CENJOWS

ISSUE BRIEF
IB/25/24

INDIA-JAPAN FORGING COOPERATION IN DEFENCE EQUIPMENT AND TECHNOLOGY TRANSFER

DR ULUPI BORAH

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INDIA-JAPAN FORGING COOPERATION IN DEFENCE EQUIPMENT AND TECHNOLOGY TRANSFER

Dr Ulupi Borah, is a Senior Fellow at CENJOWS, New Delhi.

Abstract

India and Japan have achieved a new level of strategic convergence with shared values and common objectives. New Delhi and Tokyo have inked defence agreements and initiated high level dialogues to enhance collaboration in the security sphere. The two nations will continue to interact in order to counter China's influence in the Indo-Pacific region and remains one of their key strategic priorities. Cooperation in advanced technology, economics, defence and security would be the means to achieve this. Despite the desire to reach this degree of cooperation, there exist certain gaps and challenges between the two countries. The paper explores these issues and attempts to identify the reasons behind the gaps. It also attempts to understand the causes of those gaps and makes recommendations to address those challenges.

Introduction

India and Japan are geographically located in two distinct regions and are only connected by the ocean. They have historically maintained cordial relations and do not

confront any major strategic challenges. Their common objectives of establishing a rules-based order in the Indo-Pacific have now made them viable partners towards the concern against the growing influence of China in the region.[1] India and Japan have conducted regular annual summits since 2006. India-Japan ties were upgraded to 'Global Partnership' in 2000, 'Strategic and Global Partnership' in 2006, and 'Special Strategic and Global Partnership' in 2014.[2] This shows the growing relationship between the two countries when it comes to strategic collaboration. Such agreements were later followed by various initiatives under the leadership of Prime Minister Narendra Modi and the late Prime Minister Shinzo Abe.

India's Defence Minister, Mr. Rajnath Singh, and Dr. S. Jaishankar, India's External Affairs Minister, met with Japan's Foreign Affairs Minister, Mr. MOTEGI Toshimitsu, and Minister of Defence, Mr. KONO Taro, on November 30, 2019, in New Delhi and the first India-Japan 2+2 Foreign and Defence Ministerial Meeting happened.[3] The Ministers reaffirmed their commitment to strengthening bilateral security cooperation, citing the 2008 Joint Declaration on Security Cooperation and the 2009 Action Plan to Advance Security Cooperation.[4] At the 'India-Japan 2+2' dialogue 2024, New Delhi and Tokyo agreed to bolster their ties even stronger in the defence and security sector.[5] In 2020, India and Japan signed a logistical pact known as the Acquisition and Cross-Servicing deal. This allows their military forces to closely coordinate in terms of services and supplies.[6]

Against this backdrop, the paper makes an effort to explore the trajectory of India-Japan defence cooperation, exploring the agreements and deals signed. It also delves into identifying the gaps and challenges and the recommendations to address them.

India-Japan Agreement concerning the Transfer of Defence Equipment and Technology and The ShinMaywa US-2 Amphibious Aircraft Deal

The Agreement Concerning the Transfer of Defence Equipment and Technology was inked between the Government of Japan and the Government of the Republic of India in December 2015. This happened mostly considering the existing cooperation between the parties in the sphere of security, as confirmed in the Tokyo Declaration for Japan-India Special Strategic and Global Partnership on September 1, 2014.

According to Article 1 of the agreement, both the parties shall collaborate in providing defence equipment and technology, encourage joint projects and research mostly through diplomatic channels.[7] Article 2 stated that a 'Joint Committee' would be constituted to determine the defence equipment and technology to be transferred for the projects that have been determined. [8]

Cooperation on defence equipment and technologies is an important area to grow. Japan has historically taken a cautious approach in this field, but with the new 'Three Principles on Transfer of Defence Equipment and Technology' approved by the cabinet in 2014, Japan is determined to contribute to international peace and security more proactively through appropriate overseas transfers of defence equipment and technology.[9]

Based on such agreements and policies, both the countries exhibited enthusiasm to work together on the acquisition of defence equipment. India wished to purchase the cutting-edge US-2 amphibious aircraft but was not successful.[10]

However, the 'Joint Working Group on Defence Equipment and Technology Cooperation' met several times to discuss on dual use technology apart from US-2.[11] Japan also began technical negotiations with India to explore potential research collaboration in the areas of unmanned ground vehicles and robotics.

