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VIF Expert Groups Reports

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Editor Note	5-6
Assessing the Internal Situation in Jammu & Kashmir and Punjab	8-12
<i>- Prepared by Anurag Sharma</i>	
Outcomes of PM Dahal’s Visit and Developing Indo-Nepalese Relationship	13-16
<i>- Prepared by Aarushi Gupta</i>	
Trilateral Dialogue on “India-Japan-South Korea: Promoting Peace, Prosperity & Stability in the Indo-Pacific Region	17-27
<i>- Prepared by Dr Sweta Kumari</i>	
Surmounting Tensions over Taiwan: Implications and Options for India	28-32
<i>- Prepared by Dr Sweta Kumari</i>	
India and the Shanghai Cooperation Organisation (SCO)	33-35
<i>- Prepared by Dr Pravesh Kumar Gupta</i>	

Inter-Think Tank Dialogue on Changing Geopolitics in West Asia and India's Options	36-51
<i>- Prepared by Hirak Jyoti Das</i>	
Inflation Reduction Act and Carbon Border Adjustment Mechanism: Implications for India	52-57
<i>- Prepared by Prerna Gandhi</i>	
Quantum Technology and the Changing Nature of Warfare	58-64
<i>- Prepared by Saroj Bishoyi</i>	
India-US Strategic Partnership: Focus on Technology Cooperation	65-73
<i>- Prepared by Saroj Bishoyi</i>	
India-US Space Engagements	74-85
<i>- Prepared by Saroj Bishoyi</i>	

Vivekananda International Foundation (VIF) held meetings on a variety of subjects in the month of July 2023 with six expert groups, a trilateral dialogue, an inter-think tank dialogue and a roundtable. The first meeting of the newly constituted Internal Security Task Force discussed developments in the UT of Jammu & Kashmir and the state of Punjab while the recent visit by the PM of Nepal, the rising tensions over Taiwan, the SCO Summit, the US Inflation Reduction Act and EU's Carbon Border Adjustment Mechanism were the other major issues that were deliberated upon within their respective expert groups.

The VIF organised a virtual India-Japan-South Korea Trilateral Dialogue on the subject "India-Japan-South Korea: Promoting Peace, Prosperity and Stability in the Indo-Pacific Region" on June 15, 2023. The partner institutions included the Japan Institute of International Affairs (JIIA), the Japan Foundation, the Korea National Diplomatic Academy (KNDA) and the Korea Institute for International Economic Policy(KIEP). The participants shared their perspectives as also suggestions on cooperation among the three countries in the domains of economy and security as also the potential for soft power.

An Inter think-tank dialogue on the theme, "Changing Geopolitics in West Asia and India's Options", under the aegis of the West Asia expert group, looked at developments in Saudi Arabia, UAE, Qatar, Israel and Iran and the changing dynamics in the region, especially with the withdrawal of the US and the expanding influence of China and its implications for India.

The recent visit of the PM of Nepal and its outcomes were deliberated upon at length by the Neighbourhood Expert Group. India's decision to

import 10,000 MW of electricity from Nepal over the next ten years and the agreement for power transmission from Nepal to Bangladesh through India as part of trilateral cooperation were significant. While both sides agreed to expedite the DPR for the Pancheshwar Multipurpose Project (PMP), both the countries also need to strengthen their resolve to come together for further development.

The discussion on “Surmounting Tensions over Taiwan: Implications and Options for India” highlighted the increasing significance of the Taiwan issue for the security of the Indo-Pacific region. The United States and China are not making any concessions in their positions with regard to the Taiwan. In this backdrop, the discussion primarily focused on an Indian perspective of the situation in Taiwan, its potential implications and options for India.

The fourth meeting of the VIF Eurasia expert group focused on “India and the SCO.” Although there has long been debate regarding India’s role in the SCO, the debate has gained traction with respect to recent developments that impacted India’s SCO presidency. Against this backdrop, the expert group members provided diverse and important viewpoints on the SCO’s significance for India and other relevant issues.

The Geoeconomics Experts Group held its fourth meeting on ‘Inflation Reduction Act and Carbon Border Adjustment Mechanism: Implications for India’. The nomenclature of the IRA is misleading since it focuses more on climate issues and not just on inflation. The CBAM’s intention to address the imbalance in global efforts to address climate action and then bring them in alignment with EU’s goals for climate change do not portend well for the global south, including India. The Expert Group discussed these implications threadbare including its compliance with the WTO.

The roundtable discussion on Quantum Technology (QT) dwelt on

quantum computers, quantum communication, quantum sensors & metrology while assessing their effect on warfare. The advances made by China were discussed as also India's own indigenous National Quantum Mission. It was pointed out that the government agencies, startups, service providers and the academia need to work collectively to build a robust QT ecosystem in the country.

The visit of the US-India Strategic Partnership Forum (USISPF) delegation, led by President and CEO, Dr Mukesh Aghi, provided an occasion for the Technology Expert Group to discuss issues of transfer of technology, 'brain drain' from India to the US and development of STEM talent in the country. The necessity for improving the 'ease of doing business' in India was highlighted while American bureaucratic reluctance to share technology was flagged for correction.

A roundtable discussion, in collaboration with the Indian Space Association (ISpA), New Delhi, was organised on 'India-US Space Engagements', which deliberated on India-US space engagements, including the recently signed Artemis accords, the strategic dimensions of this engagement in light of India's ambitions as also ongoing ISRO-NASA space collaboration and the implications of export controls, amongst other associated issues.

The coordinators and researchers associated with the expert and study groups, think tanks and interactions have put in unwavering efforts to coordinate these meetings, so as to provide a wide range and diversity of views while lucidly capturing the essence of these discussions.

New Delhi
August 2023

Cmde Gopal Suri (Retd)

INTERNAL SECURITY TASK FORCE

Assessing the Internal Situation in Jammu & Kashmir and Punjab

Prepared by Anurag Sharma

On 06 July 2023, the Vivekananda International Foundation (VIF) organised the first brainstorming session of the Internal Security Task Force members on “Assessing the Internal Situation in Bharat”. The discussion focused on the security and political situations in the Union Territory (UT) of Jammu and Kashmir (hereafter J&K) and Punjab. Dr Arvind Gupta, Director of VIF, chaired the discussion. Along with the Centre Head of National Security at the VIF— Lt Gen Ravi K Sawhney (Retd), Dinkar Gupta, P C Haldar, K M Singh, Lt Gen Syed A Hasnain (Retd), and Dr Ajai Sahni shared their respective observations on the contemporary situation in the J&K and Punjab and provided workable recommendations to help put together a nuanced strategy to deal with the situation.

Jammu and Kashmir (J&K)

Jammu & Kashmir has been in turmoil for the last three decades. It is primarily because of Pakistan-sponsored terrorism driven by a deep-rooted conviction among the power brokers in Pakistan that Kashmir is an ‘unfinished agenda’ for them. Cross-border terrorism is a low-cost warfare for Pakistan to keep the pot boiling in J&K. In recent years Pakistan’s Inter-Services Intelligence (ISI) Directorate’s initiatives have been more focused on encouraging home-grown terrorists.

The situation in J&K calls for a judicious balance of pro-active initiatives

on the part of political leadership, state bureaucracy and the security forces to win over the hearts of people in Kashmir and make them a part of the mainstream in the country. This can be best done by J&K-based mainstream political parties, and there is a need to encourage them and encourage the local youth to join the mainstream political parties for a better future for J&K.

Tourism in J&K should not be restricted to Srinagar but promoted to other districts. There is a need to promote the famous Kashmir handicrafts in the country and internationally; this will boost the economy and encourage people of J&K to get into various businesses.

The UT of J&K has stabilised after the abrogation of Article 370, but at the conflict resolution stage, much more work needs to be done. The idea of Azaadi has not gone from the Kashmiri mindset, as this is the centre of gravity of the entire conflict. It has been dented and diluted. There is uncertainty about the elements of government which are in synchronisation with the issues of Kashmir. There is a lack of coherent strategy as such in existence.

The ‘Otherisation’ of Kashmiri is an important aspect of J&K. We may have done some brilliant work for people, but one or two things of ‘otherisation’ sets off the entire effort. For example, the Bollywood movie— ‘The Kashmir Files’ was made by someone who does not understand Kashmir. The depiction of Kashmiri in the film has gone into the public’s minds, and they look at Kashmiri from that lens. At the same time, Kashmiri gets into a defensive mode and only looks at the rest of Bharat in that mode. With the outreach of social media platforms, people with unfriendly mindsets started cursing every Kashmiri for the event 30 years ago.

The situation in J&K is very much linked with the Afghanistan-Pakistan region. The global terrorism cycle has virtually ended, but some threats

keep emerging. The Taliban making friendly gestures towards Bharat is essentially tactical. Pakistan is currently unstable, but its nefarious intentions against Bharat still exist. Regarding the threshold of conventional war, Pakistan is still unsure how much risk it can take against Bharat. A ceasefire benefits Bharat as cross-border infiltration is significantly controlled when a truce exists. Home-grown terror in Kashmir is ineffective at present; the percentage of foreign terrorists has gone down. The government of Bharat's decision to stop the funerals of foreign and local terrorists has effectively resulted in the decline of recruitment from the Valley. Another success for the government of Bharat has been the denting of terror networks, especially their finances, which must continue as otherwise, these networks will find alternatives.

Our communication strategy has improved a lot, but we require a sub-communication strategy agency capable of deep research on the issue. We need to optimise our communication strategy for the Kashmir issue. Universities, schools, and Madrasas in J&K must have intellectuals (visiting or full-time members) to address these institutions.

The Rashtriya Rifles (RR), one of the security forces deployed in Kashmir, is an established and trained force undertaking conflict stabilisation in Kashmir, and should not be withdrawn.

As a renowned institution in Bharat, the Vivekananda International Foundation (VIF) must take a small delegation of researchers, academicians, and people from similar areas to the J&K, and the delegation must interact with the locals, including the clergy. This will significantly contribute to the national cause that the VIF can make.

Punjab

Punjab, which was a lead contributor in agricultural production and bringing prosperity to its people, currently faces multiple challenges. The State is

under heavy debt and has become a breeding ground of problems, including the emergence pro-Khalistan elements. This worrisome development of pro-Khalistan elements in Bharat is supported by similar elements based in the United Kingdom (UK), Canada, the United States, Australia, and Pakistan. While the imminent danger of pro-Khalistan sentiments has receded, factors that brought the challenge need identification to ensure a comprehensive and multipronged strategic response. In the case of pro-Khalistan propaganda, the Sikh diaspora abroad is playing a massive role. The Farmers' agitation in 2020-2021 was fuelled and funded by the Sikh diaspora. By 2010, pro-Khalistan elements began appearing on social media platforms which was a red flag. Bharat gave too much attention to the pro-Khalistan campaign abroad— "Khalistan Referendum" and the Sikh For Justice (SFJ)'s Gurpatwant Singh Pannun. Bharatiya news media made much noise out of the 2020 Referendum, which had less than 200 gatherings in London. We must be balanced in our responses and counter pro-Khalistan elements/propaganda through covert operations, such as opposing these elements through people from the Sikh community only.

The rise in drug addiction amongst the youth and lack of employment are some concerns that subvert the state's cohesiveness. Faltering economics and economic mishandling has pushed Punjab into a debt trap. Political initiative lacks direction. The administration suffers from discord due to an unholy but thriving linkage between the political class and the flow of illicit money. The first incident of drone infiltration carrying narcotic substances was in August 2019. Since then, drone infiltrations in Punjab are happening almost daily. Nearly 2/3 of the payload of these drones is narcotic substances. According to the official figures, around 136 drone sightings were recorded in the first half of this year. After the return of the Taliban, there has been a rise in drug trafficking from Afghanistan. These narcotics largely comprise heroin, which constitutes 50 per cent of the

drugs sold in Punjab, and the rest are synthetic drugs. These drugs from Punjab are also being trafficked to other border states, including Jammu and Kashmir. The Narcotic Drug and Psychotropic Substances (NDPS) Act 1985 needs a relook. The judicial courts are not working as part of countering the drug problem. From 2017 to 2021, over 50,000 FIRs were registered, and around 60,000 people were arrested on various charges. Further, less than 10 per cent of drug addicts are rehabilitated.

The economic situation in Punjab is of grave concern. Agrarian or farming distress in Punjab is real, where farmers' income only meets survival needs. Different agricultural commissions in Punjab have repeatedly provided recommendations on water table & recovery and crop diversification.

There is a comprehensive vacuum in the political, economic, cultural, and religious domains, in Punjab. The traditional institutions have been decimated because of their close associations with the Akali Dal. Talking of the sacrilege of Sri Guru Granth Sahib, is a massive mobiliser. The SGPC (Sri Gurudwara Prabandhak Committee) directs Granthis and Raagis not to sing the hymns from Guru Granth Sahib, where Hindu gods and goddesses are referenced. This action may have disrupted Hindu-Sikh harmony to some extent.

The scale of corruption is important to understand the dynamics of the State. The economy of Punjab is in crisis, but it is not equal to some backward States. Punjab's economic turmoil is reversible and addressable. The agrarian commission reports, including the Johar Committee report, have worthy recommendations suggested over time.

Outcomes of PM Dahal’s Visit and Developing Indo-Nepalese Relationship

Prepared by Aarushi Gupta

On 19 July 2023, the Vivekananda International Foundation (VIF) organised a discussion on “Outcomes of PM Dahal’s Visit and Developing Indo-Nepalese Relationship”. Dr Arvind Gupta, Director VIF, gave the introductory remarks, which was followed by presentations by Amb Ranjit Rae, Lt Gen Rakesh Sharma and Mr Sanjay Chadha on the overall outcomes of the visit of PM Dahal, the security dimension with Nepal and water resource cooperation.

