Indian Navy: A Formidable Blue Water Force in the Making

India needs a modern Navy to protect its maritime interests and shoulder additional responsibilities, particularly in the current geo-political and security situation that prevails in the Indian Ocean region.

PHOTOGRAPH: Indian Navy

INS Vikramaditya, flagship of the Indian Navy

The INdIAN NAVY, which is the principle manifestation of India’s maritime power, aims to govern two oceans, the Indian Ocean as well as the Pacific. It has been making unstring efforts to augment its naval prowess. However, its efforts have been hinged by various impediments such as budgetary constraints, Indian military industry facing several structural dysfunctions, thereby, retarding the Indian Navy modernisation ambitions.

Given the geopolitical nuances in the Indian Ocean, the Indian Navy needs to transform itself into a builder’s navy and achieve nation building through shipbuilding. What is left to be witnessed is, will the Indian Navy become a formidable blue water force to reckon with in the future.

Prime Minister Narendra Modi while addressing the nation on Navy Day 2019, rightly took us back to the history of the Chola Kingdom. The Chola Navy was considered one of the strongest navy of its time and one of the major reasons behind the Chola’s economic supremacy. This stands true even in the 21st century. The Indian Navy, a partner in progress, has been shouldering the aspirations of a New India, a young nation, on the move transforming itself into a modern nation.

Just like the seas, geopolitical environment has constant change in its nature.

FOR DETAILS, GO TO BACK COVER

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SP’S NAVAL FORCES ROUNDUP

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MQ-9B

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and the Indian Ocean region stands at the center of it. From the Malacca Straits dilemma in the east to penetrating terrorism and the breaching middle east crisis between the United States and Iran in the west; furthermore, rapid militarisation and nuclearisation of the region. These issues are further compounded by weak capacity (political, economic and military) amongst the littorals to manage these affairs, current situation between in India and Pakistan is a boiling pot; and the most pressing issue of all, is the sense of a rising tide of Chinese influence that, it feels, now extends all the way into India’s backyard and beyond its influence that, it feels, now extends all the way into India’s backyard and beyond its neighbourhood, especially making inroads into vulnerable nations through its economic heft and land grab strategies. The increasing presence of China’s People’s Liberation Army Navy (PLAN) in and around Indian Ocean, coupled with the rise of the home-grown Indian Navy and the US naval dominance over the global commons has brought about a ‘strategic maritime triangle’ in the Indian Ocean.

As Hew Strachan says “Geography shapes Strategy and strategy is the choices that one makes in the face of constraint”, the current milieu in the IOR is a multi-faceted interaction of numerous factors and India, by virtue of its centrality and strategic vantage point at the heart of the Indian Ocean Region, though has great leverage, is at the locus of many of the world’s most pressing geopolitical developments.

Thus, the Indian Navy, which is the principle manifestation of India’s Maritime power stands as a strong pillar in guarding our national interest at home and abroad. Therefore, it’s time that the sea power of our national interest at home and abroad.

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Navy's Quest for Modernisation

Under the plan, the Navy aims to have a force level of 200 ships, 500 aircraft and 24 attack submarines. At present, the Navy has around 132 ships, 220 aircraft and 15 submarines.

The expanded outlook takes into account the additional mandate of the Indian Navy, which has been entrusted with the responsibility for overall maritime security, including coastal and offshore security.

Indian Navy's Perspective Planning

The Indian Navy’s perspective planning in terms of ‘force-levels’ is now driven by a conceptual shift from ‘numbers’ of platforms, with the requirement for at least one operational carrier is available at any given time. The expanded outlook takes into account the additional mandate of the Indian Navy, which has been entrusted with the responsibility for overall maritime security, including coastal and offshore security.

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Indian Naval Indigenisation Plan (INP)

The recently released Indian Naval Indigenisation Plan (INP) 2015-2030 has also encouraged domestic industries including Micro, Small and Medium Enterprises (MSMEs) to participate in construction of ships and associated naval equipment.

