



## Naval Chief reviews combat readiness at Creeks Area

# NAVY THROUGH HISTORY

## First Muslim / Pakistani Commander-in-Chief of Pakistan Navy



With the creation of Pakistan came the birth of the Pakistan Navy. Rear Admiral James Wilfred Jefford was appointed as Flag Officer Commanding Royal Pakistan Navy (FOC, RPN). The designation was later changed to Commander-in-Chief (C-in-C) of Royal Pakistan Navy.

The year 1953 proved to be a milestone in the history of the Royal Pakistan Navy. Rear Admiral Jefford handed over the command of the Service to Rear Admiral Hajee Mohammad Siddiq Choudri H.Pk MBE. The occasion of his assumption of command was marked by an impressive ceremonial parade in HMPS DILAWAR on 31 January 1953. The day was a historic one as he was the first Muslim as well as Pakistani C-in-C of Royal Pakistan Navy (RPN, as the service was called at that time).

Vice Admiral Hajee Mohammad Siddiq Choudri H. Pk MBE (P No.01) joined Royal Indian Navy in 1931 and held various appointments in Royal Pakistan Navy after independence including Chief of Staff and Deputy C-in-C. He commanded Pakistan Navy from 31 January 1953 till 28 February 1959. ❖❖

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# Naval Chief addresses Passing out Parade at PMA Kakul



Passing Out Parade of PMA Graduate Course 35th, Technical Graduate Course 28th and Integrated Course 53rd was held at Pakistan Military Academy, Kakul. Chief of the Naval Staff, Admiral Muhammad Zakaullah was the Chief Guest of the ceremony.

While congratulating the cadets on achieving this distinguished milestone, the Admiral said that excellent standard of Parade and the impeccable turn out of cadets are indeed a testimony to the highest professional standards and traditions at the Academy, which are upheld by

the untiring commitment and dedication of faculty and the staff. You have earned your commission from one of the finest military institutions of the world.

The Admiral said that the defence and security preparedness of any nation is in direct response to its security dictates. We, in Pakistan, have a history of facing perils and successfully surmounting them. The challenges that this young nation has faced over the past few decades have made us more resilient and stronger. The unresolved disputes that continue to smoulder, and the

daunting challenges that lie ahead, mandate that we maintain a constant vigil on the internal as well as external fronts.

The Naval Chief further added that our commitment to eradicate the menace of terrorism and extremism from Pakistan remains unwavering. Operation Zarb-e-Azb nearing conclusion and pursuance of National Action Plan exemplify the commitment and resolve of the entire nation and its Armed Forces to defeat this scourge. Pakistan Army, being one of the most battle-hardened and professional armies in the



world, has rendered enormous sacrifices of officers and men. The numerous chapters of success have indeed been inscribed with the blood of our valiant soldiers, sailors and airmen. We salute our Shuhada. Pakistan remains undeterred and will continue its march, until we have secured our homeland against forces inimical to our progress and prosperity.

He further said that while Indian occupied Jammu and Kashmir continues to bleed and Pakistan is being continuously subjected to a volley of false accusations by India, let me reiterate the fact

that Pakistan is a peace loving country and seeks harmonious and peaceful co-existence with all its neighbours. The world can no more be misguided by the litany of falsehoods to divert global attention from atrocities in Indian occupied Jammu and Kashmir or attempts at seeking refuge through concocted stories. Any unintended outcome or act of aggression borne out of such adversarial design, whether by intent or even a strategic miscalculation will not go unpenalized. We shall defend our sovereignty and territorial integrity with full might and at all costs. ❖❖



# The Scorpene Submarine leaks

*Vice Adm (Rtd) Taj M Khattak*

As Indian Navy (IN) prepares for Golden Jubilee celebrations next year to commemorate induction of its first submarine in 1967, it was struck by a story in an Australian newspaper which disclosed that 22,400 pages of documents pertaining to its Scorpene submarine programme, code named Project-75, had been leaked. This has caused quite a stir in defence circles around the globe and raised many pertinent questions related to management of major projects in increasingly technical environments.

India contracted six submarines of this class from French manufacturer, Direction des Constructions Navales Services (DCNS) in 2005 for US \$3.5 billion under which it was required to provide design and technology to the public sector Mazagon Docks at Mumbai, with an option to build six more. The first submarine of this class INS Kalvari (Tiger Shark) is likely to enter service by end of this year on completion of harbor and sea trials. IN is expecting to complete sea trials of the second submarine nine months later and induct it in service by end of 2017. The hulls of remaining four submarines have been cast with plans to complete the program by the year 2020. The program has lagged behind by many years as submarines of this type in most other navies which

were contracted around the same time are nearing mid-life major refits.

The disclosure of sensitive information spanning over 22,400 pages is a gushing leak by any standards and covers many areas. The newspaper has claimed to be in possession of ten types of secret information which compromises the project and includes stealth capabilities of Scorpene class submarines, its various intelligence gathering frequencies, noise levels at different speeds, diving depths, range and endurance, magnetic, electromagnetic and Infra-red data, specifications of torpedo launch system, and combat system, speed and conditions for use of periscope, propeller noise specifications, radiated noise on surface and weapons data.

