

NAVY NEWS

ABC Certified

Jul-Aug 2023



Launching of
MILGEM Class
Ship

PNS TARIQ

A NEW WAR-FIGHTING PROWESS

NAVY THROUGH HISTORY

REMEMBERING THE INDUCTION OF THE FIRST TYPE 21 (PNS TARIQ)

By Commander later Vice Admiral (Retd) Khalid Amin HI (M), Commissioning MEO PNS TARIQ

The return of Brooke / Garcia (B/G) ships as a result of US sanctions on Pakistan in 1993/94, proved a blessing in disguise as Pakistan Navy promptly struck a deal with MOD (N) UK, which proved to be the best in PN's short history. The deal comprised the acquisition of Six Type 21 ships at an almost throw-away price, training of PN crews, dockyard workforce, FMG, and FOST staff. Each ship was stocked with 94% onboard spares including some UXE & R by R items. Each ship was given an extensive essential repair package at DML, during which all OPDEFs were addressed. Each ship carried out complete basic & full power trials before sailing for Pakistan. Hence ships sailed for Pakistan with almost zero defects. Being part of the first acquisition crew we had a big challenge of not only taking over the first ship PNS TARIQ (ex – HMS Ambuscade) but also acting as PN Mission which arrived quite late, almost at the time of commissioning of the first ship.

The single most significant aspect of the acquisition was a decision taken by NHQ; that the ships were to be operated as per RN practices. This very decision had a major impact on the ship as a whole and the Marine Engineering Dep't in particular. In that:

a. Engineering and Electrical (Power Generation & Distribution) and Hull Engineering (ex – shipwright) were merged as

Marine Engineering under a department headed by Marine Engineering Officer MEO.

b. The entire ship company was to be deployed in four watches in peacetime and 2 watches during the action.

c. Gas turbines and CPP brought in stringent fuel and hydraulic oil hygiene regimes.

d. Planned Maintenance System was to be fully implemented.

e. Perhaps the biggest change that affected the whole ship was the DC & FF organization, a training scheme that progressively



trained the entire Ship's Company from peacetime to wartime operational scenarios. Typically superficial Daily Fire Exercises were replaced with HOD-monitored Weekly Fire Exercises which would last for at least a couple of hours.

From my memory lane, I would recall two episodes; one when we had been through the FOST the RN handing over MEO came to me and complimented me, "Sir, having worked with your people for the past few months, I must acknowledge the hard work and dedication exhibited by them, particularly the junior rates. I would be fortunate to have your junior rates and RN's senior rates in my Marine Engineering Department."

The other is the optimization & full power trial of the engines. Traditionally PN ships rarely conducted authorized full-power trials, for various reasons. Some B/G ships did these trials under crew at the time of the ships' takeover, but none did a prolonged full astern trial. PNS TARIQ performed these in Pakistan waters during night hours with both Olympus running and PPCL set at astern. For over 30 minutes the ship went full astern, the entire Ship's Company was on upper decks watching with excitement while those on the bridge were scared as they watched over the funnel.

To conclude, Type 21's brought an unprecedented change in PN Ship's Operational Doctrine. The experience gained in 30 years through these ships was translated into F-22 P and the ones that followed later!

CONTENT

Jul-Aug 2023 Vol. 36 Issue 04

ABC Certified - Reg # 16(1381) /15-ABC



02

Launching of PNS TARIQ



06

Farewell to last Type-21 Ship, PNS TARIQ



08

Induction of PN Ships SHAHJAHAN & TIPPU SULTAN



12

CNS visit to Malaysia



13

PNS SAIF visits Dubai UAE



14

2nd CNS All Pakistan Squash Championship 2023



20

PN Operational Commands Seminar



24

Breaking the mold: Rethinking Plastic Recycling



26

Hepatitis



28

Whither Rainbow of Revolutions?



30

On Matters Maritime and SIFC



36

Seabed Warfare

Patron-in-Chief:

Commodore Syed Rizwan Khalid SI(M), T Bt

Chief Editor:

Cdr Zakir Hussain Khan TI(M) PN

Editors:

Lt Cdr Saba Riasat PN

Lt Cdr Omyer Sultan PN

Contributions by:

Capt Rashid Nazir Choudhary PN

Cdr Mirza Arsalan Baig PN

Managing Editor:

Fayyaz Abbasi

Creative & Designs:

Syed Razzaq Hamdani, Majid Nawaz

Photographers:

Tanveer Ahmed, Babar Shahzad, Syed Waqas Raza, Adil, Zohaib

Directorate General Public Relations (Navy), NHQ Islamabad

Tel 051-20062799

Fax 051-20062364

Email Send Contributions at: magazinenavynews@gmail.com

Save Rs.1680

ON ANNUAL SUBSCRIPTION

Annual Rs. 1800
Monthly Rs. 290

50% OFF

(Through Bank Drafts/Money Orders/ Online Transfer/ Crossed Cheque*)

Drawn in favour of "Navy News Fund" A/C No. 3057753722, NBP, Naval Complex Br, Ibd.

*Add Rs. 70/- in case of Crossed Cheque

Note:

The views and opinions expressed herein and references if any, are those of the writers and contributors and do not necessarily reflect the policy outlook of Pakistan Navy or Editorial board of Navy News. Navy News does not claim responsibility for correctness of the advertisements published here.

CONTACT FOR ADVERTISEMENT/MARKETING

051-20062799

magazinenavynews@gmail.com

LAUNCHING OF PNS TARIQ

at Karachi Shipyard & Engineering Works (KS&EW)

Launching ceremony of PN MILGEM Class Ship PNS TARIQ (Desig) was held at Karachi Shipyard & Engineering Works (KS&EW). The than Honourable Prime Minister of Islamic Republic of Pakistan Mian Muhammad

Shehbaz Sharif graced the occasion as Chief Guest. Vice President of Republic of Turkiye H.E Mr. Cevdet Yilmaz also attended the ceremony as Guest of Honour. PN MILGEM Class ships are the most technologically advanced

surface platforms being constructed for Pakistan Navy. The ships will be fitted with latest Command & Control Systems including modern weapons and sensors.



“ PAKISTAN AND TURKIYE RELATIONSHIP IS UNIQUE BECAUSE OF DEEP ROOTED HISTORICAL TIES BETWEEN THE TWO BROTHERLY COUNTRIES AND SUCH DEFENCE COOPERATION SHALL CONTINUE IN FUTURE AS WELL ”



TURKISH VICE PRESIDENT CEVDET YILMAZ, TERMED PAKISTAN-TURKIYE RELATIONS AS EXEMPLARY AND ACKNOWLEDGED THE POTENTIAL IN THE FIELD OF DEFENCE PRODUCTION





The contract for construction of 04 MILGEM class ships for Pakistan was signed between Ministry of Defence Production, Pakistan and M/s ASFAT (Turkish Firm) in 2018. Under the project, two ships are to be constructed at Istanbul Naval Shipyard, while the other two at KS&EW, Karachi.

While addressing on the occasion, the Chief Guest admired the collaboration of Ministry of Defence Production, Ministry of National Defence of Turkiye, M/s ASFAT, KS&EW and Pakistan Navy for synergized efforts to make the project a success and congratulated them on successful launch of the

ship. He added that relationship between Pakistan and Turkiye is unique because of deep rooted historical ties between the two brotherly countries and such defence cooperation shall continue in future as well.

Turkish Vice President Cevdet Yilmaz while addressing the

ceremony termed the Pakistan-Turkiye relations as exemplary and acknowledged the potential for more collaboration in the field of Defence Production. He lauded the efforts and remarkable work done by KS&EW and M/s ASFAT and emphasized for adopting proactive approach for timely completion of undergoing projects. He strongly condemned the recent incidents of terrorism in Pakistan and appreciated the people of Pakistan for their all out support during the earthquake in Turkiye.



Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi during his speech highlighted that these ships will significantly enhance Pakistan Navy's combat potential and will augment peace and security in the region. The Admiral emphasized that PN has kept the policy of indigenization at the forefront and hence it is very satisfying to see the state of the art warship being built in the country.



Earlier, MD KS&EW Rear Admiral Salman Ilyas in his welcome address highlighted that Karachi Shipyard is fully cognizant and completely aligned with the goals set forth by the Government of Pakistan for self-reliance in defence shipbuilding industry.

The ceremony was attended by senior government officials from Pakistan and Turkiye including officers and key representatives of Pakistan Navy, M/s ASFAT and KS&EW. ❖❖



PN BIDS FAREWELL TO LAST TYPE-21 SHIP, PNS TARIQ



In a simple yet impressive ceremony held at PN Dockyard Karachi, Pakistan Navy decommissioned the last Type-21 Class Ship PNS TARIQ that remained in active service of Pakistan Navy for 30 years. The then Federal Minister for Foreign Affairs H.E Bilawal Bhutto Zardari was the Chief Guest at the ceremony. Upon arrival onboard PNS TARIQ, the Chief Guest was received by Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi.