Outcomes of the visit of PM Dahal

The visit has to be viewed in the context of developments in the domestic and international context in Nepal. Support of the Nepali Congress is critical to PM Dahal and his party, the Communist Party of Nepal (Maoist Centre) (CPN-MC), to survive in the House of Representatives (HoR). Owing to the Bhutan Refugee Scam, there is a lot of pressure on the politicians in Nepal to consolidate power to avoid getting sucked up in the legal processes. Simultaneously, PM Dahal seems to be trying to unite all the parties to stand firmly against his former ally, the Communist Party of Nepal (Unified Marxist–Leninist).

On the international front, the role that the United States and China are playing is sufficiently clear. It is evident from the initiatives like the Millennium Challenge Corporation (MCC), the Belt and Road Initiative

(BRI), the Indo-Pacific strategy, the Global Security Initiative and other similar initiatives. However, the Sri Lanka experience has made Nepal wary of Chinese investments and consequently, they are asking for grants or concessional loans, and not commercial loans, for the BRI projects. Further, it has been reported that the Chinese plan to build an ammunition factory in Nepal, even as the Nepal Army plans to procure Armoured Personnel Carriers (APCs) from China for the UN peacekeeping operations, instead of from India as they did earlier. PM Dahal is scheduled to visit China later this year. Nepal is finalising a power trade agreement with China and the possibility of Nepal selling electricity to Tibet cannot be ruled out.

In the Indian context, PM Dahal's visit to India and the symbolic gesture of his visit to Mahakaleshwar, has established him as a reliable partner. Interestingly, he did not meet the Communist Party of India (Marxist) leaders on his visit, with whom he had strong ties earlier. Further, he did not bring up issues like the Eminent Persons Group report, the Agnipath scheme or the issue of revision of the 1950 Friendship Treaty in his discussions.

Other substantive achievements during the visit include the agreement for India to import 10,000 MW of electricity from Nepal over the next ten years and power transmission from Nepal to Bangladesh through India as part of trilateral cooperation. There was also a massive push for connectivity through the railways, integrated check posts, pipelines and, most importantly, extending the UPI digital linkage in Nepal. While this was a crucial visit with many important developments, the two countries did not give a joint statement but gave separate statements.

Security dimension of bilateral relations

Over the last few years, India's foreign policy towards Nepal has ensured a rational give and take in the relationship. In terms of security and

sovereignty, PM Dahal mentioned the boundary issue in passing, but no concrete discussions occurred. There was significant talk on the Nepalese side about using the India-Bangladesh boundary settlement plan as a model for India and Nepal as well.

Nepal's energy concerns were also addressed in the visit. With the initiation of pipelines and inland transportation connections in the recent visit, any disruption of oil and essential of trade becomes unlikely.

In the three months leading up to PM Dahal's visit to India, there have been several high-profile delegation visits to China from Nepal and vice versa. One such delegation was led by Wang Xiaohui, Secretary of the Sichuan Provincial Committee of the Chinese Communist Party, who met PM Dahal and discussed matters of bilateral mutual interest. This 14-member Chinese delegation, which arrived a day before PM Dahal visited India, received a lot of attention. An earlier Chinese delegation that visited Nepal in June met with all the communist political parties individually and comprehensively. This is clearly indicative of the strength of the interactions between Nepal and China.

Water resource cooperation

Nepal has approximately 2.27 per cent of world freshwater resources in the world. There are four major water-sharing systems between India and Nepal, viz. Mahakali, Karnali, Gandaki and Kosi. They are all crucial tributaries of the Ganges. These four rivers contribute around 45 per cent of the annual flow of the Ganges and 70 per cent of the dry season flow. They irrigate a large part of Nepal and India and have immense importance for both countries. India and Nepal bilaterally have many mechanisms for better utilisation of the water resource, but this bilateral engagement needs to be optimised. Karanali and Mahakali have a hydropower potential of 36,180 MW, Gandaki has a 20,650 MW potential, and Koshi has a 22,350

MW potential for both countries.

Pancheshwar project is a multipurpose project with a large storage dam. It allows perennial flows and flood moderation, unlike a run-of-the-river dam that does not allow seasonal storage and only allows day storage. There are multiple planned hydropower projects in Nepal at the moment. Arun III project was already with India to develop, and after PM Dahal's visit, the Lower Arun project was also awarded to India. However, the Lower Arun project was converted to a run-of-the-river project from a storage project by Nepal.

India and Nepal also have multiple treaties like the Kosi Treaty (1954), Gandak Treaty (1959) and Mahakali Treaty (1996). The Mahakali Treaty was to be ratified by India. Another issue of discussion in the hydropower cooperation was the stalled Detailed Project Report (DPR) of the Pancheshwar Multipurpose Project (PMP). Both parties agreed to expedite the process, and a deadline of three months was set for finishing the DPR. The PMP project has been stalled for 27 years since the signing of the Mahakali treaty.

Both India and Nepal have irregular meetings, have too many committees and lack commitment. Both countries have different interests in hydropower projects as well. Nepal wants to focus more on energy and hence favours run-of-the-river projects, while India has more water considerations and wants more multipurpose projects. Over Rs 700 crore, flood damage in Bihar alone is inevitable. Therefore, storage and flood regulation become a crucial part of hydropower projects for India. The hydropower project calculations are not a zero-sum game, and both sides must resolve to come together for this positive development.

India-Japan-South Korea: Promoting Peace, Prosperity & Stability in the Indo-Pacific Region

Prepared by Dr. Sweta Kumari

The Vivekananda International Foundation (VIF) organised a virtual India-Japan-South Korea Trilateral Dialogue on the topic “**India-Japan-South Korea: Promoting Peace, Prosperity and Stability in the Indo-Pacific Region**” on June 15, 2023. The partner institutions included the Japan Institute of International Affairs (JIIA), the Japan Foundation, the Korea National Diplomatic Academy (KNDA) and the Korea Institute for International Economic Policy (KIEP).

Dr. Arvind Gupta, Director, VIF gave the opening remarks and Amb. Deepa Gopalan Wadhwa, Former Indian Ambassador to Japan, moderated the event. Ms. Tomiko Ichikawa, Director General, JIIA; Prof. Wongie Choe, Professor and Head of the Center for ASEAN-Indian Studies, KNDA; and Mr. Koji Sato, Director General, The Japan Foundation also gave introductory remarks for the trilateral dialogue. The presentations were made by Mr. Tetsuo Kotani, Senior Fellow, JIIA; Prof. Wondeuk Cho, Assistant Professor, Center for ASEAN-Indian Studies, KNDA; Dr. Titli Basu, Associate Professor, Centre for East Asian Studies, JNU; Dr. Kyunghoon Kim, Associate Research Fellow, Korea Institute for International Economic Policy (KIEP); Mr. Kensuke Yanagida, Research Fellow, JIIA; Prof. Srabani Roy Choudhury, Chair, Centre for East Asian Studies, JNU; Mr. Koji Sato and Amb. Skand Tayal, Former Ambassador of India to South Korea at the dialogue. Mr. Seiichiro Taguchi, Minister-

Political, Embassy of Japan; Mayu Arimoto, Second Secretary, Embassy of Japan; Mr. Ashok Kumar Chawla, Adviser (Japan), East Asia Division, MEA; Amb. Ashok Kantha, Dr. Udai Bhanu Singh, MP-IDSAs; Vice-Admiral Satish Soni; Vice-Admiral A.B. Singh; Prof. Sujit Dutta; Brig. Vinod Anand; Gp. Cap. Naval Jagota; Dr. Sweta Kumari; Anurag Sharma and VIF interns also participated in the discussion.

The discussion brought out the respective viewpoints of India, Japan and South Korea on the rapidly changing geopolitical and geoeconomic scenarios in the Indo-Pacific region. The talk emphasised the impact of the Russia-Ukraine conflict on each of these countries and the region. The opportunities for a trilateral cooperation in terms of security and trade between India, Japan and South Korea and ways to overcome the challenges in realising them were highlighted in the dialogue.

Perspectives for Security Cooperation

Japan

Japan's new National Security Strategy report (2022) has redefined the relationship with its three nuclear neighbours – North Korea, China and Russia which is a drastic shift from the past. The original document which was released in 2013 stated North Korea as an immediate threat but both China and Russia were regarded as strategic partners. However, in the latest document, while North Korea is defined as more dangerous, China is denoted as the largest strategic challenge to the rule-based international order and Russia is regarded as a strategic concern for Asia and a military threat to Europe. The report also expresses grave concern about the growing China-Russia strategic partnership.

The negative rise of China has led to a number of similar security concerns for India, Japan and South Korea.

- China-North Korea relations worry Japan and South Korea while the China-Pakistan nexus adversely affects India. The three countries are concerned about the growing nuclear arsenal of China and North Korea.
- The three countries have territorial issues with China.
- Any possibility of a Taiwan strait crisis worries Japan, South Korea as well as India.
- Japan, India and South Korea have great concern about the impact of the Russia- Ukraine conflict. There is also fear about the possible use of nuclear weapons by Russia on Ukraine.

These common security concerns provide opportunities for India- Japan-South Korea to expand strategic cooperation, especially in Southeast Asia and across the South China Sea.

Suggestions

- South Korea has already replaced Russia as the largest arms exporter to Southeast Asia. This could help these countries develop their own defence capabilities.
- India is also buying defence equipment from South Korea. It could help the Southeast Asian countries in weapon substitution as well as defence training and capacity building.
- Japan has very strict regulations on providing lethal weapons to other countries, but it can contribute to building up the constabulary capabilities of Southeast Asia. The three countries can also directly contribute to the security of Southeast Asia through joint maritime patrol, training and exercise among the navies.
- India, Japan and South Korea could also cooperate in building

capabilities in areas such as cyber security and space security capabilities under the new national security strategy.

South Korea

South Korea in its strategic narrative is highlighting India's growing importance in global affairs. This was reflected in its recently announced Indo-Pacific Strategy. South Korea is also working on improving relations with Japan. The Indo-Pacific region is facing complex and unprecedented challenges not just in geopolitics but also in forms of climate change, political and radical extremism.

There has been a relative decline of multilateralism in recent times. All these make it imperative for like-minded countries such as India, Japan and South Korea to come together in minilateral platforms and work towards preserving rules-based order in the Indo-Pacific region.

Suggestions

- India and Japan have been active in forming issue-based minilateral platforms. South Korea needs to make changes in its policies to move ahead in this direction. South Korea needs to work towards changing India's perception of Korea and emerge as a strategic partner.
- The three countries should initiate multi-layered dialogue channels involving high-level talks between the governments, exchanges between think-tanks and academia and people-to-people connect.
- There could be a trilateral cooperation between the three navies in the Indian Ocean working together in activities such as Humanitarian and Disaster Relief (HADR), joint exercises, and rescue missions.
- Indian and South Korean coast guards have been conducting joint patrolling. Japan could also be a part of this activity.

- Japan and South Korea could further engage in developmental operations and in tackling non-traditional security issues in forums such as Indian Ocean Rim Association (IORA) and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) where India has an active participation. South Korea is willing to have an observer status like Japan in the Indian Ocean Naval Symposium.
- India, Japan and South Korea share a common strategic vision in the Indian Ocean. The three countries could collaborate on maritime security, maritime ecology, maritime resource and capacity building which are some of key important pillars of India's Indo-Pacific Oceans Initiative (IPOI).
- India's Information Fusion Centre can be a platform through which the three countries could share information on the Indian Ocean with each other.

India

There has been a clarity in South Korea's vision of the Indo-Pacific. South Korea's National Security Strategy has highlighted defence, science and technology, and infrastructure as three areas where it can collaborate with India.

Similarly, India also appears as a priority in Japanese policies which is reflected in its review of guidelines for arms exports, adoption of official security assistance by the National Security Council, reforms in Official Developmental Aid, and amendment in the Japan Bank for International Cooperation (JBIC) laws.

Despite these positive measures, a realistic assessment of the relations needs to be made. The US and its East Asian alliance are still more inclined

towards the Pacific region. The nature of threats is similar yet not identical. India is primarily concerned about defending its continental borders from China. The level of interoperability and information sharing that Japan and South Korea have with the US is far ahead of India. India's orientation in terms of strategic autonomy and its commitment towards multipolarity is also different from Japan and South Korea

However, there are areas where the three can tap into collective capacities and work on mutuality of interests.

Suggestions

- Under the IPOI, Japan has actively engaged itself with the connectivity pillar. South Korea is now embracing a more proactive role in this framework. Japan and South Korea could help India in maritime transport and shipbuilding. This could enhance India's contribution to global shipping and aid in both industrialisation as well as security.
- South Korea could engage itself in official defence dialogue with India and Japan. It could also be a party to the White Shipping Agreement.
- India has advanced significantly in defence industrial cooperation with South Korea than with Japan. The latter needs to ease the legal and structural constraints in this regard.
- The three countries need to work on easing the defence export control measures for a trilateral cooperation in defence technology.
- Japan Aerospace and Exploration agency (JAXA) and ISRO have collaborated in the outer space domain. South Korea needs to reflect on its policy for collaboration in this area.
- The three can work in supporting small islands developing nations in the Indian Ocean region and Southeast Asia, particularly, in mobilising technology and finance.

- Setting up- of intergovernmental Track 1.5 diplomatic channels at the National Security Advisors level could add substantially to strengthening the security ties between the three nations.

Viewpoints on Economic Cooperation

The dialogue also emphasised that economic security and resilience of supply chains should be a priority of India-Japan-South Korea trilateral cooperation.

South Korea

A number of features of the Indian economy are attracting Korean investors.

