The Sea our Strength

IMF SEMINAR 2022

15 SEPTEMBER 2022

at Central Park Hotel, Bund Garden, Pune

Present Challenges of Shipbuilding in India and Way Ahead






Concept Note

It is no surprise that India, with its long coastline and a vantage geostrategic location, has a rich maritime heritage. From the days of antiquity, peoples of the Indian subcontinent travelled to far away lands through the medium of the sea, primarily for trade and commerce.

Shipbuilding in India can be traced back to 2300 BC, the period of the Harappan civilization, when the world's first dock was built in Lothal. For centuries, indigenously built ships carried Indian mariners from both seaboards to trade with other great civilisations. During British rule many new shipbuilding yards came up in Bombay in the 18th and 19th centuries. HMS Trincomalee, built in 1816 in Bombay, holds the distinction of being the oldest warship still afloat and is a testimony to Indian shipbuilding skills. Unfortunately, India missed the Industrial Revolution and our indigenous shipbuilding capability suffered as a consequence.

Post independence, the political leadership and visionaries in both naval and civil maritime fields had the foresight to realize the vital importance of shipbuilding towards safeguarding our national interests and embarked upon articulating a vision for self reliance, which culminated in the construction of the Leander class of frigates - the first major warship built in India by MDL.

From that time, our defence shipyards have increasingly been at the forefront of transforming the Indian Navy from a buyer's navy to a builder's navy. With the recent commissioning of INS Vikrant we have joined an elite group nations who have the capability to build an aircraft carrier. Unfortunately, the same is not true of commercial shipbuilding, which has simply stagnated for several decades now. A glance at other major world powers such as the US, China, UK and France reveals that they not only have a strong Navy, but a very robust commercial shipbuilding capability.

The seminar therefore is meant to examine the challenges facing Indian shipbuilding, as well as brainstorm policies and reforms necessary to stimulate the industry so as to enhance the capability, capacity and competitiveness of our shipyards.

About the IMF

The Indian Maritime Foundation (IMF) is a Pune based non-profit organization founded and run by a group of retired Indian Navy and Merchant Marine officers. The main objective of IMF is to promote awareness of the oceans and to rekindle maritime consciousness and pride among the people of India especially the youth. IMF is also committed to covering the developments in naval, geo-strategic, merchant shipping fisheries, as well as oceanographic and environmental fields.

The IMF‘s ambit of concern is wide-ranging; it has a holistic and an all-embracing view of the oceans, which includes raising awareness about the activities of major stakeholders, such as the Indian Navy, the Indian Coast Guard, the mercantile marine and the fisheries; as well as diverse maritime interests such as shipping and ports, shipbuilding, hydrographic survey, oceanography, marine technology, and most importantly, the protection of our marine environment, on which the IMF has focused its attention extensively during the past ten years.

The IMF is registered in Pune as a charitable trust and has branches in Delhi, Mumbai and Chennai.The IMF publishes a quarterly journal, SEAGULL, containing various articles and news snippets on maritime issues across the world. A recent addition to the list of IMF projects that we are very proud of is the IMF Museum, Research Centre and Library which was recently inaugurated at the Anantrao Pawar College of Engineering & Research.

Programme

Dress Code

Serving Naval Officers - Summer uniform

Retired officers and civilians - Shirt & Tie for gents/Equivalent for ladies.

Time	Item
0900-0925	Registration of Delegates.
0925	Delegates requested to be seated
0929	National Anthem
INAUGURAL SESSION	
0930- 0940	Welcome Address and Introduction of the Chief Guest : President IMF
0940- 0955	Inaugural Address : Vice Admiral Vinod Pasricha, PVSM AVSM NM, IN (Retd)
0955- 1040	Keynote Address : Vice Admiral Satish Ghormade, PVSM AVSM NM ADC, Vice Chief of Naval Staff
1040- 1100 : TEA BREAK	
SESSION I : Moderator - Vice Admiral DM Deshpande, AVSM VSM, IN (Retd)	
1100-1105	Remarks by Moderator
1105-1125	Cmde PR Hari, CMD & Capt Sunil Kumar, GM (CP), GRSE : *Nurturing Shipbuilding Ecosystem in India towards becoming a global player*
1125-1145	Cdr Saurabh Jain (retd), AGM PL, GSL: *Enhancement of Exports by Shipyards & Challenges to be Overcome*
1145-1205	*Capt CHV Sudhakar, INS Shivaji : Challenges in Integrating CAT 'C' Items in Warship Building*
1205-1230	Q&A and Comments by Moderator
1230- 1330 : LUNCH	

Programme

Time	Item
SESSION II : Moderator – Dr (Mrs) Malini Shankar, Vice Chancellor, Indian Maritime University, Chennai	
1330-1335	Remarks by Moderator
1335-1350	Cmde Vineet Tiwari, PDND & Cdr Prashant Singh, DND: *Supportive Policy framework - Need of the Hour to revive Shipbuilding in India*
1350-1405	Cdr Jaffar Sirajuddin, DME: *Indigenous Shipbuilding and Vendor Base for Future Technologies*
1405-1420	Capt Mainak Mishra, DWE: *Weapon Indigenisation in IN - Challenges and Way Ahead*
1420-1440	Prof SC Misra : *Indian Shipbuilding - The Way Ahead*
1440-1500	Cmde Sujeet Samaddar, NM, IN (Retd): *Energising India's Shipbuilding Industry in consonance with Maritime Vision 2030*
1500-1530	Q&A and Comments by Moderator
1530-1545 : TEA BREAK	
SESSION III : Moderator : Shri Jayant D Patil, Whole-time Director, Defence & Smart Technologies & Member of the L&T Board, L&T Defence	
1545-1550	Remarks by Moderator
1550-1610	Cdr KS Nathan (Retd), VP L&T SB: *Indigenous Warship Building - Modular Construction and Digital Techniques*
1610-1630	Shri Harikrishnan S, CGM (Materials), CSL: *Niche Commercial Ship Building and Ship Repair - India as a Hub*
1630-1650	Shri Biju George, Dir SB, MDL: *Technology Upgradation and Capability Enhancement in Warship Building- MDL experience in Integrated Construction in association with M/s Fincantieri, Italy*
1650-1710	Q&A and Comments by Moderator
1710-1725	Concluding Remarks by Mr Jayant Patil
1725-1730	Vote of Thanks by Cmde Ajay Chitnis (Retd)

Inaugural Session

Welcome Address

Captain Anand Dixit
President IMF

Inaugural Address

Vice Admiral Vinod Pasricha
PVSM AVSM NM, IN(Retd)

Keynote Address

Vice Admiral SN Ghormade
PVSM, AVSM, NM, ADC
Vice Chief of Naval Staff

VICE ADMIRAL SN GHORMADE, PVSM, AVSM, NM, ADC, VICE CHIEF OF NAVAL STAFF

KEYNOTE SPEAKER

VAdm SN Ghormade, PVSM, AVSM, NM, ADC, a Navigation and Direction Specialist was commissioned into the Indian Navy on 01 Jan 1984. He is a graduate of the National Defence Academy (NDA), Khadakwasla, Naval Staff College at the United States Naval War College, Newport, Rhode Island, and the Naval War College, Mumbai.

He is the recipient of the Best Naval Cadet Gold Medal, V Adm AK Chatterjee Trophy, Capt BD Naidu Shield at the NDA, the 'Binoculars' for Best All Round Cadet, first in Seamanship and Electrical Engineering in Cadet Training Ship INS Mysore, overall first in merit in the course at the end of Sub Lt Technical courses (Admiral Katari Trophy), overall second in the Navigation and Direction Specialisation course, Distinction in United States Naval Staff College at Naval War College, Rhode Island, and the C-in-C Silver Medal in the Naval Higher Command Course at Naval War College.

The officer also holds MPhil in Defence and Strategic Studies from Mumbai University, MSc Defence and Strategic Studies from University of Madras, and Master's Degree in Personnel Management from Symbiosis Institute of Business Management, University of Pune.

During his career spanning over 38 years, he has been through a myriad of operational and staff appointments. His important operational appointments include Commands of Guided Missile Frigate INS Brahmaputra, Submarine Rescue Vessel INS Nireekshak, and Minesweeper INS Alleppey, and Second-in-Command Guided Missile Frigate INS Ganga.