While addressing at the decommissioning ceremony, the Chief Guest acknowledged the meritorious Service of ship towards the defence of motherland over the last three decades. He admired the daring Search & Rescue Mission undertaken by PNS TARIQ in

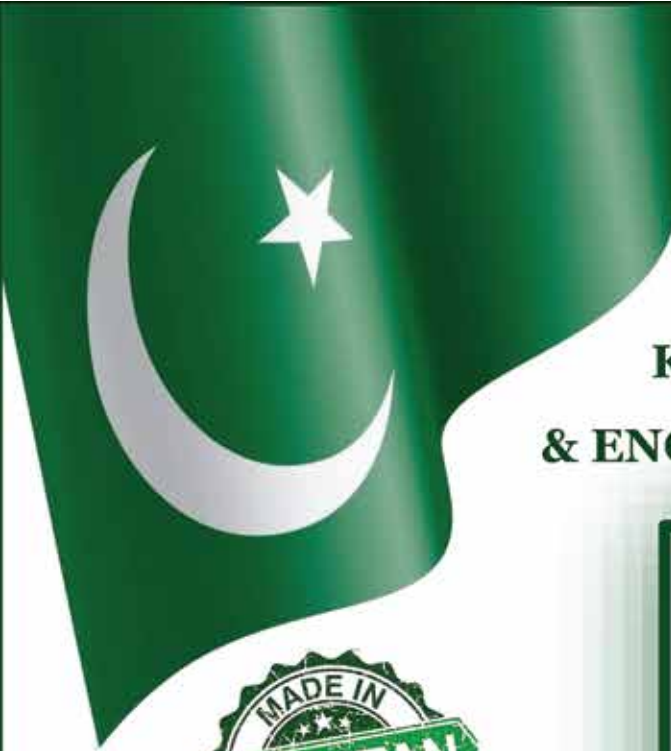
Maldives during the Indian Ocean Tsunami of 2005 rescuing precious lives of 377 tourists of various nationalities, a feat acknowledged at the international level. The Chief Guest paid rich tribute to ship's crew for maintaining the ship in optimum operational state till the very end. He appreciated the planned disposal of the ship as static museum exhibit at UK, showcasing maritime heritage of Royal Navy as well as Pakistan Navy.

PNS TARIQ was inducted in Pakistan Navy in 1993 in a

ceremony graced by the then Prime Minister, Shaheed Mohtarma Benazir Bhutto as Chief Guest and was finally decommissioned by her son after 30 years of service. During almost three decades of illustrious service in Pakistan Navy, the ship logged about twenty thousand hours at sea and travelled more than One Million nautical miles distance. Before the formal phasing out of the iconic ship, Pakistan Navy on 2 August launched the indigenously built MILGEM Class ship, bearing the same name 'TARIQ, as a milestone achievement to carry-on the legacy of the valiant ship.

The ceremony was attended by civil and military dignitaries including Ex-commanding officers and commissioning crew of PNS TARIQ. ❖❖





Serving the Nation Since 1956



Ministry of Defence Production

KARACHI SHIPYARD & ENGINEERING WORKS LTD



A Symbol of Excellence in Shipbuilding!



SHIP BUILDING



SHIP REPAIR



GENERAL ENGINEERING



SUBMARINE CONSTRUCTION



LABORATORY



SHIPYARD TRAINING SCHOOL

KARACHI SHIPYARD & ENGINEERING WORKS LIMITED

West Wharf, PN Dockyard Road, Karachi 74000

Tel: +92- 21-9921 4045-64 (20 Lines)

Fax: +92-21- 9921 4020, 99214030

✉ @Shipyardskarachi

📺 Karachi Shipyards Official

ISO 9001 : 2015



ISO 9001
2015

ISO 14001 : 2015



ISO 14001
2015

ISO 45001 : 2018

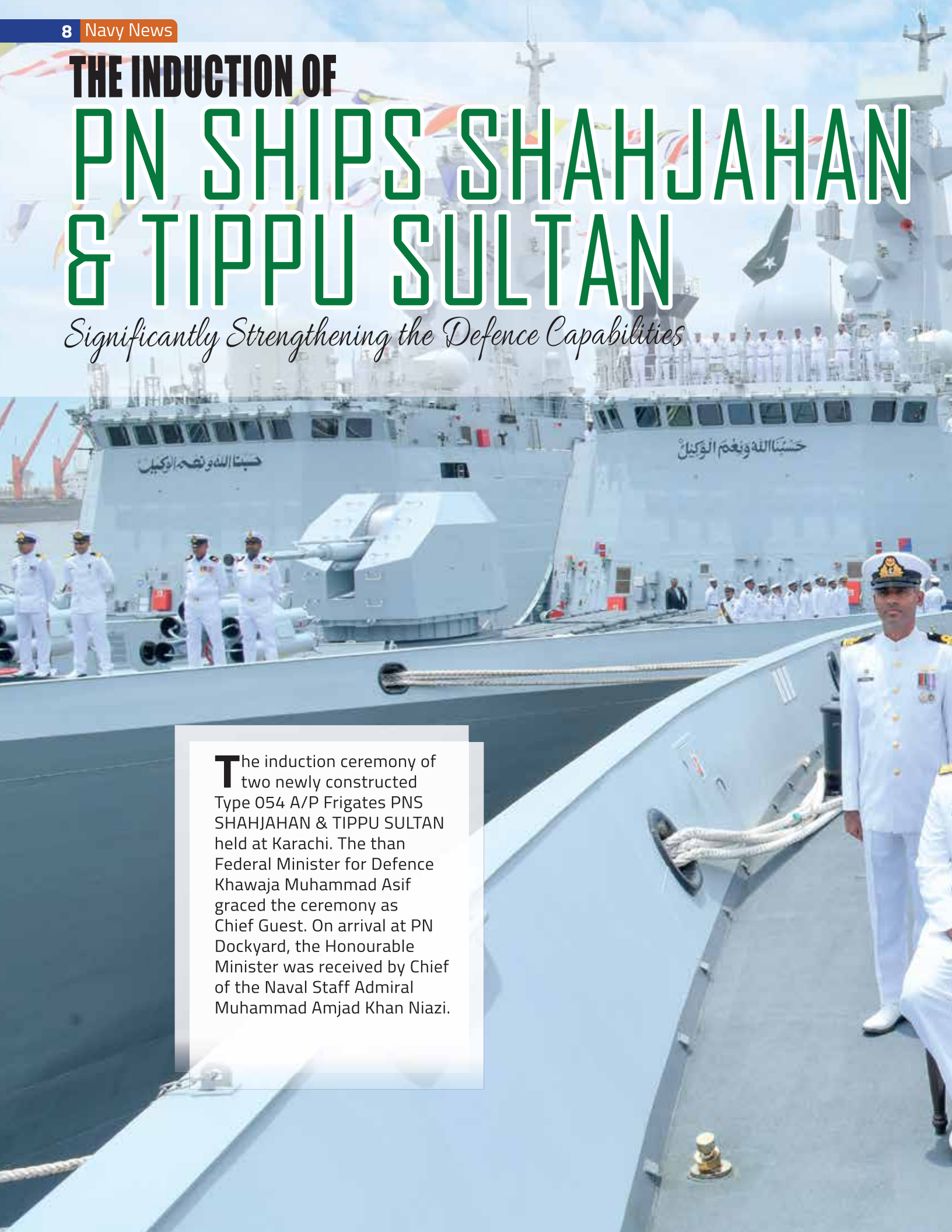


ISO 45001
2018

THE INDUCTION OF PN SHIPS SHAHJAHAN & TIPPU SULTAN

Significantly Strengthening the Defence Capabilities

The induction ceremony of two newly constructed Type 054 A/P Frigates PNS SHAHJAHAN & TIPPU SULTAN held at Karachi. The then Federal Minister for Defence Khawaja Muhammad Asif graced the ceremony as Chief Guest. On arrival at PN Dockyard, the Honourable Minister was received by Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi.



**CHIEF GUEST
ACKNOWLEDGED PN
EFFORTS IN ENSURING
SEAWARD DEFENCE
OF PAKISTAN AND
CONTRIBUTION
TOWARDS
PROMOTING PEACE
AND STABILITY IN THE
REGION**



The ships are fitted with state-of-the-art weapons and sensors having capability to undertake naval operation under multi threat environment. The induction of ships in PN Fleet will significantly enhance the Combat Readiness of Pakistan Navy.