- India has a large and vibrant consumer market which is expected to grow further. The Indian economy showed a faster recovery from the impact of Covid-19 pandemic.
- India has shown financial stability and the rupee has performed well in the past few years.
- Government investment in infrastructure and connectivity has led to rapid expansion of railways, highways and ports across India.
- Government incentives for the manufacturers in the form of Production-Linked Initiative (PLI) Scheme have led to the increase in manufacturing sub-sectors particularly in high value-adding and high-end technology in India.
- India is emerging as a reliable and pivotal partner both regionally and globally. It is expanding its networking in various international regional forums including the Indo-Pacific Economic Framework (IPEF), Quad and the India-US Initiative on Critical and Emerging Technologies (iCET). India is now using Free-Trade agreements as a

tool to expand commerce.

Nine rounds of India-South Korea Comprehensive Economic Partnership Agreement (CEPA) negotiations have taken place. Korea seeks relaxation of rules of opening and greater market opening. The recent negotiations focus on strengthening value chains in times of global disruptions and market uncertainty.

Suggestions

- The main difficulty in upgrading trade negotiations is the large trade deficit that India has with South Korea. The economic consequences of this deficit is of concern to Indian policymakers.
- South Korea lacks experience in developmental cooperation. It can learn from Japan's ODA contribution to India.
- The three countries could synergize their efforts in areas such as diversification of supply chains. The conclusion of Korea's Economic Development Cooperation would be a key milestone for Korea's multi-pronged India strategy.

Japan

Given recent geopolitical developments, there is now a shift from economic integration to economic security in international trade. Japan plays an important role in leading economic cooperation in the Indo-Pacific region.

Suggestions

- The Regional Comprehensive Economic Partnership (RCEP) is the fastest growing regional group in the region. India would benefit from joining the RCEP that it had withdrawn from for political reasons.
- The Indo-Pacific Economic Framework (IPEF) is a new economic framework. The parties have reached substantial agreement on

supply chains. However, the IPEF provides lesser incentives such as providing market access for developing countries. Here, Japan can act as a bridge between the US and the developing countries.

India

India's trade with Japan and South Korea is based on a primary set of products such as smartphones, automobiles and electric appliances. Both the countries have made investments in India but the number is quite low when compared with their investments in Southeast Asian countries.

Suggestions

- Trade in the service sector needs to be enhanced. A trilateral cooperation in services holds a lot of potential.
- Digital connectivity could be another area of cooperation. Other Southeast Asian countries could also be made a part of this. There could be a synergy in vaccinations and healthcare technology.
- India, Japan and South Korea could collaborate in future technologies such as Artificial Intelligence, Robotics, Quantum Technology and Semiconductors.
- Many Japanese and South Korean companies are competitive with each other in the Indian market. Together, some ways and means can be devised for a competition that leads to coexistence.

Potential of Soft Power

Soft power and cultural exchanges provide a complex amalgamation of images and discourses that help people form a good impression of a particular country. Public diplomacy when well planned and executed can change perceptions of people of foreign countries. Japan and South Korea have civilisational and cultural ties with India.

Suggestions

- Soft power through Yoga, Anime and Korean pop is becoming an important tool in enhancing people-to-people connections between the three countries which needs to be further promoted.
- Tourism promotion and language education would help in strengthening people-to-people connect.
- More in-person interaction through opportunities such as education abroad, collaborative entrepreneurship and creative activities would have a long-term impact on building ties.
- Many of the original Buddhist manuscripts are placed in the monasteries in Japan and South Korea. The three countries could engage in translation and digitisation of these texts. This work could also be coordinated with other countries in the Indo-Pacific region.
- India, Japan and South Korea should work towards soft projection in Myanmar so that they could remain engaged with the people with cultural activities particularly through Buddhism. The three countries could work towards building a Buddhist research centre in Myanmar. Translation of Japanese comics and Korean dramas in Burmese can also promote cultural ties. There is a lot of Chinese influence in the country and enhancement of soft power can advance the outreach of these three democracies in the country.
- Similarly, India, Japan and South Korea could work together in soft power projection in the Pacific Islands through their cultural centres. Apart from strengthening people-to-people connect, it would also add to the strategic advantage of India, Japan and South Korea.

Conclusion

In a nutshell, the dialogue outlined that India, Japan and South Korea, the three major democracies in the region can work together towards peace, stability, prosperity and a rule-based order in the region. In cooperation with ASEAN and other countries in Asia, India, Japan and South Korea could also promote Asian values in terms of spirituality, universalism and conflict mitigation to the world.

Surmounting Tensions over Taiwan: Implications and Options for India

Prepared by Dr. Sweta Kumari

The Vivekananda International Foundation (VIF) organised a discussion on “**Surmounting Tensions over Taiwan: Implications and Options for India**” on July 19, 2023 (Wednesday). Dr. Arvind Gupta, Director, VIF, gave the opening remarks and Amb. Anil Wadhwa moderated the session. Amb. Vijay Keshav Gokhale gave the keynote address while Amb. Ashok Kantha and Amb. Arun Kumar Singh were the discussants. Amb. Satish Chandra, Amb. Pankaj Saran, Amb. Skand Tayal, Amb. Anil Trigonayat, Vice-Admiral Satish Soni, Lt. Gen. Rakesh Sharma, Prof. Srikanth Kondapalli, Dr. Udai Bhanu Singh, Mr. Kanav Monga, Lt. Gen. R.K . Sawhney (Retd.), Brig. Vinod Anand (Retd.), Prof. Sujit Dutta, Gp. Cap. Naval Jagota (Retd.), Cmde. Gopal Suri(Retd.), Prerna Gandhi, Dr. Sweta Kumari and VIF interns also participated in the discussion.

The Taiwan issue is becoming increasingly significant for the security of the Indo-Pacific region. The United States and China are not making any concessions on their positions on Taiwan. This issue is expected to dominate the geopolitics of the region in the coming decades. In this backdrop, the discussion primarily focused on an Indian perspective on the situation in Taiwan, its potential implications and options for India.

Possible Impact of Taiwan Crisis on India

India, in the 1950s, recognised China’s sovereignty over Taiwan. India

understood the geopolitical effect of the two crises across the Taiwan straits on the region and was actively involved in its peace and stability. However, this approach was not continued after the 1960s.

There would be an adverse impact on 4 'S' areas for India in case of a crisis in the Taiwan Strait.

- Shipping: Around 40% of Indian ships pass through Malacca Strait and South China Sea. Any temporary or long-term crisis in Taiwan will disrupt shipping and have a significant impact on India's trade.
- Supply Chain: India is heavily dependent on China. Any disruption of the supply chain affects export-driven industries of India such as pharmaceuticals, electronics and automobiles. Thus, it will have a double effect on the Indian economy.
- Semiconductors: India is entirely dependent on other countries for semiconductors. Being a services-oriented economy that heavily relies on semiconductors any disruption may potentially lead to massive unemployment.
- Submarine Cables: The Taiwan Strait has a number of undersea cables and with China having the capability to disrupt these, any such disruption can also have an inimical effect on India's communications.

Apart from the economic consequences, there will be geopolitical implications for India in case of any attempt towards annexation of Taiwan by China.

- Any major change in the status quo in China's favour will not be of interest to India.
- China is engaging in grey-zone operations and incrementally achieving its objectives. Any change by China in the status quo would be more aggressive including, more serious mobilising along

the eastern sector of India-China borders, especially in areas, which are not effectively controlled, or patrolled by India such as the Fish-Tail area.

Views on US-China Conflict

- A US-China conflict over Taiwan's sovereignty is unlikely as it would not be limited to Taiwan and rather become a global war.
- However, the ongoing grey zone warfare and actions and counteractions between US and China may lead to a crisis that would have an adverse impact on the economy of India.
- There are divergent views about the China's attempts to reunify Taiwan by 2027. Although China has not given a specific timeline, reunification has been an important issue and it would continue with the planning process to achieve the same.
- The US does not have an upper hand in Taiwan like the 1950s given the economic rise of China. Also, militarily, China has a strong presence in the Taiwan strait and the South China Sea.
- India needs to prepare itself for the worst-case scenario.

Economic Measures taken by China

Any disruption in the supply chains would also affect China adversely. To insulate its economy from such negative impact -

- China is making attempts to safeguard its vulnerable industries through import-substitution.
- It is also promoting the idea of dual-circulation to boost domestic consumption so that the economy is not entirely dependent on export-driven growth.

Position of the United States on Taiwan Crisis

- The US military has publicly, and in Congressional hearings, projected that China may attempt to use military force for reunification of Taiwan by 2027.
- The US is working with its allies in the region such as Japan, Philippines and Australia to address this concern.
- China has reached out to European countries through BRI and other projects and has also taken punitive measures against some of them including Sweden, Norway and Lithuania. Europe is ambiguous about China and has to figure out how to deal with challenges posed by it. However, considering the support extended by the US to Europe in the Russia-Ukraine conflict, there would be a compulsion for the European countries to take measures against China in case of a crisis across the Taiwan Straits.
- The US is reaching out to NATO to be more involved in the Indo-Pacific region.
- The current US outreach to China through the recent high-level visits is to prevent the relations from spinning-off and to recalibrate the new structure of US-China relations.

Views about India's Outlook

- Given the signing of new agreements between India and the US and deepening of their partnership, the strategic community is assessing the possible support that India can provide in case of a crisis, like logistic support, geospatial information sharing and the like.
- However, analysts agree that a strong India in itself would be a deterrent to China. Also, **India is already partly addressing the US problem by mobilising troops in its northern borders given the**

recent tensions it had with China.

Recommendations

- Reiteration of Policy: India needs to prepare for this contingency since it will be directly affected by the Taiwan crisis. India will need to declare its posture before the crisis and need not maintain any ambivalence, especially if China has precipitated the crisis. India should be much less inhibited about its relations with Taiwan.
- Caution: However, India will also have to evaluate how forthcoming it can be regarding its alignment with the US vis-a-vis China.
- Maintaining the Status Quo: India has a substantial global influence. It should reach out to countries and the European Union which do not want the status quo to change across the Taiwan Strait.
- Educating the Global South: India can shoulder the responsibility of educating the Global South about the economic consequences it may face in case of a conflict. It may ask them to lend their voices to make it clear to both sides that precipitation of the crisis is something the rest of the world is not going to support.

Conclusion

The discussion involved assessment of the challenges posed by the tensions across the Taiwan Strait and their implications on India and the Indo-Pacific region. India's relations with China, Taiwan, and the US were discussed by the participants. Pertinent geopolitical issues such as the Europe- China relations, US-China relations, Russia-Ukraine War, diversification of supply chains, grey-zone warfare, semiconductors and emerging technologies were also brainstormed during the discussion.

India and the Shanghai Cooperation Organisation (SCO)

Prepared by Dr Pravesh Kumar Gupta

The fourth meeting of the VIF Eurasia expert group was held on July 21, 2023. Dr Arvind Gupta, Director VIF, made the opening remarks, followed by Amb D B Venkatesh Varma, who chairs the expert group. Other members of the expert group present for the discussion included Amb Ashok Kantha, Amb Ashok Sajjanhar, Amb D P Srivastava, Amb Skand R Tayal, Prof. Gulshan Sachdeva, Dr Athar Zafar, Commodore Gopal Suri, Colonel Sunil Yadav and Dr Pravesh Kumar Gupta.

The discussion focused on “India and the SCO.” On July 4, India, which held the SCO chairmanship for 2022-2023, conducted a virtual summit of the leaders of state of SCO countries. Although there has long been debate regarding India’s role in the SCO, the debate gained traction with respect to recent developments that impacted India’s SCO presidency. Against this backdrop, the expert group members provided diverse and important viewpoints on the SCO’s significance for India and other relevant issues.

Following the discussion, some important issues emerged that merit mention. India’s objectives in the context of the SCO have been evolving and there needs to be continued debate on how our priorities are achieved. While attention was focused on India hosting the meeting in virtual mode, more fundamental issues are at stake that need focused analysis. The experts agreed that India needs to re-calibrate and re-energize its approach

to have a meaningful policy on SCO, particularly towards engagement of the Central Asian Republics and more fundamental issues to the future of Eurasia. The discussion also emphasized that India should demonstrate its commitment to engaging with SCO in the context of its own national interests and priorities.

Given that the SCO is expanding (Iran joined as the group's ninth member, and Belarus will be the next), it is crucial to assess how this development will affect the SCO's dynamics and any potential benefits it may bring for India. It is expected that an expanded SCO may assume a more anti-western stance. Still, it is for India to assess whether and, if so, in what manner these positions affect India's national interests, and distinct from western interests. Central Asian nations, have their own perspectives which should also be taken into account. In close consultation with Central Asian countries, India should evolve its own identity and approach in SCO matters.

Doubts about SCO's effectiveness were also expressed considering that it has yet to generate anything tangible. In his remarks, PM Modi also raised an important question: "New challenges are emerging, but is SCO capable of addressing them?" He also urged that SCO be reorganised and modernised in order to deal with the current challenges.

All participants agreed that India should continue to participate in the SCO actively. With regard to Belt and Road Initiative (BRI) and China Pakistan Economic Corridor (CPEC) on which India has valid concerns, it is important to evolve a more proactive policy on the issues of connectivity rather than allow CPEC and BRI to impose a paralyzing effect on India's engagement with SCO. India must concentrate on specific sectors in order to revitalise connectivity initiatives such as Chabahar Port and INSTC. It should proactively push back against US restrictions and sanctions, which hampers access of Indian companies to Central Asia due to the fear of US

sanctions. Banking and custom issues need to be resolved expeditiously. The proactive role of India within the SCO will allow it to shape the organization's future. In the absence of India's proactive role, or India's withdrawal from SCO, China will gain a huge geopolitical and diplomatic bonanza. Those advocating India weakening its engagement with SCO should be aware of these negative consequences.

