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Report – Roundtable

“India’s Space Programme: Global Implications”

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The Arms Control & Disarmament Centre (ACDC) at the Institute of Strategic Studies Islamabad (ISSI) organised its first roundtable discussion titled, *India's Space Programme: Global Implications* on February 25, 2020. Air Chief Marshal (Retd.) Kaleem Saadat, NI (M) was the keynote speaker at the occasion. The agenda of the roundtable was to discuss India's dual-use space programme, its modernisation and impact on the global strategic landscape.

Ambassador Aizaz Ahmad Chaudhry, Director General ISSI, welcomed the experts from official departments, think tanks, and academia at the roundtable.

Introducing the subject, Malik Qasim Mustafa, Director ACDC-ISSI, highlighted the significance of the topic under discussion. He said that the new or the second space age is dominated by the dangerous and more fearful military competition. In the contemporary strategic environment, major powers are giving up on the existing arms control and disarmament regimes and have initiated new nuclear and conventional arms races, especially in outer space. They are investing huge resources to develop and modernise their space programmes with dual-use capabilities which will lead to the militarisation of outer space. It has been noted that the US, in its 2021 budget request, included US\$15.4 billion for its recently established Space Force. Similarly, India with its already developed dual-use space programme has demonstrated military capability through an anti-satellite test in March 2019. According to the United Nations Office for Outer Space Affairs (UNOOSA) estimates, out of India's 56 operational satellites, around 15-19 satellites are dedicated for military purposes. Furthermore, in recent years, its space object launch activity has also increased. During 2018-19, it launched 20 objects in space.

India considers space technology as an "essential tool" in making "Modi's new India." Therefore, India has made very ambitious future plans, which includes the launch of 25 space missions in 2020; developing various types of satellite launch vehicles; preparing for human space flight mission; preparing for Venus, Mars, and Lunar Polar exploration missions and specific missions for its Defence Space Agency and Defence Space Research Organisation. Furthermore, India has allocated US\$1.9 billion for its Department of Space which is 7.5% and 45.2% increase from the budget allocation in 2019 and 2015 -16, respectively. It clearly reflects India's continued commitment for modernisation of its dual-use space programme. In the

absence of a legal regime, this militarisation of outer space will have grave regional and international repercussions.

Ms. Ghazala Yasmin Jalil, Research Fellow, ACDC-ISSI, gave a briefing on India's space programme and highlighted its global implications. Talking about the global satellite distribution, she said that 45% of currently operational satellites belong to the US, while China and Russia own 15% and 7% respectively. India has emerged as a country with the fifth-largest space programme in the world with vast civil applications. It also has a large number of dual-use and dedicated military satellites that give it a technological advantage in case of war - conventional or nuclear. India has launched a total of 121 satellites. Out of 54 operational satellites, 19 are fully dedicated to military operations. Furthermore, India has also launched 319 satellites for other states. India has also conducted an anti-satellite (ASAT) test on March 27, 2019, in low earth orbit at 300 km altitude by destroying one of its own satellites, which created approximately 400 pieces of debris. Space debris from ASAT test can harm satellites and space stations. These developments further set the stage for militarisation and weaponisation of space.

Dr. Naeem Salik, Senior Fellow at the Centre for International and Strategic Studies (CISS), spoke on crucial historical facts about the space programmes of Pakistan and India. He said that Pakistan's space programme started in 1961, one year before the Indian space programme. Despite a promising start, unfortunately, it remained neglected. The Indian space programme started in 1962 but got a real momentum in 1971 under the chairmanship of Dr. Vikram Sarabai who designed the national aims and objectives for India in outer space. The core driver behind this momentum was the development and production of delivery vehicles for its nuclear capability, acquired in 1971 through so-called peaceful nuclear explosions. This has led India to develop a nexus between its nuclear and space programmes.

Dr. Salik also elaborated the nature of militarisation of outer space from different aspects. He said that by their very nature, majority of the satellites are dual-use which makes it difficult to differentiate between civilian and military platforms e.g. communication satellite used for civilian transmission can also provide communication facilities to armed forces. Secondly, international space treaty defines militarisation of space as the physical deployment of weapons on heavenly bodies, but that might not be the case because space is already militarised. The

space satellite is a vital constituent of early warning system and command and control systems which technically makes it a component of a missile system. Similarly, the trajectory of an intermediate-range missile goes through space. Various experts also consider it as the militarisation of space because weapon stays in outer space for a short period of time.