His important staff appointments ashore include Assistant Chief of Personnel (Human Resources Development), Principal Director of Personnel, Director Naval Plans and Joint Director Naval Plans at Naval Headquarters as separate assignments, Director (Military Affairs) at the Ministry of External Affairs, Local Workup Team (West), and Instructor at the Navigation Direction School and the National Defence Academy.

In the rank of Rear Admiral, the officer has held the appointments of Assistant Chief of Personnel (Human Resources Development), Flag Officer Commanding Karnataka Naval Area, Flag Officer Commanding Maharashtra Naval Area.

In the rank of Vice Admiral he has held the coveted and challenging appointments of Director General Naval Operations; Chief of Staff, Eastern Naval Command, Controller Personnel Services, Deputy Chief (Operations & Training) Integrated Defence Staff in HQIDS prior taking over as the Vice Chief of the Naval Staff in 01 Aug 21.

The Flag officer was awarded the Param Vishisht Seva Medal on 26 Jan 2022, Ati Vishisht Seva Medal on 26 Jan 2017 and Nausena Medal in 2007 by the President of India, and Commendation by the Chief of the Naval Staff in 2000.

The Flag Officer is married to Mrs Sanskruti who is a Homemaker and they are blessed with two wonderful children Radha and Param. His interests are Reading, Trekking, Water Sports and Horse Riding.

VICE ADMIRAL VINOD PASRICHA
PVSM AVSM NM, IN (RETD)

INAUGURAL SPEAKER

Vice Admiral Vinod Pasricha is a naval aviator. Commissioned in 1963, he soon went for flying training with the Airforce and graduated as a pilot on the Seahawk aircraft. He then spent a year at Ambala with the Indian Air Force flying Mystère aircraft. In 1971, he attended a Photo Reconnaissance Course at Lossiemouth in the UK on Hunters. Immediately thereafter, he was posted to INAS 300 (Seahawk jet fighters) on board INS Vikrant during the 1971 War, where he carried out many operational sorties over Bangladesh.

The Admiral has the distinction of commanding INS Katchall and INS Vindhyagiri, and was the commissioning Commanding Officer of the Indian Navy's second aircraft carrier, INS Viraat, which was commissioned at Plymouth.

In the Flag rank, he held many assignments including two aviation ones, Flag Officer Commanding Maharashtra Naval Area, Commandant of the National Defence College and Deputy Chief of Naval Staff. In Feb '98 he took over as the Flag Officer Commanding-in-Chief, Eastern Naval Command, followed by him being appointed as Flag Officer Commanding-in-Chief, Western Naval Command, thereby being amongst a select few who have commanded both the Indian Navy's two operational commands. The Admiral retired in 2002.

In addition to his naval activities, he set up some naval museums, of which the Aviation Museum at Goa and the Submarine Museum at Visakhapatnam are big tourist attractions today! Unfortunately, INS Vikrant, which was also made into a museum, was scrapped a few years later. Post-retirement, the Admiral settled down in Pune where he is an active member of the IMF.

CAPTAIN ANAND DIXIT

PRESIDENT, INDIAN MARITIME FOUNDATION

Captain Anand Dixit, Master Mariner is an alumnus of Training Ship Dufferin (1958-60) and underwent active sea-service between 1960 to 2002. Between 1960 to 1978 he served the Shipping Corporation of India Ltd. He got his first command appointment in 1970. Between 1979 and 2002 he served with reputed foreign companies including Mosvolds-Farsund, Norway (and their subsidiary Mosvolds Asia Ltd, Hong Kong) as Master and Teekay Shipping (Canada) Ltd, Vancouver B.C. as Master.

The sea-service includes active participation in the cadets training programme of the Shipping Corporatin of India and positions held ashore in senior technical/ operational capacities. His command experience includes command of General Cargo ships, Bulk Carriers, Tankers including VLCC of 276,000 DWT and 316,000 DWT, Gas carrier and FPSO. He also qualified as an accredited Lead Auditor for ISM Certification.
Post-retirement, Captain Dixit took up the job of a lecturer at Tolani Maritime Institute, Talegaon from 2004 to 2012. He has been working at the helm in the publication of the 'Seagull' magazine for 12 years, in important roles, first as the Associate Editor and then the Editor of the magazine.

He is a former Chairman of the Company of Master Mariners of India, Pune Chapter and a guest lecturer at Pune University (Dept of Defence and Strategic Studies) . He took over as the President of the Indian Maritime Foundation, Pune on the 07th January 2020.

Session I

Challenges for Shipbuilding in India
(1100-1230 Hrs)

Moderator

VAdm DM Deshpande AVSM VSM, IN (retd)

Speakers 1

Cmde PR Hari, IN (Retd), CMD GRSE

&

Capt P Sunilkumar, IN (Retd), CGM GRSE

Speaker 2

Cdr Saurabh Jain, IN (Retd), GSL

Speaker 3

Capt CHV Sudhakar, INS Shivaji

VICE ADMIRAL DM DESHPANDE, AVSM VSM, IN (RETD)

MODERATOR - SESSION I

Vice Admiral Dinesh Deshpande was commissioned in the Indian Navy in 1980. He graduated from the National Defence Academy, with the 56th Course in 1976 and thereon served in the Indian Navy for close to 40 years.

During his illustrious career he served on various Warships and shore establishments and was also part of the Western Fleet Staff during Operation Parakram. He served at various levels at Naval Headquarters in Delhi, Western Naval Command, Naval Dockyards at Mumbai and Vizag and also commanded the Navy's premier training base at INS Shivaji, Lonavala. Prior to becoming a Flag Officer, the Admiral was deep selected to undergo the prestigious National Defence College course at Delhi.
On donning the Flag rank the Admiral commanded the Naval Dockyard at Mumbai. He also headed the prestigious Scorpene submarine programme, was Director General of Naval Projects at Vishakhapatnam and finally headed the Navy's ship and submarine building and acquisition programmes both in India and abroad , as the Controller of Warships Production and Acquisitions.

During his career the Admiral was awarded Athi Vishisht Seva Medal, the Vishisht Seva Medal and the Chief of Naval Staff commendations on three occasions.
A keen sportsman he has represented the Navy in Squash, Tennis and Hockey and represented the country in World Hang Gliding competition. He is also a keen golfer.

The Admiral currently is pursuing the Government's Make in India initiative in the marine field, specifically in the building of the Fleet Support ships programme at Hsl, Vishakapatnam. He is also deeply involved in the induction of AI and Robotics in the Defence sector.

CMDE PR HARI, IN (RETD.)
CHAIRMAN & MANAGING DIRECTOR, GRSE, KOLKATA

SPEAKER - SESSION I

Cmde PR Hari, IN (Retd) has assumed the Charge of Chairman & Managing Director of GRSE with effect from 10 Jun 22. He is a Mechanical Engineer with Bachelor's Degree from Naval College of Engineering Lonavala and has done his Master's Degree in Defence & Strategic Studies as part of 59th DSSC Course at Wellington. He has undergone Army Defence Orientation Course at AWC Mhow and the prestigious Naval Higher Command Course at the College of Naval Warfare.

He has had an illustrious Naval career spanning over 32 years during which he has held various prestigious appointments in key positions in Strategy and Operations, Technical Administration and Tactical decision making. His career includes nine afloat appointments including seven onboard frontline warships of the Navy with a record of serving on afloat appointments for a continuous span of 11 years and six months. He has the unique distinction of serving as the commissioning Engineer Officer of the Indian Navy's first indigenous stealth Frigate 'Shivalik', where he was instrumental in the induction of the Western origin Gas Turbine LM2500 in to service in India for the first time. He has also held staff appointments at Eastern Naval Command and as Command Engineer Officer for Southern Naval Command.

Cmde PR Hari, IN (Retd.) was selected in GRSE as Chief General Manager (PP&C) in 2016 and has been in charge of production planning of almost all new construction ships at that point of time. He assumed charge as Director (Personnel) of the Company w.e.f 21 Oct 2019 and headed the Human Resources and Technical functions of GRSE. He took over as Chairman & Managing Director on 10 Jun 22.

The CMD strives to make the company a global Leader in Warship Construction. He envisions further strengthening the Government's "Make in India" initiative, create a Unique identity for the Company amongst its peers by becoming self-reliant in design capability and by deploying state of the art manufacturing processes. Towards the same the initial thrust has been on improving productivity, enhancing internal efficiencies, devising new policies, vendor base development, human resource development and most importantly a sense of discipline amongst employees of the shipyard.