Experts highlighted the importance of India's SCO leadership, especially in the context of the acceptance of the documents pertaining to de-radicalisation and digitisation. Giving a forum to observers and discussion partners was one of the key components of India's SCO chairmanship. Several events have been organised in this direction. The group members concluded that there should be no question about India leaving or underplaying the organisation at a time when both Eurasia and the SCO are becoming more significant. India must use the opportunities available to it and demonstrate that it is upholding its obligations under the SCO.

Changing Geopolitics in West Asia and India's Options

Prepared by HIRAK JYOTI DAS

The West Asia Experts Group at VIF organized an Inter think-tank dialogue on the theme, “Changing Geopolitics in West Asia and India’s Options” on 13 July 2023. The participants in the dialogue were Associate Prof. Md. Mudassir Qamar; Prof. Kingshuk Chatterjee; Kabir Taneja; Dr. Adil Rasheed; Lt. Gen. Ata Hasnain; Dr. Lakshmi Priya; Dr Meena Singh Roy and Assistant Prof. Alvite Singh Ningthoujam.

Domestic politics and foreign policy of Saudi Arabia and Turkey

The key trends in the West Asian region include regional reconciliation; increasing strategic autonomy, diminishing role of Political Islam and growing role of non-state actors.

Israel’s integration in the region has also intensified after the 2020 Abraham Accords, which indicates the decreasing political relevance of the Israel-Palestine conflict as more Arab states are looking to build diplomatic relations with the Jewish state. The UAE, especially, has moved from an assertive foreign policy to a diplomatic approach based on reconciliation. The reconciliatory atmosphere however cannot be called as a regional reset and it is largely driven by economic considerations. The West Asian states have learnt their lessons from the Arab Spring protest and are seeking to de-escalate regional tensions by negotiating their differences.

The West Asian states are increasingly seeking strategic autonomy. Iran, since 1979 Islamic Revolution, is a major proponent of strategic autonomy and ‘resistance economy’. The Gulf States rely on the US to serve as a security provider. The Gulf States in the recent years have engaged in hedging and asserted their strategic autonomy, especially in the case of Russia-Ukraine war, as well as rejection of US demand by Saudi Arabia to hike oil production.

The role of political Islam, especially that of the Muslim Brotherhood (MB), has diminished due to efforts by Egypt, Saudi Arabia, and the UAE. It is however wrong to assume that political Islam has disappeared. It continues to remain a potent force in Turkey, Kuwait, Qatar and Jordan. The socio-political ideology of MB continues to attract Muslim citizens from the wider region. The role of non-state actors has increased in states such as Iraq, Syria, Yemen, Libya and Tunisia. India should consider these trends in its policy framing process towards the region.

In Saudi Arabia, there has been a deliberate effort to not only carry out image makeover but redefine Saudi identity and what it stands for. These changes, which further accelerated under Crown Prince Mohammed Bin Salman, are also aimed at creating an investment friendly atmosphere and support mega infrastructure projects such as NEOM under Vision 2030. These changes have widened the social contradictions in Saudi Arabia which are likely to play out in subsequent years and will impact Saudi Arabia’s transformation.

Recep Tayyip Erdogan facing his toughest election in May 2023, has managed to win another term. His campaign strategy focusing on political stability, identity issues, national vision, state security, anti-west rhetoric, inaugurating mega projects have resonated among his supporters. Erdogan’s regional policy is based on geo-economics with the Gulf States and Israel. Turkey’s political rhetoric against India has affected the bilateral

relationship. Ankara's foreign policy reconsiderations since 2021 which have facilitated a broader trend of reconciliations with regional states, its search for external partners to overcome its regional isolation and economic downturn present an opportunity for India. India's economic outreach backed by diplomatic, political and geopolitical moves, cultural diplomacy and trade, business, and investment ties, can help in changing Turkish behaviour, and might lead to de-hyphenating Pakistan in bilateral relations.

Geopolitical Landscape of the Middle East: Iran 2023

Iran's power and influence in the region since 1979 has rapidly grown and it has consolidated itself in its neighborhood. Domestically however, the sanctions regime has crippled Iran's oil infrastructure and its financial sector is caught in a time-warp. The six-month long country wide protest from September 2022 has been suppressed by the ruling regime and public anger has continued to simmer very close to the surface. The US withdrawal, brought on by the reduction in US dependence on the region for oil, has resulted in a major power vacuum in the region.

Iran currently enjoys warm ties with two permanent members in the UN Security Council i.e. Russia and China, which has helped it to overcome its diplomatic isolation in recent years. China has helped Iran in easing the economic pressure due to sanctions as well as develop its refinery capacity. Iran has been promised \$400 billion worth of investment in the next 25 years including in the oil infrastructure). China is also helping Iran in normalising its relations with Saudi Arabia. Iran also appreciates China's lack of interest in political meddling in internal affairs.

Russia, through its intervention in Syria, has managed to regain its foothold in the region. However, Russia is likely to remain preoccupied in the quagmire in Ukraine directly impacting its influence in the region. Russia

will continue to ally with Iran on multiple levels. The war in Ukraine has brought Tehran closer to Moscow leading to increase in defence exports. Trade exchanges between Iran and Russia in local currency bypassing the dollar is beginning to blunt the effectiveness of sanctions.

US troop withdrawal from Iraq and Afghanistan has helped Iran to increase its strategic depth. On comparative scale, Iran's strategic depth is greater than the other regional powers such as Saudi Arabia, Qatar, the UAE and Turkey. In Syria, President Bashar Al Assad owes his survival largely to Iran. In exchange, Iran has gained long term strategic presence in the Arab state. In Iraq, Iranian-backed militias dominate much of the political landscape facilitating considerable benefits in the form of business contracts for IRGC-linked firms. In Lebanon, Hezbollah, bankrolled by Tehran, provides Iran a bridgehead onto Israel. In Yemen, the Houthi movement has proved itself as a credible challenger to Saudi Arabia that could sabotage its ambitious infrastructure projects. The presence of Houthis offers Iran the option of opening a second front in the event of a conflict. Iran's influence can be witnessed after the attack on two Saudi oil installations. Riyadh realized the risk of open conflict with Iran and pushed for back-channel talks – first through Pakistan and subsequently through Iraq, Qatar, Kuwait and China. There is a good possibility that for first time ever Tehran may be able to bury the hatchet, to avoid larger military conflagration.

JCPOA(2015) promised to rehabilitate Iranian economy in the international arena that was designed to come at the expense of Iran's influence in regional affairs. The IRGC continued to undermine and oppose the nuclear deal that could subvert its actions in the region. The hardliners were vindicated after Donald Trump withdrew from the nuclear deal allowing the Iranian state to accelerate the nuclear programme. Currently, Iran is closer to becoming a nuclear power. For the Iranian government to

conclude a fresh deal, it would require incentive which the western states are unwilling to consider. If Iran actually goes all the way with nuclear capacity, Israel may want to carry out a pre-emptive strike (albeit with no guarantee of success). It could prompt Iran to stay very close to the nuclear-threshold without actually crossing it. But even in that case, the threshold is likely to be much lower than any other time in the past.

Iran feared that Israel's integration in the Arab world especially a possible peace deal with Saudi Arabia could lead to united efforts by these states to thwart its strategic objectives. The rapprochement with Saudi Arabia has diluted the strategic threat posed by Abraham Accords. Iran is ready to accept bilateral relations between Israel and the Arab world provided that it does not have any repercussions on Tehran's strategic space. The election of the ultra-right wing government in Israel has currently stalled the possibility of normalization by Saudi Arabia. It is true that Abraham Accords will not be undone; however it is unlikely to go any further in the immediate future.

Iran's resistance economy is unsustainable due to its reliance on heavy infrastructural expenditure, i.e. artificial stimulation of a market characterized by limited market demand, with little forward linkage. Secondly, the disaffection with the state of the economy is guaranteed to keep discontent simmering which could further aggravate due to political repression. These two factors make the Islamic Republic vulnerable. In case, Tehran does not engage in adventurism abroad, it may not generate these profits for the 'peddlers' of Iranian resistance economy, but could also keep a lid on disaffection over economic exploitation and adventurism. Therefore, it helps in consolidating Iran's influence. However, the temptation of spectacular success and considerable influence abroad could be irresistible to plough money and profits back in the IRGC-linked outfits. This could generate further discontent. Moreover, adventurism can result

in overreach, drawing retaliation/preventive intervention such as the case of Israeli strikes against Iranian and Syrian assets in Syria. This could result in a broader regional conflict.

Big power competition in the Middle East

The big power competition between the US and China is impacting the geopolitical realities in the West Asian region. The US policy in the region has been in transition since the Obama administration which further accelerated under Donald Trump and is currently in based on developing a more diversified relationship. While this US repositioning has reduced its presence in the region, it will remain the predominant extra-regional power. The sense of fatigue within the US about its military build-up and spending in this region is likely to cause a shift in its military posture towards more innovative tactics in other domains.

The regional states are keen to uphold their strategic autonomy and are looking for other partners. The US withdrawal from Afghanistan has led to loss of confidence in Washington DC's security guarantees. The American bipartisan perception of China as a threat has led to strategic hedging by the West Asian states. The West Asian states are seeking to extract the most by pitting China against the US.

China's foreign policy approach, based on non-interference in internal affairs, finds favour with the autocratic states in the region. These states, at the same time, refrain from criticising China's actions in Xinjiang. China is also more willing to offer new technology and weapons as compared to the US. However, it is unclear whether China is willing to play the role of a security provider. Hence, China is unlikely to be a traditional power in the region like the US, whose presence was used by its regional allies as deterrence.

Chinese security architecture for West Asia and its manifestations

The key regional developments in the West Asian region have had significant long-term implications including the collapse of the petrodollar system which had formed the basis of US-Saudi relations for nearly half a century. Following the 9/11 attacks, the US realised the problems of overdependence on Gulf oil and consequently planned to replace 75 percent of the nation's oil imports from West Asia by 2025. With the rise in US oil production, particularly shale oil, the US currently, is not only the world's largest producer of oil but will become net exporter of crude oil by the end of 2023. The US has since freed itself from dependence on oil imports well before its 2025 deadline.

China has emerged as the greatest beneficiary from the US wars in Afghanistan and Iraq in the 2000s, even more than Iran, Gulf states and Russia. China's meteoric rise as an economic and military power post-9/11 was at the expense of the US preoccupation in West Asia and it faced little resistance. The US eventually realized that the Afghan and West Asian quagmire was preventing it from directing its energies towards the real challengers to its superpower status in resurgent China and Russia and this is reflected in the 2012 "Pivot to East Asia" strategy of the Obama administration.

The Arab Pivot to China. The US allies in West Asia — Sunni Arab states and Israel, do not favour the American military pivot to East Asia that has empowered the so called 'Shiite Crescent' in their neighbourhood. It raised questions about the relevance of the 1974 petrodollar agreement because the US was renegeing on its word to provide security to Saudi Arabia and Gulf States. The Donald Trump administration, in order to placate the sense of betrayal among US' Arab allies, pushed Gulf States to forge the Abraham Accords with Israel in 2020, making it a front against

Iran and Turkey. The lifting of US security cover from Gulf Arab countries has forced these states to grow closer to China and Russia. While the US does not need oil from the Gulf anymore, China imports nearly 40 percent of its oil from the region. China also does not interfere in internal affairs or raise questions about human rights and democracy.

China's Security Architecture for West Asia. China has displayed its ambitions to replace the US as a security provider for GCC states. In his address to the First China-GCC summit held in Riyadh in December 2022, Chinese President Xi Jinping told the Gulf States that "China will firmly support GCC countries in safeguarding their security, and support the efforts by regional countries to resolve differences through dialogue and consultation and to build Gulf collective security architecture". In February 2023, China released its Global Security Initiative (GSI) Concept Paper stating that, "China will Implement the five-point proposal on realizing peace and stability in the Middle East, including advocating mutual respect, upholding equity and justice, realizing non-proliferation, jointly fostering collective security, and accelerating development cooperation, so as to jointly establish a new security framework in the Middle East." In March 2023, China took credit for the re-establishment of diplomatic relations between Iran and Saudi Arabia. Saudi Arabia restored ties with the Syrian regime, with the backing of the Russia-China patronage. Thus, China's proposed security architecture under its theoretical Global Security Initiative showed its first practical manifestation in West Asia. In the military sphere, Russia, China and Iran conducted a naval exercise in the Gulf of Oman in mid-March 2023, called 'Maritime Security Belt 2023'. Chinese participation in this naval exercise was reported to be its largest ever in the Gulf. This was followed by the UAE Foreign Ministry declaration on 31 May 2023 that the country had already withdrawn from the 34-nation US-led Combined Maritime Forces, which currently operates in Gulf waters and the Red Sea.

India- Saudi relations

Notwithstanding its pivot to the Indo-Pacific region, the US is aware that any conflict in the region requires its attention. In the post-COVID-19 period, the US is aware of its limitations. The effectiveness of Abraham Accords is also questionable due to Israel's aggressive actions against Palestinians. It is also unlikely that other Arab states will normalise relations with Israel in the near future.

China's interest in the region is gradually moving from the economic sphere to a more focused strategic approach which can be seen in the successful mediation effort between Saudi Arabia and Iran. China however lacks the knowledge or connection with the Islamic culture. For Saudi Arabia, despite forays by China, the US will continue to remain as its most crucial strategic ally.

Saudi Arabia, which is the custodian of the two holiest mosques, occupies a crucial position in regional geopolitics. Saudi Arabia, under Crown Prince Mohammed bin Salman, is rapidly changing with the state seeking to change its image from an orthodox socio-political entity to a more tolerant society. Moreover, diversification of the Saudi economy is also a major strategic goal for the state.