DCNS and IN have both acknowledged that data has been leaked and pointed fingers at its competitors - Mitsubishi Heavy Industries (MHI)/ Kawasaki Shipbuilding Corporation (KSC), and the German company ThyssenKrupp AG (TKMS). DCNS won a lucrative US \$38 billion Australian contract (the largest single undertaking in country's history) for construction of twelve Short Fin Barracuda Block 1A type submarines which is a diesel-electric derivative of DCNS's Barracuda class nuclear attack submarines

in service with the French Navy. The French government has 64 % stakes in DCNS while remaining shares are held by various commercial and private firms. There is now a growing trend among submarine operating navies all over the world to prefer customization of their boats for reasons of cost and performance. In a complex project like submarine construction, where information pertaining to platform has to be exchanged for integration purposes, this carries significant risks for leakage of sensitive information as probably has happened in this case and therein lie some lessons to be learnt.

The secret stealth capabilities mentioned in the leaks pertain to acoustic signatures of Scorpene submarine and are determined by such inputs as its self-noise level, propeller configuration, underwater speed regime, noise generated by onboard machinery and acoustic dampening techniques employed both inside the submarine and on the hull. The harmonics of a submarine are not a constant. They vary from vessel to vessel and change after every major refit, so the figures have to be measured afresh with special equipment on different occasions.

Like all diesel-electric submarines, Scorpene needs to come to periscope

depth at least once in 24 every hours to re-charge its batteries using diesel engines which increases risks of detection of its snorkel by aerial surveillance and increased radiated noise levels of diesel engines can be picked up by sonar arrays. The ratio between time of vulnerability and total operating time, known as 'indiscretion rate', is around 10% for conventional submarines.

To stay underwater for longer periods and lessen its vulnerability, Scorpene submarines, like Pakistan Navy Agosta 90-Bs, can be equipped with an air independent propulsion system (AIP) but it increases length of the vessel by eight meters tonnage by nearly 300 tons. IN has planned this modification for fifth and sixth construction and is considering an indigenous system developed by Defence Research and Development Organization (DRDO).

The Scorpene submarines are known to be quieter due to different hull construction and placement of onboard machinery according to methodology used in nuclear submarines. The redacted noise data in the leaks is a function of submarine speed. Navies spell out decibel limits for noise at various speeds to the manufacturer as an important requirement. Knowing how much noise a submarine makes underwater and on what frequencies, can be very advantageous tactically. The kind of information contained in these leaks has been described by some experts as the 'stuff of a navy's nightmare'. India's claim of its ability to 'tweak the fundamentals of designs' in complex constructions like submarine appear exaggerated.

The data about propeller noise is generic but serves as a good reference. Once in operation, every propeller generates its own harmonics of

noise at different speeds and depths and varying bathy conditions. The Scorpene submarines are fitted with 'cavitation meters' to measure noise level to help ascertain most suitable profile for silent loitering. Noise management, however, loses its significance in a hot tactical situation requiring timely positioning for an attack before the targets away.

The information pertaining to Electromagnetic Support Measures (ESM) – operating in a frequency range of 0.2 to 40 GHz is not new as it is standard in most part of the world, so are the specifications of navigational radars. In any case it would be a death knell for a submarine to transmit on any of its emitters in war - complete silence is therefore one thing which is practiced all the time in peace time.

The information on electromagnetic and infra-red would also serve as a good base reference though the Indian Navy has an underwater demagnetization range at Goa and the leaked figures would almost certainly change after demagnetization. Pakistan Navy has extensive experience of Magnetic Anomaly Detector (MAD) runs by its LRMP (Long Range Maritime Patrol) aircraft over submarine probability areas and it should be an interesting contest when Indian Scorpene starts exercising in the Indian Ocean from next year.

India has procured 36 MBDA SM-39 Exocet anti-ship missiles to arm its Scorpene submarines (six for each unit). It is launched from a torpedo tube in a water-tight launcher capsule. It breaks surface at angle to ensure very low culmination altitude for a sea-skimming, inertial navigation system assisted, autonomous flight profile till its active RF seeker acquires the target.

This weapon system, designed to attack small to medium size warships, has been in use with Pakistan Navy for years. The leaked data is interesting since it reflects on number of targets the missile is capable of processing, its launch details and how many targets could be downloaded by its Submarine Tactical Integration Combat System (SUBTICS) before firing. This is something which should be genuinely worrisome for IN. Interestingly it contradicts Indian defence Minister's earlier statement that no weapon system details were revealed. The good news for India however is that 'source code' of SUBTICS has not been compromised or at least not yet leaked if it has been.

