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Editor's Note

Vivekananda International Foundation organized two think tank interactions and two expert group meetings through webinars on events and topics in the month of November 2021. The think tank interactions were with premier counterparts in USA and in Taiwan. The expert and interaction groups provide layers of understanding and contextualized the present discourse from an Indian perspective. The diversity of the expertise of each of the members of the expert and discussion groups brought rich flavor and knowledge on the topic through their varied professional backgrounds (military, diplomacy and academia). This edition contains views on issues in Europe, China, Pakistan, and collaborative opportunities in technology with the US.

The first think tank interaction was with the Center for a New American Security (CNAS) of the U.S on New and Emerging Technologies: Artificial Intelligence, Quantum Technologies, Cyber/ digital, 5G/6G, Biotech and Space in which discussions was on the scope for collaboration in AI and Quantum computing. The discussions were wide ranging in which key issues were identified and certain recommendations agreed upon. The second think tank interaction was the Prospect Foundation based out of Taiwan on Relation between Quad and AUKUS, as well as on Quad as a formal institution and possible cooperation between Taiwan

and Quad.

The Pakistan expert group held discussions on Pakistan- Civil-Military Relations, the state of the opposition, state of economy, TLP, Kashmir-security situation and portents for future, Afghanistan- humanitarian situation and the regional meetings on Afghanistan.

The European Union-India partnership has evolved significantly over the past few years and has received a noticeable momentum post the Porto meeting in May 2021. Defence and strategic cooperation though is rarely stated while discussing the scope for enhanced EU-India cooperation. While it is an important pillar of the partnership and carries immense scope for future collaboration between the two sides. The European expert group held discussions on various facets of this aspect of the relationship in which H.E. Ugo Astuto also participated.

The coordinators and researchers associated with the Expert and discussion groups have put unfaltering efforts to coordinate the meetings and collate the notes for the reports in this issue.

Naval Jagota

**New Delhi
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India-U.S. Collaboration in Advanced and Emerging Technologies: AI and Quantum Computing

Prepared by Dr Himani Pant

VIF, along with the Center for a New American Security (CNAS) of the U.S., has initiated a series of discussions on potential for collaboration between the US and India on New and Emerging Technologies: Artificial Intelligence, Quantum Technologies, Cyber/ digital, 5G/6G, Biotech and Space. To discuss on the scope for collaboration in AI and Quantum computing, the VIF and CNAS organised a joint virtual discussion on 8 November 2021. Participants included representatives of academia, industry and governments in both countries like Mr. Richard Fontaine, Dr. Arvind Gupta, Amb. Arun K Singh, Lt. Gen. Ravi K Sawhney (Retd), Mr. Martijn Rasser, Amb. Lynne Parker, Mr. Abhishek Singh, Ms. Stephanie Culbersone, Ms. Sarah Sewall, Dr. KR Murali Mohan, Ms. Jose Marie Griffiths, Dr. Partha P Chakrabarti, Dr. Kasturi Saha, Mr. Vibhanshu Shekhar, Ms. Lisa Curtis, Mr. Sriram Raghavan, Mr. Ashutosh Sharma, Prof. KP Vijayalakshmi, Mr. Shivendra Singh.

The discussion between the two institutions brought out certain key observations:

- Both the US and India are well positioned to advance new and emerging technologies such as AI and Quantum computing by shaping standards in accordance to the vision of a free and open digital order.

- The AI and Quantum discourse has picked up unprecedented pace in India and this market is expected to reach \$7.8 billion by 2025 and \$1 trillion by 2035. It has also found the Government and industry's backing. In 2018, NITI Aayog- think tank of the GOI, announced national strategy for AI and substantial work is going on in this sphere. NITI Aayog has also proposed establishment of an AI specific Cloud Computing Infrastructure for India called the AI Research, Analytics and Knowledge Assimilation (AIRAWAT) to guide the research and development of new and emerging technologies.
- There is a growing political and strategic convergence between India and the US but much more is needed to strengthen the economic and technological pillar of the partnership. In this respect, new and emerging areas offer good potential. The existing patterns of production have made it difficult to arrive even at limited trade agreements. It may be useful to create new framework of interaction aimed at work sharing, re-shoring of supply chains for greater security.
- India offers a tremendous growth potential and dynamism, research environment and human capital. This aspect is useful for the US because to face competition emanating from China it needs human resources and India could contribute significantly in this respect.
- As the new technologies evolve, the US wants to work with democratic partners including India to ensure advances like the AI are used to improve way of life and as well as national and economic security rather than to suppress marginalised communities.
- A responsible and more inclusive AI is also needed for larger social good- healthcare, agriculture, skilling, as also for language translation. Thus, the ethics principle becomes crucial in this respect. There is also a need to promote work on AI readiness. The

future of AI needs to be envisaged on the same principles that have woven through telecommunications, next generation computing.