From the Indian perspective, Saudi Arabia is a strategic asset as a supplier of oil and serves as a major source of remittances. India has managed to de-hyphenate the Pakistan factor in the region. Nevertheless, it should continue to closely observe Riyadh's engagement with Pakistan. Pakistan through its membership in Organisation of Islamic Cooperation (OIC) will continue to target the Indian government. Notably, there is growing aid fatigue in Saudi Arabia and other Gulf states to repeatedly salvage the Pakistani economy, even as their engagement with the civilian government had declined during the Imran Khan led government. It needs to be seen

how Saudi Arabia and other Gulf states handle their relationship with Pakistan which is likely to face further political and economic instability in its near future.

The Indian government under Narendra Modi has made deliberate efforts to expand its sphere of influence in West Asian states and boost ties with all major economies in the region. India strongly favors Saudi Arabia's rapprochement with Israel and greater cooperation in I2U2.

Geopolitics of Qatar and the UAE

West Asia has been a theatre of power struggle and geo-politics and Gulf is the core of the region. Some trends in the last couple of years are indicative of the re-alignments taking place in the region. The first trend is that the Gulf States are attempting to overcome their differences and are re-designing their ties in order to adapt to geo-political changes. Recent developments like the 2020 Abraham Accords, 2021 Al-Ula Summit, 2023 Saudi-Iran Deal and Syria's return to the Arab World highlight this trend. The second trend is that the states in the region are attempting to diversify their partnerships with global and regional actors. While US influence is waning in the region, these states want steady ties with Russia and China. China's mediation in the Saudi-Iran deal has given a new dynamic to its presence in the region. The third trend is that the Gulf States recognize the significance of membership in multilateral institutions, especially in the aftermath of COVID-19 pandemic, which underlined the importance of collective effort in meeting such challenges. This recognition has manifested in these states showing keen interest in joining multilateral institutions like Shanghai Cooperation Organisation (SCO). The fourth trend is that the Gulf States are aware that robust economic engagements are the new pathways in gaining influence. In this context, these states are emphasizing on "Looking East" to tap into the Asian markets especially India and China, as part of the economic diversification strategies.

Moreover, the reduction in dependence on hydrocarbons has pushed these states to seek out new partners in renewable energy like green hydrogen. The fifth trend is that the Gulf States are keen to enhance cooperation in areas of non-traditional security including food security, environment security, water scarcity, terrorism, disaster management and human security.

The UAE's foreign policy, rooted till now in the maintenance of security, peace and prosperity in the immediate neighborhood, has matured with Abu Dhabi flexing its political and economic muscles through capacity building and image projection. Abu Dhabi Economic Vision 2030 was announced for the transformation and diversification of the state's economy. The long-term plan is aimed to reduce reliance on the oil sector as a source of economic activity and place greater emphasis on knowledge-based industries in the future. The UAE has a more proactive foreign policy as evident from its role in blockading Qatar, breaking with Saudi Arabia on Yemen strategy, signing of Abraham Accords, and not aligning with the US on the Ukraine conflict. UAE has expanded its influence from the GCC to the larger Arab world and beyond.

Qatar focused on subsistence and stability in the initial years after its independence while depending on Muslim Brotherhood (MB) to instill a sense of national identity among its citizens. Qatar has worked to forge an image of impartial and neutral mediator in case of Taliban issue or the Eritrea-Djibouti territorial dispute. Qatar is transforming into a smart power from being a subtle power. Qatar and the UAE both are engaged in promotion of soft power through media, culture, sports, tourism etc. There is however divergence in terms of Qatar's support to the Muslim Brotherhood in contrast to UAE's aim to build a secular image to the world. Secondly, pace of economic diversification and energy transition in UAE is faster as compared to Qatar. UAE's oil resource is dwindling

while Qatar's LNG reserve will sustain its economy for few decades to come. Consequently, UAE is investing in renewable energy including green hydrogen while Qatar is hedging its bets on the natural gas which is a transition fuel.

India-UAE partnership is strong and time tested. The two countries have diverse economic engagements and areas with potential for future cooperation in renewable and hydrogen energy, science and technology, defence manufacturing, maritime vessel automation, and cyber security. As far as Qatar is concerned, India can cooperate in hydrocarbon exploration, investments and defence sector.

Emerging Trends in the Indo-West Asian Ties: Recent Developments, New Opportunities and Challenges; Current Developments in Israel

India's bilateral relations with most of the countries in its extended neighbourhood – West Asia has grown rapidly in the past few years leading to robust and comprehensive collaborations. India's engagements in the region have evolved beyond the traditional oil-energy trade, remittances and the size of the Indian migrant workforce present in West Asia, particularly in the Gulf Cooperation Council (GCC) countries. Indian Prime Minister Narendra Modi's personal efforts towards establishing links with the leaderships in West Asia played an instrumental role in bringing about this transformation. The Gulf States' efforts to diversify their revenue sources have necessitated exploration of economic opportunities in the non-oil sector, including technology, investment abroad and in the renewable energy domain. Many of these states are intensifying their cooperation with India, which is fast emerging as an attractive partner and a potential destination for investments, technical cooperation, economic as well as defence engagements, and also to collectively work against the growing scourge of global warming and climate change.

The 'Look East' sort of policy adopted by most of the West Asian countries or Gulf's 'Asia Pivot' policy, coalesced with Narendra Modi-led government's 'Look West' policy, focuses on scaling up the level of cooperation, particularly with the GCC states, Iran and Israel. The steady improvement and gradual maturation of bilateral relations has enabled India to explore newer domains of cooperation such as renewable energy, healthcare and space. The signing of the India-UAE Comprehensive Economic Partnership Agreement (CEPA) in February 2022, and the introduction of India's Unified Payment Interface (UPI) services, in some of the Gulf countries, including Oman, Qatar, Saudi Arabia and the UAE, will improve the economic ties.

Cooperation in energy and economic security will continue to occupy a significant space in New Delhi's foreign policy agenda towards West Asia. Cooperation in the renewable energy sector and related technology between India and this region has received a fillip due to the mutual realisation of an urgency to lessen the reliance on fast-depleting fossil fuel energy resources. India has set a target of generating 450/500 gigawatts of renewable energy installed capacity by 2030. Some West Asian states, like Israel, Saudi Arabia and UAE, which plan to make the transition to clean energy sources like solar power and hydrogen, are engaging with India in this domain. An intensification, in their technological collaborations in this area can be expected in the upcoming period, and will likely see more involvement of both state and private-owned stakeholders, generating more job opportunities for the citizens of these countries.

A need for engagement in the healthcare sector has been reinforced by the outbreak of the global COVID-19 pandemic. India is cooperating with UAE, both at the bilateral and pluri-lateral levels, and possibilities are also being explored with Bahrain as well. India and the UAE are jointly working towards establishing healthcare projects in two key African states

i.e. Kenya and Tanzania, and such arrangements could be worked out with other countries as well. The existing agreements have encouraged cooperation in a wide range of fields, including health, medical science, medical education, and research, as well as the establishment of joint working groups for smooth and regular discussions on these issues. Priorities need to be given in the co- production of medicines, funding of research projects, exchange of research papers on various diseases/illness, regular exchanges of professionals between institutes and laboratories, and sharing and exchanges of best practices.

A relatively new domain which has tremendous potential to see further growth is space cooperation, especially when considering the science and technological advancement attained by the UAE, Saudi Arabia and Israel. Indian Space Research Organisation (ISRO) and Israel Space Agency (ISA) have been collaborating for earth observation, space science, satellite navigation, space situational awareness, human space flight for more than a decade. The 2016 MoU between ISRO and the UAE Space Agency (UAESA) should also facilitate an expansion and take these ties to newer heights. Saudi Arabia's increasing focus on developing its own space technology, within the framework of its Saudi Vision 2030, should push Riyadh to seek assistance from foreign countries like India that have already achieved a considerable degree of experience in space science. There is already an MoU between ISRO and King Abdul Aziz City for Science & Technology (KACST), signed in early 2010, but inactivity in this sphere runs contrary to the exponentially growing ties between the two countries. In late 2022 and early 2023, delegations from ISRO visited the UAE and Saudi Arabia to explore means for strengthening ties. The potential areas of cooperation include remote sensing, satellite communication, and satellite-based navigation. The 'mini-lateral' engagements with like-minded member countries have become a new pattern. India should explore the possibility of establishing a trilateral or

even quadrilateral collaboration, involving the UAE, Israel, France and Japan, in projects related to space technology. The similarity in the quest for technological advancement on both sides could act as a catalyst and, in the long run, space cooperation could emerge as new momentum that could continue propelling the already-flourishing Indo-West Asian ties.

There are a few potential challenges which New Delhi cannot afford to overlook. The most pertinent challenge is the existing uncertain security situation in the region, primarily the unabated antagonism between Iran and Israel. Any instability in West Asia could give rise to undesirable socio-economic as well as security consequences for India and the region. Secondly, the increasing Chinese strategic footprint in West Asia, in the long run, could pose a challenge to India's interests in the region. China's role in brokering a normalisation deal in March 2023 between Iran and Saudi Arabia is expected to enhance Beijing's presence, both bilaterally and regionally. As a result, it is imperative for India to keep the momentum intact and make strenuous efforts to further strengthen its ties bilaterally as well as with the regional forums/organisations/blocs. Thirdly, India cannot be complacent in executing the agreements and pacts which have been signed bilaterally, trilaterally and multilaterally. Delays and a lackadaisical approach in this regard would only hamper the progression of the ties. Countries like Israel, the UAE and Saudi Arabia, with their action-result-oriented policies, would look for efficiency while dealing with their partners. India's non timely activities and deliveries (if any) could make the West Asian countries turn towards other extra-regional players, including China, which looks for every possible opportunity to widen its presence.

Israel is seen as an important player in the region backed by its advanced military capability and advancement in technology. India's relations with Israel have seen a massive growth, extending well beyond their

longstanding military-security ties and defence trade to renewable energy, food security, agriculture, water management, artificial intelligence, semiconductors, space, and healthcare. Moreover, efforts are being made to enhance engagements in the socio-cultural sector, by placing importance on strengthening people-to-people connect, academic exchanges and collaboration, boosting tourism cooperation, etc. The signing of the Free Trade Agreement (FTA), which is in the advanced negotiation stage, will provide a major impetus to their ties.

Discussion on ‘Inflation Reduction Act and Carbon Border Adjustment Mechanism: Implications for India’

Prepared by Prerna Gandhi

The Geoeconomics Experts Group at the Vivekananda International Foundation held its fourth meeting on 27 August 2023 on *‘Inflation Reduction Act and Carbon Border Adjustment Mechanism: Implications for India’*. After initial remarks by Dr Arvind Gupta, Director VIF, presentations and interventions were made by Ambassador Anil Wadhwa, Ambassador VS Seshadri, Mr Anil Devli and Ambassador Venkatesh Varma. The discussion raised a number of issues from the intersection of global trade with climate change agenda under the rubric of economic security to changing nature of trading arrangements and supply chains with implications for Global South and India. Some of the salient points are detailed below

Inflation Reduction Act (IRA)

For the IRA, only one of the objectives is inflation reduction and thus it should have more appropriately been called the climate act. The act, through additional taxes, raises \$739 billion which includes 15 per cent minimum corporate taxation, prescription drug pricing reform, IRS tax enforcement etc. But it also carries expenditure of \$400 billion much of which will be towards energy and climate policies. Primarily, this will take place through tax credits. However, \$400 billion is only an indicative figure. Many believe that over the years if the usage becomes more,

funding could rise. The IRA intends to capitalize investments into clean electricity production, onshore manufacture of key transition components to North America, accelerate transport electrification and deploy leading edge technologies such as carbon capture and green hydrogen. There are 3 key objectives at the core and the design of the IRA. The first is swift transition to a low carbon economy. Second is diversification of supply chains especially away from China. The third is boosting domestic manufacturing. The IRA will reward the use of domestic components. Projects can claim extra credit up to 10 per cent for offshore wind projects and up to 20 per cent if they source steel, aluminium, or other materials of which 40 per cent are manufactured in the US. The IRA also seeks to boost electric vehicle sales and production in the US. It modifies existing trade credits to go up to \$7,500 per new electric vehicle. To be eligible, 40 per cent of the critical minerals used in the vehicle's battery must be extracted or processed in any country with which US has an FTA or be recycled in North America. This percentage rises to 80% by 2027. Similarly, at least 50 per cent of the components must be assembled or manufactured in North America, increasing to 100 per cent by 2029.

Carbon Border Adjustment Mechanism (CBAM)

In 2023, the EU came out with the 'Fit for 55' Package as part of the European green deal that provides a pathway to cut carbon emissions by about 55 per cent by 2030 and achieve net zero status by 2050. One of these measures is the CBAM that intends to address the imbalance in global efforts to address climate action and then bring them in alignment with EU's goals for climate change. The EU feels that the climate action policies that have been adopted by different countries are considerably variant and these variations can lead to a spillover of greenhouse gas emissions in form of carbon leakages via international trade. This can especially occur if companies based in the EU diversify their production

processes to make use of relatively lower emission standards in other countries. Alternately, intermediate, or final use products in the EU market may be replaced through imports, which do not conform to these standards, because they will be cheaper. The actual border taxation is scheduled to begin in 2026 onwards. But the interim period, which serves as a transition period is meant to acquire familiarity with the system that starts this October. The EU CBAM will initially apply to select sectors such as steel, cement, fertilizer, aluminium, hydrogen and electricity generation.

The Question of WTO Compliance

Through IRA and CBAM, both United States and Europe are principally looking to secure the competitive edge of their industries as their base in global manufacturing erodes. The question of IRA and CBAM being WTO compliant can only be tested through adjudication. But today the Appellate Body is essentially dysfunctional. In case of IRA, the act prohibits the application of tax credit if any of the components of the battery are manufactured or assembled by a foreign entity of concern from 2024 (this includes China). The IRA thus, raises over five classes of countries. First is US itself. Any investment there and adhering to all incentive proposals will enjoy full benefits. Then it raises the second class of countries that includes Mexico and Canada with many provisions for credit if certain components are assembled in North America. The third class of countries are FTA partners of the US. They will get some benefits in particularly minerals, etc. processed by them. The fourth class of countries includes India or non-FTA partners that may enjoy some benefits in certain segments that are non-discriminatory. Then there are the fifth class of countries are countries like China from which certain components are banned. These are blatant violations of WTO rules of non-discrimination.