Furthermore, the leaders of both the countries are enthusiastic about prospects for industrial cooperation, particularly under India's "Make-in-India" initiative. The goal is to strengthen partnerships in co-production and co-development in the defence industry.[12]

The Defence Minister Rajnath Singh and his Japanese counterpart, Kihara Minoru, met in New Delhi in August 2024 as part of the India-Japan '2+2' Ministerial Dialogue.[13] The conference centred on assessing ongoing defence cooperation initiatives and exploring new opportunities to strengthen engagement between the two countries.

Rajnath Singh also emphasised India's goal of creating a "Viksit Bharat" by 2047, the country's 100th anniversary of independence.[14] He highlighted that a key component of this vision is developing local defence capabilities, and that cooperation with Japan in

the fields of defence industry and technology will be crucial to reaching these objectives. Together, the two ministers decided to draft a collaboration plan that would support India's 2047 goals.

At the India-Japan Joint Statement during the visit of Prime Minister Shinzo Abe to India in September 2017, the two Prime Ministers praised first Defence Industry Forum and discussed on other interesting projects to promote defence industry collaboration drawing on the efforts of Japan's Acquisition, Technology and Logistical Agency (ATLA) and India's Department of Defence Production (DDP).[15] They highlighted the necessity of improving connections between the two nations' governments and defence sectors in order to promote equipment collaboration, particularly defence and dual-use innovations.[16]

India and Japan demonstrated bilateral commitment by launching their first project, Cooperative Research in the Area of Unmanned Ground Vehicle (UGV)/Robotics, which was agreed upon by the two defence ministries in July 2018.[17] Following the bilateral agreement on defence equipment and technology, technical discussions between ATLA and the Defence Research and Development Organisation (DRDO) intensified, culminating in the first collaborative research project on Visual Simultaneous Localisation and Mapping (SLAM) Based Global Navigation Satellite System (GNSS) Augmentation Technology for UGV/robotics.[18]

This is the first cooperation research agreement between the two defence ministries since the bilateral agreement on the transfer of defence equipment and technology in 2016. This combined effort is expected to lead to further technological advancements.

In addition, Prime Minister Narendra Modi asked Japan to participate in Project 75(I), which aims to build six diesel-electric submarines with air-independent propulsion (AIP) capability for the Indian Navy. In July 2017, the Navy issued a request for information (RFI) to Mitsubishi Heavy Industries and Kawasaki Heavy Industries, the manufacturers of the ultra-quiet Soryu class submarine, as well as other foreign manufacturers such as ThyssenKrupp Marine Systems, Naval Group, Navantia, Saab, and Rubin Design Bureau-Amur Shipyard.[19] However, these two Japanese businesses have declined to respond to the RFI, possibly due to Japan's experience with the

lengthy and contentious talks over the state-of-the-art Utility Seaplane Mark 2 (US-2) amphibian aircraft made by Shin Maywa Industries.

Unified Complex Radio Antenna (UNICORN) for an Enhanced Maritime Domain Awareness (MDA)

India's MDA entails gathering information on changes in the Indian Ocean Region in order to inform policy and military decisions aimed at securing the country's strategic interests in the region. As an island state, Japan's MDA is based on gathering and disseminating information about security (managing territorial disputes and protecting approaches to the mainland), safety (preventive and reactionary measures to natural disasters), and economy (effective resource management and the protection of its SLOCs).[20]

Both states' MDAs share a heightened awareness of Chinese incursion in their respective territories. China has enacted the Data Security Law and Personal Information Protection Law, in 2021 allowing vessels to switch off their Automatic Identification Systems (AIS) transponders in certain locations.[21] These laws have effectively strengthened China's maritime militia.

