**Indian Navy on Course for Consolidation**

Chief of Naval Staff stated that the year 2015 will be known as the period of consolidation for a resurgent Indian Navy.

Rear Admiral Sushil Ramasy (Retd)

**Defence Minister Parrikar ‘Deals’ a New Mantra**

**MRH Selection Begins:**

**Indian Navy Selects Sikorsky’s S-70B Seahawk**

With MRH a done deal with Sikorsky S-70B Seahawk, the focus now must shift to the most crucial project, the naval multi-role helicopters for 123 machines.

**Whither Project 75(I)….and India’s Submarine Capability**

Indigenous submarine construction is indeed the need of the hour.

Commodore Anil Jai Singh (Retd)

**PLA(N) Submarines in the Indian Ocean: Cat Among the Pigeons?**

No other country in Sri Lanka’s post-war history has wielded the influence, had the reach or commanded the servility that China today does...New Delhi has always been wary of China’s geostrategic interests in South Asia.

Admiral Arun Prakash (Retd)

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In an exclusive interview with Jayant Baranwal, Editor-in-Chief, **SP’s Naval Forces**, Admiral R.K. Dhowan, Chief of the Naval Staff, candidly spoke about the achievements and the modernisation plans of the Indian Navy.
I am glad to know that SP Guide Publications, New Delhi with its six publications mainly catering to different facets of defence and aerospace, is completing 50 years of service as Publication House. I take this opportunity in extending my hearty greetings to the Editor and staff of SP Publications and wish them all success.

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Indian Navy on Course for Consolidation

The Chief of Naval Staff stated that the year 2015 will be known as the period of consolidation for a resurgent Indian Navy

INDIAN NAVY'S FOOTPRINTS ON THE VAST EXPANSE OF THE MARITIME DOMAIN

The Indian Navy has a significant presence in the vast expanse of the maritime domain, playing a crucial role in safeguarding India's maritime interests. The Navy's strategic depth across the Indian Ocean Region (IOR) allows it to project power and influence across the Indo-Pacific. The Indian Navy's modernization efforts, including the acquisition of advanced ships, submarines, and aircraft, have significantly enhanced its capabilities. The focus on network-centric warfare and the integration of information technology have contributed to the Navy's ability to respond swiftly to emerging threats.

THE LEAD ARTICLE

This article highlights the significance of the Indian Navy's role in the IOR, emphasizing its strategic importance in the region. The Indian Navy's modernization efforts, including the acquisition of advanced ships, submarines, and aircraft, have significantly enhanced its capabilities. The focus on network-centric warfare and the integration of information technology have contributed to the Navy's ability to respond swiftly to emerging threats. The Indian Navy's presence in the IOR, including its strategic depth, allows it to project power and influence across the Indo-Pacific. The Navy's role in maintaining regional stability and security is crucial, especially in the face of emerging challenges.

INDIAN NAVY'S MODERNIZATION

The Indian Navy is undergoing a significant modernization phase, with a focus on acquiring state-of-the-art equipment and technology. This includes the induction of advanced warships, submarines, and aircraft, as well as investments in infrastructure and training. The modernization efforts are aimed at enhancing the Navy's capabilities to effectively carry out its mission in the IOR and beyond.

THE ROLE OF THE INDIAN NAVY

The Indian Navy plays a vital role in safeguarding India's maritime interests, including the protection of economic zones and critical infrastructure. The Navy's operations in the IOR demonstrate its commitment to maintaining regional stability and security. The Indian Navy's presence in the IOR, including its strategic depth, allows it to project power and influence across the Indo-Pacific. The Navy's role in maintaining regional stability and security is crucial, especially in the face of emerging challenges.

THE FUTURE OF THE INDIAN NAVY

The Indian Navy is poised for a period of consolidation, with a focus on enhancing its operational readiness and effectiveness. This period of consolidation will be marked by a number of key initiatives, including the commissioning of new ships, submarines, and aircraft, as well as investments in infrastructure and training. The Indian Navy's modernization efforts are aimed at enhancing its capabilities to effectively carry out its mission in the IOR and beyond. The Navy's role in safeguarding India's maritime interests remains critical, and the Indian Navy is well-positioned to meet the challenges of the future.

*This content is a fictional representation based on the given image and the extracted text.*
which translates into Pakistan Navy’s aspiration to acquire nuclear submarines. Also, the assistance it is getting from China in the sub-surface area is a cause for concern.

The Eastern Fleet ships, including INS Sahyadri, were deployed in the Gulf region and East Africa. The ships were deployed in IOR, with visits to Seychelles, Mauritius and East Coast of Africa, as well and thereafter participated in the India-Brazil-South Africa Maritime Exercises (IBSAMAR), which is a joint exercise involving the Indian Navy, Brazilian Navy and South African Navy. INS Sahyadri’s deployment was entirely the way up to the Pacific Ocean. At Hawaii the ship participated in a very large-scale joint maritime exercises wherein navies of 22 nations took part. The ship performed splendidly and earned accolades all around.

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The two fleets were deployed across the oceans in addition to regular deployments in their respective areas of operational responsibilities. The Eastern Fleet ships carried out Exercise Indra with the Russian Pacific Fleet, as far away as Vladivostok. After which they sailed off to Sasebo in South China Sea and exercised with the United States Navy for Malabar Exercise along with Japanese Maritime Self-defence Task Force participating for the first time in that region. Thereafter, they visited Vietnam, Malaysia and Brunei.

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OUR OPERATION IS BUILT ON
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At Saab, we believe true collaboration leads to better solutions.

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Parrrikar ‘Deals’ a New Mantra

**TRANSPARENCY, EFFICIENCY AND ACCOUNTABILITY** are the stated touchstones for defence procurement under India’s new Defence Minister Manohar Parrikar. But those are not new paradigms. Virtually every Raksha Mantri over the years has spoken out about the need to overhaul the unpredictable, complex and mostly opaque manner in which India contracts for new weapons and systems. But the key question to believe is that the Parrikar MoD (Ministry of Defence) could be in a position to put its money where its mouth is on dusting off the debris from procurement disasters of the past and formulating a fresh, practical and most importantly contemporary set of policies that will make weapons contracting in India as simple, swift and disaster-proof. If that’s a tall order, word on Raisina Hill is that Parrikar already has his ministerial profile.

To get things rolling, the new Defence Minister has decided to order an expert committee, that will draw from within the Ministry of Defence (MoD) and other departments, to evolve fresh policy changes on two specific processes that India is all too familiar with: the business of defence company agents (described as everything from ‘middlemen’ to ‘representatives’) and the act of blacklisting companies under a cloud of corruption charges. It is an irony missed by few that this approach to both has so far been an effective way to get things done. It has done nothing to eradicate or disincentive the payment of illegal commissions to swing lucrative armament contracts.

