National Maritime Foundation

www.maritimeindia.org

ATMANIRBHAR BHARAT — CHOOSING *SWAVLAMBAN* (SELF-RELIANCE) OVER SELF-SUFFICIENCY

VAdm Pradeep Chauhan, *AVSM & Bar, VSM, I.N. (Retd)*

17 July 2022

Note: Some segments of this article have been published by the author in the South Asia Defence and Strategic Review (Vol 16 Issue 2 May – Jun 2022) and are repeated here with due permission.

As the Indian Navy gears up for the 2022 edition of its indigenisation and innovation perspective plan, generically known as *Swavlamban* (which translates to "self-reliance"), it is germane to explore a question that often arises in the collective mind of India watchers and the global strategic community in general — just what do India's periodic statements of 'vision' mean? This is particularly because these are often aspirational statements that are originally articulated in Hindi and then have much of their nuance lost in translation into other languages, most especially English. The clarion call to all Indian societal structures to create an *Atmanirbhar Bharat*[1] is all the rage at the present juncture and would appear to have taken over from the *'Make-in-India'* mantra that was being chanted with equal fervour, accompanied by matching hype and hoopla, only a few short years ago (September 2014 to be precise).[2] However, the current articulation of *Atmanirbhar Bharat* is actually part of a natural Indian progression — a logical broadening of the 2014 campaign which had sought to encourage the global manufacturing sector to perceive India as an opportunity rather than a risk. It invited global manufacturing 'majors' to set-up shop (so to speak) in India and, in so doing, transform the country into a global design-and-manufacturing hub. Yet, in both, the 2014 call to *'Make-in-India'* and the present there is much that has been "lost in translation" — as the aphorism goes.

Given that these slogans are the product of sophisticated but largely Hindi-thinking and Hindi-speaking minds, once they were translated into the English language, it was (and is) quite unsurprising to find that they created, particularly amongst the English-speaking lay public, a fair degree of misunderstanding. In 2014, there was discernible confusion between the terms ***'Make-in-India'*** and ***'Indigenisation'***. The fact is that the former was meant to encourage largely-foreign major manufacturing-companies to set-up manufacturing-units in India — whether for consumption by the Indian market itself or for export from India to markets in

---

[1] As per the Government of India's official website, *Atmanirbhar Bharat* denotes self-reliance. *Atmanirbhar Bharat Abhiyan* is the mission started by the Government of India, on 13 May 2020, to making India self-reliant. For details see https://aatmanirbharbharat.mygov.in

[2] The "Make in India" initiative was launched by the Government of India on 25 Sep 2014 with the objective of facilitating investment, fostering innovation, building best in class manufacturing infrastructure, making it easy to do business, and enhancing skill development. For details see: https://www.pmindia.gov.in/en/major_initiatives/make-in-india/

other countries. As such, its principal aims were job-creation, skill-development, and the transfer and absorption of cutting-edge manufacturing-technology and management-techniques. ***'Indigenisation'***, on the other hand, is, perhaps, better described by the less well-used slogans, **'Make-by-India'** or **'Make-for-India'**. In short, 'indigenisation' involves *Indian* industry manufacturing products and processes that would otherwise have had to be imported by India. Fast forward to 2020 and the call for an *Atmanirbhar Bharat*. An admittedly small number of economists and analysts have since pointed out that *atmanirbhar* can be translated either as 'self-reliance' or as 'self-sufficiency'. Different levels of the bureaucracy have applied their own interpretation as to which is the meaning that is denoted by the adjective *atmanirbhar*, adding to the policy-level confusion. 'Self-sufficiency' is what India tried through the three economically-challenged decades between the 1950s and 1970s, wherein India could manage only a 3.5% rate of growth — derisively called the *"Hindu Rate of Growth"*.[3] This term by was coined in the late 1970s by Professor Raj Krishna, who had argued in one of his lectures that *"..no matter what happens to the economy the trend growth rate in India will be 3.5%"*. A few economists later took the statement completely out of context to and sought to link the low growth-rate of this period to Hindu beliefs of *"Karma"* and *"Bhagya"*. In any event, the average *per capita* income grew by a mere 1.3%. The country's birth-rate, however, continued to be high, with the net result that 30 years after Independence the number of poor people had nearly doubled. Nevertheless, some bureaucratic echelons have taken *atmanirbharta* to denote import-substitution. Clearly, this is the wrong approach, as may be readily shown by the fact that contemporary India has the fourth largest petroleum-refining capacity on the planet,[4] and our largest single export is petroleum-products.[5] Of course, our single largest import commodity, too, is petroleum (crude oil).[6] If we were to slavishly promote the wholly incorrect meaning of *atmanirbharta* and reduce our import, we would be cutting off our collective nose to spite our face because this would have an adverse and severe impact upon our exports, with consequent reduction in the GDP. If, on the other hand, *atmanirbharta* were to be accepted as denoting 'self-reliance', India would endeavour to be strong enough to import what was necessary and inescapable, add value to whatever the country imports, and then export these value-added products.