EU and IMO Carbon Levy on Shipping

At the International Maritime Organisation (IMO) meeting earlier in July 2023, discussions about the introduction of a maritime levy were delayed, although an agreement was achieved over greenhouse gas reduction goal for international shipping. An agreement was achieved to reduce carbon intensity of international shipping by 40 percent by the end of the decade compared to 2008 levels and to curb total international shipping emissions by a minimum of 20 percent by 2030. In November 2022, EU institutions reached a preliminary agreement on extending the Emissions Trading System to cover shipping.

Implications for China

Unlike the IRA, the Critical Raw Materials Act of the EU, though in the draft form currently, allows other countries some room. In extracting ores, minerals, or concentrations, only up to 10 per cent of the requirements should be done in the EU by 2030. And processing capacity up to 40 per cent. It, therefore, allows sourcing from the rest (even China). On the other hand, the US is taking a somewhat harder line, but mainly in respect of electric vehicles and batteries. China has become already a leader in electric vehicles. There is possibility that China may push aggressively on prices of EVs. It was also argued that Chinese operators may look for shipping hubs outside the EU to lower their costs.

Implications for Global South

The IRA and CBAM raise some ethical issues with respect to climate justice and the principle of common but differentiated responsibilities and respective capabilities. In the recent meetings under the G20, India has been raising the concerns of developing nations and also starting a dialogue so that we can have a more equitable and sustainable approach to international trade and tariff regulations. Under our G20 presidency,

we have advocated establishing equivalence between other measures, which also seek to limit carbon leakage. Now, the rationale for this is that given the differences in domestic political economies and governance and regulatory arrangements, there could be alternate policy measures that can enable similar greenhouse gas mitigation. Many countries have already criticized the IRA and CBAM as discriminatory because they say that they risk market distortions. There are also expectations that despite competing with one another, the US and EU may join hands in the WTO reform process. But one can still expect swift resistance by many countries.

Implications for India

India is still evaluating IRA and examining possible arrangements with the United States to make Indian exports cheaper and create a level playing field. India must argue against the favourable treatment for US domestic producers under the IRA on the basis of WTO principles. But we should also see if a compromise can be worked out bilaterally. In case of CBAM, we need to be more vigilant as EU is one of India's largest trading partners and its second largest export market. The CBAM may have negative impacts on ongoing trade negotiations, a case in point being the India-EU FTA. Exports to the EU were about \$65 billion in 2021-22 and if there is an increase in prices of these exports on account of CBAM, that could exert pressure on the trade volumes and potentially widen the current account deficit. In COP26 in Glasgow in 2021, India had already declared its ambition to reach the net zero target by 2070. With the CBAM set to translate into a roughly 25 to 35% tax on select imports into the EU starting January 2026, this may not fit well for the national climate mitigation efforts. Another major challenge also lies in the area of effective monitoring, reporting and verification of carbon emission across sectors. We don't have anything of this sort on our industry wide scale at the moment. India in its biannual update report to the UNFCCC, highlighted the

challenges to inventorization on account of large informal sector in India which makes up almost 90% of the work force. There are some studies done that say that that would require an economy wide investment of up to \$10 trillion. It needs to be noted that India maybe the only country on track to meet Paris Agreement targets.

Quantum Technology and the Changing Nature of Warfare

Prepared by Saroj Bishoyi

Introduction

Quantum Technology (QT) is an emerging field of quantum physics and quantum engineering that relies on the properties of quantum mechanics developed in the early 20th century, especially quantum superposition, quantum entanglement, and quantum tunnelling. The quantum computing, quantum communication, cryptography, quantum sensors, simulation, measurement, and imaging are all examples of emerging quantum technologies. The development of QT is going to profoundly impact and redefine crucial sectors such as communication, defence, space, business, banking and society in general. QT with its ability to process and transmit vast amounts of unhackable data, navigation capabilities, improved sensing and metrology has the potential to revolutionize future warfare. The great powers are in a race to develop QT to gain economic, defence and strategic edge over their competitors. In particular, China and the US are heavily investing on the research and development (R&D) in cutting-edge technologies, including QT. However, China is the leading investor in this sector.

To dwell upon these issues, the Vivekananda International Foundation (VIF), New Delhi in collaboration with Synergia Foundation, Bangalore organised a Roundtable discussion on “*Quantum Technology and the Changing Nature of Warfare*” in New Delhi on 3 July 2023. Director, VIF, Dr. Arvind Gupta and President, Synergia Foundation, Mr. Toby Simon

delivered the welcome remarks and opening remarks respectively. It saw participation of distinguished scientists from the government, senior members from defence services, representatives from private companies, startups and strategic experts. The participants deliberated up on a wide range of issues pertaining to the quantum technology and its impact on the future warfare, communication, its current status, identified challenges and suggested policy options in the context of India.

Quantum Computing

Quantum computing harnesses the laws of quantum mechanics to solve extremely complex problems very quickly, which are too complex for classical computers. A classical processor that at present powers a laptop and smartphone uses bits to perform its operations, while a quantum computer uses qubits to run multidimensional quantum algorithms. Google in 2019 announced that its quantum computer solved a problem in 200 seconds that would have taken a classical computer 10,000 years. IBM currently makes quantum hardware available to hundreds of thousands of developers. McKinsey has identified quantum computing as one of the next big trends in technology, which alone could account for nearly \$1.3 trillion in value by 2035. However, one of the limitations of the quantum computers is that quantum computers have to work along with classical computers.

Quantum Communication

Quantum Communications use quantum technologies for secure communications. One of the secure communications methods is Quantum Key Distribution (QKD) that enables two parties to generate a shared random secret key, which they can use to encrypt and decrypt messages. The QKD technology, which makes communication safe from hacking, uses ‘optical fibers’ for transmissions over several hundred kilometers. It also uses the ‘free space’ between satellites and ground stations for thousand-kilometer-level transmissions. Quantum communication

technology is useful for a range of strategic sectors such as space, defence, diplomatic, power grids, digital money transactions and banking.

In March 2021, India's Space Research Organization (ISRO) for the first time in the country demonstrated 'free-space' quantum communication over a distance of 300 metres. In August 2022, the Indian military announced that trials of 'optical fiber' quantum communication over 150 km were conducted. The panelists deliberated on the technological challenges and the way ahead in developing the QKD technology. It was pointed out that since most of the data is based on networks, hacking can bring a country to a standstill. Defence communications and critical infrastructure are equally vulnerable. A country with QT gets ability to protect its aviation, defence, electricity, energy and other critical infrastructure from attacks by an enemy country.

Quantum Sensors and Metrology

Quantum sensors and metrology have huge potential for numerous applications, like atomic clocks, locating and monitoring gas, oil, mineral deposits, surveying construction sites, detecting environmental or weathers changes, and improving navigation. Under the National Quantum Mission (NQM), the Indian government aims to develop magnetometers with high sensitivity (up to 1 Femto Tesla/sqrt (Hz); develop gravimeters of high sensitivity more than 100 nm/s²); and, develop atomic clocks with 10⁻¹⁹ fractional instability. The promising areas of research in quantum sensors and metrology are: quantum antennas; quantum radar/lidar; quantum Illumination; quantum clock after atomic clocks; quantum inertial navigation, quantum magnetometry; and quantum magneto-encephalography – helmet worn for health monitoring.

Quantum Materials and Devices

The objective of NQM is to develop design and synthesis of quantum materials (QMs); and, production of quantum devices (QDs) for

enabling quantum technologies. The QMs comprise all materials whose essential properties cannot be described in terms of semi-classical particles and low-level quantum mechanics. The examples of the QMs include superconductors, complex magnets or topological materials, which can lead to many new technologies such as quantum computers, magnetic memory, and improved optical sensors. The QD is a hardware that uses the effects of quantum mechanics to handle applications such as quantum computing, quantum cryptography, metrology, imaging, sensing, radar, and electromagnetic detection. The examples of QDs include the superconducting quantum interference device (SQUID) and light amplification by stimulated emission of radiation (LASER). The participants discussed the need for QMs and QDs for India's quantum technology mission, the emerging challenges as well as opportunities in this field.

QT and the Changing Nature of Warfare

Quantum Computing, Quantum Communication, Quantum Sensors and Metrology, and Quantum Materials and Devices are significantly changing the nature of warfare. Though the QTs do not provide fundamentally new weapons or stand-alone military systems, QTs significantly enhance measurement capability, sensing, precision, and computing power and efficiency. QT with its ability to process and transmit vast amounts of unhackable data, navigation capabilities, improved sensing and metrology has the potential to revolutionize future warfare. The race to develop capabilities in QTs has become as crucial as the nuclear race during the cold war. QT has the potential to provoke a new arms race.

China's Quantum Technology Programme

China is gaining momentum with huge investment in QT R&D, already leading in the development of quantum communications and total number of QT patents. It has invested up to \$4-17 billion in QT that support over 30 Chinese QT companies. It has harvested huge amounts of global encrypted

data such as weapon designs, covert intelligence officer, social security numbers, biometric markers, and source identities, and is waiting for a quantum computer to decrypt the classical encryption. China has claimed that it has built the longest QKD network in the world of thousands of kilometers between Shanghai and Beijing. China is making strides in satellite-based QKD communication too. It has, thus, become highly imperative to reflect on QT in the paradigm of operational warfare.

India's National Quantum Mission

In April 2023, the Indian government approved the National Quantum Mission (NQM) at a total cost of Rs.6003.65 crore from 2023-24 to 2030-31, aiming to seed, nurture and scale up scientific and industrial R&D in QT and their applications to create a vibrant & innovative ecosystem in the country. The NQM aims at developing intermediate scale quantum computers with 20-25 physical qubits in 3 years, 50-100 physical qubits in 5 years, and 50-1000 physical qubits in 8 years in various platforms like superconducting and photonic technology. While the Department of Atomic Energy (DAE), Department of Space (DoS), Defence Research & Development Organization (DRDO) partner with the Department of Science & Technology (DST) with their budget for the NQM. The Ministry of Electronics and Information Technology (MeitY) and Department of Telecommunications (DoT) will be knowledge partners without their budget for the Mission.

The NQM has identified four Thematic Hubs (T-Hubs), *viz.*, Quantum Computing, Quantum Communication, Quantum Sensing & Metrology and Quantum Materials & Devices, which will be set up in top academic and national R&D institutes. The participants discussed each of these vertical domains, implementation plan and the way ahead. The satellite based secure quantum communications between ground stations over a range of 2000 kilometres within India, long distance secure quantum communications with other countries, inter-city QKD over 2000 km (both

fiber and satellite-based) as well as multi-node quantum network with quantum memories are also some of the deliverables of the Mission.

The NQM is expected to accelerate QT led economic growth, nurture the ecosystem in the country and make India one of the leading nations in the development of Quantum Technologies & Applications (QTA). The Mission is expected to address the QT gap that exists with China. It is also expected to augment India's ability to deploy QT for research, business and governance. It will provide a huge boost to national priorities like Make in India, Digital India, Skill India and Stand-up India, Start-up India, Self-reliant India and Sustainable Development Goals (SDG).

International Cooperation in QT

In January 2023, India and the US launched bilateral initiative on Critical and Emerging Technologies (iCET), which covers QT as an important area of cooperation. India is also exploring possible collaboration in QT with other friendly foreign countries. The Indian startups, academia and research institutions are already in talks with foreign academic and research institutions to collaborate on developing various aspects of QTs. There is need of official proposals to forge QT partnerships. It was noted that it has the largest diaspora in the world, who have excelled in various fields including the QT. The participants discussed opportunities for developing mutual beneficial partnership with foreign countries as well as with the Indian diaspora in this field.

The Way Ahead

It was pointed out that the government agencies, startups, service providers and the academia need to work collectively to build a robust QT ecosystem in the country. The role of private sector in the QT is very important and it was emphasized that the government needs to fund and place orders to strengthen the private sectors. It was suggested that Indian STEM diaspora has strong presence in the field of QT, which can be utilized through

collaborative research work and knowledge sharing. It was noted that the cyber security professionals need to pay greater attention to the quantum threats. In this regard, the government needs to push regulatory mechanism for faster adoption to protect critical infrastructures and national interests.

Moreover, the government needs to reduce import duty on specialized components to reduce the cost of the technology to make it internationally competitive. It needs to take policy decisions quickly to realize the goal of NQM within a definite timeframe. Importantly, India needs to create an extensive ecosystem for the development of quantum technologies. Suitable mechanisms to create synergies between government, academia and industry needs to be created. The needs of the Indian armed forces must be factored into right from the inception of NQM.

India-US Strategic Partnership: Focus on Technology Cooperation

Prepared by Saroj Bishoyi

Introduction

The Vivekananda International Foundation (VIF) on 20 July 2023 organized an interaction with the visiting US-India Strategic Partnership Forum (USISPF) delegation, which was led by President and CEO, Dr Mukesh Aghi. The interaction covered a wide range of bilateral issues, especially focused on the recent developments in the areas of critical and emerging technologies (CET) under the India-US Initiative on Critical and Emerging Technologies (iCET) framework. The participants deliberated on pertinent issues, including semiconductor, space, defence technology, global tech race, China threat, India's role in countering China threat, de-risking, nurturing young STEM talents, and role of Indian-Americans. They discussed the emerging opportunities and prevailing challenges for forging a strong strategic technology partnership between the two countries. Director, VIF, Dr Arvind Gupta chaired the interaction and made the opening and concluding remarks.