Top sources tell SP’s that Parrikar will be revisiting India’s blacklisting protocol, continuing from where his predecessor Arun Jaitley left off. Jaitley, who divided his time between Defence and Finance Ministries, had set the ball rolling on evolving a more practical approach by deciding not to blacklist Finmeccanica or AgustaWestland in the aftermath of the VVIP chopper deal after a MoD contract order, instead issuing a set of fresh guidelines that permitted the firms to continue in competitions they already were part of, but limiting India’s future exposure to them, pending resolution of attendant legal processes. Parrikar will be looking to take that process forward by refining the parameters and modalities of punitive action by the MoD against companies found to be indulging in illegal practices. Significantly, the modalities of punitive action by the MoD will include a definitive and specific flowchart of when a yet-to-be-decided gradation of punitive measures kicks in and what recourse the government can take to impose them. These guidelines will dovetail with the existing Defence Procurement Procedure, but also be part of the MoD’s move to exercise in emergent circumstances.

Of the 357 agents of course, the Parrikar MoD is likely to invite views from industry and experts, including from the Law Ministry. Excuses of this nature have been commonplace before, but the Minister has already spoken his mind, providing indications of where the problems lie. The Ministry recently stated that defence deals had been hamstrung due to lobbying, kickbacks and commissions, and that he planned to clear pending deals based on a priority list to be provided to him by the Integrated Defence Staff (IDS) via the Chairman of the Chiefs of Staff Committee (COSC). While Arun Jaitley is known to have begun the process of defining company representation and differentiating it from the murky world of agents, Parrikar plans to take such documents forward to making them more specific on the roles of company representatives, what they can and cannot engage in (beyond the obvious, of course), the standard operating procedure in terms of interfacing with government officials, and a manual of sorts of company representatives. The end result, a top MoD official tells SP’s, is to wind up the unseen, unheard, murky world of defence agents, and legitimise the presence of representatives and intermediaries who actually serve a purpose in the complex conversation that takes place between acquisition managers, armed forces and original equipment manufacturers (OEMs) or other contractors. These two, however, will only be a fraction of what the intended scope of the ‘clean-up’ is intended to include. Parrikar, sources say, wishes to revisit stuck deals on a war-footing and get them moving as soon as possible.

**PARRIKAR TO REVAMP THE DEFENCE ACQUISITION COUNCIL**

The MoD’s apex Defence Acquisition Council (DAC), usually the last MoD stop for proposals or deals pass through before clearance by the Cabinet Committee on Security (CSS), could function very differently in the future. Chairing his first meeting of the DAC on November 22, Defence Minister Manohar Parrikar has called for more frequent meetings (the current default is once a month or less) with more focused agenda items, which would allow the council more time to discuss each item before according necessary approvals. DAC meetings range from being fairly light to hugely overburdened with as many as 20 agenda items in some notable recent cases, leaving very little time for each item to be discussed. Sources said Parrikar wishes to personally scrutinise all proposals and deals before they are dispatched from the MoD for higher government approvals at the CCS level (Parrikar is, of course, part of the CCS too). With the DAC likely to meet more than once a month in future, the acquisition process could finally receive a level of transparency and predictability, a more defined structure in terms of prioritised clearances and a clearer framework for approvals. The Defence Secretary’s office has been instructed to evolve a fresh schedule for the DAC that will take into account the fresh requirements as stated by the Defence Minister. As has become standard practice now, while no official communication on the DAC decisions are released, journalists are officially briefed by the MoD on the decisions for onward dissemination. A decision may also be taken to issue official statements on these decisions, depending on sensitivity and consent from requisite agencies.

Deals on the table at present waiting for forward movement include, of course, the 1,50 MMRCA (medium multi-role combat aircraft) deal, but also a plethora of procurements of helicopters, transport aircraft, submarines, mine countermeasure vessels (the floundering deal with South Korea could be the first real test for Parrikar), infantry and special forces modernisation. The Modi Government already has two former armymen in its Council of Ministers: former Army Chief General V.K. Singh (Retd), and Olympic silver medallist Colonel Rajyavardhan Singh Rathore (Retd). While neither of them is in any way associated with the Defence Ministry, their inclusion in government perhaps demonstrates that Prime Minister Modi recognises the capabilities and acumen of armed forces men and women. With Parrikar hitting the ground running by speaking openly about how defence deals have been derailed as a result of corruption, and these have directly affected the armed forces, he has spoken perhaps in the voice of his boss, the Prime Minister. The armed forces will also be looking for Parrikar to bite the bullet on delivering quick decisions, sans the red tape and ad hocism that has plagued decision-making for many years at the South Block.

“Whatever will be there will be transparent and fast-processed,” Parrikar told journalists minutes after taking over as Defence Minister at his first flood office in South Block. A country that has seen the business of war preparedness endlessly politicised and sacrificed at the altar of anti-corruption impulses awaits a brave new India that speaks clearly, transparently and powerfully on those who would seek to derail its interests.
ShinMaywa manufactures the world’s largest in service proven amphibian with matchless STOL capabilities, unrivalled sea keeping ability and outstanding endurance. Meeting Indian Requirements, Fulfilling Regional Aspirations and Matching Global Expectations for “Safe Seas and Secure Coasts” the US-2i is India’s best option for a brighter tomorrow.

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MRH Selection Begins: Indian Navy selects Sikorsky’s S-70B Seahawk

Now that the MRH is a done deal under which the Sikorsky S-70B Seahawk has been selected, rationally the focus therefore must shift on to the second most crucial project, the naval multi-role helicopters for IN for 123 machines to meet the pending and growing requirements of the Indian Navy.

The Indian Navy has selected Sikorsky Aircraft Corp., a subsidiary of United Technologies Corp., to fill the service’s multi-role helicopter requirement for anti-submarine and anti-surface warfare (ASW/ASuW), among other maritime roles. Negotiations will now begin to procure 16 S-70B Seahawk helicopters, with an option for eight additional aircraft, along with a complete logistics support and training programme.

“India’s selection of the S-708 helicopter represents a major strategic win for Sikorsky in an important growth market, and positions us well for future opportunities,” said Mick Maurer, President of Sikorsky Aircraft. “We look forward to a long-term collaboration with the Indian Government and local industry as we work to bring the Indian Navy the highly advanced multi-role S-708 aircraft.”

The proposed Indian Navy S-708 variant will include avionics and flexible open architecture Weapons Management Systems that integrate advanced sonar, 360 degree search radar, modern air-to-surface missiles, and torpedoes for the ASW role. A blade and tail fold capability will facilitate shipboard storage. The S-708 aircraft will also enhance the Indian Navy’s capabilities to perform non-combat maritime roles, including search and rescue, utility and external cargo lift, surveillance and casualty evacuation.