Cmde Hari is married to Mrs Priya Hari and they have two children. He is a keen sportsman and harbours intense interests in sports. He is a voracious reader and occasionally pens his thoughts.

CAPT(IN) P SUNILKUMAR, IN (RETD), CHIEF GENERAL MANAGER, GRSE, KOLKATA

SPEAKER - SESSION I

Capt (IN) P Sunilkumar (Retd), joined GRSE in Sep 2016 after completing nearly 22 years of 'Commissioned Service' in the Indian Navy since Nov 1994. He started his career in GRSE as Addl General Manager (Materials) and was responsible for complete Supply Chain Management of the 19000 Crore 17A Project being executed at GRSE, Base& Depot Spares and Imports. He took over as General Manager (Cost Estimation & Corporate Planning) on 15 Mar 2019. He has formulated GRSE's Corporate Plan and Business strategy with focus on exports and was successful in bagging GRSE's maiden export order on competitive basis. He has been promoted to Chief General Manager in Jul 22.

He has held various important operational and repair/maintenance appointments in the navy whilst heading the engineering department onboard naval warships and serving in Naval Dockyard. He is an alumnus of the 'Naval College of Engineering' and holds a BTech (Mechanical) degree from JNU, New Delhi. He also holds Masters' degrees in 'Systems and Controls Engineering' from IITB, Mumbai and 'Defence & Strategic Studies' (64th DSSC) from Madras University. He is a qualified Project Management Professional (PMP®), a Certified International Supply Chain Professional (CISCP) and holds Diplomas' in SCM and HRM. His interests include 'Personal Finance' and reading on 'Strategy', 'Motivation' and allied subjects.

NURTURING SHIPBUILDING ECOSYSTEMS IN INDIA TOWARDS BECOMING A GLOBAL PLAYER'

BY CMDE PR HARI & CAPT P SUNILKUMAR

ABSTRACT OF TALK

'India had a rich shipbuilding culture as early as 3000 to 2000 BC and ancient shipbuilding in India goes back to the third millennium BC in the Harappan times (Indus Civilisation). All the advancement of the Harappa culture somehow got wiped out and its achievements buried deep, until it was unearthed centuries later providing only academic and historic value. The industrial revolution, brought in its wake a number of changes in ship construction. The advent of the paddle steamers relegated India's shipbuilding techniques based on sail propulsion. With the coming of the Portuguese to India in 1498, building of warships in India underwent a change when guns were mounted on board. In 1836, screw propeller was invented. 1840 iron hull was introduced. Then came the steel hull in 1880. The transition from sail to steam and from steam to power also came again at the wrong time for India. Since the British shipbuilders had refused to transfer this technology to the Indians and since the industrialisation in India had lagged way behind the European nations, the shipbuilding industry in India was doomed to virtual extinction. Independent countries introduced the necessary changes and were able to build up their own marine industry. But India suffered in the interest of the British shipping and shipbuilding. The Indian peninsula enables a strong viability for the marine industry. In the present era, the shipbuilding industry is being dominated by players from the US, European, and Eastern Asia. The Indian shipbuilding industry does not feature among the top Asian nations in the shipping sector. This deficit in its international contribution has been taken as a majorly problematic area by the Indian government and all efforts are being made to change these statistics.

On 12 May 2020, our Hon'ble Prime Minister raised a clarion call to the nation, giving a kick start to the 'Atmanirbhar Bharat Abhiyaan' (Self-reliant India campaign). This campaign is the vision of new India envisaged by the Hon'ble Prime Minister. The aim is to make the country and its citizens independent and self-reliant in all senses. India had enacted policies and built companies since its creation to make India self-reliant - SAIL for steel production, IITs for domestic engineers, AIIMS for medical sciences, DRDO for defence research, HAL for aviation, ISRO for space, CCL NTPC and GAIL in the area of energy, for example. However, no one name is synonymous with shipbuilding. The Ministry of Ports, Shipping and Waterways website states that the nodal responsibility of the entire shipbuilding and ship repair Industry vests with the Ministry of Ports, Shipping and Waterways. It states that approximately 95% of the country's trade by volume and 68% by value are moved through maritime transport. The present day government has initiated a slew of measures to promote Indian shipbuilding.

With this background, this paper seeks to bring out the need for creating an industrial ecosystem for shipbuilding and action areas for government and industry in nurturing the shipbuilding ecosystem in the country by analyzing the inherent challenges in shipbuilding, drivers for growth of shipbuilding and requirement of reforms in consonance with the approach of Asian and European nations who have become leaders in shipbuilding industry.

CDR SAURABH JAIN, IN (RETD), GOA SHIPYARD LIMITED

SPEAKER - SESSION I

With over two and half decades of experience in various aspects of ship operation, construction, maintenance, repair and material management, Cdr Saurabh Jain is an expert in all aspects of marine engineering and shipbuilding.
An alumni of National Defence Academy, he has done his B Tech in Mechanical Engineering from INS Shivaji, Lonavala and M.Tech. in Systems and controls from IIT Mumbai in 2006. He did Postgraduate Diploma in Management from the College of Naval Warfare, Goa in 2012.

Before joining Goa Shipyard Ltd in 2017, Cdr Saurabh Jain served in various key appointment in the Indian Navy including more than 07 years of sea service and Joint Director at Directorate of Marine Engineering and Fleet Maintenance. He has worked in various operational, technical and project management roles. In various capacities he has maintained high operational tempo of the fleet ships and has steered various critical important policy level changes.

During last five years at Goa Shipyard, he has steered various critical initiatives and policies to improve the operational efficiency of the organization. During his various critical appointments at Shipyard, he has made a positive impact on the operational excellence, shipbuilding planning, execution, marketing outreach and skill upgradation. Currently, he is one of the key personnel for planning and execution of the prestigious Frigate Project at Goa Shipyard Limited.

ENHANCEMENT OF EXPORTS BY SHIPYARDS & CHALLENGES TO BE OVERCOME

BY CDR SAURABH JAIN, IN (RETD)

ABSTRACT OF TALK

The Indian defence exports have witnessed an unprecedented growth of eight fold in the last five years to achieve 13K Crore defence exports in 2021-22. This has largely been driven by export friendly environment created through favourable policies of GoI and global outreach to potential customers. However, the contribution of defence shipbuilding has not been encouraging.

Presently, export order book is only 0.4% of the current order book position of approx 90K Crore of DPSU Shipyards. Since the design and construction of majority of the platforms is indigenous, it's the right time to unleash the export potential of Indian Shipyards and ancillary industry.

The paper analyses the global market for demand of various defence platforms and focuses on the way ahead for overcoming the challenges for export of potential platforms to friendly countries.

CAPT CHV SUDHAKAR, OFFICER-IN-CHARGE, CENTRE OF EXCELLENCE (MARINE ENGINEERING), INS SHIVAJI

SPEAKER - SESSION I

Capt CHV Sudhakar is an alumnus of National Defence Academy (101 Course), Naval College of Engineering (91 BEC), Naval War College (23 TMC) and IIT Kharagpur (MTech in Materials Science and Engineering). His afloat assignments include tenures on board IN Ships Rajput, Ranjit, Ranvijay and Delhi. His shore appointments include tenures in Naval Dockyard (Mumbai), IHQ MoD (N)/ DND (SDG) and GTTT (V). The officer is presently serving as Officer-in-Charge, Centre of Excellence (Marine Engineering) at INS Shivaji.

CHALLENGES IN INTEGRATING CAT 'C' ITEMS IN WARSHIP BUILDING by CAPT CHV SUDHAKAR

ABSTRACT OF TALK

CThe Maritime Capability Perspective Plan envisages force levels of about 200 ships by 2027. In line with the government's vision of transforming Indian Navy from 'Buyer's Navy to Builder's Navy', concurrent warship building activity is underway across multiple shipyards in the country. About 39 ships and submarines are at various stages of construction presently while orders for 33 platforms are likely to be placed in the near future. A review of the progress of new construction warships in various shipyards reveals that management of CAT 'C' items is a common bottleneck plaguing various projects and causing delays besides compromising functionality of the main equipment. This paper evaluates the issues related to the management of CAT 'C' items including quality of raw material, price rise of raw material, manufacturing processes, testing, QC checks, acceptance procedures, certification and procedural issues. Based on the aforementioned study, the paper suggests certain recommendations to address the shortcomings.