To counter China's presence in the Indo-Pacific and protect its strategic interests, the QUAD launched a coordinated initiative known as Indo-Pacific Maritime Domain Awareness (IPMDA).[22]

The plan comprises developing a comprehensive monitoring system for the Indo-Pacific in order to achieve a common knowledge of sea-related changes and risks. The QUAD aims to achieve this goal by connecting regional collaboration mechanisms such as space, land, and sea-based surveillance assets with regional fusion centres such as India's IFC IOR in Gurugram and Japan's MDA Situational Indication Linkages (MSIL).[23]

The IPMDA's extension to the IOR, which was a preliminary plan has now become officially extended to the region at the QUAD's Foreign Ministers Meeting in Tokyo on July 29, 2024. The Joint Statement mentioned working on the early implementation of “South Asia Programme” through the IFC-IOR. In addition, an announcement was

made regarding the implementation of an Open-RAN network in Palau.[24] The Open RAN in Palau demonstrates India and Japan's commitment as QUAD members to promoting an open Indo-Pacific region.

At the 2+2 India-Japan Dialogue held in August 2024, the two nations agreed to discuss on integrating Japan's Unicorn stealth antenna system into Indian warships.[25] The Japanese navy developed the composite communication antenna UNICORN, and the complex system was manufactured by NEC Corporation of Japan. The system was developed over the last decade as a stealth technology for Japan's Future Frigate Multirole (FFM) class surface warships.[26] The FFM class, also known as the "Upgraded Mogami," is intended to be a multi-mission frigate with stealth capabilities, advanced combat vessels for reconnaissance and surveillance missions. This specific requirement arose primarily to accomplish stealth features on FFM class warships, with exposed antennae mounted on the high mast-top contributing significantly to improved warship radar cross section (RCS).[27] Strategists believe that such an initiative will help to enhance MDA in the Indo-Pacific region.[28]

On November 15, 2024, India and Japan signed a Memorandum of Implementation to co-develop the UNICORN antenna complex for Indian warships.[29] This would be India and Japan's first co-development/co-production of defence equipment which is expected to create a pattern.[30]

Although India and Japan have taken various initiatives to collaborate in defence equipment and technology transfer, co-production and co-development but they have struggled to materialise their deals and objectives properly. In order to facilitate those plans both New Delhi and Tokyo will have to emphasis on factors that impede their effective execution and progress.

Navigating the Key Impediments to India Japan Collaboration

Some of the challenges which require attention and resolution in the upcoming times have been discussed in the following paragraphs:

- **Cost Factor:** Based on previous initial negotiations, India anticipated a different price for the specific equipment or technology, but the price of the goods

increased due to delays in paperwork, procurement processes and so on. For example, the cost of US-2 was expected to be not so high but later the cost increased to which New Delhi got a little reluctant to continue with the deal.

- **An Evolving Export Regulations:** It is seen that the Japanese bureaucrats and regulatory structure has a complex process when it comes to export regulations. Although Tokyo has passed the "Three Principles on Transfer of Defence Equipment and Technology", but they are still in an evolving phase when it comes to export policies.

- **A Prolonged Procedure:** The process normally takes a lengthy time from the moment a request for information (RFI) is issued to the final delivery, often more than a decade.

- **Decelerated Procurement Process:** Typically, the method moves at a glacial speed, preventing the system from providing the most up-to-date technologies to war fighters.

- **Strict Process of Documentation:** In order to prevent corruption and enhance transparency, the procurement process involves strict documentation. But this becomes a very lengthy process which could impede a successful deal.