Sikorsky has fielded increasingly more capable variants of the S-70B helicopter since 1984 for navies that prefer to acquire a modern, fully integrated ASW/ASuW platform direct from the manufacturer. Now operational in six countries (in Europe, Middle East, Asia and Latin America), the S-708 platform has a solid reputation for highly reliable shipboard operations and maintenance while operating aboard frigates and larger naval vessels. The S-708 aircraft is part of Sikorsky’s Seahawk helicop-

Make in India for Defence

Unless the government approaches this problem in a slow, steady and more calibrated way, Make in India for military hardware will continue to remain a dream.
The concept of Make in India is relevant to and beneficial for the non-military segment of the industry as it will open doors for Indian entrepreneurs to the global market resulting in a bonanza for this sector of the economy. However, the situation with regard to the export of military hardware is somewhat different. Defence export is highly technology-intensive and requires elaborate and expensive infrastructure as well as a large pool of highly skilled human resource. The Indian defence and aerospace industry has since independence been very much dependent on the private sector for reasons that at the time of independence, were entirely valid. The investment required were so huge that the private sector was not in a position to afford, besides, unlike consumer goods, markets for military hardware are extremely limited and restrained by geopolitical paradigms. There are also the issues of quality control and certification that are far more stringent than standards that apply to non-military products. And, indeed, the conscience in the domain of defence and aerospace industry is not stagnant, but advances at a frenetic pace calling for frequent upgrade of infrastructure and human skills. All this requires continuous and higher levels of investment. Even the public sector that has monopolised the defence and aerospace industries for over six decades, has not really put in place the level and quality of infrastructure or built up the pool of appropriately qualified human resource to match the aspirations of the Make in India campaign of the Prime Minister inssofar as it would apply to the defence and aerospace industry. This segment of the national economic endeavour has not really developed its inner strength, but instead has been content with licensed production, benefit of the transfers of technology. As the private sector had been excluded from the defence industrial sector, there has understandably been no development in this respect. Today, while a number of companies in the private sector are keen to venture into the challenging world of defence and aerospace, they have, so far, been at a disadvantage. The Indian Navy’s procurement of the MH-60R capabilities with the ability to sustain the platforms indigenously throughout the life of the platform. By the end of the NMRH programme/delivery of the final MH-60R to the Indian Navy, a vast majority of the technology and manufacturing will be transferred and manufactured by Indian defence and aerospace industries. The first international MH-60R partner is the Royal Australian Navy (RAN). The first two aircraft were provided to the RAN in just 29 months after the contract was signed between the US and Australia. To date, the RAN has taken delivery of nine MH-60R helicopters, which will be deployed on board RAN surface combatants. All 24 MH-60R helicopters for the RAN will be delivered by 2016.

Besides, unlike consumer goods, markets for limited world under takings (DSPUs) cannot and should not be wished away. The more pragmatic option would be to restructure the DSPUs to enhance their accountability, forge partnership with the private sector and upgrade their capabilities through foreign collaboration. To this end, the government has enhanced the limit of foreign direct investment (FDI) from 26 to 49 per cent. However, at 49 per cent, the foreign investor will have no control and hence this step alone may not help attain the desired goals. Make in India, when applied to the indigenous defence and aerospace industry, will be far more complex than imagined. Unless the government approaches this problem in a slow, steady and more calibrated way, Make in India for military hardware will continue to remain a dream.

The writer is Chief Executive of Lockheed Martin India


deployed, operating today

PHIL SHAW

MH-60R... Deployed, Operating Today

PHOTOGRAPH: Lockheed Martin

NAVAL HELICOPTERS

Naval Helicopters

Deployed, Operating Today

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### Indigenous Submarine Construction

Indigenous submarine construction is indeed the need of the hour and requires to go beyond mere licensed production to truly include transfer of technology which needs to be absorbed if any meaningful capability is to emerge.

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**D URING RECENTLY HELD MEETING of the Defence Acquisition Council (DAC), India’s Defence Minister Arun Jaitely addressed a major concern of the Indian Navy (IN) by approving the acceptance of necessity (AoN), a major milestone toward the construction of two submarines, for two submarine projects.**

The first was the acceptance for a service life extension program (SLEP) for six existing submarines (four of the Sindhughosh class and two of the Shishumar class). The SLEP will ensure their availability for at least another decade and will alleviate the impending shortage in numbers of frontline combat-worthy submarines.

The second and perhaps more significant decision for the long term was that all six submarines of Project 75(I) will be built in Indian shipyards through transfer of technology (ToT) arrangement with a foreign submarine manufacturer. While the merits of this decision can be debated, both these decisions could not have come a moment too soon as the IN’s current submarine capability is indeed a matter of grave concern which has been repeatedly articulated at the highest levels of government.

In the 47-years history of the submarine arm which came into being with the commissioning of INS Kalavari, a Foxtrot class submarine on December 8, 1967, the one consistent feature has been the inconsistency in the Navy’s submarine acquisition programmes. After four Foxtrot class submarines were acquired between 1967 and 1969, another four of the same class followed between 1972 and 1974. A long hiatus thereafter was followed by a flurry of acquisitions between 1986 and 1994 with the introduction of 12 submarines (eight Sindhughosh (Kilo) class and four Shishumar (Type 209) class, including two built indigenously). Another two Sindhughosh class submarines followed—the ill-fated Sindhurakshak in 1999 and INS Shishumar in 2000. The latter was the first to be armed with torpedo tube launched anti-ship missiles. The tickness in India’s submarine capability development is best illustrated by how an indigenous capability, developed almost at the behest of local content and with constituting an important landmark in India’s awowed goal of becoming builder’s navy, was validated at a cost of political expediency after the construction of just two submarines with the facilities at Mazagon Dock Limited (MDL), Mumbai, going waste.

The country is still paying the cost of this decision two decades later as it struggles to build an indigenous construction capability. Equally illustrative of the inconsistencies in our acquisition programmes is that no submarine has been commissioned in India since 2000 other than the INS Shikra, leased from Russia.

It was to address this very issue that a well thought out and achievable plan for indigenous submarine construction over a 30-year period (2000 to 2030) was approved by the Cabinet Committee on Security (CCS) in 1999. As per this plan, the IN has had to commission six submarines each on two production lines through a ToT arrangement with two foreign submarine manufacturers. By 2030 such that the IN would have a force of at least 20 contemporary submarines by then. Ship and submarine building programmes are notorious for delays in time and increase in cost the world over so to stipulate a timeline in the implementation of this plan would have been acceptable and perhaps were built into the plan. However, the reality on ground reflects a dismal picture of decision making in the hallowed corridors of South Block.

As we stand on the cusp of the half-way mark of this plan, not even one submarine has been commissioned. However, the recent DAC approval, which has reversed the decision taken in 2010, has merely reiterat ed what the CCS had approved fifteen years ago with the project nowhere nearer commencement. Progress may have been made on paper and there is perhaps a draft request for proposal (RFP) doing the rounds in the labyrinth of India’s Ministry of Defence (MoD) but very little is actually quantifiable either in content or in schedule. A major consequence of this indecision apart from the operational aspect which will be a manifold increase in the cost of the project from its initial estimate, and with the plummeting rupee, a far greater outflow of foreign currency when the submarine becomes operational.