This thrust on 'self-reliance' rather than 'self-sufficiency' does, indeed, promote both, "Make in India" endeavours as well as indigenisation ones, as has been amply and repeatedly shown by the Indian Navy. The navy's indigenisation drive — launched in the 1960s — has, over time, matured into a success story worthy of both consistent praise and emulation across an impressive range of naval capabilities, incorporating inductions and acquisitions as well as capacity-building and capability-enhancement for both, the domestic requirement as well as the export one. Contrary to what some profess, the two are not mutually exclusive. The fact that the Indian Navy's 'Directorate-General of Naval Design' (DGND) has generated as many as 19

---

[3] Mani Shankar Aiyar, "From the Hindu Rate of Growth to the Hindutva Rate of Growth", *The Telegraph Online*, 16 June 2019, https://www.telegraphindia.com/opinion/upa-nda-and-india-s-economy-from-the-hindu-rate-of-growth-to-the-hindutva-rate-of-growth/cid/1692493.

[4] Government of India, Ministry of Petroleum & Natural Gas website (Updated 22 June 2022), "Refining History & Evolution", https://mopng.gov.in/en/refining/history-and-evolution

[5] Atishay Bhatia, "India's Import-Export Trends in FY 2020-21", *India Briefing*, Dezan Shira & Associates, 04 October 2021, https://www.india-briefing.com/news/indias-import-export-trends-in-2020-21-trade-diversification-fta-ftp-plans-23305.html/

[6] *Ibid*

different warship-designs, leading to the construction of a staggering 121 surface and sub-surface combat-platforms (i.e., 'warships' and 'submarines') in Indian shipbuilding yards[7] is, by any standard, a track-record of which to be proud. However, even more impressive have been the Navy's successes by way of the indigenous development, production, and deployment of a whole slew of systems and sub-systems that go into the 'float', 'move', 'fight' and 'survive' capabilities of modern naval combatants and are now being exported with the tag "world class". These incorporate surface and subsurface propulsion systems, power-generation systems, and state-of-the-art weapon-sensor suites — all of which, taken in aggregate, have made the Navy's ships, submarines, and aircraft, both admired and respected.

The Navy's efforts at self-reliance are guided by a 15-year "Science and Technology Roadmap",[8] which identifies fourteen contemporary technologies that the Navy feels have significant defence-related applications: (1) Robotics and Artificial Intelligence; (2) Sensor-technologies; (3) Materials Technology (Stealth, Meta-metals, etc.); (4) High Energetics technology (Explosives, Anti-matter, Thorium, etc.); (5) Fusion Technology; (6) Space Technology; (7) Hypersonic Missile Technology; (8) Nano Technology; (9) Bio-technical Weapons-technology; (10) IT and Cyber Warfare Technology; (11) Unmanned Weapon Delivery-Systems; (12) Ocean-acoustics in littoral waters; (13) Networking technologies; and (14) Bio-fuels.

It is noteworthy that this roadmap affords requisite centrality to India's MSME sector. In the medium term, conventional maritime conflict under the India-Pakistan-China nuclear overhang is very likely to be time-compressed and 'Special Ops'-intensive. There is much that the MSME Sector can achieve here: paper-batteries to power hand-launched 'micro-UAVs'; camouflaging of the ends of GPS-trailing-wire antennae for use in specific environments (such as the creek areas of Gujarat and Sindh or the swampy areas of the Sundarbans); electrical high-speed outboard motors (OBMs) and noise-cancelling/sound-blanking solutions for two-stroke and four-stroke IC-engine OBMs; portable power-ascenders for boarding operations, amphibious raids, etc.; 'Low Observable Technology' semi-submersible craft; diver-scooters and diver-propulsion vehicles; image-recognition software that can provide 'suspicion-indicators' (such as a fishing-vessel not conforming to the local design or layout, or, a trawler streaming demersal-fishing gear but operating in the deep waters off our east coast); etc.