- There are three strains of research being developed in India in the domain of Quantum computing. First is the R&D initiative operating in quantum computing, communications sensors and devices. Second is the creation of innovation hub on quantum computing to bring together government, industry academia for better results. The GOI also plans to roll out National Mission on quantum technology and applications.
- Just as computer science branched out of mathematics and electronics earlier, AI is branching out of computer science in an organic manner.

Recommendations for the way forward

- The innovation hub being developed in India could be used as a nodal point for the concerned US personnel to connect with researchers of India. A long-term strategy on collaborative research would be mutually fruitful.
- There is also a need to strengthen R&D infrastructure and fabrication facilities in both countries. Both need to collaborate to understand how to share resources and work together on production as well as its deployment.
- Moving forward, universities should continue as well as intensify their collaboration with governments and industry for advancement in new and emerging technologies.
- Human factor is crucial for functioning of machines. One challenge that is often faced by the US is with respect to hiring qualified faculty given that most domain experts choose private sector over public. The Human capital that India possesses offers scope for collaboration. To achieve this goal, universities from

both countries need to participate in workforce development programmes as well as in reskilling of existing workers.

- There is a growing appetite for executive education and it offers room for collaboration between India and the US.
- Educational pipeline development- involving elementary and secondary school community and technology colleges is crucial to expose people early to these emerging tech.
- A US digital service academy modelled after the military academy should be considered to retain trained experts. This would ensure the joining of university pass outs as workforce in the public sector.
- There is a need to move AI knowledge beyond the realm of computing and science discipline in general to include humanities and social sciences- liberal arts in particular as they have more people which could lead to generation of new knowledge. This interdisciplinary approach would help in building blocks for next generation AI. At present the blocks are mathematics, electronics and computing but these might become obsolete in the future. Academia has a big role to play in achieving this objective.
- Joint curriculum for AI transcending all disciplines could be developed by the US and Indian experts.
- There is a need to broad base the debate on quantum tech and build a more robust quantum tech education programme. Perhaps the Q-12 Education Partnership with the industry and academia could be prove as a resource for broad basing the quantum programme in India.
- Long term success in development of quantum tech would depend on effective extraction of critical minerals. There is need to treat quantum and material science as two essentials of the high-tech journey.

- India and the US need to ensure that their supply chains remain reliable and secure. Both should begin to map out raw materials such as silicones, superconductors etc. that go behind these emerging technologies.
- It is important to consider the security aspect while discussing collaboration in new and emerging technologies. China poses a direct threat to both the US and India in the technological domain due to its consequences on security. In order to face China, both countries need to hold more discussions on all levels- government, industry and academia- to progress sufficiently and in an ethical manner.
- Finally, apart from bilateral engagement both sides also need to intensify discussions on merging tech within the ambit of the Quadrilateral Dialogue (Quad) involving Japan and Australia to ensure better cooperating, tech interoperability, trust and burden sharing. The Quad could even think of developing a high powered super computer as a medium-term goal. Collaboration on securing Cross border data flows carries a lot of scope bilaterally as well as through the Quad.

Understanding AUKUS and Quad

Prepared by Kota Mallikarjuna Gupta

A Joint Webinar was organized by the Vivekananda International Foundation and the Prospect Foundation on 10 November 2021. Dr. Arvind Gupta, Lt Gen Ravi Sawhney (Retd), and some other eminent persons attended the meeting from the Indian side. Dr I-chung Lai, Dr. Cheng-Yi Lin, Dr. Yi-Feng Tao, Dr Mumin Chen and Dr. Norah Huang participated from the Prospect Foundation. Dr. Arvind Gupta and Dr I-chung Lai delivered the introductory remarks. The discussion was into two sessions. The first was: Relation between Quad and AUKUS, and the second was Quad as a formal institution and possible cooperation between Taiwan and Quad. The salient points that emerged from the discussion follow.

Relation between Quad and AUKUS

The Quadrilateral Security Dialogue (Quad) is not a military alliance, whereas AUKUS is a trilateral military alliance even without the bondage of a security treaty. The Quad-1, minus India, could be a security arrangement with two sets of bilateral alliances (US-Japan and US-Australia security mechanisms). The Quad plus 1, with the United Kingdom's possible participation, has the potential to become a new cornerstone in the Indo-Pacific region. China deems the Quad "runs counter to the trend of the times and the aspirations of regional countries" and "it will find no support and is doomed to fail."