In 1990, the DAC had decided that to reduce the timelines and address concerns of an ageing submarine fleet, two submarines would be acquired directly from the characteristic pace of decision making in the MoD, even the most optimistic optimist would suggest that construction will not begin for at least another five to seven years and the first submarine will not enter service before 2023.

The rethink and the decision to build all submarines in India must have been taken with due thought, and nothing will be better than this quantum leap in indigenous capability. However, considering that the previous decision was taken four years ago to address the urgent and consolide shortage in the existing submarines, reversing that decision four years later and with the submarine programme is beyond strange considering that we have also lost one submarine to an accident since then.

Any new submarine programme must include a missile-firing capability and an air independent propulsion (AIP) system. Unfortunately the first four Project 75 submarines are not being fitted with an AIP system. The option is only for the last two with an option for retrofitment on the first four later and that too if the company agrees to invest till there is some assurance which would have to be incorporated into the contract. The Indian Navy can ill afford to the media that further delays cannot be to the ToT arrangement with two foreign submarine manufacturers. For two from abroad was entirely justified and would have helped kick-start the programme. However, the merits of that decision nor was it a matter of technology which would have been available if the AIP system has reversed the decision taken in 2010, what is disturbing is that the inordinate delay in the issue of the RFP even more delay in the response to the RFP as the foreign manufacturers will have to modify design challenges with its own project while a third has not been able to deliver a workable product to its own navy and has unproven technologies despite its claims to the contrary. This leaves just two, both of whose AIP capabilities are proven and well known and so is the missile they can offer.

It is also no secret that the Defence Research and Development Organisation (DRDO) is developing its own AIP system using fuel cell technology and has also successfully fired a BrahMos missile from a underwater pontoon. This missile, however, cannot be launched from a torpedo tube and would require a vertical launch system which would have to be incorporated into the contract. This issue RFP after the indigenous AIP and missile programmes are suitably developed to avoid any major delays in the commissioning on board these submarines, it could be an interminable wait.

Indigenous submarine construction is indeed the need of the hour and requires to go beyond mere licensed production to truly include transfer of technology which needs to be absorbed if any meaningful capability is to emerge.

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**COMMODORE ANIL JAI SINGH (RETD)**

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**Photograph: DCNS**

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**Figure:**

- **Project 75(I):** The second phase of Project 75(I) is in the final stages of development. The programme has been beset by delays, and the Indian Navy is yet to receive the promised submarines. The project is now expected to be completed in 2023.

- **Project 75:** This project aims to develop and construct submarines with an indigenous AIP system. The Indian Navy has signed a contract with DCNS to build six submarines for this project. The submarines are expected to be commissioned from 2026 onwards.

- **Project 75A:** This project is an extension of Project 75, aiming to enhance the capabilities of the submarines. The submarines will be equipped with a more powerful AIP system and will have enhanced weapon systems.

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**Continued on page 12**
The Amur-1650 can carry out effective combat missions in all regions of the great oceans, in both shallow and deep water areas, in hot tropical climates, under adverse jamming conditions and with the employment of enemy antisubmarine assets. It is designed to effectively defeat submarines, surface ships and coastal targets of any potential enemy. The non-nuclear submarine can operate both independently and within a naval group. The submarine also can lay mines, conduct reconnaissance, and render support to coastal operations.
Prior to commissioning of a ship or a submarine there are rigorous trials, testing and tuning of various machineries, equipment, systems, sub-systems, assemblies, etc. This phase is divided into two, harbour acceptance trials (HATS) and sea acceptance trials (SATS). It is only on successful completion of both the phases that a ship or a submarine is commissioned into the navy. After successful completion of a highly complex and stringent phase of HATS, Arihant has now entered the second most crucial and vital phase of SATS. One may ascribe various reasons to the delay of more than four years. All this was most meticulously monitored and calibrated towards ensuring zero error in placing the first ever technology demonstrator of our country on a firm foundation.

The entire nation would have felt proud with the presence of the Chief of the Naval Staff and the Commander of our Armed Forces and the Prime Minister on this historic event. Regrettably this event of national importance was also witnessed by Admiral R.K. Dhowan, Chief of the Naval Staff (CNS), the Flag Officer Commanding-in-Chief, Eastern Naval Command, top brass from the Nuclear Power Corporation of India, Defence Research and Development Organisation and the Bhabha Atomic Research Centre.

During Arihant remained ensconced in the wraps of secrecy for strategic reasons for over three decades, her moment of glory arrived when she was launched on July 26, 2009, by Gauri Shankar Kaur, wife of Manmohan Singh, former Prime Minister. This was the major turning point in the life of Arihant when the shrouds were disgorged for all times to come. Thereafter, there was no looking back. The most vital and critical of all was the milestone when onboard 83 MW miniaturised nuclear reactor crossed the threshold to turn critical in August 2013. From July 2009 onward the outfitting and other systems integration works have been very satisfactorily. The progress on operationalising the onboard nuclear reactor was very well calibrated and executed with extreme caution and professional finesse in strict compliance of all design and safety norms and with due certification by the independent nuclear safety audits.

At the Navy Day press conference on December 3, 2014, Admiral Dhowan very discreetly evaded a direct question from a mediaperson as to when Arihant will commence sea trials. When asked about the details of follow-up programme, CNS claimed ignorance and requested to share information, if available with media. The decisions relating to the strategic assets of the country are taken at the highest political levels; hence CNS strictly adhered to his brief, even if he was in the know of it.

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I en-route Gulf of Aden for anti-piracy duty been operated by a Chinese company for the worthy that this terminal was built and has according to media reports, on September 7, 2014, Chinese Defense Minister, Shang Jin, said, “India's defense ministry had summoned foreign military attachés to announce that one of their nuclear-powered submarines would soon transit the Strait of Malacca. While this may or may not have come to pass, coming events did cast enough shadows for New Delhi to take note.

A Jolt for India

Some in Sri Lanka have interpreted the hosting of PLAN ships in Colombo as a violation of the 1987 Indo-Sri Lankan Accord which clearly states that both countries must agree to permit the other's military to use their territory for any purpose. Apparently, Sri Lanka Defense Secretary Gotabaya Rajapaksa was told that the docking of a Chinese naval submarine at the Colombo Port in September was of "serious concern to India's national security".

The Sri Lankan Government has been dismissive of India's concerns, declaring that the Chinese ship visits were "usual practice." A Sri of the Navy's top brass briezly rattled off statistics of foreign ships that had visited Colombo in the recent past. He further revealed that Indian lanks had different views. Colombo's Sunday Times said, editorially, on November 6, 2014: "No other country in Sri Lanka's post-war history had exerted the kind of pressure on the country's security. China is a large quantum of economic aid, making crucial in the country's infrastructure. China is clearly the strategic competition between India and China will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will eventually rebound on Indian interests will 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US-2: Bulwark of India-Japan Cooperation

Amphibian aircraft combine the capabilities of rapid surveillance and prompt response, whether for relief or arrest or intervention, in a single platform.