Indian Aircraft Carrier (IAC) Project-71

The keel of India's first indigenously built IAC-1 christened as INS Vikrant was laid on February 28, 2009 at Cochin Shipyard Limited (CSL). With this Project India is going to sign advanced contracts with CSL to-date, with scheduled delivery in June 2026 and December 2026 respectively. The follow-on P-15A series of frigates are customised to meet the IN’s specific requirements, are potent multi-role stealth craft built for IN by Mazagon Dock Shipbuilders Limited (MDL). The IND ordered the initial design for the Project 17 Class frigates and the final design was developed by MDL. These are the first indigenous warships to be built with stealth features.

Indian Navy’s Maritime Capability Perspective Plan (MCPP)

INP’s present force level comprises about 150 ships and submarines. The Indian Navy’s perspective planning in terms of ‘force-levels’ is now driven by a conceptual shift from ‘numbers’ of platforms, with the requirement for at least one operational carrier is available at any given time. The expanded outlook, reflected in the title, also takes into account the additional mandate of the IN, which has been entrusted with the responsibility for overall maritime security, including coastal and offshore security.

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RUSSIAN-INDIAN COOPERATION

Presently Joint Stock Company “Central Design Bureau for Marine Engineering “Rubin” (JSC CDB ME Rubin) is a diversified design bureau – the leader in the field of concept development, design, project management, life-cycle support for multi-purpose naval equipment, submarines, technical facilities for offshore oil and gas field development, underwater robotic systems and floating power generating systems. CDB ME Rubin is a part of the United Shipbuilding Corporation that consolidates most of the design bureaus, shipyards and other enterprises related to Russian shipbuilding industry.

One of the most important areas of activity of CDB ME Rubin is military and technical cooperation. CDB ME Rubin has been engaged in this activity for over sixty years. Over 110 submarines designed by Rubin were delivered to 15 countries. At present, export deliveries of submarines are going on successfully along with execution of a large work package on maintenance of earlier delivered submarines.

For several decades CDB ME Rubin and Indian Navy have been engaged in a special and privileged partnership.

Diplomatic relations between the USSR and India were established in 1947, which currently have grown into strategic partnership based on commonality of national interests and mutual respect.

On the 1st of September 1965, the Soviet Union and the Republic of India signed the first contract for the delivery of naval equipment: four Project 641 diesel-electric submarines, five Project 159E corvettes and five Project 568P motor boats. The agreement also envisaged rendering Soviet technical assistance for the construction of submarine naval base in Vishakhapatnam.

The first four submarines of Project 641 were delivered to India from 1967 to 1969. These were the first submarines built in our country under a special export order. It is pertinent to note that India was the first to become a foreign customer for whom ships were constructed based on dedicated export designs. Before that, only “standard” ships and motorboats had been delivered to foreign countries.

Later in 1972-1974, another four submarines of improved Project 641K were built for India.

From 1986 to 2000, India received ten Project 877EK diesel-electric submarines built in Russia. The delivery of these boats definitively made India the largest buyer of Russian submarines. The last submarine of the series – Sindhushastra – was built based on a modified design and was the first boat to be equipped with the Club-S missile complex.

It should be noted that in the course of Indo-Russian cooperation that goes on for over 50 years, our country has always offered the most state-of-the-art naval equipment to the Indian mariners and Russia is willing to successfully develop this principle of partnership in the 21 century.

Indian MoD has always paid a lot of attention to optimization of submarine force levels. Nowadays, a major programme related to optimization and conduct of second mid-life refits of Project 877EK submarines both in Russia and in India is being successfully undertaken.

Along with that, the Russian side is ready to propose and implement delivery of advanced submarines of Project 636 to Indian partners within short time frames to enhance combat capabilities of the submarine force, should there be a request from the Indian Navy. Well-proven technologies of construction, well-established cooperation of equipment suppliers ensure construction of these submarines within short time frames, which has been proven by series deliveries of similar submarines for the Russian Navy.

State-of-the-art conventional submarines, owing to their relatively small dimensions, are considered to be complex engineering objects that meet extremely stringent requirements and therefore very few countries can afford them.