The Exocet causes extensive superstructure damage to a warship and can knock it off operation, but rarely sinks it. On the other hand, a ship hit by an underwater torpedo containing much larger quantity of explosives, rarely survives the attack. India cancelled procurement of Black Shark torpedo for its Scorpene submarines from Italian firm WASS after a VVIP helicopter bribery scandal surface in the country in the recent past. From intelligence point of view, as and when it selects a new torpedo and integrates it with SUBTICS, only then the 'loaded' specifications of its combat system would be useful.

Without a torpedo as its main anti-ship weapon, a submarine might as well be the Beatles version of 'Yellow submarine' – a culturally empty song of the 1960s - devoid of real sting. But this is certainly not to suggest any complacency. At 22,400 pages, the sheer volume of Scorpene submarines leaks is so huge that a thorough scrutiny is an absolute imperative. ☒☒



## Naval Chief reviews combat readiness at Creeks Area

Chief of the Naval staff, Admiral Muhammad Zakauallah visited forward posts of Pakistan Navy at Creeks Area to review the combat readiness. The Admiral was accompanied by Commander Coast, Rear Admiral Waseem Akram.

The Naval Chief visited various naval posts in Creeks Area and observed the operational readiness of the troops deployed on forward bases. While interacting with PN personnel, the Naval chief lauded their level of motivation and determination

to safeguard the maritime frontiers of the country. He also urged them to come up to the expectations and confidence which their countrymen have put into them. Admiral reiterated that Pakistan Navy is fully capable to hit back with all its might if the war is imposed.

The Admiral also visited Fleet Headquarters Karachi where he was briefed by Commander Pakistan Fleet about the operational matters and highest state of vigil being maintained at sea frontiers. ☒☒





# Pakistan Navy's 8<sup>th</sup> Command take over of

# CTF-151



Pakistan Navy has taken over the Command of Multinational Combined Task Force 151 (CTF-151) for the 8<sup>th</sup> time from Republic of Korea (RoK) Navy. Change of Command ceremony was held at HQ US NAVCENT, Bahrain. Commodore Muhammad Shuaib, took over the Command from Rear Admiral Nam Dong Woo, of the RoK Navy. Vice Admiral Kevin M Donegan, Commander US Naval Force Central Command and Commander Combined Maritime Forces presided over the ceremony. A number of distinguished military and civilian dignitaries, Ambassadors of Pakistan and Republic of Korea and senior officers from other Navies forming the coalition were also present at the occasion.

Speaking on the Occasion, PN Commander Combined Task Force-151 Commodore Muhammad Shuaib said that we are passing through uncertain and unpredictable times, where diverse threats are posed to the seagoing community at the high seas. Piracy, although low at the

moment, continues to present an intricate and extraordinary threat, that still impact the freedom of navigation, trade, global security and stability and no one nation alone can resolve this menace, as piracy is a shared challenge which can only be addressed through collaborative international efforts.

He assured that his team is fully prepared to shoulder this challenging responsibility as part of Pakistan's contribution towards the safety and security of the oceans. CCTF-151 also lauded the outgoing RoK Navy R.Adm Nam Dong Woo and reaffirmed his resolve to continue operations with same zeal and zest. He also highlighted that relations between Pakistan Navy and coalition partners continue to strengthen due to our shared objectives, goals and commitment. All nations have a shared vision of peace and stability across the region and the world.

Incumbent CCTF-151 further added that we, in Pakistan Navy, value the trust and confidence reposed in us by our coalition

friends and partners. We also take this opportunity to assure the regional and international community that we will continue to promote peace and stability.

CTF 151, a multinational Task Force, is responsible for counter piracy operations off the coast of Somalia and Horn of Africa under the overall ambit of Combined Maritime Forces (CMF). Pakistan Navy in the backdrop of a UN Security Council resolution joined CTF-151 in year 2009 to combat piracy and since then is an integral part of it. Pakistan Navy has previously commanded this multinational Task Force seven times.

Pakistan has remained forthcoming and committed in the fight against terrorism and piracy in the face of heavy odds. As a responsible state, Pakistan is playing a pivotal role for maritime security and stability in the region. The near permanent presence of Pakistan Navy units in the Area of Responsibility (AOR) has greatly helped in shaping a secure environment for freedom of navigation in the region. ❖❖



## National Assembly Standing Committee on Defence visits Pakistan Navy



A delegation of National Assembly Standing Committee on Defence, headed by Mr. Shaikh Rohale Asghar, undertook a 3 days visit to facilities and installations of Pakistan Navy at Karachi and coastal areas.

At Karachi, the delegation visited Pakistan Navy Dockyard, Karachi Shipyard & Engineering works and Headquarters Pakistan Maritime Security Agency. During the visit, briefings were given to the Committee on the emerging contemporary challenges in the region, Pakistan Navy's role in safeguarding the country's maritime interests and role/tasks of various PN Commands. The Committee was also briefed on the ship & submarine repair capabilities and indigenization programmes of Pakistan Navy.