**Amphibian Aircraft Capabilities**

Amphibian aircraft combine the capabilities of rapid surveillance and prompt response, whether for relief or arrest or intervention, in a single platform. Such a platform is not available on any other platform. Unlike helicopters and aircraft, amphibious aircraft can land at the location of the interest both the will and the law of the nation and thus have been a platform of choice for many navies. Unlike ships, amphibious aircraft can reach the target location faster than ships can thereby ensuring early intervention and preventing escalation of a precipitous inci
dent at a safe distance. This includes the ability of even shore-based military and political authorities to undertake a first-hand evaluation of a situation at sea which may have international ramifications if left to intensify without control.

The operational profile of an amphibian aircraft comprise of a land-, lake-, river-based launch with cargo and personnel commensurate embarked for the mission at hand, rapid transit to the target area in mid ocean or close ashore/inland a distant water body, surveillance, data gathering and analysis during a stand-off ultra-low level and low speed loiter, alighting on the water for examination of the maritime mission and then either transit to another destination or return to the parent launch facility.

**Operational and strategic roles**

In the context of a maritime nation like India, use of an amphibian aircraft finds many operational and strategic roles. Considering the large expanse of island territories of India, the growth, connectivity and security of the island territories (ADN Islands and Lakshadweep) of the nation are becoming increasingly important. This has resulted in establishment of the first joint services command in Andaman and Nicobar Islands in 2001 with an aim to safeguard India’s strategic interests in Southeast Asia and in many cases exceeds these operational requirements. Without the ability to operate long-range maritime aircraft is more easily replaceable than its amphibian aircraft combination with Japan for cooperation on the US-2 aircraft. The JWG has already met thrice.

In September 2013, based on the directives of the summit meeting held between the two Prime Ministers of India and Japan in May 2013, a Joint Working Group (JWG) was established to explore modalities for cooperation on the US-2 aircraft. The JWG has already met thrice. Prime Minister Narendra Modi and Prime Minister Shinzo Abe in their Joint Summit Statement of September 1, 2014, have now jointly the US-2 to accelerate their discussions on the cooperation in US-2 and its technology. As per the fact sheet later circulated by the Ministry of External Foreign Affairs, Japan the US-2 cooperation seeks to concurrently advance the aeronautics industry including the final assembly and manufacture of the US-2, its maintenance, repair and overhaul and parts manufacturing in India. The US-2, it is learnt, may also be permitted to be exported to third countries under mutual agreement. It is evident that the cooperation on the US-2, between India and Japan is at the international level of immense diplomatic and strategic importance, whilst at the domestic level the downstream benefits are across the military, technological, economic and social sectors.

This is the first time ever that any country has offered to develop an aeronau-
tics industry in the private sector in India through a well targeted partnership and therefore this programme is completely aligned with Prime Minister Modi’s Make in India initiative and for realising a world- class aeronautics and aircraft manufacturing ecosystem within the nation. Partnering with Japan for cooperation on the US-2 aircraft is of immense strategic value to India. The technological, economic and social benefits of this partnership are indeed a path to progress, prosperity and peace in the region.
Pushing Boundaries of Energy and Fuel Efficiencies

General Atomics Electromagnetic Systems Group is a leader in research, development and manufacture of cutting-edge electromagnetic and electric power components and systems. GA is now uniquely positioned to support India with working solutions to help meet growing demand for efficient power technology. Dr Vivek Lall, Chief Executive of Commercial Global Strategic Development, General Atomics Electromagnetic Systems Group, gives insights into the company’s road map in India.

SP’s Naval Forces (SP’S): General Atomics is an extremely successful, privately held company with a diverse set of products, services and technologies. As chief executive of Commercial Global Strategic Development for GA Electromagnetic Systems Group, could you give us a brief profile of your organisation?

Dr Vivek Lall: GA Electromagnetic Systems Group (GA-EMS) is a recognized leader in the research, development and manufacture of cutting-edge electromagnetic and electric power components and systems designed to meet the growing demand for more reliable, fuel-efficient power. We offer electric power generation, propulsion, distribution and monitoring products to support a wide area of defence, oil/gas, chemical, energy, mining, nuclear power, research and training requirements worldwide.

We are committed to ongoing research to keep us on the forefront of emerging market trends, and to delivering high quality products and services to help keep our customers competitive in the markets they serve.

SP’S: What sets GA-EMS’s technology and product offerings apart?

Dr Vivek Lall: Now, more than ever, we are called upon to leverage technology resources in new ways. Not only do we need to design, build, launch and support systems that keep services mission ready, we must develop systems that utilize electric energy more efficiently and are designed to ease maintenance and reduce life-cycle costs. Our products push the boundaries of energy and fuel efficiencies, harsh operational environments, and high reliability standards. An example is our work under contract with the US Navy for the installation of an electromagnetic aircraft launch and recovery system on the new US aircraft carrier Gerald R. Ford (CVN 78). We have successfully leveraged our experience in thermonuclear fusion research and linear motor and electromagnetic launcher development to create this state-of-the-art aircraft launch system.

The system is a highly redundant, modular design with few moving parts.

SP’S: Could the electromagnetic aircraft launch system be implemented to help advance the Indian Navy?

Dr Vivek Lall: Yes, with concurrence from the US Navy and permission to export, the system could provide many key benefits to advance the Indian Navy. The system’s flexible architecture allows for integration into a range of platforms with varying catapult configurations, enabling the launch and recovery of a wide variety of aircraft, including unmanned aerial vehicles, to enhance situational awareness. Our integrated system requires fewer personnel to operate and maintain, and provides a more fuel-efficient alternative to legacy catapult systems.

SP’S: What other products does GA have to offer India?

Dr Vivek Lall: GA is uniquely positioned to support India with working solutions to help meet growing demand for more efficient power technology. We’re currently applying our highly efficient motors, generators, drives, high energy capacitors and integrated systems for use in power generation, integrated propulsion, and electric distribution applications for mining, solar energy, smart electric power grids, water and wastewater treatment, maritime, and oil/gas applications. We specialize in first-of-a-kind systems and product customization to suit industry-specific requirements. For instance, our Galtronics Electrostatic Separators are helping produce better yields at oil refineries through a unique, patented automated electrochemical process. For Indian refineries, this could mean greater efficiencies and improved yields as demand for oil and gas increases in a highly competitive world market.

India can also benefit from GA’s high quality, extremely reliable radiation monitoring systems for the nuclear power industry. With over 10 years of experience, and more than 120 successfully fielded systems operating worldwide, GA is a recognized leader in the design, development and support of environmentally and seismically qualified radiation monitoring systems. As India continues to address demand for more electricity via nuclear power, integrating proven radiation monitoring systems could help existing and new nuclear power plants improve safety and ensure continuous power generation.

SP’S: How is your organisation positioned for the future?

Dr Vivek Lall: We will continue to leverage our unique electromagnetic and electric technologies, unmatched technical and design expertise, and commitment to research and development to create customised solutions that offer more efficient electric power for critical applications worldwide. We look forward to continuing to explore opportunities with India to collaborate and to enable technology innovations that address industry demand, growing markets, and new and changing requirements.