Undoubtedly, India, due to a well-developed industrial base and high scientific capability, should have indigenous submarines built by Indian shipyards for the Indian Navy.

Our company fully supports Projects P-75(I) planned for implementation by Indian MoD. CDB ME Rubin closely cooperates with the Indian Naval Headquarters for this Project and offers a modern low-noise ship Amur-1650 equipped with AIP and powerful torpedo-missile complex Club-S that is a major advantage of the project.

The Russian side confirms that it is possible to meet the requirements of the Indian Navy specified for this submarine.

In addition, transfer of technologies and indigenous development by Indian companies are the priorities to be met during implementation of Project P-75(I). CDB ME Rubin has gained vast experience in development of different classes of submarines and collaboration with equipment developers, manufacturers and scientific organizations, which come up with cutting-edge solutions for construction of modern submarines, and so it is ready to offer latest approaches to ensure utilization of this experience to the maximum extent possible.

We believe that the optimum way of cooperation could be joint implementation of all the stages of development of Project 75 (I) submarines by the sides, including design, development and manufacture of required equipment, construction and subsequent maintenance throughout the life cycle. Russia is one of the few countries that has in its possession all design technologies for various ships and this diversified experience might be useful to the Indian Navy.

CDB ME Rubin is always ready for development of fruitful cooperation with Indian MoD, as well as with state-owned and private Indian companies and yards. For more information you are welcome to visit site www.cdb-rubin.ru
The Navy will need more than one SSBN to be effective. India plans to have a total of six SSBNs with the second one named INS Arihant has already been launched and is expected to be commissioned by 2021.

On June 20, 2019, Expression of Interest (EOI) was issued for shortlisting of potential Indian Strategic Partners (SPs) for P 75I. All six submarines will be built in India by the selected Indian SP in collaboration with the selected OeM. In addition, IN would have the option to manufacture six additional submarines under the project. The potential SPs are expected to respond to the EOI within two months. Media reported that three Indian shipyards—L&T, MDL and ISL—are expected to respond to the EOI. The next step would be to issue the RFP to the short-listed companies. Five leading foreign manufacturers of submarine i.e. Navantia’s S-80, ThysenKrupp’s Type 214, Rubin’s Amur, Naval Group’s Scorpene and Daewoo’s KSS-3, are expected to respond to the EOI.

Submarine Force Accretion Project 75B The Defence Acquisition Council, approved on January 31, 2019, the construction of six diesel-electric submarines with AIP at a cost of over ₹4,500 crores (about $6.3 billion).

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COASTAL SECURITY

Maritime Surveillance

LT GENERAL P.C. KATICH (RETD)

With the Centre of Gravity of conflict veering towards the Indian Ocean, the requirement of maritime surveillance of the Indian Navy (IN) is in more limelight. China’s moves to establish bases in the Indian Ocean Region (IOR), its nexus with Pakistan including PLA troops and marines based in Pakistan indicates China’s aggressive intentions. Chinese vessels have been snooping in India’s EEZ especially in vicinity of the Andaman and Nicobar Group of islands (ANI), and movement of Chinese ships and submarines in the Indian Ocean is on the increase. The US administration under President Donald Trump had approved the sale of armed drones to India in June 2019 and offered these to be equipped with required missiles and other systems. Our media operations, from submarine tracking to search and rescue (SAR) and even reconnaissance over land. The first batch of 8 P-8I aircraft were ordered under a $2 billion deal in 2009 and a follow on order for four was placed in 2016. P-8I aircraft that specialise in tracking and hunting down submarines and drones and depth charges are also operated by the US and Australian navies, which operate in coordination with India to keep track of ship movements. With the contract of 10 P-8I aircraft to be procured now, the Navy’s fleet of P-8I aircraft will go up to 22. This will ensure these aircraft arrive early with continuous supply over the next four years, facilitating and compensating for older maritime reconnaissance assets of Russian origin retiring. The deal of 10 P-8I aircraft reportedly includes a mandatory clause for at least 30 per cent offsets to domestic companies. The fleet of 22 P-8I aircraft will help the IN maintain strong vigour over a region that has seen increasing deployments by the Chinese Navy. An idea has now been thrown up that since the US Air Force (USAF) has proposed to discard two-thirds of its fleet of about 35 RQ-4 Global Hawk drones, India should dump the move to procure the 30 x Sea Guardian UAS and 10 x Boeing P-8I aircraft and instead go for the discarded Global Hawk drones, the claim being that up to 24 x Global Hawk drones can be purchased within the same price as being spent on 30 x Sea Guardian and 10 x P-8I. Let this claim be made remains a mystery unless US has intimated the sale price of the Global Hawks under discard.