Predictably, the Navy's indigenisation endeavour has already rich dividends, to the great benefit of industry as well as the nation. As things currently stand, Indian shipyards have as many as 39 indigenously designed surface and sub-surface warships in various stages of construction, of a current induction figure of 41 ships and submarines.[9]

---

[7] Rear Admiral AK Saxena, "Naval Designers' Journey From Nilgiri to Project 15B", *SP's Naval Forces,* https://www.spsnavalforces.com/story/?id=371

[8] Integrated Headquarters Ministry of Defence (Navy), "Ensuring Secure Seas: India's Maritime Military Strategy", 128 and 131, https://www.indiannavy.nic.in/sites/default/files/Indian_Maritime_Security_Strategy_Document_25Jan16.pdf.

[9] Government of India, Ministry of Defence, "Raksha Mantri Launches Two Indigenous Frontline Warships - Surat (Guided Missile Destroyer) & Udaygiri (Stealth Frigate) - in Mumbai", Press Release, 17 May 2022, https://pib.gov.in/PressReleseDetailm.aspx?PRID=1825981

In recognition of the criticality of the PPP-model and guided by the recommendations of the 'Dr Vijay Kelkar Committee' that had been set-up to investigate the issue of private sector participation in the defence industry,[10] the Navy has taken a number of measures to optimise the potential created by the growing capability of Indian Industry coupled with the shift in Government policy to allow for private partnership in the defence sector. Regular buyer-seller meets, and vendor-development programmes are conducted by several nodal organisations within the Navy, most especially the 'Directorate of Indigenisation' (DOI), which was set-up in 2006, and the newer (established in the year 2020) "Naval Indigenisation and Innovation Organisation" (NIIO), within which has been nested a dedicated "Naval Technology Acceleration Council" (N-TAC). A Technology Development Acceleration Cell (TDAC) has also been created for the induction of emerging disruptive technology in an accelerated time frame. These structures, depicted schematically in Figure 1, enable naval end-users to meaningfully interact with both, academia, and industry, to foster innovation and indigenisation for self-reliance in defence, in keeping with the vision of *'Atmanirbhar Bharat'*.[11]

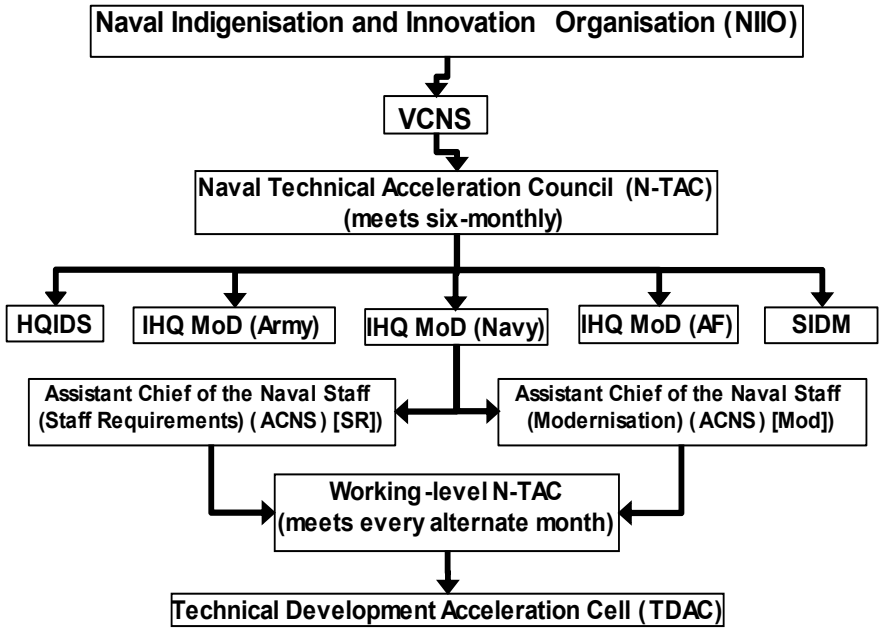

Fig 1: Schematic Depiction of the Naval Innovation and Indigenisation Organisation
Source: Author

Insofar as the Navy's own indigenisation and innovation perspective plan, which (as had already been mentioned at the very commencement of this piece) is generically known as *Swavlamban* or "self-reliance", is in full execution.