Session II

Proposed Policy Framework & Reforms
(1330-1530 Hrs)

Moderator

Dr (Mrs) Malini Shankar, VC IMU, Chennai

Speakers 1

Cmde Vineet Tiwari & Cdr Prashant Singh
DND, IHQ MoD (Navy)

Speaker 2

Cdr Jaffar Sirajuddin DME, IHQ MoD (Navy)

Speaker 3

Capt Mainak Misra DWE, IHQ MoD (Navy)

Speaker 4

Prof SC Misra

Speaker 5

Cmde Sujeet Samaddar NM, IN (Retd)

DR (MRS) MALINI SHANKAR, IAS
VICE CHANCELLOR, INDIAN MARITIME UNIVERSITY

MODERATOR - SESSION II

An IAS officer of 1984 batch, Maharashtra cadre, Malini V Shankar is currently the Vice Chancellor of the Indian Maritime University. She is an honorary member of the Board of Governors, World Maritime University (Malmo, Sweden), having been nominated by the International Maritime Organization.

Dr. Malini Shankar obtained her doctoral degree in Institutional Economics from the Indian Institute of Technology, Madras (India) and Management degree from the Asian Institute of Management, Manila, Philippines. She completed her Master's Degree (by thesis) in Chemistry from USA.

As an IAS officer, Dr. Shankar was actively involved in developmental activities in economic sectors including industries, shipping, and water resources.
She had her professional mid-career training at the IIAP (Institut Internationale d'Administration Publique), in Paris, France, from where she obtained a diplome in International Economics.

Besides being the recipient of several academic recognitions, Dr. Malini Shankar has represented India in international fora. She has been invited by the government and professional organizations to contribute to policy making.

In 2020, Dr. Shankar received the AAA Award of the Asian Institute of Management, Manila, Philippines. She was one of the 7 global recipients and the first Indian woman to receive the Award.

Dr. Shankar passionately believes in systems improvement, e-governance, policy reforms and capacity building.

COMMODORE VINEET TIWARI, PRINCIPAL DIRECTOR OF NAVAL DESIGN, IHQ MoD (NAVY)

SPEAKER - SESSION II

Commodore Vineet Tiwari is a Naval Architect serving in the Corps of Naval Construction of Indian Navy. He joined Indian Navy after completing his B.Tech (Honours) in Naval Architecture from IIT Kharagpur. He has also done his Post Graduation in Naval Construction from IIT Delhi and M.Tech in Ocean Engineering and Naval Architecture from IIT Kharagpur. At IIT he stood second in his undergrad and topped in both the Masters programme. He also has a unique distinction of being a faculty at the prestigious Naval Construction Wing of IIT(Delhi) for a tenure of three & half years.

Commodore is a thought Leader with three decades of experience of working on cutting edge technologies, with some of the best Military-Industrial Research Complexes in India and Abroad. He has led diverse teams with multilingual and multicultural backgrounds, for providing technical support to Indian and friendly Navies. Since September 2016, Commodore Vineet Tiwari is serving as Principal Director of Indian Navy's Warship Design Bureau, where he is providing senior level leadership to indigenous warship building efforts of Indian Navy. He is steering the construction of multiple ongoing indigenous warship building projects and design of various next generation of warships. He is also actively involved in policy formulation on India's Shipbuilding Vision.

Commodore Vineet Tiwari in his earlier appointments has served in Naval Dockyards on both the East & West coasts and also as Command Constructor Officer at Headquarters, Western Naval Command. In his earlier design tenures, he has served as Project Director of Shivalik class indigenous Stealth Frigate and Project Manager for Kamorta class Anti-Submarine Warship Corvette Programme.

Commodore is a technology enthusiast who has been instrumental in implementation of New Technologies and Product Lifecycle Management in new generation warships. He has played key role in implementation of the concepts of Design Thinking in ship design by establishing Virtual Reality Lab for collaborative ship design.

COMMANDER PRASHANT SINGH, DTE OF NAVAL DESIGN, IHQ MoD (NAVY)

SPEAKER - SESSION II

Commander Prashant Singh is a Naval Architect serving in the Corps of Naval Construction of Indian Navy and is presently posted at Indian Navy Design Organisation. He has completed his B Tech in Naval Architecture and Shipbuilding from Cochin University of Science and Technology. He has also done his Post Graduation in Naval Construction from IIT Delhi and M.Tech in Ocean Engineering and Naval Architecture from IIT Kharagpur. He has topped in both his undergrad and Masters programme.

Commander Prashant Singh in his earlier appointments has served in Naval Dockyards on East coast and as Hull Maintenance Officer onboard Vikramaditya. The officer has also carried out instructional duties at INS Vishwakarma. In his earlier design tenures, he has served as a member of the design team involved in the design of stealth frigate.

SUPPORTIVE POLICY FRAMEWORK – NEED OF THE HOUR TO REVIVE SHIPBUILDING IN INDIA

BY CMDE VINEET TIWARI & CDR PRASHANT SINGH

ABSTRACT OF TALK

TThe shipbuilding industry is of both economic as well as strategic significance for the nation. Great Maritime powers in history were founded on strong Naval and Merchant fleets backed up by a vibrant shipbuilding industry. The economic growth of these nations had a direct correlation with the growth in output of the shipbuilding industry.

India with a geographical dividend of a vast coastline needs to fully exploit this strategic advantage. Shipbuilding capacity and capability in the commercial and defence sectors have the potential to significantly scale up the employment prospects for the burgeoning young population along with having a massive multiplier effect on the economy.

Indian Shipbuilding industry has two contrastingly performing facets viz the defence and commercial shipbuilding. The warship-building capability in our country has grown multi-fold since independence with constant support from the Indian Navy and Coast Guard.

As far as commercial shipbuilding is concerned, few “green shoots” were seen in 2005-2010 with Indian share in a global market growing from 0.2% to 1.3%, fuelled by high global demand for merchant Marine ships, coupled with shipbuilding subsidy provided by GoI. However, this golden era did not last long due to a sharp drop in global cyclic shipbuilding demand after 2010, and the withdrawal of shipbuilding subsidies by the government.

This paper presents the case studies of various policy initiatives fuelling massive growth of the shipbuilding industry in advanced shipbuilding nations such as South Korea & China to evaluate and suggest suitable policy framework to support & revive shipbuilding in India. Based on the current shipbuilding scenario in India, requisite Short Term, Medium Term and Long Term policy measures have been recommended.

CDR AM JAFFAR SIRAJUDDIN, DTE OF MARINE ENGINEERING, IHQ MoD (NAVY)

SPEAKER - SESSION II

Cdr AM Jaffar Sirajuddin was commissioned in Indian Navy on 15 Apr 06. The officer had completed B.E., Mechanical Engineering from Anna University and MSc., in Defence and Strategic Studies from Madras University.

The officer's afloat appointments include Assistant Engineer Officer on INS Talwar and Senior Engineer Officer on INS Kochi.

His production floor experience include Joint Manager at Naval Dockyard, Mumbai and Manager (Production) at INS Eksila. During these tenures, the officer had undertaken repairs/ overhaul of Gas Turbines, Steam Auxiliaries, Pumps and Hydraulic equipment. The officer had also teneted an appointment as Trials Officer at GTTT, Mumbai.

The officer is presently posted at IHQ MoD(N)/ DME as Cdr (Marine Engineering) and is responsible for induction management of engineering equipment in the new construction vessels for Indian Navy and Electric Propulsion.

INDIGENOUS SHIPBUILDING AND VENDOR BASE FOR FUTURE TECHNOLOGIES

BY CDR AM JAFFAR SIRAJUDDIN

ABSTRACT OF TALK

The industrial capability of the nations has been linked to the shipbuilding capacity throughout history. In order to evolve as an industrial powerhouse, it is important for the nation to enhance its shipbuilding output. Whilst, only 10% of Indian flagged ships are built in our shipyards, the indigenous shipbuilding of Indian Naval ships has been in a better state since the 1960s, with the Indian Navy opting for constructing the Leander Class Frigates.

Out of 39 ships under construction for the Indian Navy, 37 are being built at Indian shipyards as on date. However, there has been a long gestation period for Indian shipbuilding and the construction of indigenous ships for the Indian Navy has been a challenge for shipyards.

In comparison with other advanced navies, Indian shipbuilding timelines need to be curtailed to efficiently maintain the desired force levels. Multiple reasons for the delays have since been identified and include a lack of in-house design capability, Propulsion System Integration and strong Ancillary Industry.