Later, the Committee undertook detailed visit of Jinnah Naval Base at Ormara, where they were briefed on various developmental projects. Besides, the Committee was also briefed on Pakistan Navy's contributions towards nation building through initiatives for special empowerment of coastal communities residing along the Makran Coastal belt. During visit of the Cadet College Ormara, where 50% of the cadets are from Balochistan and their education is free, the Committee members were apprised about the quality education and training being provided to the cadets. Similarly, during the visit of 100 bed hospital PNS DARMAAN JAH, the Committee was briefed about the quality health care facilities afforded to the local population in addition to PN personnel. The

Committee also visited Gwadar port where it was briefed on the importance of Gwadar port for the CPEC project and the effective measures PN has taken for the maritime security of the port and its seaward approaches. The Committee also witnessed the exercises of Pakistan Navy at sea off Gwadar onboard PN Ship ZULFIQUAR.

On the occasion, the Chairman National Assembly Standing Committee on Defence showed satisfaction over the operational preparedness of Pakistan Navy for protection of CPEC and Gwadar port projects. The Committee assured its full support to PN for its future developmental plans in order to safeguard maritime interests of Pakistan in the Indian Ocean Region. ☒☒

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Cyber hacking has become a nightmare threat for governments and corporations across the world. Rarely a day now passes without reports of some form of cyber attack on websites and the IT systems of major institutions. While some are designed to make political statements, extort money, or just hoaxes, some have even darker intent and present clear and present dangers to us all.

The speed with which technology has evolved, and the extraordinary ability and sophistication of hackers – institutional, cyber criminals and random hackers – to crack complex firewalls, is alarming. This presents a potential threat not only for Pakistan. It is a global challenge. International cyber security experts have long warned of the potential for cyber attacks on utilities, telecommunications and IT services yet still not enough is done in prevention.

Utilities are increasingly identified as a vulnerable component of national security. Governments in many countries have reported cyber

attacks on critical systems and have security and response procedures in place for any eventuality. Bringing a nation's electricity grid to a prolonged halt would cause immense chaos and potentially, loss of life. However, security experts seem to agree that many countries and their utility services are not fully prepared for such attacks.

One of the most publicized recent attacks on critical utilities infrastructure was in the Ukraine in 2015. The authorities discovered that the firmware on 16 of the substations had been overwritten by BlackEnergy malware making them unresponsive to remote operator commands. Although the outage lasted only six hours, it took months to restore and rebuild large sections of the IT infrastructure. There is no certainty as to identity of the instigators of this attack but suspicions fell on another country. The attack on the Ukraine's utilities infrastructure is a wake-up call for all countries and perhaps a harbinger of things to come. Should such an attack happen against the United States, the

problem would be more extreme.

For developed countries this is a huge potential threat because of the massive reliance on automated technology and fewer systems for manual back-up functionality. For Pakistan, which is still less dependent on technology, and perhaps more resilient to challenges, the risk is still extremely high. Load shedding is part of life in Pakistan. But what if Pakistan really found itself in the dark across the whole nation for a prolonged period of time? This would have the potential to create enormous chaos. Although electricity grids do suffer major crashes from time to time due to engineering failure or massive weather events, the threat from cyber attacks is potentially much greater.

The components of potential chaos caused by a coordinated cyber attack on the national power utilities are extensive. In a worst-case scenario, the affected country would be in the dark, possibly for many days. Many utilities and buildings have back up generators but these

would eventually fail in a prolonged outage. Traffic would be jammed as traffic lights go down causing chaos and accidents. Hospitals would struggle to cope as life-saving machines fail. Water and sewerage services would be affected as the technology at pumping stations shut off. Fuel stations would close bringing transport to a halt within days. Telecommunications and computers systems would shut down. Aviation would be grounded as fuel becomes scarce and air control systems would fail without backup power. Food supplies would be heavily impacted, leading to the possibility of food riots. Banks would close. The stock exchange would crash. The damage to technology infrastructure would take months, even years, to repair and reprogram. The economic impact would be significant. This may seem to be the 'doomsday scenario' but the reality is, that it could happen.

Telecommunications and IT infrastructure are also potentially vulnerable to cyber attacks as we saw when IT infrastructure company Dyn was attacked with a Distributed Denial of Service (DDOS) taking sites for Twitter, Spotify, CNN and the New York Times offline temporarily. That hackers can take control of the websites of some of America's largest companies is again, a warning that hacks can wreak havoc if security systems do not keep up with the capability of hackers to break through firewalls. Even the Pentagon has been hacked as have the Democratic Party, Sony Pictures, Visa and Mastercard, Yahoo, PayPal and the US Postal Service. Preventing cyber attacks is no easy task particularly when it is a highly organized group working to a particular playbook.

Given the attempts of a neighbouring country to isolate Pakistan through any mean should the Pakistan be concerned? Of course. India's Prime Minister Modi appears to be obsessed with destroying Pakistan through any means. His attempts to do so yet again – this time at the recent BRICS gathering in Goa – fell on deaf ears and he was publicly rebuffed by the President of China Xi Jinping. This was quite a slap for PM Modi.