[10] Government of India, Ministry of Defence, Report of the Standing Committee on Defence (2008-2009), "Indigenisation of Defence Production – Public–Private Partnership", *Lok Sabha* Secretariat, December 2008, http://164.100.47.193/lsscommittee/Defence/14_Defence_33.pdf

[11] "Indian Navy sets-up Naval Innovation and Indigenisation Organisation", The Statesman, 13 August 2020, https://www.thestatesman.com/india/indian-navy-sets-up-naval-innovation-and-indigenisation-organisation-1502916714.html

> *"On an average, more than two IPR applications have been filed by naval personnel* ***every month*** *since the launch of the NIIO by the Hon'ble Raksha Mantri on 13 August 2020. Patent applications have been filed for military-specific as well as dual-use innovations. Many dual-use products have already been transferred to the MSMEs for mass production through the National Research & Development Corporation (NRDC) and the Rashtriya Raksha University (RRU)...*
>
> *"An online monthly interaction with the industry in coordination with the Society of Indian Defence Manufacturers (SIDM) has also been instituted. Deep-tech start-ups are also being recognised as 'Innovation Industry Partners' and are provided handholding to better understand naval requirements...*
>
> *"To engage young minds in premier educational institutions, the 'Indian Naval Students Technical Engagement Programme' (IN STEP) provides a five-month online internship to work on naval problem-statements. An 'open challenge' under IN STEP was announced during the* [2nd] *NTAC meeting... in partnership with SIDM and BharatShakti.in."*[12]

Over the next couple of days — on 18 and 19 July 2022, to be exact — the Indian Navy will host the *Swavlamban-2022* seminar to highlight the expanding strength of the Indian defence sector and provide them with solutions to their security needs. The Navy's plan for the defence-manufacturing industry is likely to be announced, which will help improve the collaboration and coordination between the two. Procedures involved in companies registering themselves as defence vendors are already being tweaked to make them both simple and transparent and, if industry can adhere to the specifications that are needed and deliver the desired products at competitive prices, there is immense scope for collaboration for mutual benefit.

However, not everything can — or even should —be produced indigenously. At the high-end of warfighting capabilities, Indian industry is increasingly entering into several new and exciting partnerships with global players on the one hand and the Indian Navy, on the other. The stark truth in terms of self-reliance is that there is room for all three facets — imports, value-addition, and exports. The Navy's relentless drive for self-reliance has already yielded impressive and encouraging results in a number of critical war-fighting areas. Obvious examples include major systems required for aircraft carrier operations, such as Electro-Magnetic Launch Systems (EMALS), arrestor-wires and aircraft-lifts; aircushion landing craft (LCAC) for deployment from Landing Platforms [Dock] (LPDs); Air Independent Propulsion (AIP) systems, super-cavitating torpedoes, electromagnetic railguns, hyper-velocity projectiles, blue-green lasers, ship-borne anti-ballistic missile systems, etc.

The number of success stories are impressive by any standard. The range of Electronic Warfare Suites such as the revamped 'AJANTA', as also the 'ELLORA', 'KITE', 'HOMI' and 'PORPOISE', all of which are fitted on the Navy's latest frontline surface, airborne and subsurface combatants, and which are designed to detect the presence of enemy combatants without disclosing one's position or identity, are certainly success stories of which we can be justifiably proud.[13] It cannot be averred that they are without any import components, but the

---

[12] Government of India, Ministry of Defence, "Naval Technology Acceleration Council (NTAC) Meeting", Press Information Bureau Press Release, 23 March 2022, https://pib.gov.in/PressReleasePage.aspx?PRID=1808821

[13] These are Electronic Warfare systems developed indigenously by the Defence Research and Development Organisation, under 'Programme Sangraha'. For details see https://www.drdo.gov.in/technology-cluster-links/labs-products-detail/2127/188.