There is no doubt USAF has proposed retiring some 21 of its 35 RQ-4 Global Hawk high-altitude drones, currently collecting intelligence across the Middle East and elsewhere, as part of a series of steep cuts to legacy programmes. But the real reason why USAF wants to dump the RQ-4 Global Hawk is because Iran shot down one such drone over the Strait of Hormuz on June 20, 2019. According to Loren Thompson of the Lexington Institute, “(RQ-4 Global Hawk) was well suited to go against terrorists, but against a threat like China it just won’t survive. Flying a Global Hawk over Chinese airspace would be suicidal. When a second-rate power like Iran can shoot your weapon with its own indigenous missile, that’s not a good sign for the future.” Therefore, it would be downright stupid for India to buy discarded RQ-4 Global Hawks instead of new Sea Guardian drones and P-8I aircraft, especially when the RQ-4 Global Hawk with a wingspan of 131 feet is easily spotted by radar and has no defensive systems. Interestingly, Commercial Earth Imaging company Satellite announced on December 19, 2019, that it has raised $50 million to help scale up its satellite constellation; Chinese company Tencent and Brazilian fund Pitauga contributed about 40 per cent of the funding, rest coming from new investors. Satellite has eight satellites in orbit and plans to launch 16 satellites in 2020, with the first two scheduled to launch from China in mid-January. India just launched its second ‘eye in the sky’ a sharp-eyed surveillance satellite RISAT-2BR1 with synthetic aperture radar - a radar imaging satellite. Given the prowess of ISRO, India must plan its own satellite constellation (using low-costing ISRO satellites) focused on the India Ocean, in line to Navi’s maritime surveillance platforms under procurement.

BEST BUSINESS AVIATION submission
Our Journalist: Ayushree Chaudhary
For the article: “Coming Full Circle Pole to Pole in Less Than 48 Hours” Our publication: BizAvIndia

BEST MILITARY AVIATION submission
Our Journalist: Sudhir Rajeshwir
For the article: “6 Reasons Why It Benefits All” Our publication: BizAvIndia

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Our Journalist: Byron Bohman
For the article: “MRO Asia Competition Heats Up” Our publication: BizAvIndia

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The Path of Excellence in Enlightening Since 56 Years

* The first Asia Aerospace Media Awards will be presented in Singapore on the evening of February 11, 2020, in conjunction with Singapore Airshow 2020.

Following Consistently and Relentlessly
The Path of Excellence in Enlightening Since 56 Years
Vishal Thapar analyses how the Project 75(I) competition is poised after the shortlisting of contenders and points out the pitfalls that may be encountered ahead, as India ambitiously seeks to leverage this programme to gain submarine-building autonomy.

**Navantia’s S-80**

The first of the four S-80s ordered for the Spanish Armada should have been in the water in 2014-15 but it still hasn’t hit that milestone due to design and buoyancy issues. An American consultant finally helped Navantia to resolve these problems, but the performance will be known not before 2024. Also, Navantia doesn’t have a proven AIP yet. The first two S-80 boats will come without an AIP. The third and fourth boats will be fitted with an AIP, but the performance will be known not before 2024.

**Indian Strategic Partners (SP) and the Indian Navy**

India is not seeking a submarine off-the-shelf, but the competition would be shaped by the existing or under development submarines of the shortlisted OEMs. The final product delivered to India would be a derivative of one of the five submarines which represent what the contenders have on offer. These are Navantia’s S-80, Thyssenkrupp’s Type 241, Rubin’s Amur, Naval Group’s Scorpene and Daewoo’s KSS-3.