The paper aims to identify the challenges and suggest mitigating measures in the development of a vendor base for future technologies for Indigenous Shipbuilding of Indian Naval Warships. Lack of indigenous developmental capability and associated Ancillary industry in the field of Main Propulsion systems and future technologies viz. Electric Propulsion, AI-based Engine Health Monitoring, Digital Twin, Air Independent Propulsion and Active Magnetic Bearing Rotating equipment has been a sore point in the 'Move' component of the ship.

The lack of a strong Ancillary Industry can be addressed through a better understanding of the technical requirement and focussed approach to the developmental process and equipment Qualification standards.

The paper suggests induction of the future technology through various schemes promulgated in the latest Defence Acquisition Procedure 2020 and also suggests a few mitigating measures through policy changes such as standardisation of equipment, curtailing midcourse changes and vendor management.

CAPT MAINAK MISHRA, DTE OF WEAPONS EQUIPMENT IHQ MoD (NAVY)

SPEAKER - SESSION II

Capt Mainak Mishra is an alumnus of the 12th Naval Engineering Course. He completed his B.Tech in Electrical and Electronics Engineering from Naval College of Engineering, INS Shivaji, and was commissioned into the Indian Navy on 01 Jan 2000.

The officer is an alumnus of the Network Manager Course at INS Hamla, Bangladesh Navy Junior Staff Course at Bangladesh Naval Academy, Chittagong, Defence Services Staff Course at DSSC, Wellington and Naval Higher Command Course at NWC, Goa, where he was awarded FOC-in-C South Silver Medal for the best Operational Research Paper.

The officer's afloat appointments include ALO(NDC) of the first P-15 class destroyer INS Delhi, Commissioning DLO of the first Fleet Tanker procured by Indian Navy from M/s Fincantieri, Italy - INS Deepak, Electrical Officer of Aircraft Carrier INS Vikramaditya and the Fleet Electrical Officer of Indian Navy's sword-arm - Western Fleet.

He has also had the privilege of being a Directing Staff at DSSC, Wellington and an instructor at Signal School, Kochi, where he took classes on Radars and Information Technology.

The Officer's staff appointments include a tenure at Headquarters, Eastern Naval Command as Command Network Centric Operations Officer and two tenures at DWE - as Joint Director and Capt (WE).

The officer has been commended by the Chief of the Naval Staff in 2009 and by the Flag Officer Commanding-in-Chief, WNC in 2003.

Presently, he is posted at IHQ MoD(N)/ DWE as Capt(WE) and is responsible for all ongoing weapon and sensor maintenance issues, future projects and weapon indigenisation.

SUPPORTIVE POLICY FRAMEWORK – NEED OF THE HOUR TO REVIVE SHIPBUILDING IN INDIA

BY CAPT MAINAK MISHRA

ABSTRACT OF TALK

Amongst the three services, IN stands out due to its conspicuous success in platform level indigenisation. The service has progressively moved from British design Leander class Frigates to indigenously designed stealth Frigates, Destroyers, and even aircraft carrier. Platform indigenisation is undoubtedly an exemplary feat, but reliance on foreign weapon manufacturers for providing them combat capability is an issue requiring urgent attention.

There have been several attempts at weapon indigenisation and DRDO has been at the forefront of such initiatives. Despite some hits and some misses, the programme provided DRDO much-needed confidence and some valuable experience. PSUs and Defence PSUs have also provided much-needed boost to the indigenisation process, and accomplished the same through ToT or as production partners of DRDO. The recent advent of private players has also provided stimulus to the indigenisation of weapons and sensors.

The progress achieved in indigenisation of weapons and sensors is obvious today; but is it adequate? The reliance on foreign manufacturers still continues. DPSUs have tied up with foreign players but their work-share in such projects and capability to absorb technology need to be established. There are several other complexities in the weapon indigenisation process, which is probably the reason that it was not as successful as platform indigenisation.

This paper attempts to take stock of the state of weapon indigenisation, outline the challenges in the process of indigenisation of weapons and sensors, and explores way ahead to enhance the same, especially in light of the recent institutional initiatives.

PROFESSOR SC MISRA

SPEAKER - SESSION II

Professor Suresh Chandra Misra got his B.Tech(Hons.) degree in Naval Architecture from IIT Kharagpur in 1970 and earned his Ph.D. from the University of Newcastle upon Tyne in 1976. After working for a few years in Hindustan Shipyard as a design engineer, he joined as an Assistant Professor in the Department of Ocean Engineering and Naval Architecture of IIT Kharagpur in 1979. He retired from IIT Kharagpur in September 2013. He has also done two years of visiting Professorship in IIT Madras.

From February 2009 till September 2013 he was at Visakhapatnam, first as the last Director of NSDRC and later, as the first Director of the Indian Maritime University, Visakhapatnam Campus.

Apart from teaching different subjects to young students, he has many research publications to his credit and a few research scholars who have done Ph D under his guidance. His recent activities include the publication of a book entitled '*Design Principles of Ships and Offshore Structures*' in 2015 by Taylor and Francis Group.

He has also edited a recently published book 2020 '*Lockdown Effects and Future Trends in Water Body Management*' in 2020 by FROST and LAP publishers of Germany.

He has a patent to his credit '*Modularised Ship Hull Form*'awarded in 2008. He was the Chairman of Naval Research Board, DRDO from 2016 till 2021.

Professor Misra is a member of the technical committee of IRS, Mumbai, a member of Board of Governors and the Research Advisory Committee of NIOT, Chennai and also the Founder President of the Forum for River and Ocean Scientists and Technologists, FROST.

His current interests include waterbody issues and Kalinga maritime heritage.

INDIAN SHIPBUILDING - THE WAY AHEAD

BY PROFESSOR SC MISRA

ABSTRACT OF TALK

Shipping and shipbuilding flourished in Indian coastal areas since ancient times till the beginning of twentieth century. Though this was mainly wooden shipbuilding, Indian coastal areas of Bengal and Bombay took to steel shipbuilding with enthusiasm which flourished due to trade between Europe and India and requirements of second world war. Major Indian shipyards include GRSE Ltd., Mazagon Dock Ltd. And RSN Co. Ltd. Scindia shipbuilding company started in Visakhapatnam. After independence, these shipyards became public sector undertakings and RSN Co. and later, CIWTC and HDPE in Calcutta closed down. Shipbuilding flourished for some time post-independence, private shipyards such as Bharati Shipyard, Alcock Ashdown, ABG and later, Pipavav and L&T shipyards came up. But most of them slowly perished and today, very few private yards, such as Shoft shipyard, Titagarh Marine Ltd. are successful.

The central government, realising that shipbuilding is a necessary industry, has provided financial assistance to government shipyards for infrastructure build-up, subsidy for shipbuilding through SDFC initially and since 2016, a new subsidy scheme is in operation. In spite of all this, why is Indian shipbuilding not internationally competitive? It is commendable that defence shipbuilding has been largely indigenous and successful.

GRSE, MDL, CSL and HSL and other private yards have designed and built vessels to the satisfaction of owners. NSDRC has designed a number of passenger vessels which have been running successfully. One lesson that can be learnt from these and also from naval shipbuilding is that indigenous design development leads to consultation with designers at all stages leading to cost control, maintenance of build schedule and reduction of rework. But we still go for foreign design, a recent example being the recent German design of standardised shallow draught inland vessels. Needless to mention, all designs developed in the country are not necessarily good designs.

The talk discusses other issues influencing commercial shipbuilding such as marketing strategy, knowledge and skill development and utilisation, application of computer based activity and communication system. Finally, the author believes that commercial shipbuilding in India can surpass China in business and technology with sincere efforts from all stakeholders.

CMDE SUJEET SAMADDAR, IN (RETD)

SPEAKER - SESSION II

Cmde Sujeet Samaddar (Retd) is a graduate from IIT Roorkee (B.E) (1978 batch). He began his career as an Engineer Trainee with Tata Consulting Engineers, Mumbai, but then opted to join the Indian Navy as a commissioned officer in 1980. During his long and illustrious career, he commanded four warships and also held various staff appointments culminating in the highly prestigious appointment of Principal Director Naval Plans responsible for the acquisition, infrastructure and budget of the Indian Navy, .before taking early retirement in 2009.