Speaking on the occasion, the Chief Guest acknowledged PN efforts in ensuring seaward defence of Pakistan and contribution towards promoting peace and stability in the region. The Federal Minister emphasized on geo-strategic

and geo-economic significance that necessitate a potent Naval Force to safeguard maritime frontiers of country and induction of these modern naval ships will significantly strengthen the defence capabilities of Pakistan. He also thanked and appreciated



the efforts of Hudong Zhonghua Shipyard, China for timely construction and delivery of the ships to Pakistan.

Earlier during the welcome address, Chief of the Naval Staff

termed the induction of modern ships whereby achieving a major milestone in modernizing PN Fleet. He acknowledged the support of Government of Pakistan for various PN modernization projects.

The ceremony was attended by civil, military and government representatives of Pakistan including officials of Hudong Zhonghua Shipyard, China. ❖❖





Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi called-on naval leadership of Royal Malaysian Navy during an official visit to Malaysia. Upon arrival at Ministry of Defence, Chief of the Naval Staff was received by Chief of Royal Malaysian Navy Admiral Tan Sri Abdul Rahman bin Ayob and was presented Guard of Honour.

During meeting with Chief of Royal Malaysian Navy, matters of bilateral naval collaboration and regional maritime security were discussed. The Naval Chief underscored the contribution of Pakistan Navy towards regional maritime peace and stability through its initiative of Regional Maritime Security Patrols (RMSP) and participation in Combined Maritime Force. The Chief of Royal Malaysian Navy appreciated Pakistan Navy role in support of



CHIEF OF THE NAVAL STAFF VISIT TO MALAYSIA



collaborative maritime security in the region and acknowledged significance of strong bilateral defence collaboration.

Later, the Naval Chief Admiral Muhammad Amjad Khan Niazi visited Malaysian National Defence College PUSPAHANAS and was received by President of PUSPAHANAS and also presented Guard of Honour. Thereafter a detailed briefing was given to the Naval Chief on the training being imparted at the college. Chief of the Naval Staff also called-on DG National Hydrographic Center

(NHC) and was briefed on the roles and capabilities of National Hydrographic Center. He emphasized to enhance collaboration between Malaysian National Hydrographic and Hydrographic Services of Pakistan to learn from each other's experience.

Pakistan and Malaysia enjoy brotherly relations and the visit of Naval Chief will further augment and expand defence ties between the two countries in general and navies in particular. ⊗ ⊗

PNS SAIF VISITS DUBAI UAE

Pakistan Navy Ship SAIF visited Dubai, UAE during deployment on Regional Maritime Security Patrol. Upon arrival, Pakistan Navy Ship was received by Defence Attaché of Pakistan at Abu Dhabi and Senior Officials of UAE Navy.

During the port visit, Commanding Officer of PNS SAIF called-on Deputy Commander UAE Naval Forces and other senior Officials of UAE Navy. During the interactions, matters of mutual interests were discussed and enhancement of bilateral ties in all spheres was re-affirmed. The Commanding Officer of PN ship conveyed well wishes from Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi for the people of UAE in general and UAE Navy in particular. PNS SAIF celebrated Independence



Day of Pakistan at UAE. In this connection, a flag hoisting ceremony was held onboard the ship which was attended by DA (P) and children of Pakistani School at UAE.

During the port stay, various bilateral activities including exchange visits onboard UAE Naval

units, orientation visits of military installations and coordination meetings were undertaken. Upon culmination of port visit, PNS SAIF conducted bilateral naval exercise with UAE Navy Ship SALAHA to enhance interoperability between the two navies.

Visit of PNS SAIF to UAE provided



an opportunity for both brotherly countries to further enhance the existing close diplomatic ties and cordial relations. ❖❖



2ND CNS ALL PAKISTAN SQUASH CHAMPIONSHIP 2023

The final match and prize distribution ceremony of 2nd Chief of the Naval Staff Squash Championship 2023 was held at Pakistan Navy Roshan Khan Jahangir Khan Squash Complex, Karachi. The final match of Men Category of the tournament was played between Nasir Iqbal of WAPDA and Israr Ahmed of SNGPL and in women category between Noor -ul-ain of WAPDA and Zainab of Pakistan Army. After a tough and thrilling competition Nasir Iqbal of WAPDA and Zainab of Pakistan Army won the titles.

Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi graced the occasion as Chief Guest.

While addressing the ceremony, the Naval Chief highlighted Pakistan Navy's long association with the game of squash. He underlined that holding of CNS Open Squash Championship since two decades on regular basis is indicative of PN commitment to promote the game of squash in the country. The Naval Chief added that Pakistan Navy will continue to organize national and international level squash championships every alternate year with an aim to promote squash and provide a platform for talented national





players who have the ability to reach grandeur of excellence. The Chief Guest expressed his gratitude to Pakistan Squash Federation (PSF), players, sponsors and the tournament organizers for impeccable conduct of the event.

Later, Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi gave away prizes to winners and runners up of the championship and congratulated them for their hard work and valued achievements.

The ceremony was attended by civil and military dignitaries, sponsors, national sports personalities and senior players of squash and sports community. ❖❖





SALAR
≡ WHOLEN ≡
BY GHAZI SPORTS

CAMOUFLAGE TACTICAL

Keep Your Winter Warm & Comfortable



ہمارے ہاں تمام فورسز کی آفشل جرسی، سویٹر، مفلر، جرابیں،
گرم ٹوپیاں، دستانے آرڈر پر تیار کئے جاتے ہیں۔



بڑھانی ہے اپنی شان
تو پہن لے غازی برانڈز



+92 41 8404500 +92 345 076 30 09 0304-111 76 67

www.ghazisports.pk



Download Ghazi Sports
App Store Google Play



COMMAND & STAFF CONFERENCE

Command & Staff Conference of Pakistan Navy concluded at Naval Headquarters, Islamabad. The Conference was chaired by Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi.

During the conference, participants assessed evolving maritime situation in the region and discussed a range of topics related to national security, geostrategic affairs, combat readiness and discussed various service polices. Readiness for disaster relief operations amid potential flood alerts during ongoing monsoon season in the country was also reviewed.

The Naval Chief emphasized on maintaining perpetual combat readiness to effectively thwart any aggression against Pakistan. He also directed all naval

commands to be fully ready for humanitarian assistance during the ongoing monsoon season. The Naval Chief lauded the initiatives undertaken towards capability development through acquisition of emerging technologies. The Admiral expressed full confidence over high state of operational preparedness of Pakistan Navy to meet challenges while safeguarding the maritime frontiers of Pakistan.

The Command & Staff Conference serves as an apex decision-making body of Pakistan Navy wherein; Chief of the Naval Staff, Principal Staff Officers and Field Commanders review Pakistan Navy policies and plans. ❖❖

THE NAVAL CHIEF EXPRESSED FULL CONFIDENCE OVER HIGH STATE OF OPERATIONAL PREPAREDNESS OF PAKISTAN NAVY TO MEET THE EMERGING CHALLENGES

DIGNITARIES VISIT NHQ

The visiting dignitaries appreciated Pakistan Navy's efforts and initiatives in support of collaborative maritime security and stability in the region. Matters of bilateral collaborations and regional security milieu were discussed.



Chief of Staff Sultan's Armed Forces Oman, Vice Admiral Abdullah Bin Khamis Al Raisi



Commander of the Islamic Republic of Iran Navy Rear Admiral Shahram Irani



Minister for Defence & Defence Production Lt Gen (Retired) Anwar Ali Hyder



Governor of Sindh Muhammad Kamran Khan Tessori



PAKISTAN NAVY OPERATIONAL COMMANDS SEMINAR

Pakistan Navy Operational Commands Seminar was held at Maritime Warfare Training Auditorium, PNS BAHADUR, Karachi. Chief of Staff, Vice Admiral Naveed Ashraf graced the occasion as Chief Guest.

While addressing the Seminar, the Chief Guest highlighted that such seminars not only agitate our minds and provide valuable insight into significant issues but also contribute to refine our operational strategy and development plans.

He also emphasized on evolving nature of operational concepts, which requires the practitioners to analyze, correctly understand and effectively counter associated challenges. Emerging technological developments continue to re-define the battlefield and necessitate proactive approach and balanced development strategy. He particularly advised the young officers to think out of the box and groom themselves to remain abreast with latest developments in warfare.

The Chief Guest commended the panel members for presenting well researched papers. He also appreciated the organizers for conducting the seminar in a professional manner.

