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Commentary

# Stealth Frigates and India–Russia Defence Cooperation

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## Summary

India–Russia collaboration on stealth frigates reflects the promise of defence co-production and the challenges of defence indigenisation.

## Introduction

Stealth frigates have been critical assets in the evolving maritime security landscape. Designed to be stealthy, agile and lethal, these ships offer a strategic advantage in high-stakes naval operations—ranging from anti-submarine warfare to intelligence gathering and maritime deterrence. For a country like India, with vast maritime interests spanning the Indian Ocean Region (IOR) and beyond, integrating such naval platforms is essential for maintaining a credible blue-water navy.

India's journey in acquiring and deploying stealth frigates has been significantly shaped by its long-standing defence partnership with Russia, which has served as an arms supplier and co-development partner for decades. Among the most notable outcomes of this collaboration has been in the domain of stealth frigates. This commentary explores the trajectory of India–Russia defence cooperation on stealth frigates and its future prospects.

## Talwar-Class Frigate Cooperation

The design of the Talwar-class frigates imported by India in the 1990s is based on the Russian Krivak III-class frigates,[1] which were modified to meet the specific operational requirements of the Indian Navy (IN). This collaborative effort between India and Russia commenced in the late 1990s, leading to the induction of the first three frigates—INS Talwar, Trishul and Tabar. These were later joined by INS Teg, Tarkash and Trikand, delivered between 2012 and 2013.

Notably, all frigates in the Krivak class are equipped with engines supplied by Ukraine's Zorya Nashproekt.[2] A distinguishing feature of the Talwar-class frigates was their hybrid configuration—combining a Russian-designed hull with a mix of Western and Indian systems. These frigates are fitted with two critical systems developed in India—the BrahMos supersonic cruise missile and the Defence Research and Development Organisation (DRDO)-developed hull-mounted sonar HUMSA-NG.[3] This represents a significant advancement in India's capacity to adapt foreign platforms to its strategic needs, supported by Russia's willingness to incorporate non-Russian systems onboard these vessels. Overall, the imported frigates have a total indigenous content of 26 per cent.[4]

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[1] Richard Weitz, **"The Maturing of Russia-India Defence Relations"**, *Journal of Defence Studies*, Vol. 6, No. 3, July 2012, pp. 95–114.

[2] Dinakar Peri, **"Stealth Frigate INS Tushil Commissioned into Indian Navy in Russia"**, *The Hindu*, 9 December 2024.

[3] **"Naval Systems"**, Bharat Electronics Limited.

[4] **"INS Tamal, Latest Stealth Frigate Commissioned into Indian Navy"**, Press Information Bureau, Ministry of Defence, Government of India, 1 July 2025.

Following the successful deployment of the Talwar-class frigates, India and Russia launched a follow-on initiative to build four more advanced stealth frigates under Project 11356. As part of this collaboration, two ships—INS Tushil and INS Tamal—were constructed at Russia's Yantar Shipyard, while the remaining two are being built at Goa Shipyard Limited (GSL) in India under a technology transfer arrangement. This reflects deeper defence industrial cooperation and enhanced domestic shipbuilding capabilities.

This collaborative initiative originated from an inter-governmental agreement signed in 2016, which was formalised through a contract in 2018.[5] The primary objectives were to enhance the IN's stealth capabilities and to strengthen domestic shipbuilding under the 'Make in India' programme. The new frigates are based on an upgraded Talwar-class design, incorporating higher levels of automation, advanced sensors and systems, and flexibility to integrate various missiles. INS Tushil, the seventh vessel in the Talwar series, is the lead ship among the two constructed in Russia as part of this follow-on order. The import cost for INS Tushil and INS Tamal is approximately Rs 8,000 crore, while the two ships being built at GSL are projected to cost around Rs 13,000 crore.[6]

Designed for blue water operations, the upgraded frigates are capable of conducting missions across all four dimensions of naval warfare— surface, underwater, air and electromagnetic spectrum. These ships are equipped with advanced software, lethal defensive weapons and artificial intelligence tools for enhanced situational awareness and survivability.[7] The vessel can reach speeds exceeding 55.56 km/h, powered by an advanced gas turbine propulsion system.