He is an alumnus of United Nations University, Tokyo, National Institute of Defense Studies, Tokyo and the University of Madras, Chennai from where he secured first Class MSc and MPhil Degrees. He has been a Visiting Fellow at the United Services Institution, New Delhi and at the Japan Institute of International Affairs, Toky

He has the unique distinction of working in the MoD, in the Indian private sector, leading a foreign company, NITI Aayog and is the founder of a not for profit Think-Tank addressing the aero-def-mil-maritime industrial eco-system. He is well experienced in Govt decision-making, financial approval processes, procurements, technology, and supporting start ups.

He has championed the cause of the Blue Economy and was the Member Secretary of the NITI AAYOG Task Force on drafting India's first comprehensive National Maritime Policy, which is awaiting Cabinet approval. He also drafted India's first comprehensive and integrated National Material Recycling Policy presently under consideration of the GoI. His other contributions include re-engineering Defence Acquisitions, Small Arms Manufacturing Policy and drafting the CAR on RPAs with DGCA, GoI. He has also drafted India's First Automotive Recycling Policy under MoRT&H, GoI. His paper on establishing a National Development Bank for Shipping and Shipbuilding is under consideration of the Ministry of Shipping. His paper on FDI on defence was accepted by the GoI and resulted in a new FDI policy.

Cmde Samaddar has published articles and chapter in books on various subjects and has led industry discussions on circular economy, blue economy, defence acquisitions, disruptive technologies and has also delivered talks as an invited speaker in various International Conferences. He has authored and published two books namely '*Defence Development and National Security*' and '*Minerals Markets and Maritime Strategy.*' His paper '*Thinking Proliferation Theoretically*' prepared at JIIA, Tokyo, was published by the Center for Non-Proliferation Studies, Monterey, USA. His present consultancy projects include resource circularity, autonomous boats and crafts, AI applications, Digital Diplomacy, newspace technologies, autonomous/optionally manned hybrid vehicles and hi-tech recycling.

Post retirement he served as VP Operations, NOVA Integrated Systems, a TATA Enterprise and was responsible for Operations, Business Development, Projects in EW, Missiles, UAVs, Radars and Electro-Optics. Later as, Director and CEO of ShinMaywa Industries India Private Limited, a wholly owned subsidiary of ShinMaywa Industries Ltd, Japan until 2015. Subsequently, he was Senior Consultant (Industry), NITI Aayog in charge of the policy verticals of the national aero and defence industry, blue economy, circular economy, recycling, civil aircraft program, and shipbuilding until Jan 2019.

He is presently associated with various think tanks and consultancy assignments including Mentor, International Council for Circular Economy, India, Distinguished Fellow at the Centre for Air Power Studies, Member of the Governing Body of the Society for Indian Ocean Studies, Founder, Society for Aerospace Maritime and Defence Studies (SAMDeS), New Delhi, Member, Aeronautical Society of India, Member FICCI on Aerospace and Defence, Invitee ASSOCHAM Committee on Aerospace and Defence, Global VP -in-charge for Aerospace, defence and recycling and Proprietor, Samaddar Associates – boutique management consultancy firm.

ENERGISING INDIA'S SHIPBUILDING INDUSTRY IN CONSONANCE WITH MARITIME VISION 2030

BY CMDE SUJEET SAMADDAR, IN (RETD)

ABSTRACT OF TALK

Shipbuilding and shipping have a direct relationship with nation building. History informs us that every great power possessed a vibrant shipbuilding industry and operated best in class ships that helped maintain continued and unimpeded access to resources, commodities and markets which are the vital pillars of a nation's economy. 95 percent of the country's trade by volume (70 percent in terms of value amounting to about US$ 330 bn (2019)) is moved by sea. With a share of about 3.2% of global GDP and aspiration to grow to a USS 5 trillion economy, India's shipping and shipbuilding credentials do not yet make the mark. Declared as a strategic sector most investments have only been made in development of ports whilst shipyards are facing except those that are supported by orders from the Indian Navy or the Indian Coast Guard. India's shipping and shipbuilding sector has plenty of headspace for growth.

The industry is an interconnected ecosystem comprising various stakeholder predominantly the shipbuilders, ship owners, ship operators, ship repairers and ship recyclers. Apart from them there are many other direct and indirect stakeholders who in various measures contribute to this strategic sector. Hence, isolated and independent schemes to develop any one stakeholder is always, though being highly focussed, holistically less than sub optimal. Hence, an integrated, coordinated and harmonised approach to developing the sector in its entirety is necessary.

This paper proposes systemic interventions for the rapid growth of the shipbuilding industry in India.

Session III

Way Ahead to Enhance Capability, Capacity and Competitiveness of Indian Shipyards (1545-1710 Hrs)

Moderator

Shri JD Patil, L&T Defence

Speaker 1

Cdr KS Nathan (Retd), VP L&T SB

Speaker 2

Dr Harikrishnan S, CGM (Materials), CSL

Speaker 3

Shri Biju George, Dir SB, MDL

SHRI JAYANT D PATIL, WHOLE TIME DIRECTOR, DEFENCE & SMART TECHNOLOGIES & MEMBER OF L&T BOARD, L&T DEFENCE

MODERATOR - SESSION III & CONCLUDING SPEAKER

Shri J D Patil is member of the Executive Council of Management and Advisor to the CEO & MD for L&T's Defence Business & New Age Smart Technology businesses. He has served on the Board of L&T as a Whole Time Director & Senior Executive Vice President. He is member of the board of trustees of L&T Employee Trust. He is an alumnus of IIT Mumbai, having pursued M. Tech (Mechanical Engineering) in 1978.
He has a rich, more than four-decade long career in L&T, and has been instrumental in growing the nascent Technology and Product Development Group of L&T's corporate R&D with a focus on top end inter-disciplinary Product Development.

Mr. Patil spearheaded the company's foray in the Defence sector since the inception of this segment in L&T in mid-eighties; a decade and a half ahead of the opening up of Defence Production for participation by Private Companies in 2001 (licensing it in 2002). He led the development efforts for realization of weapon delivery systems for DRDO and for Indian Navy. Over the years, under his leadership, L&T built a portfolio of indigenous, in-house products, systems, technologies and platforms both on its own and by teaming up with DRDO and with the Indian Armed Forces, and is today engaged in design-to-delivery of solutions across its chosen Defence segments.

Mr. Patil grew L&T's Defence Business in focused domains of Naval Platforms (Submarines & Warships), Naval & Land Weapon Launch & Engineering Systems, Guns Systems, Missile Systems, Armoured Systems, Radar Systems, Military Communication Systems, Unmanned Systems & Avionics. He established dedicated Defence Production Centres at Talegaon (near Pune), Coimbatore, Visakhapatnam and Kattupalli, besides specific dedicated centres at L&T's Powai, and Hazira complexes as well as Technology Development Centres, Design Centres, & Prototype Development Center at Powai & at Bengaluru.

He was instrumental in positioning L&T's Space businesses as the longest and most mature industry partner of ISRO (spanning five decades) towards development of special test facilities, such as Hypersonic Wind tunnel, high-altitude shock tunnel, ultra-precision angular motion simulators, range instrumentation like Precision Instrumentation Grade Radars, Deep Space Communication facilities, etc. Under his leadership L&T contributed ISRO build strategic material independence, besides being development partner and serial production partner for main lift-off Solid Booster stage through entire range of Space Launch Vehicles including SSLV under development. The relationship with ISRO matured to include host of other hardware such as payload heat shields & Deck panels in advanced composites, solar array deployment devices, interstages, etc.

He has also oversaw the growth of Smart Cities, Safe Cities and Communication business with a focus on making our cities Smart and Safe. In this sector L&T has emerged as the largest Indian player in this sector with series of success stories such as Prayagraj Kumbh mela, Odisha costal storm warning system, and transforming 26 major cities of India into smart cities.

Mr Patil is Chairman of the Board of Directors of L&T MBDA Missile Systems Limited. He is Founder Chairperson of Indian Space Association (ISpA), a society dedicated to the cause of Space Sector. He is immediate past President of Society of Indian Defence Manufacturers – a unique society representing Indian Defence Manufacturers with focus on indigenising the Defence Sector, and was founder Vice President of SIDM, setup under the aegis of the CII. He is a member of the Board of IN-SPACe the Promoter, Regulator, Facilitator & Monitoring body for Space Sector. He is a member of CII National Committee, Chairs CII committee on Strategic Manufacturing. He also serves on the PMA – India Managing Committee and has been conferred with PMA India Honorary Fellowship in recognition of exemplary contribution made towards successful projects of National importance. Earlier he served as Member of Steering Committee, National Executive Committee and Chairman Defence & Aerospace Committee of FICCI.