Pakistan Navy Operational Commands Seminar is a prominent event held annually under the auspices of Operational Commands during which selected panels of Officers present papers on contemporary naval professional issues. ❖❖



NAVY'S RELIABLE PARTNER



DESIGN




MODERNIZATION



BUILDING



ENGINEERING THE NEXT

in / @stm-defence-international  / @StmDefenceInt

www.stm.com.tr



PN RECKONER

EVENTS IN JULY

Source: PN History & Archives Centre

- Jul 14, 1947:** The Navy Sub-Committee of the Armed Forces Reconstitution Committee announced the division of assets of the Royal Indian Navy (RIN). Pakistan was allocated four frigates, Narbada (later renamed HMPS JHELMUM), Godavari (later renamed HMPS SIND (F-52), SHAMSHER (F-392), and DHANUSH (later renamed HMPS ZULFIQUAR (F- 265), four fleet minesweepers, two trawlers, two motor minesweepers, and four Harbour Defence Motor Launches.
- Jul 21, 1952:** A former Italian Navy floating dock acquired from RN at Masawa, Ethiopia, and commissioned as HMPS IQBAL II.
- Jul 18, 1953:** HMPS JHELMUM and HMPS ZULFIQUAR arrived in Cherbourg for the first-ever / visit to France by RPN ships.
- Jul 03, 1957:** Dido class Cruiser, EX HMS DIADEM, acquired from the UK and commissioned as PNS BABUR (C84).
- Jul 19, 1961:** Floating Dock, former ARD-6, was acquired from the USA and named FD 1.
- Jul 07, 1979:** The first of the HAMMERHEAD series of War games was inaugurated at PNS HAIDER.
- Jul 01, 1981:** PNS ABDOZE re-commissioned as a depot for the Submarine Service.
- Jul 30, 1986:** Five FUT1 class inshore minesweepers were acquired from China and inducted into MINERON 21.
- Jul 31, 1987 :** PNS AKRAM was commissioned as the first Naval establishment on the Makran Coast at GWADAR and depot for Naval detachments at Gwadar.
- Jul 10, 1988:** Fleet Mess was inaugurated at PNS HAIDER, Karachi.
- Jul 28, 1993:** The first of the six Type-21 frigates Ex HMS AMBUSCADE acquired from the UK and commissioned as PNS TARIQ (F- 181) BABUR (F- 182), BADR (F- 184), KHAIBAR (F-183), TIPPU SULTAN (F-186), and SHAHJAHAN) (F-185).
- Jul 28, 1994:** The Fast Combat Support Ship Ex HNLMS POOLSTER, acquired from the Netherlands and commissioned as PNS MOAWIN (A-20)
- Jul 09, 1998:** The first indigenously constructed Mine Hunter PNS MUJAHID (M-164) was commissioned at KSEW.
- Jul 22, 2005:** Flood relief Ops MADAD launched in PUNJAB & SINDH.
- Jul 30, 2009:** The first Sword Class F-22 Frigate to be built in China was commissioned as PNS ZULFIQUAR (F 251).
- Jul 14, 2010:** The renovated and upgraded premises of PN Central Library were inaugurated.
- Jul 14, 2010:** Textile Leather & Print testing lab inaugurated at CINS premises.
- Jul 19 2011:** PNS RASADGAR (23) & MADADGA (22) Commissioned as STUS units.
- Jul 21, 2011:** First Squadron of UAV; UQAB commissioned at PNS MEHRAN.
- Jul 28, 2017:** PNS HIMMAT (1017) fires a long-range land attack missile indigenously developed in Pakistan.
- Jul 29, 2018:** First deployment of Pakistan Navy Ship under Regional Maritime Security Patrol (RMSP). PNS SAIF (F-253) joined the Task Force.
- Jul 07, 2021:** Keel Laying of 48 Ton Bollard Tug being built for Pakistan Navy.

PN RECKONER

EVENTS IN AUGUST

Source: PN History & Archives Centre

- Aug 14, 1947:** Royal Pakistan Navy (RPN) came into being. Rear Admiral James Wilfred Jefford was appointed as first Commander in Chief of the Royal Pakistan Navy. RPN's share of ships at the time of partition comprised (4 sloops frigates, 4 fleet minesweepers, 8 motor minesweepers/ trawlers, 4 harbor defence launches) and three shore-based training establishments (HMPS DILAWAR, HMPS BAHADUR, and HMPS HIMALAYA at Karachi).
- Aug 14, 1948:** British era names of non-Islamic ships changed to Islamic ones in line with the aspirations of the peoples of Pakistan, i.e. HMPS DHANUSH became HMPS ZULFIQUAR, HMPS NARBADA became HMPS JHELMUM etc.
- Aug 05, 1952:** The Royal Pakistan Navy Torpedo Depot formally inaugurated/ commissioned.
- Aug 05, 1970:** PN Submarine MANGRO (S-133) was commissioned at Toulon in France.
- Aug, 1973:** The first floating dock (FD-I) designed and constructed indigenously by PN Dockyard was commissioned.
- Aug 14, 1976:** First ever-mounting of Guard by PN cadets was conducted at Mazar-e-Quaid. The guard comprised 65 cadets (61 PN and 04 Syrian cadets).
- Aug 13, 1979:** The Navy Board was formed.
- Aug 17, 1980:** Submarine Training Centre (STC) was established at PNS BAHADUR.
- Aug 17, 1981:** Pakistan Navy Engineering College (PNEC) was commissioned as PNS JAUHAR.
- Aug 28, 1982:** Junior Cadet College (JCC) was established at PNS BAHADUR Complex and commissioned as PNS RAHNUMA.
- Aug 11, 1987:** Naval Tactical School re-commissioned after modernization with computerized Action Speed Tactical Trainer (ASTT).
- Aug 27, 1987:** Fouqing class Under Way replenishment Tanker acquired from China and commissioned as PNS NASR (A-47).
- Aug 06, 1988:** Post Graduate Courses commenced at Pakistan Navy Engineering College (PNEC).
- Aug 29, 1992:** Second Coastal Tanker & Logistic Support unit PNS KALMAT commissioned.
- Aug, 1995:** PN Staff College shifted from Karachi to Lahore. 25th Staff Course commenced at the new premises.
- Aug 09, 1995:** Bahria Foundation commenced operations in the North, at Islamabad.
- Aug 05, 1996:** Pakistan Naval Staff College upgraded to War College status.
- July 21, 2011:** Missile PNS JALALAT-II (P-1029) was Commissioned in PN.
- Aug 31, 2010:** Ex USS Machinery (FFG-8) acquired and commissioned as PNS ALAMGIR (D-260) at Naval Station May port, USA.
- Aug 14, 2013:** First SRMP aircraft ATR-72 inducted.
- Aug 19, 2016:** Pakistan Navy's biennial war games Exercise Shamsheer E Behr VI concluded.
- Aug 31, 2016:** Third ATR aircraft and Scan Eagle Unmanned Aerial System inducted in the fleet.
- Aug 17, 2017:** Pakistan Navy assumed Command of CTF-150 for the 10th time.
- Aug 2020:** Keel Laying Ceremony of First Type 054-A/P Frigate ship for Pakistan Navy was Held at Hudong Zhonghua Shipyard, Shanghai, China.
- Aug 10, 2021:** First Ship Lift and Transfer System was inaugurated at Karachi Shipyard and Engineering Works.



BREAKING THE MOLD: RETHINKING PLASTIC RECYCLING



Wajih Ur Rehman

Once hailed as a remarkable material invention in the 1960s, plastic has steadily become a nuisance. According to the Plastic Atlas, the world has manufactured more than 10 billion metric tons of plastic since its commercial production started, about half of which has ended up as waste. Due to human interventions, plastic has reached the heights of Mt. Everest and the depths of the Mariana Trench (UNEP). Alarming, researchers have indicated the presence of microplastics in human blood, placentas, and breast milk, with a possibility of occurrence in the brain. Despite their versatile usages, unsustainable production,

consumption, and disposal of plastics remain the key issues. The same has been highlighted in the latest UN report on ending plastic pollution which proposes a 'system change scenario' to address the causes rather than just the symptoms.

The detrimental effects of plastic pollution are particularly pronounced in countries with weak legislative mechanisms. Unfortunately, Pakistan figures out on the list. We are unable to handle our copious waste generation, and yet, are burdened with wastes from the Global North in the name of 'aid' or 'waste to energy raw

material' – a situation called 'toxic colonialism'. Southeast Asian countries like China, Malaysia, and Vietnam, which had become hotspots for such dumping, have recently banned waste imports, urging exporting nations to explore alternate sustainable solutions. Pakistan is no exception with its discarded plastic that gets landfilled, incinerated, or tossed out, ending up in the waterways which ultimately pollutes the delicate coastal and marine ecosystems. With more than 3.3 million tons of plastic waste created each year – amounting to two K-2 mountains – Pakistan needs a serious proactive approach

to the issue. While worldwide, commercial producers, consumers, municipalities, law-making, law enforcement, and regulatory authorities have stakes in perpetrating plastic pollution, in reality, the unintelligent corporate production of plastics favored by the legal systems takes the cake. Corporates have cleverly shifted the burden of responsibility to the public – a tactic that has interestingly enabled the public's support for legal frameworks that impose hefty fines on individual litterers. In fact, consumer behavior is a consequence of corporate business decisions.