However, the formation of AUKUS has taken China by surprise diplomatically and militarily. In the beginning, Beijing was predicting the deterioration of Biden's relationship with France and the E.U. However, it has discovered the potential security challenges to its strategies in Southeast Asia and the Pacific Islands. China has tried to stir up adverse reactions from Malaysia and Indonesia toward AUKUS by indicating the possibilities of an arms race and nuclear proliferation, direct threats to the legality of the Treaty of Nuclear-Weapon-Free Zone in Southeast Asia or South Pacific. China has tried to weaken the basis of the ASEAN centrality in regional security. Without criticizing AUKUS, certain members of ASEAN such as Singapore, Vietnam and the Philippines have been implicitly supportive of the new pillar for the security of the Indo-Pacific while reminding the U.S., U.K., and Australia that the ASEAN centrality should not be neutralized.

AUKUS strengthens the full implementations of the US-initiated Indo-Pacific strategy through supplementing additional non-U.S. naval and aerial presence in the East and South China Seas. It could create a new scenario for the PRC when it conducts assertive and aggressive military manoeuvres in the region. Both the Quad and AUKUS emphasize the necessity to enhance joint capabilities and interoperability. The targeted areas of collaboration include cyber capabilities, artificial intelligence, quantum technologies, and additional undersea capabilities. The Quad shows that liberal democracies can solve the most significant challenges, either on traditional or non-traditional security issues. The vision of a "free and open Indo-Pacific" under the U.S. leadership is more attractive than the China-centric model Beijing promotes.

During the Quad Summit held in September 2021, five major issues have come into prominence, which includes

- A "Quad Vaccine Experts Group" to ensure the delivery of 1.2 billion vaccines in Asia and the Pacific.

- A Quad Shipping Taskforce to identify a few low-emission shipping corridors by 2030, and establish a clean-hydrogen partnership.
- A Semiconductor Supply Chain Initiative to identify vulnerabilities and bolster supply chain security for semiconductors and their components.
- A “Quad Infrastructure Coordination Group” to identify infrastructure needs, arrange technical assistance and capacity-building efforts.
- A “Quad Fellowship” for 100 graduate students in the four countries

Each of the three partners of AUKUS is under a lot of pressure from China. Despite its lower capacities, the U.K. is relevant in Indo-Pacific, with its primary role in Europe. AUKUS further strengthens Australian capacity. However, AUKUS is limited in its objectives. All the partners in Quad have significant roles and benefits of technology, supply chains, new emerging technologies will also be for other countries in the region. Many countries like the Republic of Korea (ROK), Vietnam, Brazil, and Israel can join a flexible Quad plus mechanism. Finally, Quad and AUKUS are very distinct, and every member of Quad and AUKUS has a relationship with each other.

Quad as a formal institution and possible cooperation between Taiwan and Quad

The Spirit of Quad is committed to promoting a free, open, rules-based order both in the Indo-Pacific and beyond. Given the diversity of issues and countries involved in Quad. Without a formal institution, Quad can be more flexible and respond more swiftly to any emerging challenges in the region. Quad doesn't need to deal with the problem of its relations with other existing regional organizations. However, a formal institution

for Quad may lead to a security dilemma with China and is not in the interest to the American people at present.

Infrastructure development, Climate Change, People to People contacts, Covid-19, and Space cooperation are several areas for Quad countries to explore. Cooperation in Defense manufacturing and surveillance technologies are some areas where both Quad and AUKUS countries can be an area of interest. Maritime domain awareness and intelligence sharing in real-time conditions among Quad countries can be helpful to counter belligerent China. The other areas for cooperation among Quad countries are de-carbonization of shipping and green technologies, mapping supply chains in critical technologies, establishing contact groups in Artificial Intelligence (A.I.) and Quantum Technologies.

In the long run, a formal institution is still desirable for Quad to make the commitment credible. Quad can extend cooperative relations to common areas in the Indo-Pacific region concerned with public health, supply chains, cyber security, human rights and infrastructure. With a formal institution making the goals and commitments clear, it will provide more incentives for regional countries to join and expand Quad.

The engagement of Russia with Quad countries is to prevent Russia from coming closer to China. Russia should be involved in Indo-Pacific, not in the framework of Quad. India has signalled to develop Russia's far-east with one billion \$ investment and developing shipping linkages with Russia's far-east region.

