satellite*, Aryabhata on a Soviet Cosmos rocket in April 1975. About 50 Indian satellites have been launched since then. Today, the Indian space program includes a strong Earth Observation program with a recent transition from multi-purpose satellites to dedicated satellites. India also has a telecommunications program with the satellites latest series.

Meteorological instruments used to be onboard on the telecom satellites, but dedicated meteorological missions are now being undertaken. India is leader in the use of space-based capabilities for development and has developed many application programs. It uses satellite communications for unique programs in tele-education, tele-medicine, and for its village resource centers.

In the navigation field, India has implemented its GPS escalation system and is developing its own regional navigation system in addition to future cooperation on the GLONASS system and the interest it demonstrated for the Galileo system.

The Indian space program has now transitioned from its initial "space for development approach" to more esteem related programs including

exploration missions and manned space flight activities like the Space Recovery Experiment (SRE).

In India, all space activities are managed by a unique organization ISRO and commercialized by a single company, Antrix Corporation.

Russo-Indian Cooperation in space Field

Russia and India started cooperating in the 1970s when the Soviet Union launched the first Indian satellites. In 1984 the first, and so far only, Indian cosmonaut, Rakesh Sharma, flew onboard the Salyut 7 station as part of the Inter-cosmos program. We must acknowledge that India has been quite unique in the development of its space activities based on Russian, US and European technologies since the 1960s.

India and Russia have cooperated in the field of launchers. In 1993, Russia agreed to transfer the technology of the KVD-1 cryoengine to India, to be later flown. However the Russians pulled out of the deal under US pressures at a time when the negotiations for the ISS were ongoing. A new agreement was signed in 1994, in which Russia agreed to sell seven KVD-1 engines without the technology, but the problem gave Russia the image of unreliable partner. Since then, four GSLV launches took place in 2001, 2003, 2004 and 2006 with the engines built in Russia. In the meantime, India has developed its own cryoengine in 2008. Russia and India are still working together on launchers but since India started commercial flights with its PSLV launcher in 1999 and is progressing on the commercial launch services market with its indigenous capacities, future cooperation on commercial launchers is likely to remain limited. Both countries will become competitors in that market.

A second area of cooperation is navigation, with several cooperation agreements on GLONASS being signed since 2005. These include Indian launches of GLONASS-M satellites onboard GSLV, joint development of the future GLONASS-K satellites and of users' equipment. India is thus far the unique foreign partner in GLONASS at this level. For Russia, cooperating

on GLONASS demonstrates its openness and interest in the Indian market. At the same time, India is also developing its own regional navigation system, the 7-satellite constellation Indian Regional Navigational Satellite System (IRNSS) approved by the Indian government in May 2006, and is participating in the Galileo program.

A third, and more recent, area of cooperation is science, and especially Moon exploration, with an Indian payload onboard the Russian Coronas-Photon mission and Russian participation in the Indian second lunar mission.

India is also using Russian ground stations. For instance, India contributed to the refurbishment of the 64-meter antenna in Bearslake, Russia, to support its moon exploration mission.[1]

India and Russia are likely to further cooperate on manned spaceflight and exploration, as India turns to more prestige related activities. India is starting its manned spaceflight program and has approached Russia for help with training an astronaut and sending him/her into space onboard a Soyuz spacecraft. It has also expressed an interest in participating in the development of a new Russian manned spacecraft. Russia does not really need to cooperate on those programs to achieve its own objectives; the reasons for cooperation might therefore be of a political and strategic nature.[2]

Indo-Russian cooperation has been and remains hindered by Western constraints. As mentioned above, political pressures from the US prevented the initial KVD-1 transaction. More recently, export control restrictions put on Indian satellites integrating US and European licensed components prevent them from being launched by Russia and hinder cooperation on joint missions.

[1] "India Seeks Russia's Help in Space Pilot Training." RIA Novosti 26 Mar. 2008
[2] "Indian to fly on Russian Spaceship?" The Times of India 28 Mar. 2008.

Russia-India-China Strategic Alliance

Since the late 1990s, Russia has pushed for establishment of a Russia-India-China alliance. During a visit to India in 1998, the Russian former Prime Minister Y.M. Primakov put forward the concept of a strategic triangle to ensure regional peace and stability, but this idea was not supported by the two others.[1] The Russian interest in a strong trilateral cooperation was further stated in an official foreign policy document of the Russian Ministry of Foreign Affairs in March 2007 that recommended keeping on developing the dialogue and the communications in among Russia-India-China (RIC) triangle.