Despite encountering obstacles such as global supply chain disruptions and delays linked to international sanctions, the frigate project has persisted—highlighting the enduring strength and resilience of the India–Russia defence partnership. One of the key setbacks in the construction timeline stemmed from payment delays, mainly due to restrictions imposed by Western sanctions on Russia that limited the use of the global SWIFT interbank system for financial transactions.[8] Due to the Russia–Ukraine fallout, India had to procure the ship's engines directly from Ukraine, which was redirected to Russia to fit onto the warships.[9]

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[5] Ibid.

[6] Rajat Pandit, **"India Gets its Latest Multi Role Stealth Frigate, Commissioned in Russia by Rajnath Singh"**, *The Times of India*, 10 December 2024.

[7] **"INS Tushil, Latest Multi Role Stealth Guided Missile Frigate, Commissioned into Indian Navy"**, Press Information Bureau, Ministry of Defence, Government of India, 9 December 2024.

[8] Sakshi Tiwari, **"Powered by Ukrainian Engine & Built in Russia, Stealth Frigate INS Tushil Commissioned into the Indian Navy"**, *The Eurasian Times*, 9 December 2024.

[9] Vishnu Som, **"India's New Russia-Made Warship Comes With Ukrainian Engines. How It Happened"**, *NDTV*, 9 December 2024.

The parallel construction of the two frigates at GSL underscores the increasing confidence in Indian shipyards to execute sophisticated naval projects. This dual-site production strategy allows India to leverage Russian technical expertise and reinforces indigenous shipbuilding capabilities, marking a significant step towards self-reliance in defence manufacturing.[10] From a defence industrial standpoint, the Talwar-class frigate cooperation offers India a valuable learning curve in adapting and integrating complex naval systems—skills that would prove crucial in subsequent projects involving greater domestic production.[11]

Notably, INS Tushil features an indigenous content of approximately 26 per cent—twice that of the earlier Teg-class frigates. The domestic contribution includes components and systems supplied by 33 Indian firms, such as Bharat Electronics Limited, BrahMos Aerospace (a joint venture between India and Russia), and Nova Integrated Systems, a wholly owned subsidiary of Tata Advanced Systems Limited.[12] Some reports suggest that INS Tamal may be the last warship imported from abroad, underscoring a potential turning point in India's naval indigenisation journey.[13]

## Operational Value for the Indian Navy

INS Tushil was commissioned in service in the IN in December 2024, while INS Tamal was commissioned in July 2025.[14] All frigates of this class have been allotted to the Western Command of the IN.[15] These frigates are designed to perform a broad spectrum of roles, making them invaluable assets in peacetime missions and high-intensity conflict scenarios. The stealth features embedded in these frigates—such as angled hulls, radar-absorbent coatings and noise-reducing propeller designs—allow them to operate with a reduced detection signature.[16] This makes them particularly effective for offensive operations, covert patrols and escort duties in contested maritime zones. Their ability to strike at standoff ranges adds a layer of precision and lethality, enhancing India's deterrence capability, especially in the Indian Ocean Region.

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[10] **"INS Tushil, Latest Multi Role Stealth Guided Missile Frigate, Commissioned into Indian Navy"**, no. 7.

[11] Lt Gen Naresh Chand (Retd), **"Indo-Russian Naval Cooperation"**, *SP's Naval Forces*, May 2016.

[12] **"India's Newest Russia-built Warship to Reach Country in mid-Feb"**, *Hindustan Times*, 30 December 2024.

[13] Dinakar Peri, **"Tamal, India's Last Imported Warship, Likely to be Commissioned in June"**, *The Hindu*, 26 February 2025.

[14] **"INS Tushil, Latest Multi Role Stealth Guided Missile Frigate, Commissioned into Indian Navy"**, no. 7.