The speed with which technology has evolved, and the extraordinary ability and sophistication of hackers – institutional, cyber criminals and random hackers – to crack complex firewalls, is alarming.

Having failed, despite vitriolic attacks at BRICs and every international forum, Pakistan can expect other insidious efforts by Modi and his apparatchiks to weaken the country by whatever means. The so-called 'surgical strike' drew suspicion and derision from the public in India, and also the international community. The horrific violence being inflicted by Indian security forces on the people of Indian Occupied Kashmir has now received wide international coverage and condemnation.

Identifying the internet and cell system as a weakness in their attempts to crush the Kashmiris,

and to keep the world in the dark about what is happening, the Indian authorities took down the internet and telephone communications in Kashmir. Yet still the story got out through the courage of the Kashmiris. Pakistan stood firm in support of the people of Kashmir and took their story to the UN and foreign governments. Losing control of the narrative was yet another failure by the Indian authorities in their attempts to control Kashmir, weaken Pakistan, and influence events in the region by every possible means. However, the category of all types of potential threats is unlikely to recede any time soon.

The security services are aware of the cyber threats to Pakistan and ever vigilant. Although the "Prevention of Electronic Crimes" act was passed in 2015, legislates for taking action against local perpetrators, it cannot stop external cyber attacks on any sector. As we've seen in the United States and Europe, even the most sophisticated systems can be attacked if constant attention is not paid to the security of IT infrastructure systems and to keep up with the abilities of cyber hackers.

It is not just the responsibility of the authorities and security agencies; it is the responsibility of all institutions and organisations to take steps to protect their systems and data. This requires significant investment in training and systems and constant research on the global cyber warfare and crime situation and increasingly sophisticated abilities of those who would bring down an entire system to harm a country. Failure to do so could see Pakistan and its citizens left at the mercy of the dark side of the cyber world. ❌❌

# 12<sup>th</sup> Chief of the Naval Staff Squash Championship

Besides the primary mission of safeguarding the maritime frontiers of the country, Pakistan Navy has significantly contributed in organizing International and National sports events in the country. Organizing of sports events like Golf, Hockey, Shooting, Squash and Sailing regatta are some of the hallmarks of Pakistan Navy's campaign in promoting healthy sports culture in the country.

In the same context, Pakistan Navy has been organizing CNS International Squash Championship since last 16 years to keep the legacy of Squash alive.

12<sup>th</sup> Chief of the Naval Staff International Squash Championship was held at Mushaf Squash Complex, Islamabad from 15-22 October 2016 under the auspices of Pakistan Navy. The prize money for the championship was \$25,000. The championship commenced with the

pre-qualifier and qualifier matches, followed by final round. A total of 48 players including 15 of International ranking from Australia, Egypt, Jamaica, Jordan, Netherland, Newzealand, UAE, USA and Wales participated in the tournament. The final match of the tournament was played b/w Omar Abdel Meguid (World No.28) and Zahed Mohamed (World No.30). Both the finalists were from Egypt. Zahed Mohamed (World No. 30) won the match and was declared the Champion.

Chief of the Naval Staff, Admiral Muhammad Zakauallah was the Chief Guest of the closing ceremony of the Championship.

While addressing the ceremony, the Secretary Pakistan Squash Federation said that Pakistan Navy has a long association with Squash. He expressed his gratitude to Admiral Muhammad Zakauallah, Pakistan Squash

Federation, all the sponsors and participants due to whom the event became a success. Later, Chief of the Naval Staff Admiral Muhammad Zakauallah gave away the prizes to the winners and congratulated them for their hard work and achievement.

The smooth conduct of the event with the participation of foreign players would surely be instrumental in holding bigger tournaments in Pakistan in future.

Air Chief Marshal Sohail Aman, Chief of Air Staff and President of Pakistan Squash Federation was also present at the ceremony and witnessed the final match. Besides senior Naval Officers, Legend Squash players Qamar Zaman, Jahangir Khan and officials of Pakistan Squash Federation also attended the ceremony. ❖❖



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# HEALTHY DIET

Developing healthy eating habits isn't as confusing or as restrictive as many people imagine. The essential steps are to eat mostly foods derived from plants, vegetables, fruits, whole grains and legumes (beans, peas, lentils) and limit highly processed foods.



## **Consume a variety of Foods**

Not all the nutrients and other substances in foods that contribute to good health have been identified, so eating a wide assortment of foods helps ensure that we get all of the disease-fighting potential that foods offer. In addition, this will limit our exposure to any pesticides or toxic substances that may be present in a particular food.

## **Keep an eye on portions**

Sure, you can eat all the broccoli and spinach you want, but for higher-calorie foods, portion control is the key. In recent years, serving sizes have ballooned. In restaurants, choose an appetizer instead of an entree or split a dish with a friend. Don't order anything that's been "supersized." When reading food labels, check serving sizes: some relatively small packages claim to contain more than one

serving, so you have to double or triple the calories, grams of fat and milligrams of sodium if you're planning to eat the whole thing.