He has been conferred Honorary Fellowship by Indian National Academy of Engineering (INAE) and the Project Management Associates (India) and been honoured by IIT Bombay, with the prestigious Distinguished Alumnus Award in the Diamond Jubilee Year of the Institute. He has also been conferred with Honorary Membership of Indian Institute of Metals (IIM).

CDR KS NATHAN, IN (RETD), VICE PRESIDENT L&T SB

SPEAKER - SESSION III

Commander (Retd) KS Nathan graduated from National Institute of Technology, Tiruchirapalli in 1980 with Honours in Electrical & Electronics Engineering. Later, he did his Post Graduation in Nuclear Technology from Bhabha Atomic Research Centre.
He joined the Indian Navy in 1979 and served till 2002. During his career, he held various important assignments including the Electrical Officer of Indian Naval Corvette and Frigate. He served in Submarine Design Group and Directorate of Weapon Equipment at Naval Headquarters. He also served in the Indian Naval Missile Base as the Chief Engineer and did a stint in Naval Dockyard.

He joined Larsen & Toubro Limited in 2002 and looked after the Submarine and Warship Design Centres and Defence Business Unit. He was also associated with the indigenous development of a major weapon system. He was involved in the design and operationalization of L&T's greenfield state-of-the-art shipyard at Kattupalli near Chennai.

Currently he is the Vice President, heading the Defence Shipbuilding Business Development. Undertakes business development, strategic planning, spotting opportunities, bidding, closing contracts and handling financials.

MODULAR CONSTRUCTION & DIGITAL TECHNIQUES

BY CDR KS NATHAN, IN (RETD)

ABSTRACT OF TALK

Cost-effective Shipbuilding mandates 'First Time Right' and timely deliveries. The issue is even more complex since, mostly, the shipbuilding projects are 'Made To Order', necessitating fresh design every time catering to the customer requirements without compromising on timeframe of the projects. Advancements in major equipment, weapon systems and sensors and changing maritime regulations also dictate new / revised designs of platforms.

Given this scenario, there is a need to adopt measures that can cut down cycle times of various shipbuilding activities, ensuring quality. Modular construction has been adopted by many countries wherein, right from design stage onwards, it is planned to construct the ship in modules and then join them together to form the whole ship. At the module stage itself, a very high level of outfitting is carried out so as to minimize the outfitting activities after integration of modules forming the whole ship. Ease of outfitting at modules level reduces the cycle time while enhancing quality.

Developments in the fields of Cloud Computing, Big Data & Analytics, Internet of Things, Cyber Security, Simulations, Virtual Reality etc., have enabled implementation of Industry 4.0 practices across the various engineering and manufacturing industries to reduce the cycle time and enhance quality of production. Shipbuilding has also embraced these techniques, popularly called 'Shipbuilding 4.0'.

The main theme of Shipbuilding 4.0 is the implementation of a digital core that integrates data with all facets of ship construction i.e., Design, Planning, Production, Quality Assurance, Procurement, Warehousing, Inventory Management Project Management, Safety, etc. Eliminating data silos, the digital core paves way to deploy a number of digital techniques that can ensure timely construction of ships within budget and meeting quality standards.

The presentation on 'Indigenous Warship Building – Modular Construction and Digital Techniques' brings out the advantages in deployment of modular construction and digital techniques towards close monitoring of the projects and implementation of measures to achieve assured deliveries within cost.

SHRI JATHESH CHANDRA
DGM & HEAD BASIC DESIGN DIVISION, CSL

SPEAKER - SESSION III

Shri Jathesh Chandra has more than 27 years of experience as a professional Naval Architect in the marine & offshore industry. He has worked for several major companies in design and construction including National Ship Design and Research Centre, Marine Structure Consultants (MSC. Bv), Netherlands, Hyundai Heavy Industries, Samsung Heavy Industries; M3NERGY FPSO Sdn Bhd, MISC Sdn Bhd, TH Heavy Engineering/GMOS (all three in Malaysia) and Cochin Shipyard Ltd.

He is presently leading a team of Naval Architects and Design Engineers as DGM and Head of Basic Design which undertakes the design and Naval Architecture calculations of ships and offshore structures built by CSL. He is an expert on various rules and regulations such as SOLAS, MARPOL, crew accommodation requirements, classification rules, Merchant Shipping Act, Inland Vessel Rules etc. He is also knowledgeable on various ship design and offshore design software; project management for offshore projects & merchant ships; procurement of ships equipment packages such as winches, chains, anchors, piles, turrets, fairleads; preparation of initial proposals, cost estimates, layouts, and feed verification for ships & offshore structures; conducting Inclining experiments and preparation of stability booklet, load line plans & computations; tonnage computations and Center of Gravity calculations; powering calculations, load outs, float-off calculations, operational manual, towing manual, Emergency Response plan, preparation of tender design, technical specification and documents for various types of vessels, accommodation and outfitting of ships and preparation of structural drawings.

The major projects that he has been involved with include Kochi Water Metro Boats 100 Pax Catamaran, ASKO Autonomous vessel, Gumusut Kakap Semi-submersible for Shell, Cendor FPSO Petrofac, load out of AMENANAM FSO Total, A&N 500 & 1200 Passenger vessels, revamping of 400 passenger vessel for A&N, Ro-Ro vessels for IWAI, basic design to delivery of marine ambulance boats; and concepts designs of inland bulk carriers, LPG carriers, barges, etc

INDIA AS A HUB FOR NICHE COMMERCIAL SHIP BUILDING

BY DR HARIKRISHNAN S

ABSTRACT OF TALK

On the global ship-building stage, China and South Korea continue to retain the top two positions in terms of the global ship-building market share, with Japan in a close third position. India's share of the global shipbuilding market, however, remains dismal at less than 1%.

The track record indicates that Indian shipyards thrived on export orders in the early 2000's, especially in the offshore vessel segment. The global downturn forced many Indian yards out of business, with almost 40% of the yards shutting down. From around 35+ performing shipyards in the early 2000s, India today has only 20+ functional shipyards. A quick analysis of the current Indian scenario would reveal that the key challenges faced by the Indian industry are higher input material costs, limited automation in production and higher financing costs.

It is therefore evident that conventional, steel heavy vessels such as tankers, bulk carriers etc. may not be suitable for us strategically. On the contrary, Indian yards would do well to focus on for mid-size, engineering heavy, technologically intense and complex vessels and carve a niche for themselves in this arena. New generation green shipping and sustainable solutions are another area where India can aim to be. If addressed well, India can become the global hub for such niche shipbuilding. One of the primary issues in Indian shipbuilding currently is high-cost disadvantage as compared globally. It is critical for India to gain around 25 to 30% cost competitiveness to win back tonnage by increasing automation levels and reducing material costs & financing costs. Future of ship building is expected to be driven by green technology, autonomous vessels, and cost-efficient technologies.

However, India possesses all the right ingredients to become the global Ship Repair hub. In order to do so, it is important to understand the demography, market analysis, business models followed by successful countries, dove tail the market potential with infrastructure built up and policy interventions. The presentation discusses the various aspects to be addressed for the purpose.

MR BIJU GEORGE, DIRECTOR, SHIPBUILDING, MDL

SPEAKER - SESSION III

Mr. Biju George is the Director of the Shipbuilding Division of Mazagon Dock Shipbuilders Ltd. - India's premier Warship and Submarine building yard. An alumnus of the Indian Institute of Technology, Kharagpur, he earned his post graduate degree in Ocean Engineering and Naval Architecture and has more than three decades of experience in Design and Construction of frontline warships viz. Missile Destroyers and Frigates.

He has put in over three decades of service with MDL. Having headed the Shipbuilding Design Department to Superintending the prestigious Advanced Stealth Frigates Program P17A and now as the Director (Shipbuilding) MDL, he knows the pulse and the DNA of warship-building.

TECHNOLOGY UPGRADATION AND CAPABILITY ENHANCEMENT IN WARSHIP BUILDING MDL EXPERIENCE IN INTEGRATED CONSTRUCTION IN ASSOCIATION WITH M/S FINCANTIERI, ITALY

BY SHRI BIJU GEORGE

ABSTRACT OF TALK

MDL as a premier warship building yard in the country has played a pivotal role in transforming the Indian Navy from a Buyers' Navy to a Makers' Navy since the launch of the first warship namely INS Nilgiri in the year 1972. Since then, MDL have been striving for supplying for capital warships the country's maritime defence within price lines and timelines that are globally competitive along with a robust assurance of quality at par with international standards.