value-addition and export-potential are entirely Indian. The same is true of the Navy's advanced underwater-sensors such as the APSOH, HUMSA NG and USHUS family of sonars that have been developed by the Naval Physical and Oceanographic Laboratory (NPOL), Kochi.[14] Likewise, an indigenous state-of-the-art electro-optical Fire Control System (FCS) the 'EON 51 Mk II', designed by the Instruments Research & Development Establishment (IRDE), Dehradun,[15] and productionised by industries such as BEL and VEM technologies Pvt. ltd., Hyderabad,[16] is now a standard fit. Pitching-in directly with its own formidable developmental expertise, the Navy's WESEE (Weapons and Electronics Systems Establishment), along with the Centre for Development of Telematics, has rendered yeoman service to the overall effort at self-reliance through its series of world-class 'Combat Management Systems' (CMS) productionised by Tata Power Strategic Engineering Division,[17] 'Integrated Machinery Control Systems' (IMCS), 'Integrated Bridge Management Systems' (IBMS), 'Integrated Propulsion Management Systems' (IPMS), and 'Battle Damage Control Systems' (BDCS), which now equip all major classes of the Indian Navy's warships.[18] Then there are state-of-the-art data-link systems (LINK-II Mod 3), that are now being manufactured by Bharat Electronics Limited (BEL). These form the heart of the entire C^4I^2SR set-up on board most classes of the Navy's frontline warships. Likewise, the indigenously designed and developed 'REVATHI' three-dimensional 'Central Acquisition Radar' (CAR), which is installed aboard the *Kamorta* Class Anti-Submarine Warfare (ASW) corvette is a good example of the rapidly growing 'Public-Private Partnership' (PPP) in defence production.[19] The design and production of this radar has been undertaken through a collaborative effort between the Navy, the DRDO and M/s L&T, Mumbai. The successful leveraging of Navy-designed IT networks and IT-security platforms stands in sharp contrast to the grave concerns often expressed in respect of the country's remaining critical infrastructure. Even outside of 'equipment', there is much to cheer about. The Defence Metallurgical Research Laboratory (DMRL), Hyderabad, in collaboration with M/s Steel Authority of India Ltd (SAIL), and with active participation from the Indian Navy, has successfully undertaken the indigenous development and production of warship-grade 'DMR249A' steel plates and bulb structural sections for ship and submarine applications.[20] This represents an enormous step in freeing

---

[14] "NPOL Achievements", Defence Research and Development Organisation, https://www.drdo.gov.in/npol-achievements.

[15] Government of India, Ministry of Defence Annual Report 2007-2008, p 87, https://www.mod.gov.in/sites/default/files/AR8.pdf
See also: Indian Navy, *Swavlamban*, https://www.indiannavy.nic.in/sites/default/files/SWAVLAMBAN_Final.pdf

[16] Ikbal Singh, "Review of Advanced Electro-Optical Surveillance System", 18 April 2016, https://ficci.in/events/22716/ISP/3Ikbal-Singh.pdf

[17] Shaurya Karanbir Gurung, "Indian Navy gets Combat Management System for INS *Vikrant*", https://economictimes.indiatimes.com/news/defence/indian-navy-gets-combat-management-system-for-ins-vikrant/articleshow/68635755.cms

[18] Vice Admiral HCS Bisht, "Indian Navy – Flag Bearer for Making in India", Business World, 21 August 2018, https://www.businessworld.in/article/Indian-Navy-Flag-Bearer-For-Making-In-India-/21-08-2018-158259/
See also: Vice Admiral Pradeep Chauhan, "The Indian Navy: Trendsetter in Indigenisation", Vivekananda International Foundation, https://www.vifindia.org/print/2629
See also: "WESEE Became the First Defence Organisation to be Appraised for CMMI V2.0 Lvl 3", Indian Navy Website (News and Updates), https://www.indiannavy.nic.in/content/wesee-became-first-defence-organisation-be-appraised-cmmi-v20-lvl-3

[19] *Ibid*

[20] Government of India, Ministry of Steel Press Release, "SAIL Supplies Special Steel for India's Indigenous Navy Warships INS *Udaygiri* and INS *Surat*", Press Information Bureau (PIB), 17 May 2022, https://pib.gov.in/PressReleasePage.aspx?PRID=1826076

ourselves from the yoke of pressures and prices associated with the import of steel, as was the norm until very recently. The results are evident (and will be increasingly so) in the construction of the Navy's big-ticket platforms such as future aircraft carriers and the submarines that are to be constructed under 'Project 75-India'.

To conclude, the Navy for one, seems to be quite clear that a slavish adherence to the chant of self-sufficiency will take the country down a dead-end street, and it is, instead, self-reliance that is the correct path for an *Atmanirbhar Bharat*.

*****

About the Author:

Vice Admiral Pradeep Chauhan, AVSM & Bar, VSM, IN (Retd), is the Director-General of the National Maritime Foundation (NMF). He is a prolific writer and a globally renowned strategic analyst who specialises in a wide range of maritime affairs and related issues. He may be contacted at directorgeneral.nmfindia@gmail.com