India could join GCTF, and Taiwan is considered a valued partner by Quad countries. Taiwan has participated in part in Quad strategic dialogue through the Quad + channels. Taiwan can join the production and distribution of the Covid-19 vaccine with Quad countries. Taiwan can take part in Quad initiatives already in practice or future initiatives in several areas like infrastructure, climate, critical and emerging technologies, and cyber security.

The Internal Dynamics of Pakistan

Prepared by Aakriti Vinayak

A meeting of the Pakistan Study Group (PSG) was held via video conferencing on 22 November 2021. The agenda's main items were: Pakistan- Civil-Military Relations, opposition, state of economy, TLP, Kashmir-security situation and portents for future, Afghanistan- humanitarian situation, and regional meetings on Afghanistan. The Meeting was attended by the following: Shri Arvind Gupta, Amb Satish Chandra, Ms Shalini Chawla, Shri Rana Banerjee, Shri CD Sahay, Amb Gautam Mukhopadhyaya, Amb DP Srivastava, , Amb PS Raghavan, Amb TCA Raghavan, Amb G Parthasarathy, Lt Gen Ravi Sawhney (retd), Lt Gen Ata Hasnain, Shri Sushant Sareen, Shri Tilak Devasher, and Gp. Capt. Naval Jagota.

Pakistan

Pakistan is in big churn. The tensions continue between army and Imran Khan. After a month of political-military tussle, Pakistan Prime Minister Imran Khan was left with no choice but to sign the notification appointing Lt General Nadeem Anjum as the next chief of the Inter-Services Intelligence (ISI). Army is upset with Imran Khan for crossing the red lines by entering into agreements with TTP and TLP. Pakistan opposition has slammed Imran Khan over piling up of massive loans, unprecedented

devaluation of rupee and deepening energy crisis. People are also unhappy as they are facing the brunt of high inflation and high food prices. Though the civil military relations seem to have been broken there is no clear split as of yet. Army has no choice but to work with Imran Khan. In the Joint session of Pakistan Parliament, Imran Khan with the support of 221 votes of his party members and that of the allies sailed through the session amid the opposition's protest. While a premature termination of Imran's tenure would not be easy, there is a probability of Imran Khan and his party being reigned in, further intensifying Pakistan's socio-economic challenges. The future looks uncertain, as Imran Khan will be under the pressure from army. Further the Pakistan economy remains in doldrums. The current account deficit is projected to cross five percent, there are weak foreign reserves and inflation is spiking. IMF has also tightened its screws on Pakistan by imposing tough conditionalities.

TLP and TTP

Pakistan's government has reached an agreement with the outlawed far-right Tehreek-e-Labbaik Pakistan (TLP) party, putting an end to a 10-day protest that resulted in violent clashes. The government has accepted the demands of TLP while negotiating with the marchers for releasing the jailed leaders of the proscribed religious-political group, lifting the ban and allowing it to participate in politics. The details of the agreement have not been made public. The rise of TLP has been enigmatic as they are eyeing the local elections. The rise of TLP will further give rise to extremism in Pakistan. Further the Pakistan government and banned terror group Tehreek-e-Taliban Pakistan (TTP) have also agreed on a month-long ceasefire for achieving lasting peace in the country.

Kashmir

Over the past few weeks, Kashmir, especially Srinagar city, witnessed a spike in attacks with most of the incidents being carried out by the local

youths, who are not listed as militants with the security agencies. The recent trends indicate that another cycle of violence may be in the offing with terrorist groups changing the techniques (hybrid terrorists) to suit the present conditions on the ground. Clearly the nature of militancy has changed in Kashmir as it has become hybrid and more dangerous. This is becoming a new challenge for the security and the intelligence officials. The concept of the operations has to undergo change.

Afghanistan

Humanitarian crisis in Afghanistan is real and palpable. It is on brink of being the “world’s worst humanitarian crisis”. Taliban is insisting United States (US) for the release of Afghan Bank assets. However after US dubious withdrawal the west is under great pressure to provide humanitarian aid to Afghanistan. Hence there is a rethink in the policy towards Taliban. There is engagement without recognition. India after NSA level dialogue on Afghanistan, has also announced that it will deliver urgent humanitarian aid consisting of food grains and medicines to the people of Afghanistan. India hosted the “Delhi Regional Security Dialogue on Afghanistan” on 10 November 2021. The Dialogue was held at the level of National Security Advisers / Secretaries of Security Councils and was chaired by National Security Adviser, Ajit Doval, K.C. The first two editions of the Dialogue were hosted by the Islamic Republic of Iran in 2018 and 2019. The Delhi Regional Security Dialogue on Afghanistan witnessed an expanded participation of Iran, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Uzbekistan. The high level Dialogue reviewed the security situation in the region arising from recent developments in Afghanistan. It deliberated upon measures to address the relevant security challenges and support the people of Afghanistan in promoting peace, security and stability.