While MDL has been meeting the quality and price lines of the projects, meeting the timelines of design and construction continued to be a challenge. When Project 17A the follow-on of the highly acclaimed Shivalik Class Stealth Frigate was conceived, MDL embarked on implementing the Integrated Construction (IC) methodology for meeting the timelines of the project and accordingly, committed a timeline of 66 months for the First-of-Class in P17A programme. M/s. Fincantieri, Italy was chosen as the know-how partner, who could hand hold MDL for detailed design and construction while resorting to Integrated Construction (IC). Since MDL took up the IC implementation on a live projects where vessels were to be constructed with an inter-ship gap of one year, full blown IC by imbibing the nuances of IC could be implemented on the 4th ship of P17A MDL. The shipyard is in the cusp of learning for executing further capital warship program for resorting to IC methodology which will pay way for early deliveries of naval orbats for the Maritime Defence of our nation.

The paper is an attempt to showcase the key learnings that the yard has derived and the capabilities that is being imbibed through the said exposure and how the IC was implanted on ground. The paper captures in broad scope, MDLs experience in progressing with functional and detailed design for adoption of IC methodology, Implementation of Product Life Cycle Management (PLM), stealth management, the distinct advantages of IC, benefits accrued and the key takeaways.

Organising Committee

Vice Admiral AV Subhedar
PVSM AVSM VSM, IN (Retd)
Chief Coordinator

Rear Admiral RJ Nadkarni
AVSM VSM, IN (Retd)
Seminar Convener

Cmde Ajay Chitnis
SC, NM, IN (retd), VP IMF
Vice President, IMF

Our grateful thanks also to:-
Cmde Rajan Vir, IN (Retd) &
President Emeritus IMF
Vice Admiral DSP Verma, IN (Retd)
Cmde AJ Singh, IN (Retd)
Cmde Sanjeev Nayyar, IN (Retd)
Capt Dinesh Singh, IN (Retd)
IMF Council Members

VADM AV SUBHEDAR PVSM AVSM VSM, IN (RETD)

CHIEF COORDINATOR

Vice Admiral AV Subhedar PVSM AVSM VSM (retd) was commissioned in the Indian Navy in August 1977 in the Engineering branch and is a post graduate in Marine Engineering from Pune University. During his career, spanning almost four decades, the Admiral has held several important assignments, both Afloat and Ashore. He has served on five frontline warships and was also the Fleet Engineer Officer, Western Fleet in 1998.

His important shore appointments include Director Naval Training and Director Ship Production at Naval Headquarters, Director Machinery Trials and Acceptance Authority (Mumbai), Warship Production Superintendent (Mumbai), General Manager (Refit), Naval Dockyard Visakhapatnam. After attaining Flag rank in 2008, he served as Chief Staff Officer(Technical), Eastern Naval Command, Visakhapatnam and Admiral Superintendent, Naval Dockyard, Mumbai. On promotion to Vice Admiral, he took over Director General Naval Projects, Mumbai, where he was responsible for planning and execution of major technical and marine infrastructure for the Navy on West Coast...

..Subsequently, he served as Controller of Warship Production & Acquisition at Naval Headquarters New Delhi and oversaw the commissioning of three indigenously built Indian Warships viz. INS Kolkata, a destroyer; INS Kamorta, a Corvette and INS Sumitra, a Naval Offshore Patrol Vessel during his tenure. He took over as the Chief of Materiel at Naval Headquarters, the highest post any technical naval officer can aspire for on 31 May 2015. The Admiral retired on 31 Oct 16 after more than 39 years of illustrious service.

He has served as the Board member of M/s Mazagaon Dockyard Limited, M/s Garden Reach Ship Builders and Engineers, M/s Goa Shipyard Limited, M/s Hindustan Shipyard Limited as well as M/s Bharat Electronics Ltd.

For his distinguished service of exceptionally high order, he was awarded as Vishisht Seva Medal in 2009, Ati Vishisht Seva Medal in 2011 and Param Vishist Seva Medal in 2016 by the President of India.

RADM RJ NADKARNI AVSM VSM, IN (RETD)

SEMINAR CONVENER

Rear Admiral Ravindra Jayant Nadkarni was commissioned in the Indian Navy on 01 Jul 1983 and is a graduate of the National Defence Academy, the Defence Services Staff College, the College of Naval Warfare and the National Defence College, New Delhi.

He is a Navigation and Direction specialist who has served as Navigating Officer of IN Ships Kuthar and Rana. He has the distinction of commanding one ship in each rank from Lieutenant to Captain: CGS C-05 as Lieutenant, INS Cuddalore as Lieutenant Commander, INS Himgiri as Commander and INS Betwa as Captain.

His important staff appointments include Command Plans Officer, Western Naval Command and Director of Naval Intelligence (Operations) at Naval Headquarters. He has carried out instructional appointments at the Navigation & Direction School and Centre for Leadership and Behavioural Studies and also served as Directing Staff at DSSC, Wellington.

As a Flag Officer, he has held the appointments of Chief Staff Officer (Operations), WNC, Flag Officer Doctrines and Concepts, Flag Officer Commanding Karnataka Naval Area, Chief of Staff, Southern Naval Command, and was the Flag Officer Offshore Defence Advisory Group prior to his retirement from service on superannuation on 30 Nov 2020.

He is a recipient of the Vishisht Seva Medal in 2014 and Ati Vishisht Seva Medal in 2019.

Post-retirement, he has settled down in Pune where he is a member of the Indian Maritime Foundation and the Centre for Advanced Strategic Studies.

CMDE AJAY CHITNIS, SC, NM, IN (RETD)

VICE PRESIDENT, IMF

Cmde Ajay Chitnis, after his initial schooling, joined IIT Bombay in 1966 and was pursuing a course in Electrical Engineering, but after three years decided that this was not his calling and joined the Indian Navy as an Aviation Cadet. Two years later in June 1971, he qualified as a Fighter Pilot and was commissioned in the Indian Navy. He converted to helicopters and specialized on ASW helicopters, clocking over 3000 hours of operational flying by day and night, with over 700 deck landings on frigates and destroyers to his credit.

He was the youngest officer to be appointed as Flight Commander on INS Nilgiri, at the age of 25. He was deputed to Russia for training on the Kamov 25 anti-submarine helicopters and formed the commissioning crew of the destroyer INS Rajput. He also commanded three frontline warships and an operational air station, besides being the Naval Area Commander of Gujarat during the 1999 Kargil conflict. His other important assignments were Chief Staff Officer (Operations) at HQ Southern Naval Command, Directing Staff at DSSC and Deputy Director Naval Air Staff (Ops and Flight Safety) at NHQ. He is the recipient of two gallantry awards – Shaurya Chakra (SC) and Nao Sena Medal (NM) from the President of India...Cmde Chitnis retired from the Indian Navy in 2001 after completing 30 years of distinguished service.

Post-retirement, he specialized in marine operations in the oilfields off the West and East Coasts of India. After 5 years at sea, he took up a shore job as Head of Training and set up a training center for offshore operations, where he was instrumental in setting up a state-of-the-art OSV simulator. He then headed the HR and Admin functions in addition to Training, till end January 2016. He is a visiting faculty at the Savitribai Phule Pune University, for the Maritime Security Course and also conducts the Offshore Installation Manager Course at Gulf Coast Training Centre.
As the Vice President of the Indian Maritime Foundation, Cmde Chitnis has organized IMF Seminars on 'International Jointmanship in the Constabulary Role', 'Indian Maritime Paradigm, the Past, Present and Future' and 'Role of Disruptive Technologies in the Maritime Domain' at Pune.

He is also an active Rotarian and was the Vice President of the Rotary Club of Pune Central (RID 3131) in 2019-20.

IMF SEMINAR 2022

The Sea our Strength

Participation

The IMF is delighted to be conducting an in-person seminar after three years. Attendance at the seminar would be on the basis of registration, for which a nominal fee will be charged. However, due to limitations of space within the hall to about 90 people, we will also be livestreaming the seminar on YouTube to reach out to a larger online audience, who may not be able to attend in person due to constraints of space. The YouTube Livestream Link will be shared on our website and Facebook page.

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