[15] Ibid.

[16] Ibid.

Beyond their combat roles, these frigates have proven their value in shaping India's maritime diplomacy. Their regular deployment in naval exercises such as *Malabar*, *INDRA* and *Varuna* underscores India's commitment to regional security partnerships. Their presence in the IOR will symbolise India's blue-water aspirations. Moreover, it underlines the reliability of Russia as an important defence partner of India, which has helped the Indian Navy to evolve from a buyer's navy into a builder's navy.

## Future Challenges and Prospects

As India continues to expand and modernise its naval capabilities, the scope for future collaboration with Russia in the maritime domain remains important as India faces a combination of opportunities and challenges in its defence indigenisation journey.

While reports mention that the Tamal would be India's last imported warship, there is no official confirmation. Also, warships/frigates as a whole platform are not mentioned in any of the Positive Indigenisation Lists. Media reports do not clarify whether India would continue to import other types of ships/boats required by the Navy. Secondly, 26 per cent of indigenous content (IC) in the imported frigates and around 56 per cent of the two frigates produced at GSL have not been explained in any official sources. There is a lack of clarity on how indigenous content is calculated—whether by cost, components or subsystems.

Thirdly, the delayed delivery and commissioning of Tamal and Tushil have once again highlighted a critical vulnerability in India's defence industrial base—the lack of an indigenous engine for military applications. Aircraft of the Indian Air Force (IAF), ships of the Indian Navy and battle-tanks of the Indian Army primarily depend on foreign sources for their engines. In this specific case, the four frigates are powered by Ukrainian-origin engines, which increased India's concerns as the engines could not be delivered on time due to the Russia–Ukraine conflict, thus delaying the ship's delivery.

Supply chains, access to components and payment mechanisms of defence deals are highly vulnerable to geopolitical changes, which can, in times of crisis, impinge on the strategic autonomy of a country. India must factor in these aspects while dealing with foreign governments in defence partnerships. The above situation leaves space for defence industrial cooperation with foreign countries, driven more by India's requirements of defence indigenisation than the deliberate use of such partnerships as a foreign policy tool.

The successful completion of the Talwar-class frigates provides another proven template for co-production and technology transfer—elements that are central to India's 'Atmanirbhar Bharat' initiative. Looking ahead, there are multiple avenues where India–Russia naval cooperation could deepen. Joint development of next-generation destroyers, submarines, amphibious ships, maritime aircraft and weapon systems with greater indigenous content, advanced sensor suites, and AI-enabled systems holds good prospects. Additionally, there is potential for collaboration in underwater platforms, including unmanned systems. Areas of interest may also include naval propulsion technologies, torpedoes and missiles. Notably, the range of the naval version of the BrahMos missile is planned to increase to 600 km.[17]

India's growing diversification of defence partnerships also demands a balanced approach to avoid overdependence on any single supplier. The legacy of India–Russia defence cooperation will continue to provide a strong foundation for further defence cooperation. A long-term roadmap encompassing life-cycle support, technology adaptation and modular upgrades can help sustain such collaboration well into the future.

## Conclusion

India–Russia defence cooperation on stealth frigates has resulted from a long-standing and evolving defence partnership, showcasing the successful integration of Russian engineering with India's strategic needs. These frigates not only bolster India's maritime security capabilities but also enhance its deterrence posture, enabling the Indian Navy to safeguard vital sea lanes and assert its presence in the broader Indo-Pacific region.

This serves as a model of resilience in defence ties, navigating the complexities of technological transfer, production challenges and geopolitical shifts. As the global maritime environment becomes increasingly contested, the India–Russia defence relationship will continue to be crucial in maintaining bilateral relations as well as in helping India achieve its strategic objectives, while maintaining India's autonomy to adapt Russian platforms to its needs and engage with other partners.

[17] Suchitra Karthikeyan, **"Indian Navy's New BrahMos Deal: Missile Indigenisation Explained"**, *The Hindu*, 9 March 2024.

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