**Indian Navy’s Scorpene**

The Indian Navy’s Scorpene is the South Korean emergence. Building blocks firmly in place after building the Type 209 and Type 214 with deep transfer of technology from Thyssenkrupp, Daewoo has proven submarine capability which is reflected in the Indonesian offer for the Type 209. It has now clearly emerged as a rival to its German mentor for export orders and is developing on its own the more capable, 3000-ton KSS-3.

Daewoo is also taking a step beyond the proven German AIP technology. It is developing a much improved lithium iron battery-based fuel cell AIP as against the traditional lead acid battery AIP. The Germans are following suit.

**Navantia’s S-80 class submarine**

While Korean Type 209’s are reportedly armed with Harpoon missiles, there’s no clarity on what it could offer for Project 75B. Also, as a new entrant into the Indian Navy’s arms bazaar labyrinth, Daewoo does not have the decade-long exposure to the Project 75(I) environment.

**The terms of the programme require transfer of ownership of submarine design to the Government of India, which seeks deep transfer of technology to give it self-reliance in submarine design and development in the future.**

**VISHAL THAPAR**

**THE FUTURE OF THE INDUSTRY**

NN JANUARY 31, 2020

The competition by approving shortlists of contenders for the estimated $6.3 billion tender to build six AIP-fitted, missile firing electric submarines for the Indian Navy under the Strategic Partnership Model.

The DAC approved shortlisting of Indian Strategic Partners (SP) and the potential Original Equipment Manufacturer (OEM) for Submarine for the Indian Navy under the Strategic Partnership Model.

This is a landmark project aimed at building up indigenous submarine design capabilities through partnership programmes.

Indian hopefuls which have made the cut are the Ministry of Defence-owned Mazagon Dock Limited (MDL) and the private sector Larsen & Toubro. This is the first time that an Indian private sector shipyard will get an opportunity to compete in a major tender.

All five foreign OEMs which had responded to the Indian Navy’s Expression of Interest (EoI) have made it to a parallel shortlist. These are Navantia of Spain Thyssenkrupp Marine Systems of Germany, Rosoboronexport (Rubin) of Russia, Naval Group of France and Daewoo Shipyards and Marine Engineering of South Korea. SP’s Naval Forces had earlier exclusively reported that Saab of Sweden had pulled out of the competition.

The Indian hopefuls would be required to negotiate with the shortlisted OEMs to throw up the best offer for an eventual two-way competition. The submarine design will be owned by the Government of India through a separate contract with the OEM involved in the winning bid.

India is not seeking a submarine off-the-shelf, but the competition would be shaped by the existing or under development submarines of the shortlisted OEMs. The final product delivered to India would be a derivative of one of the five submarines which represent what the contenders have on offer. These are Navantia’s S-80, Thyssenkrupp’s Type 241, Rubin’s Amur, Naval Group’s Scorpene and Daewoo’s KSS-3.

While the final quality requirements will be reflected in the RFP, the Indian Navy has indicated the broad contours of technology to give it self-reliance in submarine design and development in the future.

The terms of the programme require transfer of ownership of submarine design to the Government of India, which seeks deep transfer of technology to give it self-reliance in submarine design and development in the future.

The French offer has the advantage of a proven fuel cell AIP work to its advantage. But this offer is not backed by the geopolitical heft of the type which beef up Russian and French bids in India.

**Navantia’s S-80**

The significant leverage which France exercises over India as a time-tested strategic partner will also make the offer Scorpene Plus.

**Rubin’s Amur**

The Amur submarine is still in work progress, and it doesn’t have a proven AIP. Known as the Lada in Russia, the first boat faced development challenges and did not appear to have met the requirements of the Russian Navy. The second ‘Lada’, launched in 2016, is intended to be the first operational submarine in its class with the Russian Navy.