Stakeholders' attitudes which impact the creation, use, and fate of plastic pollution are nevertheless critical. A study conducted by the writer on Karachi city's maritime pollution reaffirmed that big companies that produce single-use packaging are the major perpetrator. It was argued that the consumers are left with little choice as the packaging is pre-decided. Moreover, 80 percent of the respondents favored stricter regulations and effective enactment on production and usage. In addition, lobbying production companies and regulating authorities was also perceived as a suitable opportunity. This necessitates stakeholders to embrace an eco-conscious mindset that prioritizes environmental and human health in production processes.

Promisingly, World Environment Day 2023, which was promoted under the hashtag

#BeatPlasticPollution, called for global actions to address the issue of plastic. Speaking of, recycling is frequently touted as a solution to plastic waste. Big Oil and other corporates with stakes in the plastic business wholeheartedly support domestic recycling, which allows them to continue the business-as-usual case. In reality, encouraging individuals to recycle more might not be the solution to the problem until the mass production of single-use plastic is curtailed. Besides, plastic recycling is limited, resource-intensive, and entails environmental and health hazards. Virgin plastic's affordability overshadows the leftover recycling potential, discouraging companies from utilizing recycled plastics. Many countries have made a feeble attempt to contain plastic pollution by slapping a ban on the use of plastic bags. Under the government's "Clean Green Pakistan" initiative, Pakistan also banned the selling and use of non-biodegradable plastic bags in its capital which proved futile because the root cause of the issue was left under-addressed i.e. the production. Plastic roads are another experiment that has negative externalities, as they introduce microplastics into the environment through wear and tear. Similarly, the placement of plastic segregation/recycling bins by corporates as CSR is a poor attempt to show concern – a ploy known as greenwashing. The grim reality is that the waste collected from such methods also usually ends up in a landfill.

Given humankind's intellectual bandwidth, spatiotemporal constraints, and systematic limitations, it is unfair to rely solely on individual efforts as the primary solution to plastic pollution. The radical solution is to advocate for regulations that restrict the production of new plastics with the introduction of sustainable alternatives to single-use plastics. To enable that, all stakeholders must be taken on board by offering incentives and providing ease of business for formal and informal producers across all tiers.

It is pertinent to mention that stakeholders from 180 nations gathered in Paris from 29th May to 2nd June for the second round of negotiations on a legally-binding Global Plastics Treaty which would aim to potentially phase out plastic production and prevent pollution. Upon signing, this Treaty should catalyze national-level efforts to curtail the issue of plastic pollution. Furthermore, Extended Producer Responsibility (EPR) and a circular economy that does not rely on the myth of recycling plastics may prove useful as single-point solutions would not work. Plastic waste management approaches of 'rethinking' and 'reducing' should be promoted as compared to 'recycling'. A collaborative and intelligent approach involving government, policymakers, industries, consumers, scientists, innovators, with consideration of regional/global dynamics and societal attitudes is crucial in devising pertinent solutions to the menace of plastic pollution. ☒☒


 World
Hepatitis
Day


HEPATITIS

TYPES, TREATMENT & PREVENTIONS



*Surg Lt Cdr
Hina Mahmood*

Introduction: Hepatitis refers to inflammation of liver. It commonly occurs due to viral infection but there are other possible causes which may lead to hepatitis such as genetic/ autoimmune disorders, certain chemicals, drugs or alcohol consumption.

Symptoms

In acute hepatitis symptoms usually appear anytime from 2 weeks to 6 months after exposure and then resolve. Most common symptoms of acute hepatitis include fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, pale

stools, joint pain, unexplained weight loss, yellow discoloration of skin and eyes (jaundice) etc. In chronic hepatitis symptoms are milder however, it may lead to progressive liver damage.

Types of viral hepatitis

There are five main types of viral

hepatitis. Each type of hepatitis is caused by a different virus. These include;

Hepatitis A

It is a food-borne illness which can also spread through contaminated water. It is easiest to transmit (especially in children), is mild and least likely to damage the liver. Hepatitis A usually resolves completely within six months.

Hepatitis B

It is transmitted through exposure to contaminated blood, needles, syringes or other bodily fluids. It can also be transmitted from infected mother to newborn baby. It is a chronic disorder and in some cases may lead to long-term liver damage, liver cancer or cirrhosis of the liver.

Hepatitis C

It is transmitted through infected blood, bodily fluids or from mother to baby during childbirth. It too can lead to liver cancer and cirrhosis in the long term.

Hepatitis D

It is only found in people who are also infected with hepatitis B. A person cannot contract Hepatitis D virus (HDV) without an existing Hepatitis B infection. It is transmitted through contact with blood containing HDV.

Hepatitis E

It is a waterborne disease that results from exposure to Hepatitis E virus. Hepatitis E is found in areas lacking proper sanitation. Hepatitis E is usually acute but can be particularly dangerous in pregnant women.

PRACTICING EFFECTIVE HYGIENE PRACTICES, PROPER HAND WASHING, USE OF GLOVES, SAFE HANDLING AND DISPOSAL OF SHARPS AND WASTE ALONG WITH AVOIDANCE OF CLOSE CONTACT WITH INFECTED PERSON AND HIS BODILY FLUIDS CAN HELP IN PREVENTING THE DISEASE

Diagnosis

Diagnosis is based on history, physical examination and lab tests. If required abdominal ultrasound can also be done. In cases where other tests are inconclusive liver biopsy is helpful in determining exact degree of liver damage.

Treatment & Prevention

Vaccines against Hepatitis A and B are available however currently there are no vaccines available against Hepatitis C, D and E. Vaccination against Hepatitis B also gives some protection against Hepatitis D. Practicing effective hygiene practices, proper hand washing, use of gloves, safe handling and disposal of sharps and waste along with avoidance of close contact with infected person and his bodily fluids can help in

preventing the disease. Hence, sharing of needles, razors, personal care items and close contact are to be avoided for control of spread. Screening of donated blood for Hepatitis B and C is also to be ensured. It is worth mentioning that once a person is infected, treatment focuses on relief of symptoms and prevention of further damage to the liver.

Complications

Chronic hepatitis B or C may lead to severe complications such as chronic liver disease, cirrhosis or liver cancer. Liver failure may lead to bleeding disorders, ascites, portal hypertension, kidney failure, hepatic encephalopathy, hepatocellular carcinoma and ultimately death of an individual. ❖❖

WHITHER RAINBOW OF REVOLUTIONS?



Rear Admiral Javaid Iqbal

William R Emerson in his famous poem 'A Nation's Strength' writes; "Not gold but only men can make; a nation great and strong." Importance of having quality Human Resource for a developing nation cannot be over-emphasized without whose vision and untiring efforts every initiative may become still-born.

Pakistan's Green Revolution 2.0 has been recently launched with great hope to attract FDI in agriculture. Given Adam Smith's three basic constituents of economy i.e. Capital, Land and Labour; while the capital in shape of FDI will certainly inflow, it is the last two i.e. Labour and Land that need to be critically focussed. If Pakistan has to progress sustainably over a long term, it will have to adopt a Rainbow of Revolutions.

First and foremost let us start

with Labour. Fertile lands do not produce a golden harvest if they continue to be cultivated by infertile minds. Pakistan needs to simultaneously usher a Golden Revolution in its education system to develop such men and women who are worth their weight in gold. Given challenges of Knowledge-Economy, our green revolution and for that matter all other sectoral revolutions, will require educated, trained, groomed and innovative youth in order to handle the complex AI-enabled technology required for corporate farming, industrial manufacturing and code writing. Education is not only about acquiring advanced knowledge and critical thinking skills but also complete human development involving a reform of their entire value system. For this we will have to reform thousands of government schools that dot the countryside. We will have to rope in scores of children that never get to see a school in their lifetime. Quality teachers would have to be incentivized and syllabi modified so as to nurture creativity, promote free inquiry and germinate responsible entrepreneurship while imbuing great ethical and moral values of our civilization that teaches plurality and inclusiveness.