India has signed a Civil Space Cooperation Agreement with the US. Keeping in view the dual-use nature of space technologies, the tangible and intangible transfer of technology is a critical aspect. Human resources trained for the civilian programme could be easily utilised for a military programme. For example, Dr. Kalam along with other experts was moved from the Indian Space Research Organisation (ISRO) to Defence Research and Development Organisation (DRDO) when India started its integrated guided missile development programme. Due to this shift of experts, the technology used for satellite launch vehicle SLV3 was later modified and converted into Agni missile systems. Dr. Salik also talked about the recognition of outer space in the Indian doctrines and force postures especially the *Indian Joint Armed Forces Doctrine 2017* which has a dedicated section on the development of space programme. In a sub-heading of “Space Power,” it states that “space is a medium like land, sea, air and cyber through which various activities are likely to expand in the future. Space power is analogous to conventional land, air and sea power.” In 2017, the India cabinet authorised the establishment of the Space Development Agency to separate the ISRO from the defence programme.

In addition to command and control system, early warning systems, ballistic missile defence systems (BMDs) and military communications, the space platforms also play a crucial role in target acquisition and ISR (Intelligence, Surveillance, and Reconnaissance) capabilities. He also shed light on the emerging threats like cyber attacks and laser weapons to space assets. Coupled with the ASAT capabilities, these developments by India could undermine the strategic stability in South Asia and start a new arms race at a global level. The US decision to develop specific space force as a new service also hints towards the dangerous trend of space militarisation.

Mr. Husham Ahmed Cheema, Director Arms Control and Disarmament Division (ACDIS) at the Ministry of Foreign Affairs (MOFA), shared his experience and views on the global debate on the norms related to the militarisation of outer space at various international forums. He stated that Pakistan and India have adopted almost similar positions on this issue, but India has

continued to increase its military capabilities in outer space like the development and deployment of the ballistic missile system, the space-based Anti-ballistic Missile (ABM) systems. The ASAT test carried out in March 2019 is actually a demonstration of India's advancing Prithivi-based interceptors. This test was internationally considered as a destabilising development which has further threatened the long term sustainability of space. The National Aeronautics and Space Administration (NASA) expressed its concerns on the irresponsible nature of the test. NASA has also challenged the Indian assertion that space debris will eventually burn in the atmosphere. However, this criticism was later toned down by the higher authorities in the US administration. There are various companies that are still tracking space debris created by the Indian ASAT test.

He also mentioned the increasing role of space technologies in ISR (Intelligence, Surveillance, and Reconnaissance) capabilities. India is also using space-based assets to increase the accuracy of its missile systems. All these development can give a false sense of confidence, as India could believe that it has the ability to track all the Pakistani military assets from space. The research by the Indian and various international scholars is giving an impression of growing counter-force tendencies in the doctrines and nuclear capabilities of India, while space capability lies at their core. India has also entered into the *Space Situational Agreement* with the US that gives it access to data of all satellites in outer space on the pretext of reducing chances of a collision. However, there is a debate at an international level among the developing states that data related to positions and path trajectories, conjunction analysis should not be used as a commercial tool and should be open and accessible to all as space is a common heritage for mankind. Unfortunately, western states have been using this data for their own strategic purposes and they have been providing access to this data to a limited number of states and India is one of them. Interestingly, India used solid fuel for its ASAT test which is used for its long-range missile and polar satellite launch vehicles as well. The overlapping tendencies are quiet obvious in case of India and that's why concerns are being raised by the international community.