- **Japan's reliance on the US and Europe for Procurement, Co-development and Co-production:** The US is a longstanding partner for Japan in terms of co-development and procurement initiatives. In 2024, both the countries have initiated to collaborate in developing the Glide Phase Interceptor to mostly counter the hypersonic threats.[31] In addition, Japan has procured various defence systems from the US, including the F-35 Lightning II fighter jets, Aegis Combat System and cruise missiles.

  Japan is also a part of the Global Combat Air Program (GCAP) along with UK and Italy to develop the sixth generation stealth fighter jet, F-X. In terms of India, although they have shared values and signed various defence agreements but Japan still has not developed the reliability with India. When it comes to co-

development, co-producing and procurement of defence equipment Japan prefers the US as its closest partner.

- **GCAP a Complex Initiative:** Japan considers the GCAP initiative to be complex, challenging and costly. Under such circumstances, it is unclear how far Japan is willing to join another grouping like the GCAP, which includes India.

Paving the Way for a Resilient Partnership

- **Enhance Investments on an Equal Footing:** High cost has been an issue due to which deals between India and Japan did not materialise. It is necessary that both the countries initiate investment in this sector. Apart from investment it is essential that both are on an equal footing.

- **Leveraging Cooperation in Stealth Technology:** Japanese firms including Mitsubishi Heavy Industries (MHI), Kawasaki Heavy Industries (KHI) and Subaru Corporation are some of the largest defence companies in the world.[32] MHI collaborated with the ATLA on hypersonic technology development, including hypersonic cruise missiles and hypervelocity glide projectiles.[33] Mitsubishi X-2 Shinshin, also known as ATD-X (Advanced Technology Demonstrator-X), is a stealth experimental technology demonstrator and research prototype intended to demonstrate technologies required for Japan's indigenous fifth-generation fighter aircraft, dubbed F-3.[34] MHI developed this multimillion-dollar project in collaboration with the Technical Research and Development Institute (TRDI) of the Japanese Ministry of Defence of Japan.[35]

  As India rightfully advocates for *Atmanirbharta*, it is apparent that the aviation industry reaps the greatest dividends from indigenisation in defence. The HAL/ADA Advanced Medium Combat Aircraft (AMCA) was supposed to be a single-seat, twin-engine, all-weather fifth-generation stealth, multirole combat aircraft being developed for the IAF and the Indian Navy.[36] The AMCA Mk-1 will be powered by two General Electric F414 engines, with minimal rear hemisphere stealth. A more powerful joint venture (JV) engine is proposed for the AMCA Mk-2 which would need to include a foreign partner. Considering Japan’s advanced research in development of engines and its expertise in

stealth technology, ATD-X, India could collaborate with Japan. Tokyo is also investing in radar-absorbent materials which enables an aircraft to reduce its radar cross-section (RCS). Such expertise would help India in developing the stealth features of AMCA.

- **Leverage International Partnership with Japan as a Significant Member:** Japan is currently developing its sixth-generation fighter jet, the F-X through a joint collaboration (GCAP).[37] The new fighter is slated to enter service with Japan's Air Self-defence Force in around 2035. The government intends to employ F-X as a replacement for its about 90-strong fleet of Mitsubishi F-2 fighters. MHI has taken the contract for the development program of F-X in collaboration with Britain's BAE Systems PLC and Italy's Leonardo.[38]

  New Delhi too could emphasis on leveraging such international partnerships for advanced technologies to have access to shared costs and expedited development. Such collaborations harness the resources and expertise of each partner country to create cutting edge technology and commence innovation. Such platforms also give the opportunity to Indian companies such as the HAL, ADA, BEL to collaborate with global defence companies.

- **Encourage Collaboration in Development of Underwater Platforms:** New Delhi and Tokyo can leverage their capabilities in developing underwater surveillance system. In order to ensure maritime security and observe underwater activities it is of great salience that the underwater surveillance system be comprehensive and resilient in nature. This is possible through joint research and development which mostly focuses on technologies such as sonar, autonomous underwater vehicles (AUVs) etc. Such collaboration might also include the co-development and co-production of submarines.