Significance of PM's Visit

At the outset, it was noted that Prime Minister Narendra Modi's recent state visit to the US took the India-US strategic partnership to new heights. During the Prime Minister's visit, the two sides identified a number of areas for potential cooperation, starting from space to defence, artificial

intelligence (AI) to quantum technologies, vaccine development to clean energy technology and among others to move forward the partnership. The agreement on joint development of Jet Engines for the Indian fighter aircrafts added a new dimension to the relationship. The two sides are currently categorizing these fields into different groups and defining the criteria for success and timelines for execution. Implementing identified objectives in the agreed areas of cooperation will have significant implications at bilateral, regional and global levels. It was also noted that following the state visit to the US, Prime Minister Modi had a successful visit to France and then to the United Arab Emirate (UAE). India currently hosting G20 sectoral meetings and later part of the year, it will host G20 leaders meeting, where PM Modi and President Biden are expected to meet, and also at the Asia Pacific summit.

Geopolitical Trends

Notably, the world is changing rapidly and it is under tremendous geopolitical turbulence. While the world is not going to settle down so easily soon, a strong India-US strategic partnership offers peace, stability and prosperity to the people of the two countries as well as to the globe at large. Currently, all the factors are basically aligned with India and it is in a geopolitical sweet spot.

The iCET Framework

The participants discussed the iCET mechanism; and hoped that it will work and take the strategic partnership to the next level. For realising the set goals under the iCET framework, government-to-government cooperation and support is very important. Incidentally, the Indian government has come up with a policy of getting some support from foreign governments, including from the US. In some basic Science & Technology (S&T) research areas, India expects support from countries like the US to take the

research forward. The participants discussed the importance of overcoming existing bureaucratic challenges and hindrances to obtain approvals for developing bilateral cooperation. It was emphasised that India would like to enhance its capacity and capability in S&T.

Semiconductors

Semiconductors are at the heart of most modern technologies. Over the years, the US has lost the semiconductor manufacturing capacity to Taiwan Semiconductor Manufacturing Company (TSMC). For other aspects of the semiconductor value chain like assembly, packaging, testing parts of the global supply chains, the US was reliant on China. However, with the increasing rivalry with China, the US is also looking at de-risking from China. With the rise of India as a market for semiconductors and electronics, India is increasingly being seen as alternative to China.

Startups and Industry Collaboration

NASSCOM with its over 300 members working on a lot of critical technologies. It is also taking initiatives through startups. These startups are looking to work and collaborate with the US counterparts and industries on the CETs. It was emphasised that the two countries need to pick up startups early on and provide them necessary support to realise their true potential. Their success will create positive momentum and will have spillover effect. The concerns raised about the transfer of technologies and IP rights can be addressed through the assurances, which will only come through collaboration, cooperation and coordination. This is the key mantra for any two countries to progress together. It was underlined that India is a trusted partner and looks to work with the US as a valued strategic partner in the areas of CETs.

Space Cooperation

Space constitutes an important area of cooperation under the iCET mechanism. It was pointed out that it is important to pick up about six Indian space startups and give them good value propositions, so that they can collaborate on relevant areas of space technology. One area that was suggested was space debris management, where US space companies are looking for collaboration in deciphering of the data received by them. Developing partnerships in the cryptography, quantum computing, writing codes and AI were other suggested for cooperation.

Defence Cooperation

This domain has witnessed increasing dialogue on various aspects of cooperation. However, in terms of concrete deliverables to the armed services, there has not been much progress and the partnership is not as strong as the one India has had with Russia. Existent skepticism in joint R&D and production of defence technologies can be overcome in two ways. Suspensions in the American industry about cheap Indian products in their value chains, as seen in the case of Indian supplies of generic drugs to the US, encouraged by the US administration to provide affordable medicines, need to be allayed and trust built up. Consequently, Indian defence companies can be part of the value chain of American defence products. Secondly, American concerns of possible transfer of IPRs to Russia, stemming from a Cold War mindset, require to be corrected.

Nurturing Young STEM Talent and Managing Brain Drain

India sends a large number of its students to the US for education, who contribute about US \$9 billion to the US economy. The concerns were raised about the huge number of Indian young STEM talents, who are flying away to the US. It was suggested that the two countries need to find ways to engage the Indian STEM talents in such a way that they stay here

in India. At the same time, there is still a large young STEM talent pool available in India, and industries are looking to collaborate with their US counterparts for utilizing this talent for mutually beneficial cooperation. While STEM talent moving to the US is not an issue, bilateral collaboration and cooperation in skill and capacity development and management is important.

Role of Indian-Americans

There are about five million Indian-Americans, who have become a powerful lobby as well as vote bank for both Democrats and Republicans, especially in swing states like Arizona, Texas, Colorado for their votes. The Indians, who live in the US, are already contributing to the country in various domains, including the CETs.

Ease of Doing Business in India & Building Manufacturing Ecosystem

There is skepticism in the US about the ease of doing business in India. This needs to be improved so that companies like Tesla can choose India for manufacturing. Movement of companies like Tesla to India for manufacturing will not only produce EVs but also help build a whole manufacturing ecosystem. For instance, a Tesla EV uses 1800 chips on average. Currently, Micron Technology is partnering with India to train engineers. Similarly, inviting some strategically important companies to India by improving the ‘ease of doing business in India’, will help build the right ecosystems and transform the business-to-business relationship between the two countries.

China Threat

Since 20th Party Congress, President Xi Jinping has consolidated his power further and there do not appear to be any major internal challenges to President Xi. Under his leadership, China has built up its military capa-

bilities, both in terms of quantity and quality. He has set centenary goal of reintegrating Taiwan by 2049. Today, the US is preparing for a war with China. It has established AUKUS (a trilateral security pact between Australia, United Kingdom and the US), redeployed troops in new areas in the Indo-Pacific region, strengthened military cooperation with allies such as Australia and Japan, and enhanced the readiness of its military. This is because there is greater sense of bipartisan urgency in Washington, amongst Democrats and Republicans, about the China challenge. There is also a degree of convergence between the US and Europe on the challenge posed by China, especially since the start of the conflict in Ukraine, despite the close economic linkages between Europe and China. While the US administration is making efforts to manage this rivalry with some of its senior officials having visited Beijing, China is likely to remain a challenge in the foreseeable future.

India on China Threat

India shares some of these concerns with regard to the threat that China poses. It has an unresolved border problem with China, and since the Galwan valley incident, India's relationship with China has not been normal. While India has managed its China problem in a mature manner, a conflict, if it arises, may not be confined to the Himalayas. However, India is 'the most important deterrence against China', which needs to be recognised.

India has become pivotal in the US' China strategy. At the same time, Washington realises that India is unlikely to put 'boots on the ground'. However, it can play a critical role in global supply chains, logistics, facilitating access to air space even as India's strong military presence on the long border is a deterrent to China. India also believes that in case of conflict with China, it will have to fight its own war. In this regard, a strong defence and technology partnership between the US and India, especially in the field of joint development and production of advanced technologies

will greatly support India's efforts to build effective military capabilities and further strengthen its deterrence against China. While India recognises the lack of support for such transfer in sections of the US bureaucracy, the current state of the bilateral relationship should help overcome these issues of trust and build an issue-based and strong mutually beneficial partnership over a wide range of areas.

The growing engagement at the leadership level, military level and people-to-people sends a strong signal to China. India-US technology, trade and investment relationship is also growing strongly. It was emphasised that sending clear messages to Beijing is important in managing the China threat

Supply Chain Challenges and De-Risking

As the technology race between the US and China intensifies, US companies will have a difficult time in China. So they are looking at de-risking the supply chain and increasingly looking at alternatives for China. Recently, Apple has moved production from China to India. Other American companies such as Tesla are seriously looking at moving to India. At the same time, the US looks at India as a growing market with a large middle-class population. While it was the US Business Community, which forced the Clinton administration to bring China into the World Trade Organisation (WTO) and the forced the Bush administration to give Most Favoured Nations (MFN) status to China, it is now turning away from China. The US Commerce Secretary Gina Raimond recently asked the American business community not to invest in China.

Maritime Cooperation in Indo-Pacific Region

The maritime element of the growing India-US strategic partnership has shown great progress. An estimated 240 US naval vessels are currently operating in the Indo-Pacific region and these numbers are expected to in-

crease as the US-China competition intensifies. Consequently, there are a number of potential areas for expanding naval cooperation between India and the US. India is now well poised to provide Maintenance, Repair and Overhaul (MRO) services to the US navies operating in the region. But it was noted that the Jones Act, a federal law that regulates US maritime industry and commerce, prevents developing partnership in ship building.

Dealing with Challenges

While the India-US defence and strategic trade has significantly improved over the last two decades, the relationship has also faced challenges in the areas of joint development and production of high-end technologies. The launch of iCET provides a new framework of cooperation to transform this. The execution of the agreed areas of cooperation under the framework is very important to take the relationship forward. In all these, technology plays very important role, whether in AI, clean energy, machine learning (ML), biotechnology, defence and space. Much of these technologies are dual-use. There are various stakeholders in this.

Besides, government-to-government cooperation, there are B2B, startups and academia level cooperation. Think tanks can also play important role in this. The challenge is to develop practical cooperation for transforming these emerging technologies for commercial purposes. There is also a technological race taking place, where great powers are competing to develop and deploy these emerging technologies to achieve their economic, defence and strategic priorities. It was noted that implementation remains a big challenge, since the two sides are democracies which have a number of bureaucratic processes. However, continued political push at the highest level will remain extremely important to realise the existing and new areas of strategic cooperation.

The Way Ahead

It was noted that the US will be having presidential elections very soon. Hence, the political sentiment will be focused on winning elections rather than on the bilateral issues. India will also be having general elections next year. While the political leadership in both sides will focus on getting re-elected, the onus is on other stakeholders, including private companies, startups, think tanks and academia, to forge strong collaboration to constantly drive the partnership forward. It was observed that the US private sector is easy to engage and collaborate with on shared issues. However, certain forces in the US bureaucracy do not want or support technology transfer to India. A case in point is the GE jet engine technology transfer and the roadblocks it is facing in moving forward. Since GE does not want to move to India for manufacturing, the US side is seeking Congressional approval and examining the regulations that prohibit US companies from moving technologies to India for joint production.

It was emphasized that developing mutual trust, especially in the field of advanced technologies, is very important, but the establishment of transparency is a prerequisite. This can be facilitated only through talks at all levels, from the policy level to the B2B and bottom levels through established bilateral mechanisms.

There is also need to look the strategic partnership through a larger framework not just defence and space sectors. Prime Minister Modi views the strategic partnership from a common man's perspective and how it will benefit the people of the two countries and the world at large. The PM's faith in technology for providing solutions, especially in areas such as health, climate change, agriculture, etc. can help the India-US strategic partnership address many bilateral and global challenges.

India-US Space Engagements

Prepared by Saroj Bishoyi

The Vivekananda International Foundation (VIF), New Delhi, in collaboration with the Indian Space Association (ISpA), New Delhi, organised a roundtable discussion on ‘*India-US Space Engagements*’ at the VIF on 10 July 2023. Director General (DG), ISpA, Lt Gen AK Bhatt (Retd) welcomed the gathering, while Director, VIF, Dr Arvind Gupta delivered the opening remarks. Senior government officials from Indian Space Research Organisation (ISRO); Defence Research and Development Organisation (DRDO); Legal & Treaties (L&T) Division, MEA; Disarmament & International Security Affairs (D&ISA) Division, MEA; representatives from Bharti Airtel, Dua Associates, Larsen & Toubro Ltd., Augsense Labs, Upgraha Space; and distinguished members from the strategic community participated in the roundtable discussion. The discussion covered a wide range of issues pertaining to the India-US space engagements, including space resources, space technologies, geopolitics of space, the Artemis accords, outer space treaty (OST), moon agreement, strategic dimensions for India, India’s moon agenda, the US National Aeronautics and Space Administration (NASA) and ISRO space collaboration, export controls, launch of India-US Initiative on Critical and Emerging Technologies (iCET) and INDUS-X initiative, and among others.

Geopolitics of Space

The world is in a new space age with rapid developments taking place in space technology even as both, cooperation and tensions, between world powers are increasing. The number of stakeholders has also increased with new private players also having come up in a big way. It was noted that these developments are taking place in the context of current geopolitics involving military and technological issues. However, the geopolitics of space sets it apart as there is no defined geography. Instead, it is taking place in orbital paths and control areas like the Moon and comets. The geopolitics of space involves international space treaties, space laws, space resources, international collaboration and conflicts in space exploration. At the same time, militarisation of space is limited by various international space treaties. However, *the continued use of outer space for military purposes is creating an environment of aggression, competition and suspicion across the world, which can potentially lead to conflict among the space powers.* It would put at risk the satellites, scientific explorations and communication services.

The Outer Space Treaty

The participants deliberated on the key elements and significance of the Outer Space Treaty (OST) of 1967, which is a multilateral treaty on principles governing the activities of states in the exploration and use of outer space and other celestial bodies, including the Moon. The Treaty outlines the outer space exploration “for the benefit and interest of all countries”; “irrespective of their degree of economic or scientific development”; and “without discrimination of any kind” “on the basis of equality”. It states that the outer space shall be “free for exploration and use by all States”; “free access to areas of celestial bodies”, “freedom of scientific investigation”; and “in accordance with international law”. It forms the basis of international space law. *The OST prohibits militarization*

of space, limits use of celestial bodies to peaceful purposes, and outlaws claims of sovereignty over outer space territory.