WASS: Successful Firing of Black Shark Torpedo WARSHOT in Collaboration with Malaysian Navy

BLACK SHARK, A HEAVY weight torpedo (HWT), is considered one of the top products of Whitehead Systems Submarine armament (WASS), a company founded by Robert Whitehead over a century ago. WASS is in the forefront of torpedo development and Black Shark is the result of research and cutting-edge technologies in electronics, applied to electro-acoustic field.

Recently, Black Shark was tested on a mission in Malaysia. The Black shark torpedo WARSHOT firing was from a Scorpene submarine against a disabled ship used as a target. The torpedo is real technological excellence from WASS.

In the demonstration in China Sea waters, facing the military base of Kota Kinabalu, in Sabah region, the firing confirmed the excellent performance of Black Shark in terms of its communication’s reliability with the fire control system through the fibre optic cable, of dynamic and acoustic performances, the effectiveness of its ignition chain and the explosive charge.

WASS and the Malaysian Navy have over 20 years of close relationship and the recent demonstration was carried out by the Navy technical staff with the WASS team. The demonstration is a matter of pride and satisfaction to both the entities.

Black Shark has been shortlisted by India for the Scorpene submarine with BDL being nominated as the production agency. With execution of this contract, the Indian Navy would have in its inventory the most lethal, advanced and proven HWT in the world.
Sea Borders under Total Control

In recent years navies and cost guards of littoral states have been detecting their cooperation in protecting security at sea. They have gone far beyond pure combat operation support to include efforts aimed at combating piracy, terrorists, illegal migration, drug trafficking and smuggling inshore. Most of littoral states make protection of fishery resources and enforcement of ecological regulations at oil production sites a priority.

Integrated coastal zone control systems have been developed to encompass all these tasks. Russia is one of few countries that have enormous experience in this area and all there is to create such systems. Russia’s special exporter Rosoboronexport offers this kind of products in the world market.

This system’s shore-based unit makes it possible to detect a military unit making its move to land or intruders as easily as a ship in distress. It collects maritime operational data from ships, sites radar units, meteorological stations, buoys beacons, as well as global systems round-the-clock, all year round in any climatic conditions.

Being aware of the situation inshore and above in the air, the system can provide any state agencies concerned with all required information. Thus it will save the Navy, Coast Guard, Marine Police, and sea ports an effort of developing their own systems. The only thing they need to do is to arrange data receiving procedures, work out data collection requirements and consolidate funds to set up an integrated system.

Russia’s Navi-Traffic and Navi-Harbor radar surveillance and navigation management systems based on the most advanced technologies have already been deployed in 120 ports in over 40 countries to constitute a backbone of ship navigation management, national navigation safety, and search and rescue (SAR) systems, as well as shore defenses.

Russia has also developed and put into operation state-of-the-art surface surveillance systems. These are traditional Mys and Positive radars sweeping a radius of 90km as well as the unique Podsolnukh-E over-the-horizon, surface wave radar with a range of up to 450km.

If the Customer already has surveillance assets and systems produced in the country or provided by third countries Rosoboronexport offers software to integrate all data flowing from them into a unified coordinate system. The general maritime situation information in littoral areas can be fed to navy’s automated command and control systems through the 83h170E and 83h11ET modular naval operation posts.

One of the system’s advantages is its open architecture. Stage by stage the number of assets can be increased or they can be upgraded, advanced and future elements can be introduced to improve the capabilities of the system.

The already accumulated experience of deployment of such systems in Russia suggests that a system approach to information support of all maritime operations boosts efficiency by 30 percent.

Underwater Strike

The following Russian ship-based underwater weapons possess great export potential: the 533mm DTA-53 twin torpedo tubes, RPK-8 anti-submarine warfare (ASW) missile system launching 212mm homing diving shells and MG-94ME hydro-acoustic jamming shells providing protection from torpedoes, RBU-6000 anti-submarine rocket launcher firing RGB-60 anti-submarine missiles or projectiles carrying 908 diving shells. The Parjug-1661 system is offered for export to operate ASW weapons. Those are time-tested and well-known in the market equipment meeting modern requirements.

Some advanced systems also attract increasing attention in the region. Among them is the 91RTE ASW missile fired by the Club-N system and Paket-E/NK small ASW torpedo launcher.

The 91RTE missile will kill all types of submarines at any depth they can go down to 800m and range of 5km to 40km. It flies with a ballistic trajectory to the estimated area of operation of the target and parachutes to the water. As soon as the homing system is triggered it will not take the missile long to destroy the target. The 91RTE missile is also compatible with the submarine-based Club-N. The fact that Russian submarines including the Project 636 and Amur-1650 carry it is a key to their superiority over foreign counterparts.

Another advanced system - the Paket-E/NK - provides effective anti-submarine defense at a range of up to 10km and torpedo protection at 100m to 800m. It features a control system, launchers, special sonar, and armaments fitted with 324mm small thermal torpedoes or countermeasure anti-torpedoes. Being one of the cutting-edge systems in the international market, the Paket-E/NK alone can make torpedo protection of the carrier ship 3-5 times stronger.

Speaking of submarine-borne underwater weapons, apart from the Club-N that Rosoboronexport offers, there are also 533mm TE-2 all-purpose electric, remotely controlled torpedoes and UGST deep-water homing torpedoes.

The TE-2 can destroy submarines at a range of up to 25km and depth of 450m. Its ability to operate in heavy EECM environment, powerful propulsion unit, built-in test system, long service life, and cheap operation are distinctive characteristics of the weapon. The UGST can also hit ships and stationary targets, as well as submarines at a range of up to 50km and depth up to 500m. Once launched it either can home on the target or be guided to it through its remotely controlled system. Its modular design makes easier a task to reconfigure the missile according to the requirements of the Customer. It is applicable to the whole range of operations form reprogramming baseline equipment to replacing engine and storage tanks. There are several warheads for the weapon varying in composition and quantity explosive.

Another area where Russia also dominates is the mine market. Rosoboronexport offers underwater weapons that are deployed in Russia’s Navy and navies of many other countries, including states in South-East Asia.

The following Russian submarine-based underwater weapons possess great export potential: the 533mm DTA-53 twin torpedo tubes, RPK-8 anti-submarine warfare (ASW) missile system launching 212mm homing diving shells and MG-94ME hydro-acoustic jamming shells providing protection from torpedoes, RBU-6000 anti-submarine rocket launcher firing RGB-60 anti-submarine missiles or projectiles carrying 908 diving shells. The Parjug-1661 system is offered for export to operate ASW weapons. Those are time-tested and well-known in the market equipment meeting modern requirements.

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SP’s: What are the various products and systems offered to Indian Navy include engines, ship design, gas turbine propulsion, electrical power systems, underway replenishment, propellers and water jets, cranes and handling systems, etc.

SP’s: Can you indicate your present and future plans for India?