Together with Green revolution, Pakistan needs a rainbow of revolutions for sustainable comprehensive climb out of the current economic crisis

Instead of a single stream of education, a vocational stream may have to be introduced in parallel focusing on the IT and services sector. Developed countries in Europe and Far East are growing old and shrinking in population, whereas we have a youth bulge which left on its own can turn into a Population Bomb. However, if educated properly it can also generate a disproportionate Demographic Dividend. If we impart proper skills to our youth and equip them with certification, they would be happily absorbed in the developed world rather than illegally migrating on derelict boats in the Mediterranean. There is a crisis of creativity and originality in our youth and we are producing followers at the best and very few leaders. This has to change if the true destiny of our nation has to be realized. Needless to say, population has to be motivated to self-regulate its numbers if the golden revolution is ever to succeed.

Land being the other factor, we conveniently tend to ignore that Pakistan is a maritime nation with over 1000 kilometers coastline exercising sovereignty over 12 nautical miles beyond its coast

over territorial waters, exercising exclusive rights overall economic resources lying in sea area out to 200 nautical miles from its coast in a sort of maritime province of its own accord termed as Exclusive Economic Zone (EEZ) measuring 240,000 square kilometers, and exercising exclusive rights over seabed resources lying in a belt extending further 150 nautical miles out from EEZ equalling another 50,000 square kilometers. A Blue Revolution therefore also needs to happen for harvesting bounties of the ocean. Pakistan's geographic location at the mouth of Persian Gulf makes it an ideal place for trans-shipment provided it quickly expands Gwadar deep water port and expedites completion of associated linkages of CPEC like road/rail connectivity and Free Zones. Fishery sector holds great promise if we modernize it and incentivise our businessmen to own modern fishing trawlers and processing/ storage facilities. As compared to Vietnam's fish exports of about 10 Billion dollars per annum, Pakistan's fish exports hover around 456 Million dollars. If we are able to reform our fishing sector only, our seafood exports have the potential to grow many times to about 2.5 Billion dollars. Similar potential resides in having more shipyards for shipbuilding and repair facilities, having multitude of shipping lines to avoid paying an annual freight bill of 4.5 Billion dollars to foreign shipping lines.

We cannot dream to come out of the current crisis if a large number of almost half of our



eligible workforce, the women, remain out of the formal job market. Despite registering an increase lately, female labor force participation in Pakistan is 22% which is much lower than countries having similar income levels. Only 25% of women with a university degree are employed in Pakistan. This calls for a Pink Revolution emphasizing priority education for the girl child, providing a safe environment during travel to and from school, equal opportunity at employment and equal pays and a safe workplace.

And last but not the least, since the proverbial rainbow contains seven

colours, it would be instructive to quote Adam Smith again for the remaining revolutions that our countrymen await earnestly i.e. "Little else is requisite to carry a State to the highest degree of opulence from the lowest barbarism but peace, easy taxes, and a tolerable administration of justice."

Hard times call for strong men to take tough decisions. It is a moment of truth. The Green Revolution is a welcome step. But what our nation needs is a proverbial Rainbow of Revolutions. ❖❖

ON MATTERS MARITIME AND SIFC

In his prophetic book, "Has Man a Future"?, published in 1961, the Welsh philosopher historian, Bertrand Russell describes the sickness that pervades human mind. According to him, mankind manufactures nuclear weapons, destructive enough to wipe out humanity yet simultaneously engages in his own survival. Russell's work is an illuminating and prescient narrative. Crystal gazing, he foretells three possibilities: complete extinction

of human life on earth, human life reduced to savagery and finally, a world government that will possibly control all nations and countries.

The unraveling world in 2023 shows numerous signs as foretold by Russell. From proliferation of nuclear weapons, intra-regional and trans-boundary migrations, technological transfigurations, cyber wars, demographic alterations, climate change,

marine pollution, deforestation, pandemics, all seem to be occurring at breathtaking pace. Advances in science, medicine and innovative drugs have meanwhile vastly improved average life span of human beings.

The planet earth is today shared by almost 8 billion people, as of November 2022 according to US Census Bureau's world population clock. Mounting population, corporate greed and human ingress into natural habitats of other species has upended the balance of life on earth so finely created by nature. This is also repugnant to what is revealed in Quran: "So establish weight with justice, And fall not short In the balance. It is He Who has Spread out the earth For (His) creatures". 55: 9-10. At another place the divine warning is eloquent: "Eat and drink of that which Allah has provided, and do not act corruptly, making mischief in the earth" 2: 60. Indeed, corruption has many faces and dimensions and goes beyond materialism.

The conditions on earth are mutually balanced by Allah for His creatures. The oceans and



Muhammad Azam Khan



seas are major part of our planet. The unhinged commercialization is rendering life unlivable in numerous parts of the world. Chemicals and trash from land sources ceaselessly pour into oceans thus destroying vast variety of organisms. This consequently takes a toll on the health of oceans whose ecosystems (the balance) is so imperative in keeping the world clean and healthy for its inhabitants. Around 8-10 million tons of plastic waste is dumped in oceans, 80 percent of which comes from Asia. And while international shipping is the backbone of global economy, it is sixth largest emitter of greenhouse gases in the world, considering if the sector was a country. The shipping industry accounts for almost 3 percent of global greenhouse gas emissions. Thanks to human progress, the destruction of planet goes hand in hand with advances in technology.

As many hail the future overpowering value of artificial intelligence, tech executives, researchers and academics warn of existential dangers it poses to continuation of mankind. Maritime 4.0, driven by the latest industrial 4.0 technologies, promises improved designing, manufacturing and construction of ships ensuring smooth operations and maintenance. Artificial intelligence and machine learning underpin development of digital shipyards. The UK Royal Navy recently conducted trials of a platform with large surface area for launch of UAVs and AUVs. The platform will identify mines and gather information on hostile ships with far fewer personnel onboard. By

COUNTRY'S BLUE ECONOMY INTEGRATED WITH CPEC HOLDS HUGE PROMISE FOR ECONOMIC UPLIFT. IT WOULD BE IN THE FITNESS OF MATTER IF THE GOVERNMENT CONSIDERED INCLUSION OF COMMENSURATE REPRESENTATION FROM COUNTRY'S MARITIME SECTOR AND THE NAVY IN ALL THREE TIERS OF SIFC

2024, the US navy plans to achieve force levels of 523 warships including 150 unmanned surface and subsurface vessels.

Not to be left out, international geopolitics is too undergoing major makeover. A new generation of leaders is replacing old guard in several parts of the world. In 2022, Saudi Arabia became the world's fastest growing economy. It clocked 8.7 percent. Kuwait and United Arab Emirates too registered higher growth rates. These countries are rapidly diversifying economies moving away from oil based growth. As a recent column in Washington Post notes, "the rise of the Persian Gulf and Saudi Arabia in particular, is already reshaping the Middle East. But it also has powerful consequences across the world. Saudi Arabia, in particular, has made a huge strategic shift in its foreign policy. The gulf states are all deepening their relations with

China which is now the region's largest customer".

The war in Yemen is over. Riyadh, UAE and countries in the gulf are showing increased tilt towards New Delhi. Saudi and Indian Navy recently conducted second edition of bilateral exercises off Jubail, Saudi Arabia. Washington was thunderstruck when Beijing lately brokered peace between Riyadh and Tehran. It marked an end to war in Yemen and perhaps cessation of forgotten 2015 Islamic Military Alliance to Fight Terrorism (IMAFT).

In South Asia, the US withdrawal from Afghanistan and Washington's strong embrace of New Delhi has signaled a major shift in US policy. The US has little concern left for Afghanistan while Indian brutalities at home or in occupied Kashmir are ignored. And while it plans to extend GSP Plus status to Pakistan

thereby facilitating continuity of preferential trade agreement, European Union's deep military, commercial and strategic interests makes India its closer ally.

There are other fast paced developments taking place in Pakistan's maritime neighbourhood as well. In India, the Ministry of External Affairs has delegated a specific wing to Indo-Pacific region. The wing is mandated to oversee regional developments with focus on ASEAN, Quad and IORA. In IOR, Indian navy is expanding its footprint and influence through Mission Based Deployments, concentrating power in specific areas for exclusive purposes. In a first of its kind, India's two aircraft carriers recently led their battle groups in a combined operation in the Arabian Sea.

So what is in there and where does all this leave Pakistan amidst contemporary developments? The aforementioned developments and given the recent difficulties in negotiations with IMF, it must be clear that for the larger world, the strategic relevance of Pakistan has shrunk substantially. Once upon a time our geography served the international geopolitics quite well. This now seems to have run its course. Today, as said, "geo-economics is the pathway to economic security and political clout".

Contemporary era demands a country to demonstrate its strategic relevance in terms of economic and political stability; a fiercely independent judiciary, efficient bureaucracy, a tech

empowered human capital and secure environment for investors. Anything otherwise, the world at large will not care what happens to it.