- **Prioritise the Academic Fraternity in terms of Research and Development:** In order to enhance research, both the countries should give priority to the collaboration between their academic institutions to commence innovation in technology. This would enable New Delhi and Tokyo to have shared access to expertise, cutting edge research facilities including resources. The governments

of both the countries could also commence exchange programs for students and create joint research programs.

- **Commence Collaboration in Dual-use Technologies:** As Japan strengthens its defence capabilities and responds to changing security concerns, it is increasingly looking to "dual-use" solutions. Yano Research Institute has evaluated the domestic market of next-generation dual-use items and technology that can have both civil and defence applications and found the market size.[39] They are focusing on five key areas: aerospace, information technology, sensing, automation, and manufacturing/component materials. Because of recent developments in neighbouring nations, defence funds have increased significantly in accordance with Japan's National Security Strategy and National Defence Strategy.[40] The ATLA has announced plans to expand deals not just with established partner firms, but also with SMEs and startups, in order to strengthen the defence sector base. In addition, the next-generation dual-use item and technology market is expected to reach 60,900 million yen by FY2030, with regulations such as the 'Foreign Exchange Law' and the 'Three Principles on Defence Transfer of Defence Equipment and Technology' being reviewed.[41]

  India has scope to benefit from Japan's growth in dual-use technology. This could be collaboration in the fields of aerospace, automation, sensing etc. for both civilian and defence sectors. Since Japan is promoting SMEs to expand defence related contracts, Indian SME's too could partner with Japanese counterparts to develop dual-use technology. In addition, collaboration in this sphere will enable both the countries to job creation, more opportunities for skill development and overall economic growth.

  In fact, Japan's consistent support for India's admission to international dual-technology usage regimes has played an essential role in conceptualising their cooperation.[42]

- **India as the Key Potential Market:** With the establishment of its "Three Principles on Transfer of Defence Equipment and Technology", Japan commences transfer, co-production and co-development of defence equipment

and technology. Most significantly, it wants a market to sell its products. However, the global powers like the US, China or European countries including France are mostly reliant on their indigenous products leaving India as the only key potential market. Hence, fostering stronger strategic collaboration with New Delhi could enable Tokyo to enhance its influence and presence in the market of defence equipment and technology.

- **Collaborate in Developing Advanced Technologies like Semiconductors:** to In the global security scenario while discussing about joint warfighting today, the role of semiconductors in developing microchips, logic devices, EO, microcontrollers etc. is immense. As a result, a country that is at the forefront of these technologies will have the advantage of maintaining a critical worldwide position. Meanwhile India is in the pursuit of building a strong semiconductor ecosystem. Given Japan's historical superiority and technological expertise, particularly in semiconductor materials and manufacturing equipment, it might be positioned as one of India's most promising partners. However, the success of such a collaboration is dependent on how far New Delhi can position itself as a viable and appealing partner in the global environment. Meanwhile, Taiwan and the United States have created strong connections with Japan in this field. As a result, India must prioritise a few critical areas, such as supply chain integration, bridging the technology gap, and supporting research and development.

Conclusion

India’s strategic convergence with Japan is enhancing considering their shared values, objectives and concern over China’s expanding influence in the region. However, when it comes to the transfer of defence technology and equipment, New Delhi and Tokyo have a long way to go in comparison to Tokyo's closeness with the US in terms of technology transfer.

Despite signing the 'Special Strategic and Global Partnership' in 2014, India and Japan have yet to implement robust long-term strategic plans such as 'five-year plans' or ‘ten-year plans'. To enhance their collaboration, both nations should focus on long-term objectives. Furthermore, both the countries are on different trajectories in terms of their

strength. In this context, they should be able to bring out the best in each other and join their forces to achieve their objectives.

DISCLAIMER

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