## **Eat plenty of Vegetables/ Fruits**

Aim for 2½ cups of vegetables and 2 cups of fruit a day, for a 2,000-calorie diet. If you consume more calories, aim for more; if you eat fewer than 2,000 calories, you can eat less. Include green, orange, red, blue/purple and yellow produce. The nutrients, fiber and other compounds in these foods may help protect against certain types of cancer and other diseases. Legumes, rich in fiber, count as vegetables, though are moderately high in calories. Choose whole fruits over juice for more fiber. Frozen and canned fruits and vegetables are good options.

## **Get more whole Grains**

At least half your grains should be

whole grains, such as whole wheat, barley and oats. Whole grains retain the bran and germ and thus all (or nearly all) of the nutrients and fiber of the grain. Look for a product labeled "100% whole wheat" or "100% whole grain." If it doesn't say that, look for a whole grain listed as the first ingredient, though there still may be lots of refined wheat (also called "white" or "enriched" flour) and/or sugar.

## **Limit refined grains, Added Sugar**

The refined carbohydrates in white bread, regular pasta and most snack foods have little or no dietary fiber and have been stripped of many nutrients. On food labels, watch out for "wheat flour" (also called "white," "refined" or "enriched" flour) on the ingredients list. Also, limit foods with added sugar, such as soda and candy. These are sources of empty calories that contribute to weight gain. Many



sugary foods are also high in fat, so they're even more calorie-dense.

### **Enjoy more Fish and Nuts**

Nuts, fatty fish, avocados and vegetable oils supply healthy unsaturated fats. Recent research suggests these foods, though high in calories, tend not to promote weight gain because they are satisfying. Still, it's best to eat them in place of other high-calorie foods. For instance, substitute olive or canola oil for butter. Fatty fish helps reduce heart disease risks and has other benefits, largely because of its omega-3 polyunsaturated fats.

### **Cut down on animal Fat**

Saturated fats, especially from red meat and processed meat, boost LDL ("bad") cholesterol. To limit your intake, choose lean meats, skinless poultry and nonfat or low-fat dairy products. It's also a good idea to replace saturated fats with "good" fats, found in nuts, fish and vegetable oils, not with refined carbohydrates such as white bread and snack foods.

### **Reduce Trans Fats**

Trans fats are supplied by partially hydrogenated vegetable oils used in many processed foods (such as commercial baked goods, snack foods and stick margarines) and fast foods (such as French fries). Trans fats raise LDL ("bad") cholesterol and also reduce HDL ("good") cholesterol, increasing the risk of heart disease.

### **Don't worry about Cholesterol**

Though a 300-milligram daily cap on cholesterol intake has long been advised, there's abundant evidence that cholesterol in food has little, if any, effect on blood cholesterol in most people. Thus, many experts

no longer recommend limiting dietary cholesterol (found only in animal foods, notably eggs and shrimp). The best way for most people to lower their blood cholesterol is to reduce saturated fats (as in meats) and trans fats (from partially hydrogenated oils in processed foods). A possible exception is people with diabetes, who should talk to their doctor about their overall diet.

### **Keep Sodium down, Potassium Up**

Excess sodium raises blood pressure in many people and has other harmful effects. People over 50, with hypertension, diabetes or chronic kidney disease should limit sodium to 1,500 milligrams a day (about two-thirds of a teaspoon of salt). Everyone else should aim for less than 2,300 milligrams a day. At the same time, consume more potassium, which lowers blood pressure. Potassium-rich foods include citrus fruits, bananas, potatoes, beans and yogurt.

### **Watch your Calcium and Vitamin D**

These nutrients are vital for bone health. Get calcium from low-fat or nonfat dairy products and fortified foods such as some orange juices and soy drinks. If you can't get 1,000 to 1,200 mg a day from foods, take a calcium supplement. It's hard to consume enough vitamin D from foods, and getting it from sunlight is risky. Many people — especially those who are over 60, live at northern latitudes or have darker

skin—may need a D supplement (800 to 1,000 IU a day).

### **Choose food over Supplements**

Supplements cannot substitute for a healthy diet, which supplies countless other potentially beneficial compounds besides vitamins and minerals. Foods also provide the "synergy" that many nutrients require to be efficiently used in the body. Still, for many people a basic multivitamin/mineral pill can provide some of the nutrients they may fall short on. In addition, many people need calcium as well as vitamin D supplements to meet recommended intakes.