India-EU defence and Strategic Cooperation: Current Activities and Future Prospects

Prepared by Dr. Himani Pant

The European Union-India partnership has evolved significantly over the past few years. It has received a noticeable momentum post the Porto meeting in May this year. To deliberate on the scope of defence and strategic cooperation between the EU and India, the Vivekananda International Foundation organised a webinar on 23 November 2021. The discussion was moderated by Amb. Anil Wadhwa and the opening remarks were made by the VIF director, Dr. Arvind Gupta. The discussion saw in attendance distinguished guests like H.E. Ugo Astuto, Amb. Sandeep Chakravarty, Lt. Gen Ravi K Sawhney (Retd), Amb. P. S. Raghavan, Amb. TCA Rangachari, Ms. Julia Pallanch and Gp. Capt. Naval Jagota.

Introduction

Defence and strategic cooperation is rarely stated while discussing the scope for enhanced EU-India cooperation. Broadly, this is because India does not have defence relations with EU as a whole but deals with individual member states like France, Italy, Germany, Spain, and a few Eastern European countries, among others. In addition, not much information is disseminated in the public domain due to which India's defence ties with Europe appears fragmented. Nevertheless, it is an important pillar of the partnership and carries immense scope for future

collaboration between the two sides, especially at a time when the EU is working towards its strategic autonomy and may need several like-minded partners such as India.

The discussion on European strategic autonomy has gained unprecedented momentum in recent years. The EU member states have been working towards enhancing capabilities in supplying military and defence related equipment, infrastructure, information sharing at the request of partner countries, etc. It has also expanded its scope by countering trafficking of weapons and narcotic and drugs. In addition, the EU has also renewed its Critical maritime Routes in the Indian Ocean (CRIMARIO)- a structure aimed at developing maritime domain awareness through information sharing, capacity building training capacity building in the Western Indian Ocean region. CRIMARIO II expands the scope towards South and Southeast Asia. This reflects EU's willingness to cooperate with its Asian partners, including India.

It is believed that Brexit would prove to be catalytic in driving the EU towards strategic autonomy. Within this context, there is a great deal of potential for the EU and India to cooperate. Since Defence cooperation also entails economic and technological cooperation, greater cooperation in this pillar would lead to overall growth of the EU-India bilateral relations. India needs to be proactive in pursuing a stronger defence and security partnership with the EU. In this respect, its relations with France- which is a key player in the consolidation of the European pillar in defence and security, are crucial. The 2022 EU Defence summit would be an important moment in this regard.

The following constraints to EU-India defence partnership were flagged during the meeting:

Constraints to EU-India Defence Relations

1. The main hindrance stems from the different style of functioning on both sides. The Indian system is used to dealing with countries

which have navies and air forces and armies. As a result, it faces difficulties in dealing with a large supranational entity like the EU which does not follow the traditional unified pattern.

2. While engagement within the ambit of Permanent Structured Cooperation (PESCO) has been attempted, it has yielded no concrete results. This is because PESCO is an intensive structure with very high standards. It requires signing of several agreements which are more suited for countries who have a relationship with the North Atlantic Treaty organisation (NATO). Since India does not have a relationship with the NATO, collaboration via PESCO has emerged as a major roadblock.
3. Lack of a single EU policy has given way to ambiguity and incoherence in the EU-India defence partnership. Individual member states have their own policies and priorities that may not always work in favour of India.
4. One common grievance flagged by the Indian defence companies is the issue of export controls applied by some countries like Switzerland and Germany on key components. Some of these technologies which are restricted could be classified as dual use technologies. This factor is further compounded by the fact that each country exercises its sole discretion to impose such controls and does so on a selective basis.

Conclusion

The EU and India are natural partners with several shared interests and priorities. The participation of the Indian Navy in a joint exercise with the EU Naval Force (EUNAVFOR) is a positive development in the domain of strategic and security cooperation. Apart from maritime cooperation, there is great potential for cooperation in the sphere of digital transition/5G, outer space time security, counter terrorism, defence

manufacturing, artificial intelligence, etc. There is a need to form working groups such as a high technology cooperation group aimed at removing constraints discussed earlier.

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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