**Land-attack capability**

Proven with the Khlo missile on the Kilo class submarines of the Indian Navy over a range of about 300 km. As India’s traditional and most trusted military supplier, Russia exercises enormous influence over its decision making.

**Daewoo’s KSS-3**

The Daewoo’s KSS-3 is the South Korean emergence. Building blocks firmly in place after building the Type 209 and Type 214 with deep transfer of technology from Thyssenkrupp, Daewoo has proven submarine capability which is reflected in the Indonesian offer for the Type 209. It has now clearly emerged as a rival to its German mentor for export orders and is developing on its own the more capable, 3000-ton KSS-3.

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**Korean Type 209**

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Strike complex CLUB incorporating both the anti-ship cruise missile with a supersonic combat stage and the land-attack missile has been present at the international arms market for about 20 years. At first the complex served to arm submarines (named CLUB-S); then its OEM modified the complex for various carriers, namely, for surface ships (CLUB-N), aircraft (CLUB-A), self-propelled vehicle of the coast defense complex CLUB-M.

Though the placement of strike missiles on a mobile chassis was a natural step to involve new customers, currently there is no news neither on the contracts for the CLUB-M, nor on the plans of anybody to buy it. The probable reason is that the complex has proved monstrous since includes, besides the missile launchers per se, many separate functional units like mobile means of reconnaissance and targeting, of communication and control, of flight mission preparation, etc.

This experience was minded while creating another offspring of the CLUB family, the CLUB-T, first shown by the NOVATOR design bureau at the GDA 2017 exhibition in December 2017 in Kuwait. As opposed to the predecessor, all the equipment required for routing, for missile pre-launch preparation and launch, for communication, etc. is now placed on a self-propelled chassis together with six missiles in transport-and-launch containers. The option shown in Kuwait had only land attack missile (named 3M-14E1). Its combat use is similar to any other land-attack CLUB missile (see Fig.1).

Since all the known CLUBs can attack both sea-surface and land targets using common both launcher and fire control system, it looks reasonable to include into the CLUB-T an anti-ship missile (designated 3M-54E2). It is being demonstrated by the CLUB-T OEM at the DEFEXPO-2020 exhibition. All the equipment necessary for this missile preparation and launch is also placed on the self-propelled chassis. For the missile combat use diagram, also see Fig.1.

The main features of the CLUB-T complex missiles are as follows:
- takeoff mass – 1700 kg,
- warhead mass – 450 kg,
- flight speed at cruise – about 240 m/sec,
- flight altitude:
  - over land from 50 m (for surface skimming) to 2000 (to fly over mountains)
  - over sea 20m (on the route), 5 m (before target)
- firing accuracy:
  - land targets – maximum miss 50 m
  - sea targets – direct hit

The customer may order either two different missiles or a bit more costly universal missile to attack both land and sea-surface targets. To include an anti-ship missile into the CLUB-T complex is a way to considerably improve its marketability. The complex design ensures such important features like high mobility, autonomous and simple operation with minimum number of combat units resulting in minimum expenses for the complex acquisition and exploitation. The successful combat use of the KALIBR complex was favorable also to its export version, the CLUB. The availability of such weapon would make any aggressor think twice. For the country not having enough resources for powerful Navy, having the CLUB-T would safeguard its sea and land border.
Indian Navy: A Formidable Blue Water...continued from page 3

220 aircraft and 15 submarines. Currently, the Indian Navy has only one aircraft carrier, INS Vikramaditya, we require atleast three forces has used the social media plato-

carrier. The Association is actively working

to maintain open sea lanes and the freedom

dominantly a Maritime Nation, amongst the

The Road Ahead

The Indian Navy needs to adapt and aug-

ment, the Road Ahead

Indian Navy is not on the list of top five

The Company has central factory laboratory featuring

The Indian Navy is not on the list of top five national

Illustration by SPS Naval Forces.
INDIA-US 2+2 DIALOGUE TAKES STRATEGIC PARTNERSHIP FORWARD
Defence Minister Rajnath Singh and External Affairs Minister Dr. S. Jaishankar met US Secretary of Defense Mark T. Esper and Secretary of State Michael R. Pompeo in Washington DC on December 18, 2019, for the second annual India-US 2+2 Ministerial Dialogue. This 2+2 Ministerial is the high-
est-level institutional mechanism between the two countries and provides for a review of the security, defence and strategic partnership between India and the United States. This was the second 2+2 meeting and the first in US. Salient points were:

Both sides positively appraised the growing partnership between India and the US and noted that important milestones had been achieved.