### **Be aware of Liquid Calories**

Beverages supply more than 20 percent of the calories in the average individual's diet. Some liquid calories come from healthy beverages, such as milk and 100 percent fruit juice. But most come from soda and other sweetened beverages and alcoholic drinks, which have lots of calories yet few, if any, nutrients. Soft drinks are a major source of sugar and calories for many individuals, especially children. Though natural juices are more nutritious than soft drinks, it's also high in calories, so most people should drink no more than one cup a day. ☒☒



# Augmenting the bilateral relations...

## Turkish Navy Ship visits Pakistan

Turkish Navy ship TCG BUYUKADA arrived Karachi for goodwill visit. The visiting ship was accorded a warm welcome and received by senior officials of Pakistan Navy and Turkish Embassy Staff. During the stay at Karachi, the officers and men of the ship held professional interaction with counterparts from Pakistan Navy on the subjects of mutual interest. Turkish Navy officers and personnel also visited various operational and training units of Pakistan Navy and participated in different operational and training activities.

Chief of the Naval Staff, Admiral Muhammad Zakaullah also visited Turkish Navy Ship and held detailed discussion on professional matters with Turkish Mission Commander and appreciated the operational competence of the Turkish Navy.

The Naval Chief said that Pak-Turk friendship is highly valued and the strong momentum of cooperation between them has always proved to be a source of strength for both the countries. The Naval Chief interacted with the officers and crew



onboard TCG BUYUKADA. During the visit high officials of Turkish Embassy were also present.

A bilateral naval exercise was also conducted between the Turkish and Pakistan Navy at North Arabian sea with an aim to enhance interoperability and contribute towards regional maritime

security. The exercise covered a number of serials including Anti Air Warfare Operations, Communication Drills and Joint Maneuvers by the participating surface ships, aircraft and helicopters from both the sides.

Deputy Chief of the Naval Staff (Operations), Vice Admiral Zafar Mehmood Abbasi and Commander Pakistan Fleet, Vice Admiral Arif Ullah Hussaini along

with Turkish Mission Commander witnessed the exercise onboard the Turkish Ship BUYUKADA.

Pakistan and Turkey enjoy close and warm relations of brotherhood and friendship, which are based on strong foundation of commonality of faith and interests. Naval Forces of both countries have played a pivotal role in strengthening bilateral bonds

of friendship through good will visits. Such interactions enhance understanding and interoperability between the two navies, which also contribute towards achieving peace and stability in the maritime commons.

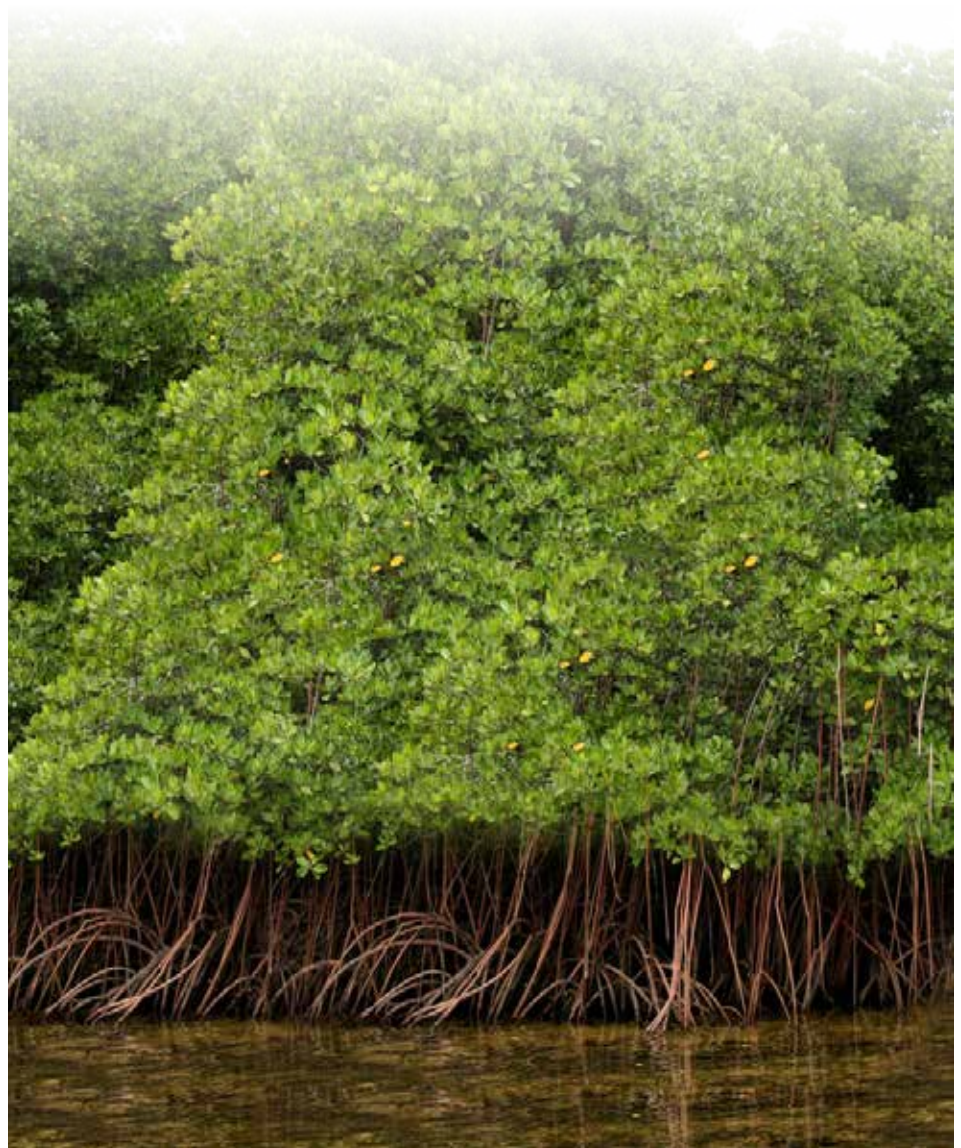
The visit of TCG BUYUKADA will further enhance the defence ties and maritime collaboration between the two brotherly countries. ☒☒