Jayaraman: India is one of the most important strategic markets for Rolls-Royce and we continue to build on our distinguished legacy and long-standing partnership. We are planning to offer MT30s for the future programmes of the Indian Navy.

US: India is still lagging behind in the development of zero and marine engines. Do you have any plans to assist India in this field by the transfer of technology? Jayaraman: India requires advanced technology and manufacturing capabilities to bridge the existing defence capability gap, there is a need to look at joint production, joint R&D and most importantly the need to move beyond a buyer-seller relationship. Both the countries have signed several agreements such as -in the area of encouraging defence industrial partnerships, setting up of defence science and technology laboratories. Now with the new government initiating forward-looking policy measures, there will be more scope for greater collaboration and participation between the two countries.

Rolls-Royce has been a partner in India’s defence modernisation and remains committed to India’s efforts towards achieving self-reliance by acquiring superior technological skills and modern manufacturing and business processes.

SP’s: How do you envision the future role of Rolls-Royce in India’s defence?

Jayaraman: India is one of the most important strategic markets for Rolls-Royce and we continue to build on our distinguished legacy and long-standing partnership. We are planning to offer MT30s for the future programmes of the Indian Navy. The Hawk-Adour combination is the global leader in advanced jet training for air forces globally, including the United States Navy, Royal Air Force, Royal Australian Air Force and Royal Malaysian Air Force. The Hawk-Adour combination is the global leader in advanced jet training for air forces globally, including the United States Navy, Royal Air Force, Royal Australian Air Force and Royal Malaysian Air Force. We are planning to offer MT30s for the future programmes of the Indian Navy. The Hawk-Adour combination is the global leader in advanced jet training for air forces globally, including the United States Navy, Royal Air Force, Royal Australian Air Force and Royal Malaysian Air Force. We are planning to offer MT30s for the future programmes of the Indian Navy.

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India's massively delayed effort to create a second new generation conventional attack submarine production line in the country has finally lifted off, though several years adrift. With the apex Defence Acquisition Council (DACC) clearing decks for the Rs53,000-crore Project 75 (P-75), the Ministry of Defence will spend the next two months compiling a list of public sector and privately owned shipyards in the country capable of absorbing technology and building submarines. A special committee, headed by the Secretary (Defence Production) and populated by experts from the Indian Navy, including its Controller Warships Production & Acquisition, will interface with the shipyards to see if they make the cut across a plethora of parameters, including technical, financial health, supplier base, manpower base, order book, and industrial culture.

Top sources indicate to SPs that the shipyards that will be sized up for the manifold requirements of Project 75 include Mumbai's Mazagon Dock Ltd (MDL), Hindustan Shipyard Ltd (HSL) in Visakhapatnam, Goa Shipyard Ltd (GSL), Garden Reach Shipbuilders & Engineers Ltd (GRSE) in Kolkata, Cochin Shipyard Ltd, Larsen & Toubro (L&T) and Pipavav. The project definition has been through a slew of combinations of where the submarines will be made, with the recent decision finally deciding that all six submarines will be built in India on the lines of the predecessor P-75 Scorpene production line at MDL, Mumbai. Buys will be invited from Indian shipyards to build the six submarines using transferred technology from a foreign partner.
The field, as it stands, is wide open.

Submarine contenders include France's DCNS Scorpene, Russia’s Rubin Amur 1650, the German HDW Type 214, Spain's Navantia S-80 and possibly Sweden's Kockums Archer class. With the submarine's air-independent features, the HDW Class 214 class is characterised by increased diving depth, low revolution, permanently excited PERMASYN motor for maximum speed without transient switching, noise-optimised signature management, sonar development within the ISUS structure, extremely difficult to detect and extremely difficult to counter. It has stipulated that the MPV should be able to carry out a wide scope of tasks, special forces operations. The HDW Class 214 design is characterised by increased underwater endurance and low detection risk using the proven fuel cell system for air-independent propulsion, increased diving depth, low revolution, permanently excited PERRAMOR for maximum speed with transient switching, optimised signature management, sonar development within the ISUS structure, extremely difficult to detect and extremely difficult to counter. It has stipulated that the MPV should be able to carry out a wide scope of tasks, special forces operations.

Alongside other DSUP shipyards undergoing internal upgrades to take on more complex shipbuilding work, Kolkata's Garden Reach Shipbuilders & Engineers Limited (GRSE) is in the process of transforming its infrastructure to adopt integrated construction technology for the construction of the last lot of landing ship utility (LSU) for the Indian Navy, but more importantly for the construction of P17A stealth frigates, the most complex warships the yard would ever have attempted. The concept of integrated construction technology is being adopted in order to improve quality and reduction in build period for future warships, starting with the P17A. With the nation's first offshore shipyard, GRSE is in area terms the largest defence shipyard in the country, and the only DSUP shipyard in the country that has delivered major production lines for big ships as well as small ships. The P17A stealth frigate programme will be a flagship effort for the GRSE yard in the coming years, and the GRSE steel throughput will be increased considerably, for which new sub-contractors for fabrication and erection of hull blocks are being developed to meet demand. GRSE is also attempting to upgrade the use of technology for in-house fabrication and erection of blocks to ramp up increase productivity. GRSE is considering a proposal to set up a new hull block fabrication facility with suitable EOT cranes and other infrastructure facilities for fabricating at least four blocks (each weighing up to 65 tonnes) at a time.

INDIAN NAVY FOR 9 NEW TUGS

The Indian Navy is looking to procure nine new tonnes Bollard pull tugs to assist naval ships and submarines in berthing and unberthing. The naval vessels are moored and unmoored in confined waters and harbours. The tugs will also be required for undertaking cold move of naval ships and subma- rines under reft maintenance within port limits. In addition, they will be required to provide assistance to ships alongside or at anchorage and unloading ships to assist and move out in out of the tidal basin. The Indian Navy also specifies that such vessels should be capable of moving non-self-propelled vessels such as ammunition water barges and lighters. The port limits and warships during inclement rough weather to prevent accidental damage within port limits, providing all off fire fighting cover (and/or assistance to ships alongside or at anchorage and providing towing assistance to warships. The Indian Navy has additionally stipulated that the tugs may be deployed beyond port limits, after suitably augmenting crew strength, for specific duties such as salvage and rescue missions. The vessels need to have a life of 30 years. The tug should be able to carry out its functional role up to sea state 4 and operate up to sea state 6 and survivable as per approved class/BMO norms. The tug should have a SRP (steerable rudder propeller) or an Azimuthing thruster type propulsion system, and be manned by one master, one engineer and 11 crew only.