The three countries have clear common interests and share a vision of a more just and fair international order. Together they promote the concept of a multi-polar world, but deny that it is directed against any third state, i.e. without targeting the United States. This concept of a more balanced world order supported by the three countries is particularly attractive to developing countries, in particular in Africa. Given their combined political, economic and demographic weights, such an alliance could obviously counterbalance the US influence in the region and its hegemony since the collapse of the Soviet Union, but India and China are clearly not as keen as Russia to challenge this hegemony and antagonize the US.[2]

This triangle has become a reality in the sense that the three countries meet more and more frequently. The first trilateral meeting took place in Moscow in September 2001, and since 2002, trilateral meetings of foreign ministers have been taking place annually. However, this triangle concept has become a diplomatic tool used by Russia and China when necessary, but is unlikely to materialize as a real alliance. This united front cannot become a substitute to their bilateral relations with the United States. Until now, the three countries have developed stronger ties with the US than any

[1] Rahm, Julie M. "Russia, China, India: A New Strategic Triangle for a New Cold War?" (2001)
[2] South Asia, 27 September 2003 (http://www.atimes.com/atimes/South_Asia/EI27Df01.html)

of them has with one of the others.[1] In addition; India is unlikely to develop alliances at the expense of its relations with other partners. In line with the country's tradition of non-alignment, Indian leaders want to avoid alliances that can be detrimental to its relations with other partners and to its strategic independence.

Challenges to Russia-India-China Strategic Alliance

The main challenge to this strategic alliance is the relations between India and China. Even though their relations have recently normalized and steadily improved, there are still important issues of trust between India and China and a lack of knowledge of each other. After India's defeat during the 1962 border war, Sino-Indian relations were unfriendly. After the mid 1970s, there have been ups and downs in their relations, which remain tense. The tension between the two countries reached new heights in the late 1990s with India's concern over the Chinese transfer of nuclear and weapon technologies to Pakistan and the Indian nuclear tests in 1998. Since then, their relations have gradually normalized as demonstrated by the joint declarations of the countries' Prime Ministers since 2003 and more with the joint military exercises in Yunnan province in 2007. The two countries have common interests that will gradually lead them to improve their relations. From a political and diplomatic perspective, both countries support the idea of a multi-polar world in which their independence and sovereignty are respected. Social and economic factors come then into play. Both countries have their own development as ultimate priority and want to develop their economy in today's globalised environment, which includes accessing foreign markets. Reaching those objectives requires a stable and peaceful environment and the avoidance of conflicts with their neighbors. In 2006, Indian External Affairs Minister advocated on promoting the environment of peace and security in the region and beyond the

[1] Page, Jeremy. "Giants Meet to Counter US Power." Times 15 Feb. 2007

neighborhood. He believed that this practice will be a pre-requisite for India's national development.

The two largest developing countries are trying to define their role in Asia and in the world given their growing influence in the global economy and affairs and perceive each other as a potential threat to their interests and ambitions. The situation is first of all asymmetric, both in economic terms, as India's GDP is less than half of China's, and in military terms, as China's strategic assets, i.e. ICBMs and nuclear warheads, are unequalled by India's. Both countries compete to attract foreign investments, but in 2007 China still attracted almost twice the volume of FDI that India attracted. As a result, until recently China has demonstrated a relative lack of interest for India.

India's economic and technological development as well as its population is becoming sources of concern for China. To China, India is becoming too assertive and too pro-Western, especially after having improved relations with the United States. On contrary, India is still concerned about China's support to Pakistan in the area of strategic weapons since 2002 and perceives China as a serious threat, as it tries to expand its influence in South Asia. Two other vital issues in their relations are Tibet and their border dispute for which today there is no momentum for any solution. Their economic ties are strengthening and cooperation is increasing gradually. However, their cooperation is likely to remain limited and competition will strongly brace their relations. This duality is reflected in the energy area in which they sometimes cooperate on commercial projects in Central Asia and Africa in which they also severely contend for contracts.

Triangular Cooperation in Space Field

A triangular cooperation in space seems unlikely in the near future, as the Indian and Chinese programs are developing in parallel along similar avenues. India and China have neither particular needs nor real opportunities to work together on space projects.

A surging space race between India and China is underway amidst nearly a dozen other Asian nations, like India, trying to avoid a loss of prestige or military security to China's aggressive space program. China with seemingly no limits on its space budget or engineering talent is sailing a steady course. It is advancing across all space disciplines with no outward regard to India's space program. There are also broader global power implications with the situation as India is more open to space cooperation with the U. S. and Russia to counter China.

India seek to counter China's space power, China is using space to bring as many developing countries as it can under its sphere of influence. To do that it formed the Asia Pacific Space Cooperation Organization (APSCO). So far Bangladesh, Indonesia, Iran, Pakistan, Mongolia, Peru and Thailand are part of the group.

Practically, there is no chance for space cooperation between India and China in near future. The key leaning points that sparked major changes in India's space program are China's aggressive military space development and growing ties with Pakistan, development of a human space flight program, its successful 2007 test of an ASAT weapon, China's successful 2007-2010 lunar orbit missions and development of a 2013 lunar rover.

India wants to win its space race with China and has made it clear that it is not going to take a secondary role to China in military space capability. But India is also just beginning to feel the high budget costs and the policy, engineering and organizational challenges it must overcome to achieve that goal.

Furthermore, it might not be in Russia’s interest to promote cooperation between those two countries. Russia greatly benefits from its current bilateral relations with India and China and might not be eager to bring its two partners closer.

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