# Mangroves & their role as agents against Coastal Erosion

*Captain Sohail Ahmad Azmie PN*

Francois Doumenge, in his article 'Mankind belongs to the sea', mentions that about 65% of cities with an average 2.5 million population each are located on the seashores. He suggests that the world's coastal areas will be home to about 70% of the total human population in near future. This means that seas are central to human existence, but at the same time they could pose dangers to that massive population that lives on shores if some safeguards are not taken to protect the land that the seas might consume. It is estimated that if sea ingress is not checked, then Karachi, Badin and Thatta face a grave threat of sinking by 2060. One of the elements that help keep the coasts safe from sea water inflow is the mangroves. Covering an area nearly 50,000 square kilometres and spanning nearly 120 countries, the mangroves are essentially plants on the coast like a 'soldier on the wall' guarding the land against salt water influx from sea. With their unique ability to stand strong against the wave energy and exceptionally high salt contents, they are also called halophytes – i.e. plants that grow and remain alive in a high salt region. Mangroves' roots system slows down the incoming water at the time of high tides. Sediments of the sea water are deposited at the mangroves' roots and are washed away once the tides ebb. Due to their role in marine ecosystem and the natural protection they provide against erosion, mangroves must be made a part of biodiversity and



conservation programs that are taking place in Pakistan.

Spread over a length roughly 150 km, Indus Delta mangroves form an important part of marine ecosystem that concerns Pakistan. Mangroves in Indus Delta are said to be 'saltier' than any other form of the same plant found elsewhere in the world. These Deltaic mangroves receive salt from both directions: salt brought with it from the Thar Desert by Indus River and the other salt given by the waves of Arabian Sea. The Deltaic mangroves are diminishing at a higher rate – especially in the last 3 decades. The reason is simple: lower outflow of Indus River because of its excessive use for irrigation and the increasing level of marine pollution. A study suggests that Indus River's freshwater flow is down by 90% compared to its usual levels couple of decades ago. With slow freshwater flows, the sea water intrudes upstream by about 80 km; formidably affecting both mangroves and cultivable land. Overall, the impact is higher sea levels and coastal erosion. This is practically visible in areas of Keti Bandar, where nearly 20 km landward area appears to have been affected by coastal erosion.

Mangroves found in Indus Delta are mainly 'grey mangroves', known in Taxonomy as *avicennia marina* and cover an area of about 820 square kilometres. These plants are home to large quantities of shrimps, mud lobsters and crabs. Among the land animals, a unique type of cat called *prionailurus viverrinus* is found in the mangroves, which has already been declared as an 'endangered specie'. Flamingos and pelicans are the type of birds

that are usually found in the Indus Delta region, whereas, according to Mark Spalding's book 'World Atlas of Mangroves', nearly 60,000 birds from the temperate regions of the Northern hemisphere spend winters in the Indus Delta.

Sensing the dangers of depletion Wimpact on coastal erosion, Pakistan started a campaign in 1985 in cooperation with International Union of Conservation of Nature (IUCN) to plant mangroves saplings. The effort, however, was not truly result-oriented and only an area of 50 square kilometres was planted. Nonetheless, in a similar campaign on 22 June 2013, nearly 750,000 mangrove saplings were planted making it a world record. The need is now felt to increase the momentum of this effort. Following Prime Minister's initiative of 'Green Pakistan', Chief of the Naval Staff has launched a 'Pakistan Navy - Mangroves Plantation Campaign (PN-MPC)'. In this campaign, which was launched on 21 March 2016, Pakistan Navy envisioned to plant 1 million mangrove saplings all along Pakistan's coast and successfully exceeded the set target. MPC is a comprehensive campaign and orchestrated jointly by Sindh & Balochistan Forest Departments and IUCN.

Pakistan Navy has always played its part in protection of marine ecosystem and conservation of the environment. It is alive to the dynamicity of global climate change and its impact on our lives. MPC is one of those initiatives that the Navy has self-imposed upon itself and is all prepared to participate in the national cause very meaningfully. ☒☒

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