Both sides reiterated their commitment to advancing a close, open, inclusive, peaceful, and prosperous Indo-Pacific region.

Both sides also committed to further deepen military-to-military cooperation, including between the Indian and the US Navy. Also noted to expand similar collaboration with respect to their respective Armies and Air Forces.

Technology and Trade Initiative (DTI) processes that have opened up on the Indian side were concluded and priority initiatives have been identified for execution under the DTI programme. The two sides also agreed to move forward in their engagement in the area of defence innovation.

Earlier, on the morning of December 18, Defence Minister was received at the Pentagon by Secretary of Defence Dr. Mark T. Esper, along with a ceremonial Guard of honour. The Secretary of State Michael R. Pompeo in addition to the 2+2 meeting, Rajnath Singh, along with T. Esper, with a ceremonial Guard of honour was also received at the Pentagon. The meeting was concluded and priority initiatives have been identified for execution under the DTI programme. The two sides also agreed to move forward in their engagement in the area of defence innovation.

MDL COMMISSIONS PRODUCTION OF Y-12654, FOURTH SHIP OF P17A
MDL commissioned production of Y-12654, fourth ship for Goan (hull 521) and Lianyungang (hull 522), in service.

Two frigates were built using Integrated Construction (IC) methodology to reduce the build period of warships. First ship of P17A, Nigam was launched by Defence Minister Rajnath Singh on September 28, 2019. The two ships in the series are at various stages of production.

CURTAIN RAISER FOR MILAN 2020
After successfully hosting the International Fleet Review (IFR) in February 2016, the City of Destiny Visakhapatnam is gearing up to host another International Naval event ‘MILAN’ in March 2020. With about two months to the mega event, preparations were reviewed at the Eastern Naval Command (ENC) by Vice Admiral S.N. Ghormade, Chief of Staff ENC on January 7, 2020 along with the local government. A detailed presentation to apprise the attendees of the planned activities of MILAN 2020 with the theme ‘Synergy Across the Seas’, was conducted. MILAN 2020 is a multilateral naval exercise aimed to enhance professional interaction between friendly navies and learn from each other’s strengths and best practices in the maritime domain. Of the 41 navies invited, confirmations from over 30 navies have been received towards their participation in MILAN 2020.

BANGLADESH NAVY RECEIVES TWO CHINESE FRIGATES
Senior Bangladesh Navy officials received two Type-053H3 frigates ‘Symphony’ (Hull 521) and ‘Liangyungang’ (Hull 522), in Shanghai Jiangnan Shipyard on December 18. The two missile frigates, purchased by the Bangladesh in 2018, willsteam to Bangladesh after the hand-over ceremony. Type 053H3 frigates are the second generation of the PLA Navy’s frigates that equipped with anti-aircraft missile systems. A total of 16 Type 053H3 frigates were built by China. At present, the PLA Navy still has eight Type 053H3 frigates in service. The two frigates will be assigned to BNS Omar Farooq and BNS Abu Ubadah after joining the Bangladesh Navy.

TURKEY’S FIRST-GENERATION SUBMARINE ‘PIRI REIS’ DOCKED
Turkey’s first Type 241 class submarine TCG Piri Reis was docked with a ceremony held in the northwestern province of Kocaeli’s Gökçik district. As per one submarine will go into service each year. By 2027, all six of our submarines will be in service, TCG Piri Reis, the first vessel of Turkey’s New Submarine Project, is planned to start operating in 2020. The Type 241 class vessels are regarded as a first for the Turkish Navy due to its air-independent propulsion character-
istics brought by their fuel cell technology.
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