The government recently announced establishment of a three tiered Special Investment Facilitation Council (SIFC). The Gazette notification issued by the PM office is indeed a laudable initiative. It is a significant step to restore investor confidence and draw in suitable investments for improving health of the national economy via a shortened "one window operation". Nevertheless, it's not understood how may such a supra body likely to function in the presence of Board of Investments (set up under 18th Amendment) in each province or SEZs and CPEC authority.

It cannot be overemphasized that port of Gwadar is "gateway of CPEC". Pakistan's economic fortunes are largely tied to CPEC which in turn will swivel on a fully operational port, Gwadar. The armed forces of Pakistan have major stakes in the health of country's economy. Given the wide spectrum of threats and diverse challenges, the country's defence budget remains non-negotiable.

On this last June 26, the Federal Minister for Planning and Development and Special Initiatives had this to say: "The blue economy possesses enormous potential for sustainable financial stability and development of Pakistan and the incumbent government has included it in the agenda of national growth". "The

current economic situation of the country required every field of life and each sector of the economy to play a proactive role for ensuring sustainable economic growth and expansion of the GDP", the Minister added. Yet one finds not a single representation from the maritime sector, relevant Ministry or the navy in any tier of SIFC.

Consider this: both army and airforce reveal pure hard power. It is only maritime sector that has both hard and soft power (economic dimension). Be it ports and harbours facilitating commerce, potential in maritime zones (EEZ), or else commercial shipping lifting country's commerce, it is all economics. Through its military power, the navy serves to protect these economic assets.

Out of a combined total (male and female) youth population of 58.7 million (under 30 years), over 17 million are currently unemployed or lazing. Country's blue economy integrated with CPEC holds huge promise for economic uplift. It would be in the fitness of matter if the government considered inclusion of commensurate representation from country's maritime sector and the navy in all three tiers of SIFC. Underpinning this assertion is the mandate accorded to Chief of the Naval Staff who besides his traditional responsibilities is the, 'Chief Technical Adviser to the GoP on all matters connected with the navy, naval defence and maritime affairs in peace as well as war'. ❖❖



FANI-CLASS MCM VESSELS

Indonesian Navy Commissions Two New Fani-Class MCM Vessels

Based on the Frankenthal-class, the two Fani-class MCMVs were built by the German shipyard, Abeking & Rasmussen. According to TNI AL, the MCMVs are built by using non-magnetic steel and have their own degaussing system to reduce their



magnetic signature, which is critical for mine-hunting missions. Additionally, to minimise acoustic signature, an electric propulsion system is installed on both vessels. equipped with an Autonomous Underwater Vehicle (UAV), Unmanned Surface Vessel (USV), Remotely Operated Vehicle (ROV), underwater sonar equipment, and RHIBs. The vessels are fitted with Anschütz new SYNTACS Mine Countermeasure Suite and navigation system.

ALL-WEATHER, LONG RANGE, PRECISION STRIKE, ANTI-SHIP CRUISE MISSILE

ATMACA (means Hawk) is an all-weather, long range, precision strike, anti-ship cruise missile developed by Turkish missile manufacturer ROKETSAN. The Atmaca will replace Turkey's existing inventory of Harpoon missiles gradually.

Atmaca technical data

Length: 4,800 – 5,200 mm

Weight: < 800 kg

Range: > 220 km

Guidance: Inertial

Navigation System

+ Global Positioning

System + Barometric

Altimeter + Radar

Altimeter

Warhead Type:

High Explosive with
Penetration

Warhead Weight: 250
kg

Seeker: Active RF
(ship-launched), IIR
(land-launched)



Courtesy:

www.navalnews.com

QUAID'S PATRIOTS



S/Lt Myrah Zafar PN

Have you ever dreamt of creating history?
The mere thought of it is emancipatory
Such fascination beholds
A mystery within enfolds

Staring the Quaid's mausoleum in amazement
The thoughts are beyond containment
It's an overflowing river
The body starts to quiver

The ground beneath trembles
When the marching steps assemble
The graduates adorned in white uniform
Not a single flight deformed

Mounting up to lay the floral wreath
Remembering those who laid their lives and proved their worth
Who made the country proud
The spirit shouts out loud

Do the impossible
Become the unstoppable
Have your name etched there
Achieve martyrdom and then compare





The National Radio Telecommunication Corporation

is a high tech industry engaged in manufacturing of telecommunication equipment in Pakistan

Reliability
Quality and
Self-Reliance



About NRTC

Since 1965, NRTC has been a highly stable and reliable partner for customers who require high-tech Communication and Security Solutions. Our success comes from the innovative value proposition we bring to electronic manufacturing.....proof of its uniqueness is in our enviable track record for decades.

Business Areas

Defense Technologies

- Tactical & Wireless Military Communications
- Jammers
- Anti Drone Solution
- Border Security & Surv. Solution
- Security (UAVs/ Quad Copters)
- Security (Mini UAV/ Copters)
- EOD & Robotics
- Electronic Warfare
- Artificial Intelligence

Common Use Technologies

- Safe & Smart Cities
- RFID Licence Plates
- IT & Cyber Security
- Electro Medical
- Renewable Energy Solutions
- IP Exchanges
- Intelligent Transport System
- Forensic Solutions



For Further Details

Head Office: T&T Complex, Haripur, Pakistan - Tel: +92 995 666611, 666311, Fax: +92 995 610933, Tel: +92 332 7926421

Dubai Office:
Unit No. AG-13-H-F147, AG Tower,
Plot No. JLT- PH1-11A, Jumeirah
Lakes Towers, Dubai,
United Arab Emirates

Islamabad Office:
NCI, Near Islamabad
Motorway Toll Plaza, Islamabad
Tel: +92 51 2850135

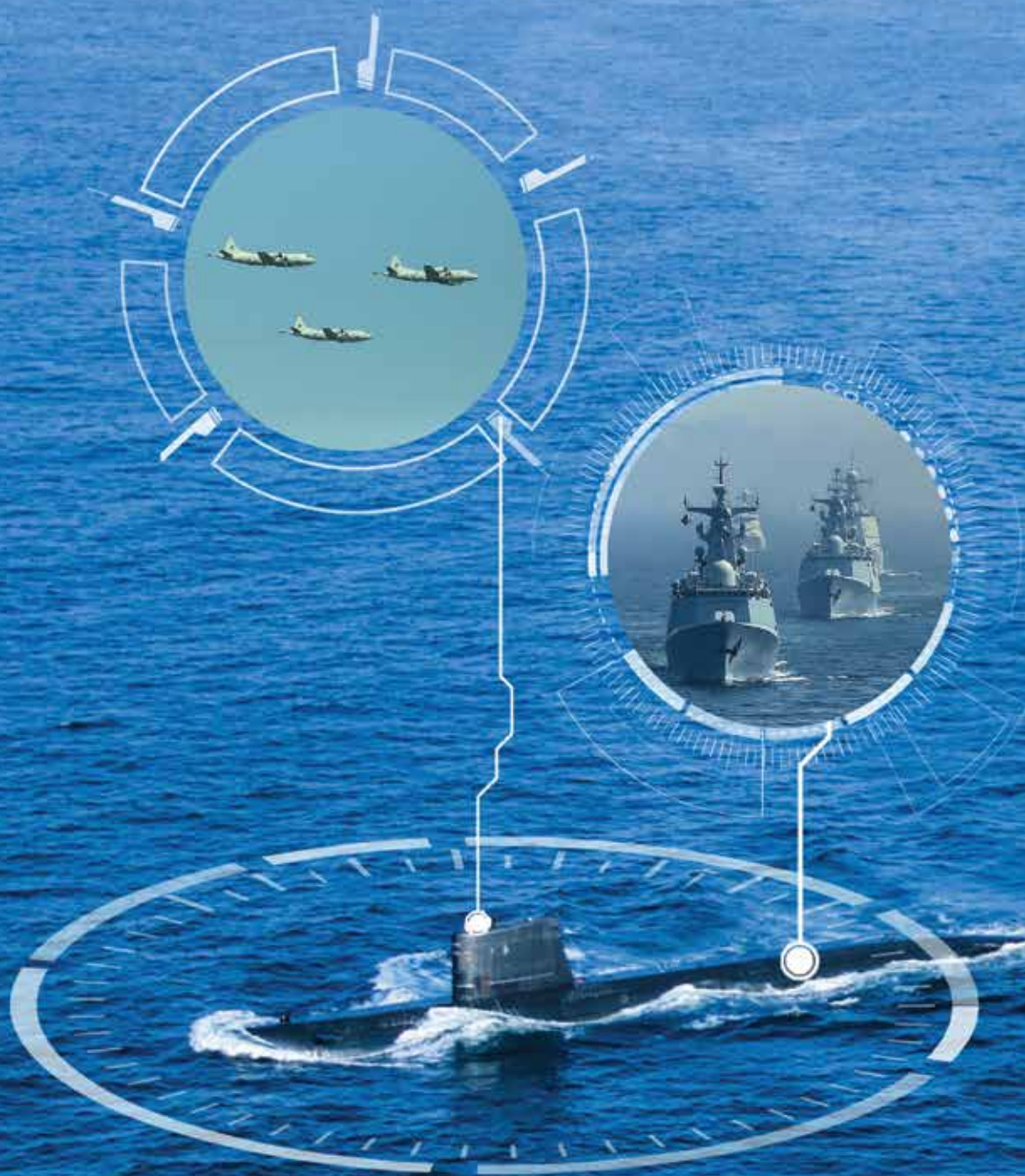
Lahore Office:
72 Industrial State,
Kot Lakhpat Lahore
Tel: +92 42 35215700
Fax: +92 42 35117303