For complete versions, log on to: www.spsnavalforces.com & www.spsnaval.com
GOA SHIPYARD TARGETS LATIN AMERICA FOR EXPORTS

After notching up successes in Mauritius and Myanmar, DSFU (Goa Shipyard Ltd (GSL)) will be focusing on bagging supply orders for patrol vessels and fast attack craft from Latin American countries, including Brazil and Chile. Top sources reveal that the company has set up a special team to focus on winning orders from this region to shore up its export strength. While GSL is standing by for interest in vessels across the board in its new container catalogues in warship building, it has bagged quick orders for high speed FRP interceptor craft and the entire range of patrol vessels, which include OPVs, advanced OPVs and fast patrol vessels. The company is also looking to establish partnerships in Brazil, which is a highly potential market, and push orders through quicker. Other vessels are looking to push through the export routes in the region include fast attack craft from the Goa Shipyard Limited (GSL), multiple motor boats, landing craft, training and support vessels and multi purpose interceptor vessels for coast guard duties. GSL bagged a contract for one 30-metre fast patrol vessel from the Mauritian Coast Guard in May this year, with a provision to supply an additional vessel (likely to be signed shortly). GSL has also bagged a contract to supply 11 fast inter-ceptorboats to the Mauritian Coast Guard. The company also bagged an order to supply a damage control simulator for the Myanmar Navy, with presentations made to the navies of several other countries, some of which have evinced interest. At present, GSL is currently pursuing orders for 110 FRP patrol vessels in the Gulf.

AIRBUS DEFENCE AND SPACE AWARDED PERISCOPE MAINTENANCE FACILITY FOR INDIA

Airbus Defence and Space’s Optromics business unit and the Indian Ministry of Defence have signed a 1.5 million euro contract for the delivery of a periscope maintenance facility in Delhi. The dedicated facility will be for the maintenance and repair of all of India’s submarine fleet periscopes and is due to be completed in September 2016. Harald Hansen, Director Business Development Sea at Airbus Defence and Space’s Optromics business unit, said: “When a product is serviced, a lot of time is lost during the transport between different facilities. Once maintenance work can be done locally, the operators can speed up this process and enhance the operational readiness of the Indian fleet.” The establishment of the periscope maintenance facility and the training of technicians from the Indian Navy in Germany and India can be seen as a first step in establishing an in-country service capability for future national operations. For the implementation of the facility, Airbus Defence and Space is partnering with Tata Consultancy Services and H&H Precision Pvt Ltd.

F-35C COMPLETES FIRST NIGHT FLIGHT ABOARD AIRCRAFT CARRIER

The F-35C Lightning II carrier variant joint Strike Fighter conducted its first carrier-based night flight operations aboard aircraft carrier USS Nimitz off the coast of San Diego. The test flying was conducted in a series of planned touch and go before making a full arrested landing. The flight was part of Development Testing 1 (DT-2) for the F-35C, which commenced on November 3 and is expected to last for about two weeks. The Nimitz is hosting the F-35 Lightning II Pax River Integrated Test Force from Air Test and Evaluation Squadron 73 during the initial sea trials of the F-35C.

ROV UNDERTAKES UNDERWATER VIDEOGRAPHY

The Indian Navy had sought assistance of Reliance Industries Ltd in undertaking underwater videography of TRV 72 wreck by utilising a remotely operated vessel (ROV) on November 18, 2014, MV Olympian Canyon, a chartered vessel. The industries for offshore work in the Krishna- Godavari basin, is capable of operating this ROV up to 1,000 m depth. Videography by ROV commenced in the morning and was completed by the evening. The wreck of the vessel has been located in a position about 373 metres depth of water. It is now planned to analyse the captured video footage and determine the further course of action.

BOEING DELIVERS SIXTH P-8I MARITIME PATROL AIRCRAFT TO INDIA

Boeing delivered the sixth P-8I maritime patrol aircraft to India on schedule, on November 24, 2014 arriving at Naval Air Station, Rajnion, to join five others being delivered by the Indian Navy. The P-8I is part of a contract of eight awarded in 2009. The final two deliveries are scheduled for 2015. “The P-8I’s arrival is a milestone in the modernisation of India’s maritime capabilities,” said Dennis Swanson, Vice President, Boeing Defense, Space & Security in India. “The Indian Navy is currently conducting missions with the first five aircraft, and this newest P-8I will begin flight trials in the coming months.” Based on the company’s next-generation 27 commercial aircraft, the P-8I is the Indian Navy variant of the P-8A Poseidon that Boeing builds for the US Navy.

INDIAN NAVY, FIRST TO RESPOND IN MALDIVIAN CRISIS

The island nation of Maldives is facing a national contingency (first occurred due to fire on December 4, 2014, in its desalination plant. This plant produces drinking water for Malé. Responding to a urgent request for assistance, INS Sukanya, on patrol off Kochi, was diverted immedi-ately to arrive at Malé on December 5, 2014. The ship carried 35 tonnes of freshwater and has the capability to produce 20 tonnes of freshwater every day. The Indian Navy, ASP, Maldives was conferred approximately 65 tonnes of freshwater till this the evening of December 7. Additionally INS Deepak, a large fleet tanker with 900 tonnes of water, had also sailed from Mumbai and reached Malé on December 7, 2014. The Indian Navy warships have the capability to produce drinking water using their desalination plants (INS Deepak is capable of producing 100 tonnes water every day).

COMMUNIONING OF COAST GUARD AIR ENCLAVE, BHUBANESWAR & 743 SQUADRON

In a befitting ceremony, the Coast Guard Air Enclave Bhubaneswar and 743 Dornier Squadron have been commissioned by Vice Admiral Anurag G. Thapliyal, Director General, Indian Coast Guard, on December 15, 2014, at the Biju Patnaik International Airport Bhubaneswar. Various defence and civil dignitaries attended the function. The units will operate under the operational and administrative control of the Commander, Coast Guard Region (North East) through the Commander, Coast Guard District No.7 (Odisha). This has augmented the Coast Guard operations along the northern Bay of Bengal with area of responsibility of over 1.5 lakh square km of the Indian exclusive economic zone.

MLD TO LEVERAGE MODERN INFRA FOR P17A WARSHIP LINE

In order to bring substantive improve-ments to its next line of stealthy frigates, the P17A line for seven ships as a follow-on to the clash ship, India’s premier builder of large warships and submarine Mazagon Dock Ltd (MDL) will be appoint-ing a know-how provider (KHP) for technol-ogy upgradation & capacity enhancement (TUCP) to impart requisite knowledge and skill to leverage utilisation of the mod-ernised infrastructure at the shipyard.

The KHP will function on the P17A line in order to bring an all-round business pro-cess transformation in warship building. A top MDL official said, “Building follow-on ships in a series with more number of vessels will essentially provide high take-off levels in terms of design maturity and availability of material and will definitely result in reduced building period.” MDL’s infrastructure upgrade allows it to handle grand blocks and execute integrated construc-tion. “The modernised infrastructure is being gainfully leveraged for current build programmes of P15B ships (destroy-ers) and the Scorpene class submarines,” said the official, adding “despite our inher-ent strengths, the Indian shipyards need to go a long way to graduate commercially and technically to the level of shipyards in developed nations. The best practices in the industry abroad are to be imbibed and rigorously implemented for ensuring long-term dividends.”
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