There is an international legal regime on outer space which is comprised of various international treaties, guidelines and confidence-building measures (CBMs). The most important is the Space Treaty of 1967 which projected outer space as a common heritage for mankind. Pakistan has been very open and constructive in the international norm building process and is a signatory of

all five treaties on outer space. However, India is still reluctant to sign these treaties e.g. the Moon Treaty. Many years have passed since the last treaty on outer space and there are proposals in Geneva which Pakistan has vocally supported e.g. prevention of placing weapons in outer space, and the threat to use force against space-based objects. However, progress on these proposals is slow and the majority of states are turning towards voluntary guidelines, transparency and confidence-building measures in outer space. Recently, Pakistan and Russia have signed a *Joint Declaration of No First Placement in Outer Space*. Pakistan offered a similar proposal to India several years ago, but it was rejected. There are few developments in Vienna in terms of sustainability of outer space, promoting guidelines related to orbital manoeuvres, and space debris removal.

Delivering his keynote speech, Air Chief Marshal, (Retd) Kaleem Saadat, said that there exist gaps in the development of India and Pakistan's space programmes. It will lead to power potential differential between two countries and when that happens, India tends to become more ambitious and adventurous like for example its rhetoric entirely changed in May 1998 after nuclear tests. India showed a similar attitude during the Balakot Crisis in February 2019. The world needs to understand that when this capability differential increases to any extent, it causes instability. Due to inadequate resources, Pakistan could not pursue both space and nuclear programmes. The nuclear programme received more priority because it was linked to Pakistan's immediate security. The space programme of Pakistan received less attention and resources due to lack of securitisation of space threats in the 1960s. The first priority of the government is to set national goals and define priorities in outer space. The second step is the allocation of appropriate material and human resources. This issue area demands activism to highlight the importance of space capabilities. The rules-based system is disappearing from the international level, so pursuing this course of action will be beneficial for Pakistan. He said that attention must be paid on the commercialisation of existing space capability. It will generate revenue for a self-sustainable programme. Pakistan should strive to reduce the gap with India in the realm of outer space.

The presentations were followed by an interactive discussion.

On the question of developing an ASAT capability by Pakistan, various options were discussed by the participants. According to some of the participants, the Indian ASAT capability is China-centric and more relevant to the Indian ambitions to compete with great powers. There are asymmetric ways to reduce technological gaps in outer space. Therefore, Pakistan has to carefully adopt a smart and intelligence strategy to produce a qualitative difference and enhance national security, because the Indian objective is to entangle Pakistan into a new regional arms race. Furthermore, it is also pertinent to critically analyse the motivation behind the Indian ASAT test. Was it for domestic consumption after the Pulwama episode or the Indian objective of achieving nuclear escalation dominance vis-a-vis Pakistan?

The participants also discussed the issues like development of hypersonic weapons, space-based BMDs, robotics and other disruptive technologies (lasers, jamming, and electromagnetic pulse) with reference to outer space.

The participants put forward various recommendations for Pakistan. It was suggested that the government of Pakistan should also explore the options of public-private partnership as the future of the world belongs to cyber and space technologies. India has also earned a huge revenue through commercialisation of outer space. It was amply highlighted by several senior members that while we talk of the various domains, Pakistan must continue to profess PAROS and no first placement of weapons in outer space, Space Science and Technology Education at all tiers of our system needs to be given very high importance. Our space programme will always be lacking unless we develop our human resource which is the real backbone for any present or future endeavours.

In view of the foregoing, it is imperative that our higher education institutions (HEI) like Institute of Space Technology, which was established for this purpose alone, and others like Air University, NUST etc., be given due importance at all levels and necessary funding be done to strengthen their existing and future programmes. The universities/HEI should be tasked to take up research and development projects duly funded by concerned quarters. Dynamic interaction of the universities/HEI with national think tanks and their outreach internationally is important and should be encouraged. A national space awareness programme as being done by SUPARCO with the help of our universities will have a profound effect on our space programme.

While concluding the discussion, Ambassador Khalid Mahmood, Chairman BoG, ISSI, talked about the development of dual-use space technologies by India and their destabilising effect on the deterrence equation in South Asia. On the issue of the future course of action, he said that Pakistan could invest in the indigenisation of dual-use space technologies and public-private partnership to enhance its deterrence against India. At the regional level, Pakistan and India should start bilateral negotiations for CBMs in outer space. At the international level, Pakistan should play an active role in the development of relevant international norms, he said.

PICTURES OF THE EVENT