Karachi Office:
Army Log Area,
Near Regent Plaza, Karachi
Tel: +92 21 21906327
Fax: +92 21 21906328

Peshawar Office:
Bunglow No.23, F/2,
Khushal Road, University Town,
Peshawar
Tel: +92 91 2601014

Quetta Office:
Chaman Housing Scheme,
Quetta

email: marketing@nrtc.com.pk; Website: www.nrtc.com.pk National Tax Number (NTN): 0009815-9



SEABED WARFARE SHAPING THE FUTURE OF NAVAL OPERATIONS



Lt Cdr Raheel Awais PN

The year 2022 has been an 'eye-opener' for the world's defense policymakers, naval strategists, naval warfare practitioners and engineers of the defence industry. Multiple events that occurred last year have gained enormous attention due to their unique nature. These events include the breaking of the Svalbard subsea communication cable in January, the explosion of Nord Stream 1 & 2 subsea gas pipelines in September, and even the breaking of the subsea communication cable SHEFA-2 in October. There is one thing common in all events: somehow they all took place on the 'seabed'. The trend has continued this year as a subsea communication cable connecting Taiwan experienced a similar breakage. These events have not only exposed the vulnerabilities of the Underwater Critical Infrastructures (UCIs), i.e., underwater oil and gas, pipelines, submarine communication cables, power transmission cables, and other underwater installations; rather, they have also resulted in unprecedented political, military, and scholarly attention to 'seabed warfare'. Today, the seabed is being considered as a future battlefield, and ultimately, 'seabed warfare' has emerged as a new dimension of naval operations.

Though the term 'seabed warfare' is not new, different navies have been pursuing naval operations on seabed since long. During cold war era, seabed operations played vital role for ASW (Anti-Submarine Warfare) operations and strategic intelligence. By 1960, US deployed SOSUS (Sound Surveillance

Systems) in critical areas and critical points. SOSUS proved operationally viable to detect and track Soviet submarines. In the same timeframe, Soviet Union also developed similar acoustic surveillance system. Historically, first ever successful seabed operation famously known as IVY BELLS was conducted by US Navy Submarine HALBUT in early 1970s. Operation IVY BELLS was aimed to tape the data flowing through Soviets subsea cables, which proved to be successful and vital intelligence data was gathered. It is interesting to highlight that despite pursuance for seabed warfare, most of maritime doctrines and naval strategy publications of world navies do not specifically discuss seabed warfare. In year 2022, France took lead to publish its first ever 'Seabed Warfare strategy', where it also formally defined seabed warfare as set of "operations include implementing, deploying and utilizing fixed, semi-fixed or mobile underwater capabilities able to operate towards, from and on the seabed, either independently or in a network".

Why seabed warfare has become talk of the town? There are multiple driving and enabling factors for this development.

- Economic dimension: Last two decades have witnessed a major boom in the energy distribution sector through seabed. Various oil and gas pipelines run on the seabed in different oceans, which ensure the supply of energy among different countries and regions; same hold vital economic

importance. Nord Stream 1 and 2 gas pipelines transport Russian gas to Europe and run on seabed of Baltic Sea. Within Europe, there is also a network of different underwater gas pipelines that transport Norwegian gas to the UK, France, Belgium, Germany, Denmark, and Poland. These gas pipelines run on the seabed of the North and Baltic Seas. In the East, the subsea Ichthys Export Pipeline (Timor Sea) transports gas from Ichthys Field to mainland Australia. Yacheng 13-1 gas pipeline transports gas from Yecheng gas field to mainland China, and the list goes on. Subsea oil pipelines are also being extensively used to transport oil from offshore terminals to land. Similarly, offshore drilling for new energy resources on the seabed of different oceans around the world is also witnessing a boom. Keeping in view the proposed mega projects such as the Trans-Caspian Pipeline, subsea energy transportation is likely to have an upward trend. Subsea communication cables also carry significant importance for world's economic growth and stability. More than 97% of the world's internet data flows through oceans. Let alone, subsea communication cables enable money transactions worth \$10 trillion per day across the world. Any disruption to these cables is considered socio-economically catastrophic.

- Politico – military dimension: Politically, growing subsea connectivity and dependency of energy and information are being considered lucrative foreign policy tools.

Subsea pipelines and cables have gained unprecedented strategic importance. Safe operations of subsea pipelines and cables are crucial for socio-economic stability, but at the same time, their blockage or disruption can impose significant strategic effects. New international relations (IR) terms such as 'Pipeline Diplomacy' reflect the same political thought. For military strategists, seabed warfare capability to protect (defensive) and even disrupt (offensive) subsea pipelines and cables has become a priority area. Seabed warfare is inherently attractive for hybrid military strategy; therefore, it has great potential to grow in 'no war-no peace' and 'low Intensity conflict' environment.

- **Technology dimension:** Technological advancements enabled 'seabed access'. Modern hydro-mechanical systems, advanced electronics, and artificial intelligence are enabling the marine industry to produce ships, submarines, UUVs (Unmanned Underwater Vehicles) which would carry out activities on seabed. Now human activity can easily penetrate from few to thousands of meters deep seabed. So where research, exploration, and productive machines can go; there will also be military vehicles accessing the seabed to turn it into a new battlefield.

What will be the scope of seabed warfare? Based on an analysis of seabed operations in naval history, recent events, and development strategies of different navies; the scope of emerging seabed

warfare can be divided into benign, defensive, and offensive operations. Benign operations will be mainly aimed at oceanographic research, search and rescue (SAR) and salvage operations. Defensive operations will focus on the protection of UCIs. Emerging concepts such as Seabed-to-Space Situational Awareness (S3A), Distributed Remote Sensing (DRS), the Great Underwater Wall etc. will define the framework of defensive seabed operations. Similarly, Offensive operations will focus on the destruction or disruption of UCIs and the tapping of digital data flowing through subsea communication cables.

So what are the enablers of seabed warfare? Seabed warfare is a technologically intensive field. Artificial intelligence is reckoned to be the backbone of all enablers of seabed warfare. Enablers of seabed warfare can be divided into three categories: Launch Platforms (submarines, ships, and extra-large UUVs); Execution Vehicles (UUVs, ROVs, and AUVs); and Remote Sensors (underwater buoys, ocean data buoys, and air/satellite based sensors). It is interesting to highlight that there is significant technological progress in each category. Belgorod class submarine (Russian Navy) is designed to address the requirement for seabed operations. Though present, US submarines have the capability to carry out similar operations, but it has decided to develop VA SSW (Modified Virginia Subsea and Seabed Warfare) submarine. The same trend is being followed even by conventional submarines; the latest Swedish

A-26 Class submarines have specific features such as rapid and simple bottoming and UUV launch and control capability for seabed warfare. The Italian NFS (Near Future Submarine) project and the German-Norwegian Type 212 CD have similar claims. UUV technology is considered the linchpin for seabed warfare. There is also a long list of special ships that will be mainly used for benign and defensive seabed operations. UUVs are getting more capable (in terms of operating depth, endurance, power, and propulsion) day by day. UUVs are a top priority area for the world's leading defence companies. Data from remote sensors such as underwater hydrophone networks, ocean buoys, and even satellites can be fused together for robust surveillance.

The recent strategic environment from east to west has introduced seabed warfare with a modern outlook. Advancement in technology, especially AI, is also aiding this emerging dimension of warfare on a completely new battlefield which is on seabed. All political, economic, technological, and military factors may push rapid growth in strategic competition. Due to its sophistication, complexity, and cost, seabed warfare technology will remain cutting-edge. Until the world does not define the rules of the game for seabed warfare and its enablers, it is safe to claim that more events related to the damage of UCIs will be witnessed.