The Moon Agreement

The Moon agreement of 1979 governs the activities of States on the Moon and other celestial bodies. *Under the treaty, all states have agreed that the exploration and use of the Moon shall be carried out for the benefit and interest of all countries, irrespective of their level of economic or scientific development.* It emphasizes the need to avoid any activities that may cause harm to the environment or alter the natural balance of the Moon. It prohibits all States from claiming sovereignty over the Moon or any other celestial bodies. It allows States the freedom to conduct scientific investigations on the Moon and other celestial bodies, and encourages scientific collaboration and the sharing of research findings among nations. It should be noted that India signed the treaty in January 1982, but has not ratified it. The agreement has not been signed or ratified by most major spacefaring nations, including the US, Russia, and China. As a result, its implementation and legal status remain limited.

The Artemis Accords

The Artemis accords is a US led initiative that lays out common principles, guidelines and practices for the safe exploration of the Moon by 2025, expands space exploration to Mars and beyond. It is designed to land the first woman and next man on the moon, and exploit its resources. It is a non-binding multilateral arrangement between the US government and other world governments participating in the Artemis programme and is grounded in the OST. It encourages international support for the public and private recovery, and the use of resources of outer space consistent with applicable law. But it no longer regards outer space as a global commons. It was noted that *the US, with these accords, is leading a new era of space*

exploration, and trying to advance and maintain its dominance in outer space.

During Prime Minister Narendra Modi's state visit to the US, India officially signed the Artemis Accords on 21 June 2023 and became the 27th country to join the accords. Other major countries, who are parties to the accords include Australia, Canada, France, Israel, Japan, South Korea, Singapore, Saudi Arabia, United Arab Emirates (UAE), United Kingdom (UK), and the US. Some important countries such as Germany, China, Russia are not parties to the accords. It is expected that after the US initiative, Russia and China, who see the Artemis accords with suspicion, will also come up with their own space accords with competing programmes. It would lead to a race for the exploitation of space resources in the coming years.

It was pointed out that ***India is a major spacefaring nation. Now, being part of the Artemis accords, it is driving the discussion, and would have significant technological and strategic value.*** India also has access to the NASA's Artemis programme that is trying to get humans back on the Moon by 2025. The signatories to the Accords underscore continuing importance of existing bilateral space cooperation agreements. It looks to implement the provisions of the OST and other relevant international instruments, thereby establishing a political understanding regarding mutually beneficial practices for the future exploration and use of outer space, with focus on activities conducted in support of the Artemis Programme. It was however noted that the accords are silent on some of the important space laws such as Article 4 of the OST, which prohibits placing of Nuclear Weapons and other Weapons of Mass Destruction (WMD) in orbit around the earth, installing such weapons on celestial bodies or station such weapons anywhere in Outer Space.

Space Resources

Section ten of the Artemis Accords deals with space resources. It notes that “the utilization of space resources can benefit humankind by providing critical support for safe and sustainable operations.” It emphasizes that the extraction and utilisation of space resources should be executed in a manner that complies with the OST and in support of safe and sustainable space activities. It was pointed out that a big cargo aircraft load of Helium-3 mined from the Moon’s surface could cater for the global energy needs for around ten years. Asteroid 16 Psyche, is known to have gold and other minerals worth \$700 quintillion (a number equal to 1 followed by 18 zeros)! Few States have established laws that give private companies rights to resources they extract from the subsurface of the Moon, Mars, comets, or asteroids. *At present, the Moon’s South Pole is much in demand. In future, mineral rich areas would be under great demand. The one who reaches first conquers the area!* It was stressed that for avoiding the harmful interference, a ‘Safety Zone’ should be created by the countries. *The Accords notes ‘the nature and existence of safety zones’, which is expected to change over time.*

Role of Private Sector in Space

The role of private sector in space research and exploration has increased in a big way. *The participants were divided on the opportunities for the Indian private companies and startups on the Artemis programmes.* While some observed that India’s signing of the accords will create opportunities for the startups and private companies to partner with the other signatory countries, especially with the US and those opportunities need to be explored through engagements. Then the government can facilitate forging collaboration. On the other hand, it was pointed out that the Artemis programmes is among the biggest projects, which aim for exploration to the Moon, Mars and beyond. So it is highly unlikely that

the Indian startups will get any major contracts under these programmes. The US agencies currently focusing on partnering with Lockheed Martin and Boeing.

Major implications of the involvement of private sector in space research and exploration were also discussed, with a focus on the effects on OST since the private sector is guided by profit and ownership. Consequently, reconciling these motives with the principles of the OST is not clear. Notably, while the private sector has a big role to play in the future exploration of the Moon, Mars and beyond, the release of scientific data on space exploration, and the commitment to share scientific data is not intended to apply to private sector. They get protection for any proprietary and/or export controlled information. Hence, there should not be much expectations about information.

India-US Space Cooperation

In recent years, India-US space cooperation has witnessed significant growth. The two countries signed a landmark Civil Space Cooperation Agreement in 2008, which primarily focused on Satellite Launches, Remote Sensing, and Earth observation. The two countries have been building partnership in various projects, including Chandrayaan-1, NASA-ISRO Synthetic Aperture Radar (NISAR), space situation awareness, and some cooperation in Chandrayaan-3. It was noted that *India's signing of the Artemis Accords is a landmark development and marked the beginning of a new phase in India-US space cooperation.*

Progress during PM Modi's State Visit to the US

Prime Minister Narendra Modi concluded a successful first state visit to the US in June 2023. During the visit, the two sides made notable progress, especially in the areas defence and space technologies. India signed the Artemis Accords. The two sides have agreed for a joint mission

to the International Space Station in the year 2024. They are developing a strategic framework for human spaceflight cooperation in 2023. They have also launched a new INDUS-X initiative, which primarily deals with bilateral defence issues, but it has space element as well.

NASA-ISRO Partnership

NASA and ISRO have been key players in fostering bilateral space collaboration. The two sides have concluded notable projects, including the successful launch of Indian satellites using the US launch vehicles, the sharing of data and resources for scientific research and climate monitoring. In a major breakthrough collaboration, the NASA-ISRO Synthetic Aperture Radar (NISAR) mission to co-develop and launch a dual-frequency synthetic aperture radar (SAR) on the Earth observation satellite. The data collected from the satellite is intended to help scientists better understand Earth's ecosystems and changing climate, including sea level rise, ground water and natural hazards. The satellite will be the first radar imaging satellite, which will be launched from India in January 2024.

After Russia, NASA has now agreed to provide advanced training to the Indian astronauts for the Gaganyaan mission, ISRO's first crewed orbital spacecraft. However, NASA takes two years for astronaut training. It requires longer duration stays on space station and do science. *With more advanced training, astronauts can undertake repair works and spacewalks. Any such exposure to Indian astronauts will be useful for the proposed space station mission.* It was pointed out that India's Gaganyaan programme offers an opportunity to demonstrate India's 'Atmanirbharta' or 'self-reliant' in space.

The iCET Framework

In January 2023, the National Security Advisors (NSAs) of the two countries officially launched the India-US Initiative on Critical and

Emerging Technologies (iCET). It aims to elevate and expand the Strategic Technology Partnership between the two countries. Under the iCET framework, the two countries identified space as an important area of cooperation. ***The US has agreed to train an Indian Astronaut at NASA's Johnson Space Center. In addition, the two sides agreed to work together to identify cooperation on NASA's Commercial Lunar Payload Services (CLPS) programme for flights of research payloads on lunar landers.***

Strategic Implications for India

It was pointed out that the Artemis accords are a geopolitical decision. But what needs to be looked at it as how does it affects India's space autonomy; how does it affect ISRO's space programme; how does it affect India's space industry; what advantages it offers to India; and, what is the difference between the Moon agreement, which India signed, but not ratified.

It was pointed out that the spacefaring nations are preparing for landing grounds, power systems, mining instruments. Considering the increase in major activity on the Moon's surface, debris around the Moon and on the Moon is also likely to increase. Humans have significantly destroyed the earth with a zeal for industrialization.

It was underlined that in international relations, there are no permanent friends or permanent enemies, only interests are permanent. For India, its interests in the space domain should be of paramount importance. ***Nevertheless, since India has signed the Artemis accords, it needs to have clear goals, strategy, and good technical negotiation. Otherwise, it would be in danger of wittingly or unwittingly becoming appendage to the US discourse.***

The Artemis Accords and ASAT Power

The Artemis accords are basically for civilian exploration. But most of the space technologies are dual-use technologies. The Artemis signatory countries like the US, France, and Britain are nuclear weapon states and are part of NATO. India is not a signatory to the NPT nor part of any military alliance. Moreover, except the US, India is the only Anti-Satellite (ASAT) power in the group of 27 countries. Even after other countries will join the accords, India will remain one of the ASAT power along with the US. China and Russia are also ASAT powers. ***For India, counter-space programme is a necessity for national defence and security objectives. Hence, India's stakes are different from those of other Artemis signatory states*** because of its strategic priorities.

India's Moon Agenda

The Artemis first programme is already over, which was unscrewed flight test of the Space Launch System (SLS) and the Orion spacecraft around the Moon in November-December 2022. The Artemis second programme, which would be first crewed flight test of the Space Launch System and the Orion spacecraft around the Moon. In the Artemis third programme, where planning is underway for a regular cadence of Artemis missions with crew on and around the Moon. ***Looking at the trajectory of entire Moon programme all over the world, it was pointed out that India should be aiming for sample return mission.*** Therefore, it was observed that what India is looking for its Moon mission and what the US is looking, there are big differences. On the question of what India will gain by joining the Artemis accords? There are no clear answers to it yet, though there are opportunities for technological collaboration.

US Export Controls

The US government's International Traffic in Arms Regulations (ITAR)

controls the export of all space-related technologies including launch vehicles, spacecraft, component technologies, fuel and other space-related items for national security reasons. ***This export control laws is an impediment in expanding bilateral space cooperation.*** For instance, China and the UAE signed a Memorandum of Understanding (MoU) in September 2022 for the Rashid II rover to fly on the lander of the multi-spacecraft Chang'e-7 mission. Since the UAE is a part of the Artemis accords, the ITAR would be an issue. Thus, it appears that India can collaborate only with the friends of the US. In fact, the US export controls have been major issue in the past that impeded bilateral technology cooperation, including space cooperation. ***There is almost no transfer of technology (ToT) and technology development, despite growing ISRO and NASA's space cooperation.***

The two countries have recently set up the Strategic Trade Dialogue to address existing export control regulations for strengthening the partnership in strategic technologies. After India's signing of the accords, the US is further willing to ease its technology export controls for facilitating bilateral space collaboration. Moreover, ***the US has expressed its willingness to process export control licenses on a case-by-case basis, especially identified joint projects with strategic partners and allies.*** So there is hope Hence, there is a likelihood of gaining access to space technologies for joint collaboration on future projects.

The Way Ahead

In recent years, the space sector has opened up for an expanded and deeper India-US collaboration. The launch of the iCET framework has further consolidated bilateral space collaboration. Nevertheless, India should be clear about its own priorities, cost and benefits, and should not wittingly or unwittingly become an appendage to the US space programme. India is likely to get technological and strategic benefits since it has joined

the Artemis accords. It was emphasised that the ISRO must retain its autonomy and priorities. In addition, NASA and ISRO space collaboration has not resulted in ToT to India or joint development of advanced space technologies. **Hence, the bilateral space collaboration should strengthen 'self-reliant India' programme, ToT, development of skills, talent and intellectual property (IP) rights among others.**

It was suggested that after signing the Artemis accords, the Indian government, private companies, and startups need to explore opportunities to collaborate in the space sector with their counterparts in the US and other signatory countries. It was pointed out that when India signed the nuclear deal, there was a lot of skepticism. But the successful conclusion of the nuclear deal offered many benefits to India, both in terms of India-US relations and also in the global context. Though the deal opened up India's civil nuclear cooperation with other countries, India and the US are yet to operationalise the deal, despite the long time that has elapsed since its signing.

There is also the possibility of sanctions by the US and its partners if India goes against the accords. Doing business with sanctioned countries becomes very difficult as companies and countries are not willing to partner with the sanctioned countries. Moreover, for developing countries like India, international obligations become binding and very hard to overlook, whereas benefits remain vague and come after long time. **Therefore, the specific benefits that India will gain after signing the accords, need to be clarified.** The US also has a long history of arms twisting its allies and close partners to get asymmetric benefits.

Nevertheless, it is not an agreement, but an accord, which is legally not binding. It was observed that most of the issues, including space collaboration in international relations is bilateral and is based on give and take relationship. **In the space sector, India is well positioned to utilise**

the arising opportunities to further strengthen its space programme. It will take some time to further space collaboration. In this regard, ISRO needs to have a clear perspective about the accord, its priorities, the costs and benefits, considering that India's policy is not to join a space or trade war, but to develop its space power for societal benefits and strengthen mutual beneficial partnership with friendly foreign countries.

About the VIVEKANANDA INTERNATIONAL FOUNDATION

The Vivekananda International Foundation is an independent non-partisan institution that conducts research and analysis on domestic and international issues, and offers a platform for dialogue and conflict resolution. Some of India's leading practitioners from the fields of security, military, diplomacy, government, academia and media have come together to generate ideas and stimulate action on national security issues.

The defining feature of VIF lies in its provision of core institutional support which enables the organisation to be flexible in its approach and proactive in changing circumstances, with a long-term focus on India's strategic, developmental and civilisational interests. The VIF aims to channelise fresh insights and decades of experience harnessed from its faculty into fostering actionable ideas for the nation's stakeholders.

Since its inception, VIF has pursued quality research and scholarship and made efforts to highlight issues in governance, and strengthen national security. This is being actualised through numerous activities like seminars, round tables, interactive dialogues, Vimarsh (public discourse), conferences and briefings. The publications of VIF form lasting deliverables of VIF's aspiration to impact on the prevailing discourse on issues concerning India's national interest.



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